## City of Lacey Shoreline Master Program

September 8, 2011

Revised April 9, 2015

## **CITY OF LACEY MISSION**

Our mission is to enrich the quality of life in Lacey for all our citizens. To build an attractive, inviting, and secure community; We pledge to work in partnership with our residents to foster community pride, to develop a vibrant, diversified economy, to plan for the future, and to preserve and enhance the natural beauty of our environment.

Picture of the open house held January 2010 at Lacey City Hall to review the draft Lacey Shoreline Master Program developed by the Lacey Planning Commission and to kick off an effort to update the City's Comprehensive Plan for Outdoor Recreation. Over 100 citizens participated in the event.

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Photographs taken by David R. Burns, AICP, Principal Planner, unless noted otherwise.

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# PART ONE

GENERAL PROVISIONS, FRAMEWORK, DEFINITIONS, JURISDICTION AND ENVIRONMENTAL DESIGNATIONS, TABLES FOR USE, STANDARDS AND MODIFICATIONS, NONCONFORMING USES, PERMITS, RELATIONSHIP TO OTHER LAND USE REGULATIONS



View of wetland system south of Hicks Lake. This wetland was dedicated to the City of Lacey by Boston Harbor Land Company when the Southlake plat was developed. The dedication puts the wetland and its associated 200 foot buffer under City ownership for long term preservation. The dedication also provided the opportunity to establish a section of trail around the outside of the wetland buffer for limited public access to this resource.

### **17.10.000 General Provisions**

- 1. All development and use of shorelines of the state shall be carried out in a manner that is consistent with this SMP and the policy of the Act as required by RCW 90.58.140(1), whether or not a shoreline permit or statement of exemption is required.
- 2. No use, land or water alteration, or development shall be undertaken within jurisdiction of the Shoreline Management Act by any person without first obtaining a permit, except the Administrator may issue a letter of exemption from a substantial development permit under Section 17.30.030.
- 3. Permit processes and fees related to implementation of this Shoreline Master Program (SMP) are contained within the City's Development Guidelines and Public Works Standards (DGPWS). The processes outlined in the City DGPWS follow the requirements of state law and provide a local process for implementation of Lacey's Shoreline Master Program.

## 17.10.005 Authority

Authority for enactment and administration of this Shoreline Master Program (SMP) is the Shoreline Management Act of 1971, Chapter 90.58, Revised Code of Washington (RCW), also referred to herein as the "SMA". All SMPs must satisfy the requirements of Chapter 173-26, Washington Administrative Code (WAC), State master program approval/amendment procedures and master program guidelines, and Chapter 173-27 WAC, Shoreline permitting and enforcement procedures.

## 17.10.010 Title

This document shall be known and may be cited as the "City of Lacey Shoreline Master Program."

## 17.10.015 Short Title

This document may be referred to herein as the "SMP," or the "master program."

## 17.10.017 Intent and Framework

#### 1. Three pillars provide the framework:

The state Shoreline Management Act was adopted by the voters in 1972. It demonstrated a broad public support for the wise management of the state's shoreline resources. There are three pillars of the Act that provide the fundamental concepts implemented in this Shoreline Master Program (SMP). These are:

- A. Protection of environmental functions and values of our shoreline resources;
- **B.** Prioritizing the use of shorelines dependent upon the need to be located on shorelines (water dependant use);

#### C. Public access and public use and enjoyment of shoreline resources.

#### 2. Fundamental Goals of the Shoreline Management Act:

The Shoreline Act's policy of protecting ecological functions, fostering reasonable use and maintaining the public's right of navigation, access and corollary uses encompasses the following general goals:

- A. Goal: The use of shorelines for economically productive uses that are particularly dependant on shoreline location or use (RCW 90.58.020);
- **B.** Goal: The use of shorelines and waters they encompass for public access and recreation (RCW 90.58.020);
- C. Goal: Protection and restoration of the ecological functions of shoreline natural resources (RCW 90.58.020);
- **D.** Goal: Protection of the public right of navigation and corollary uses of waters of the state (RCW 58.020);
- E. Goal: The protection and restoration of buildings and sites having historic, cultural and educational value (RVW 90.58.100);
- F. Goal: Planning for public facilities and utilities correlated with other shoreline uses (RCW 90.58.100);
- G. Goal: Prevention and minimization of flood damage (RCW 90.58.100);
- H. Goal: Recognizing and protecting private property rights (RCW 90.58.020);
- I. Goal: Preferential accommodation of single family uses (RCW 90.58.020);
- J. Goal: Coordination of shoreline management with other relevant, local, state and federal programs (RCW 90.58.020).
- 3. Shorelines of Statewide Significance and Fundamental Policies:
  - **A.** Shorelines of Statewide Significance: The Shoreline Management Act identifies certain shorelines as "shorelines of statewide significance" and raises their status by setting use priorities and requiring "optimum implementation" of the Act's policy.
  - **B. Preference for Use:** In accordance with RCW 90.58.020 Shorelines of the State which are defined as Shorelines of Statewide Significance shall be given preference to uses, in the following order of priority:
    - 1) Recognize and protect the state-wide interest over local interest;
    - 2) Preserve the natural character of the shoreline;
    - 3) Result in long-term over short-term benefit;
    - 4) Protect the resources and ecology of the shoreline;

- 5) Increase public access to publicly-owned areas of the shorelines;
- 6) Increase recreational opportunities for the public on the shoreline;
- 7) Provide for any other element as defined in RCW 90.58.100 deemed appropriate or necessary.

#### 4. Summary of Fundamental Goals and Policies for Lacey's Shoreline Master Program:

These goals and policies provide the framework for development of Lacey's Shoreline Program and compliance with state requirements.

- A. Goal: Provide an opportunity for public participation in the update of the Shoreline Master Program to help identify key issues for Lacey, develop a program meeting state and local objectives and achieve community support for the wise management, protection, restoration and use of Lacey's shoreline resources.
  - 1) **Policy:** Ensure the public has opportunity to provide early, continuous and meaningful input into development of Lacey's shoreline program and periodic updates and amendments.
  - 2) Policy: Look for and utilize a full range of approaches for educating and informing the public about shoreline management concepts that promote healthy shorelines, water quality, more productive habitat and other public interests.

## **B.** Goal: Identify functions and values specific to Lacey's shoreline resources to develop a program tailored to Lacey's needs that will provide protection, restoration and utilization of these resources.

- 1) **Policy:** Identify and designate each distinct shoreline reach with a classification based upon its function, values and public benefit.
- 2) Policy: Use the shoreline inventory to achieve the best utilization and management of Lacey's shoreline resources:
- 3) **Policy:** Base land use decisions on the shoreline designation and what is necessary to maintain shoreline functions and values and provide priority shoreline use to the public.
- 4) **Policy:** Designate and preserve those shorelines of this region which are notable for their aesthetic, scenic, historic or ecological qualities.
- 5) **Policy:** Preserve large, intact ecological systems such as floodplains, wetlands or tidelands.
- 6) **Policy:** Designate an adequate supply of land for future water-dependent or water-related uses.
- C. Goal: Develop a Shoreline Master Program that will achieve:
  - 1) Integration with the state Growth Management Act (GMA) to provide a long range community vision for the wise management and use of Lacey's shoreline resources over the long term;

- 2) Provide development standards designed to regulate and protect areas within shoreline jurisdiction as Lacey faces urbanization under GMA;
- 3) No net loss of ecological functions and restoration of impacted areas to protect and improve the public's long term interest in shoreline resources.
  - a) **Policy:** To provide consistent treatment of critical areas in shoreline jurisdiction, reference and apply critical area ordinance standards as part of the SMP.
  - **b) Policy:** Provide opportunities for land use form that will achieve GMA goals for urbanization, while providing superior opportunities for protection of shoreline processes and public access opportunities.
  - c) Policy: Design, locate and construct residential development in a manner that will: i. Maintain existing public access to the publicly-owned shorelines.
    - ii. Not interfere with the public use of water areas fronting such shorelines, and
    - iii. Not adversely affect aquatic habitat.
  - **d) Policy:** Adopt a full range of development standards and incentive opportunities to protect and achieve no net loss of existing shoreline ecological functions and processes.
- **D.** Goal: Achieve public access opportunities necessary to serve the needs of the Lacey community.
  - 1) **Policy:** Develop a public access plan that will use a full range of strategies and incentive program(s) approved by the Lacey Council to gain public access and acquire ownership of shoreline resources for the Lacey community.

# **17.10.020** References to Plans, Regulations or Information Sources

- 1. Where this Program makes reference to any RCW, or WAC, as amended and the current edition of other state, or federal regulations, shall apply.
- 2. Local Lacey plans and codes being referenced in this Shoreline Master Program include the following:
  - A. Title 14 of the Lacey Municipal Code (LMC): The Lacey Title on Buildings and Construction that includes Lacey's critical area ordinances and design review chapters, specific sections referenced include:
    - LMC Chapter 14.04, International Building and International Residential Code;
    - LMC Chapter 14.23, Design Review;
    - LMC Chapter 14.24, Environmental Policy;
    - LMC Chapter 14.28, Wetlands Protection\* (Ordinance 1466, 12/18/2014);
    - LMC Chapter 14.31, Zero Effect Drainage Discharge;
    - LMC Chapter 14.32, Tree and Vegetation Protection and Preservation\* (Ordinance 1269, 07/27/06);
    - LMC Chapter 14.33, Habitat Protection\* (Ordinance 1215, 11/06/03);
    - LMC Chapter 14.34, Flood Hazard\* (Ordinance 1265, 06/08/06);

- LMC Chapter 14.37, Geologically Sensitive Areas\* (Ordinance 1208, 08/18/03);
- B. Title 15 of the LMC: The Lacey Land Division Ordinance;
- C. Title 16 of the LMC: The Lacey Zoning Code;
- D. Development Guidelines and Public Works Standards (DGPWS)\*;
- E. The Lacey Comprehensive Land Use Plan developed under the State Growth Management Act (GMA) and all of its elements. Elements specifically referenced include:
  - City of Lacey and Thurston County Land Use Plan for the Urban Growth Area;
  - City of Lacey Housing Element
  - Environmental Protection and Resource Conservation Plan and its Urban Forest Management Plan;
  - Lacey Comprehensive Plan for Outdoor Recreation;
  - City of Lacey 2030 Transportation Plan;
  - Appendix 1 City of Lacey Public Access Plan
  - Appendix 2 Vegetation/Landscaping Examples and Guidelines
  - Appendix 3 Shoreline Environmental Designations
  - Appendix 4 Portions of the original Inventory and Characterization Report and Environmental Designations that apply to Lacey. For informational purposes the full report is provided in CD format in the slipcover of this appendix.
  - Appendix 5 Cumulative Impacts Report
  - Appendix 6 Shoreline Environmental Designations
  - Appendix 7 Referenced City of Lacey Ordinances Used in this Document

#### NOTES REGARDING REFERENCED DOCUMENTS:

\* denotes a reference considered by the Department of Ecology to be mandatory fulfilling an identified requirement of local SMPs and required to be identified by date of adoption and adopted version and attached as an appendix to the SMP.

References **not** identified by an \* are considered "loose" reference by the Department of Ecology and are not required to be adopted in an appendix.

Portions of the LMC referenced as a requirement of providing compliance with RCW 90.58.090(4) and the SMP Guidelines (WAC 173-26, Part III) and designated with an \* will be the version in effect at the time of adoption of the Shoreline Master Program and will not include amendments made to those Plans or sections of the LMC after the date of adoption. Pursuant to WAC 173-26-191(2)(b), amending the reference regulations in the SMP for those areas under shoreline jurisdiction will require an amendment to the master program and approval by the Department of Ecology.

Pursuant to a determination made by the Department of Ecology those ordinances "loosely" referenced will apply to shoreline areas when updated, but will not require amendment of the SMP.

## **17.10.025** Liberal Construction

As provided for in RCW 90.58.900, the SMA is exempted from the rule of strict construction; the SMA and this Program shall therefore be liberally construed to give full effect to the purposes, goals, objectives, and policies for which the SMA and this Program were enacted and adopted, respectively.

## 17.10.030 Severability

If any provision of this Program or its application to any person or legal entity or circumstances is held invalid, the remainder of the Program, or the application of the provision to other persons or legal entities or circumstances, shall not be affected.

The SMA and this SMP adopted pursuant thereto comprise the basic state and City regulations for the use of shorelines in the City. In the event provisions of this SMP conflict with other applicable City policies or regulations, the more restrictive shall prevail. Should any section or provision of this SMP be declared invalid, such decision shall not affect the validity of this SMP as a whole.

## 17.10.035 Amendments

Amendments to this SMP including changes to the mapped shoreline environment designations shall be processed per WAC 173-26.

## 17.10.040 Effective Date

This SMP and all amendments thereto shall become effective immediately upon final approval and adoption by the Washington State Department of Ecology (Department).

## 17.15.000 Definitions

#### 17.15.005 Shoreline Definitions - General

The terms used throughout this Program shall be defined and interpreted as indicated below. When consistent with the context, words used in the present tense shall include the future; the singular shall include the plural, and the plural the singular.

**17.15.011** Act or SMA. The Shoreline Management Act of 1971 (Chapter 90.58 RCW, as amended).

**17.15.012** Accessory Building, Structure or Use. A building, structure, part of a building or structure, or use which is subordinate to, and the use of which is customarily incidental to that of the main building, structure or use on the same lot.

**17.15.013** Administrator. That person as appointed by the City to administer the provisions of these regulations within the boundaries of the City of Lacey.

**17.15.014** Adoption By Rule. An official action by the Washington Department of Ecology to make a local government shoreline master program effective through rule consistent with the requirements of the Administrative Procedure Act, Chapter 34.05 RCW, thereby incorporating the adopted shoreline master program or amendment into the state master program.

**17.15.015 Agricultural Activities.** Agricultural uses and practices including, but not limited to: Producing, breeding, or increasing agricultural products; rotating and changing agricultural crops; allowing land used for agricultural activities to lie fallow in which it is plowed and tilled but left unseeded; allowing land used for agricultural activities to lie dormant as a result of adverse agricultural market conditions; allowing land used for agricultural activities to lie dormant as to lie dormant because the land is enrolled in a local, state, or federal conservation program, or the land is subject to a conservation easement; conducting agricultural operations; maintaining, repairing, and replacing agricultural equipment; maintaining, repairing, and replacing agricultural facilities, provided that the replacement facility is no closer to the shoreline than the original facility; and maintaining agricultural lands under production or cultivation. This definition of agricultural activities excludes "urban agriculture" as defined in LMC 16.06.747 and as outlined in City of Lacey Ordinance Number 1368, dated June 9, 2011.

**17.15.016 Amendment.** A revision, update, addition, deletion, and/or reenactment to an existing shoreline master program.

**17.15.017 Applicable Master Program.** The master program approved or adopted by the Department pursuant to RCW 90.58.090(6) or 90.58.190(4) prior to acceptance of a complete application by local government.

**17.15.018 Approval.** An official action by a local government legislative body agreeing to submit a proposed shoreline master program or amendments to the department for review and official action pursuant to WAC 173-26; or an official action by the department to make a local government shoreline master program effective, thereby incorporating the approved shoreline master program or amendment into the state master program.

**17.15.019** Aquacultural Practices. Include the hatching, cultivating, planting, feeding, raising, harvesting and processing of aquatic plants and animals, and the maintenance and construction of necessary equipment, buildings and growing areas. Methods of aquaculture include but are not limited to fish hatcheries, fish pens, shellfish rafts, racks and longlines, seaweed floats and the culture of clams and oysters on tidelands and subtidal areas. For the purposes of this SMP, this term does not

include associated peripheral activities such as staging areas, warehousing, processing, or packaging of products. These peripheral activities shall take place out of shoreline jurisdiction in appropriate commercial or light industrial zoning designation designed for these types of activities.

**17.15.020** Average Grade Level. The average of the natural or existing topography of the portion of the lot, parcel, or tract of real property which will be directly under the proposed building or structure: In the case of structures to be built over water, average grade level shall be the elevation of the ordinary high water mark. Calculation of the average grade level shall be made by averaging the ground elevations at the midpoint of all exterior walls of the proposed building or structure.

17.15.021 Backshore Marina. Refer to "Marina, Backshore".

**17.15.022 Beach.** The zone along the shoreline where there is continuous movement of sediment both laterally and vertically. This zone extends from the daily low tide mark to where the permanent line of vegetation begins, or where the topography abruptly changes.

**17.15.023 Beach Enhancement.** The alteration of terrestrial and tidal shorelines along with submerged shorelines for the purpose of stabilization, recreational enhancement or aquatic habitat creation, or restoration using native or similar material.

**17.15.024 Beach Feeding.** The introduction of sand or gravel to beaches to enhance recreation, wildlife or to preserve natural physical character of the shoreline.

**17.15.025 Bedlands.** Those submerged lands below the line of extreme low tide in marine waters and below the line of navigability of navigable lakes and rivers.

**17.15.026 Berm.** One or several linear deposits of sand and gravel generally paralleling the shore at or landward of OHWM; berms are naturally stable because of material size or vegetation.

**17.15.027 Bioengineering.** The practice of using natural vegetative materials (and often structural components) to stabilize shorelines and prevent erosion.

**17.15.028 Boardwalk.** A structure made of planks parallel to the waterfront or beach for non-motorized public access. A promenade with construction similar to a dock.

**17.15.029 Boathouse.** A structure designed for storage of vessels located over water or in upland areas.

17.15.030 Boat Ramp. See "Launch ramp".

**17.15.031 Boating Facilities.** Marinas located both landward and waterward of the OHWM (dry storage and wet-moorage types); launch ramps; covered moorage; and marine travel lifts.

**17.15.032 Bog.** A unique type of wetland dominated by mosses at the surface and that form peat soils. Bogs form in areas where the climate allows the accumulation of peat to exceed its decomposition. The water regime in bogs is dominated by precipitation rather than surface inflow. The plant community is specialized to survive in the nutrient-poor and highly acidic conditions typical of bog systems.

**17.15.034 Breakwater.** Protective structure usually built off-shore to protect harbor areas, moorage, navigation, beaches and bluffs from wave action. A breakwater may be fixed (e.g., a rubble mound or rigid wall), open-pile or floating.

**17.15.035 Buffer.** An area measured landward perpendicularly from the ordinary high water mark, or associated critical area, that is intended to reduce the adverse impacts of adjacent land uses on shoreline or critical area ecological functions and provide important habitat for wildlife. For the

purposes of this Shoreline Master Program, the term buffer is often used in association with the term setback, as setbacks often have the same purpose and function as a buffer. One distinction between the two terms, is buffers generally restrict a range of activity and use in a designated area, while setbacks generally only apply to location of a structure within a designated area; see also definition of setback, 17.15.222.

**17.15.036 Building.** Any structure designed for or used for the support, shelter or enclosure of persons, animals or personal property, and which is used in a fixed location on land, shorelands or tidelands.

**17.15.037 Bulkhead.** Either public or private wall usually constructed parallel to the shore. Their primary purpose is to contain and prevent the loss of soil caused by erosion or wave action. A bulkhead may also be termed as a "seawall" for more massive public works structures along the open coast. Under the jurisdiction of this SMP, bulkheads may only be utilized if other more naturalized approaches are determined to not be practical to accomplish the objectives. If utilized, bulkheads will be located landward of the OHWM. Because of the function bulkheads are designed for, bulkheads are not subject to the same setbacks as other structures.

**17.15.040** Certified Local Government. Those Local governments that establish a historic preservation program meeting federal and state standards are eligible to apply to the State Historic Preservation Officer (SHPO) and the National Park Service for certification.

**17.15.041** Channelization. The straightening, deepening or lining of stream channels, and/or prevention of natural meander progression of stream ways, through artificial means such as relocation of channels, dredging, and/or placement of continuous levees or bank revetments along significant portions of the stream. Dredging of sediment or debris alone is excluded from this definition.

**17.15.042** Clearing. The direct and indirect removal of trees and/or ground cover from any public or private undeveloped, partially developed, or developed lot, public lands or public right-of-way. This shall also include any destructive or inappropriate activity applied to a tree that will result in its death or effectively destroy the trees appearance and/or functionality, such as topping.

**17.15.043** Cluster Development. A residential development which reserves substantial portions of land as open space or recreational areas for the joint use of the occupants of the development. This land may be provided by allowing dwelling units to be placed on lots smaller than the legal minimum site for regular subdivisions, as long as the density does not exceed prescribed standards.

**17.15.044 Commercial Development.** Those uses involved in wholesale, retail, service and business trade. Examples include hotels, motels, grocery markets, shopping centers, restaurants, shops, offices and private or public indoor recreation facilities. For purposes of this SMP, this definition does not include Home Occupations as defined and described in LMC 16.69.

**17.15.045** Comprehensive Land Use Plan, Lacey. Means the Comprehensive Land Use Plan for Lacey and the Lacey urban growth area, including its many elements, as adopted under the State Growth Management Act, and as amended from time to time.

**17.15.046** Conditional Use. A use, development, or substantial development which is classified as a conditional use or is not classified within this Master Program.

**17.15.047** Covered Moorage. A roofed structure for the wet or dry storage of one or more boats. Boathouses are a type of covered moorage.

**17.15.048** Critical Areas. Those areas with especially fragile biophysical characteristics and/or with significant environmental resources as identified in a scientifically documented inventory. RCW 36.70A.030 defines "critical areas" as: wetlands; areas with a critical recharging effect on aquifers

used for potable waters; fish and wildlife habitat conservation areas; frequently flooded areas; and geologically hazardous areas. In addition to standards within this SMP, critical areas are protected under ordinances Lacey has adopted in Chapter 14 of the Lacey Municipal Code (LMC). These ordinances are adopted by reference as part of the SMP. The ordinance referenced is the version in effect on the day of adoption of the SMP and shown in the applicable appendix attached to this SMP.

**17.15.049** Critical Freshwater Habitats. River and stream corridors from the headwaters to the mouth and including the channel, associated channel migration zone, wetlands and the floodplain to the extent such areas fall in shoreline jurisdiction, including hydrologic connections between water bodies, water courses, lake basins and associated wetlands.

**17.15.050** Critical Salt Water Habitats. All kelp beds; eelgrass beds; spawning and holding areas for forage fish such as herring, smelt and sandlance; subsistence, commercial and recreational shellfish beds; mudflats; intertidal habitats with vascular plants; and areas with which priority species have a primary association.

- A. Kelp beds are found in marine and estuarine intertidal and subtidal areas with a depth of up to 15 meters below mean lower low water (MLLW). The beds can be found on various bottom materials.
- B. Eelgrass beds are found in marine and estuarine intertidal and subtidal areas.
- C. Surf smelt spawning beds are located in the upper portions of sand or gravel beaches (intertidal areas) in salt water.
- D. Pacific herring spawning beds include the lower portions of salt water beaches (intertidal areas), eelgrass beds, kelp beds, other types of salt water vegetation such as algae and other bed materials such as subtidal worm tubes.
- E. Pacific sand lance spawning beds are located in the upper portions of sand or gravel beaches (intertidal areas) in salt water.
- F. Rock sole spawning beds are located in the upper and middle portions of sand or gravel beaches (intertidal areas) on salt water.
- G. Rockfish settlement and nursery areas are located in kelp beds, in eelgrass beds, on other types of salt water vegetation and on other bed materials.
- H. Lingcod settlement and nursery areas are located on beaches (intertidal areas) and subtidal areas with beds of sand, eelgrass, subtidal worm tubes or other bed materials.
- I. Shellfish beds. The following shellfish beds are included: the Pacific oyster (Crassostrea gigas), the Olympia oyster (Ostrea lurida), the razor clam (Silqua patula), the native little neck clam (Protothaca staminea), the Manila clam (Venerupis japonica), the butter clam (Saxidomus giganteus), the Geoduck (Panope generosa), the horse clam (Schizothaerus nuttalli and Schizothaerus capax), the cockle (Clinocardium nuttalli), the macoma (Macoma spp.) and the eastern soft shell clam (Mya arenaria).
- J. Salmon and steelhead habitats include gravel bottomed streams, creeks and rivers used for spawning; streams, creeks, rivers, side channels, ponds, lakes and wetlands used for rearing, feeding and cover and refuge from predators and high water; streams, creeks, rivers, estuaries and shallow areas of salt water bodies used as migration corridors; and salt water bodies used for rearing, feeding and refuge from predators and currents.

**17.15.055 Density.** A ratio expressing the number of dwelling units which may be established on a specific land area. In Lacey's zoning code this is expressed as dwelling units per gross acre. Density calculation is based on the entire project area above the ordinary high water mark (i.e., Dry Land Area) minus any wetland area.

17.15.056 Department. The Washington State Department of Ecology.

**17.15.057 Development.** A use consisting of the construction or exterior alteration of structures; dredging; drilling; dumping; filling; removal of any sand, gravel or minerals; bulkheading; driving of piling; placing of obstructions; or any project of a permanent or temporary nature which interferes with the normal public use of the surface of the waters overlying lands subject to this chapter at any state of water level.

**17.15.058 Development Regulations.** The controls placed on development or land uses by the City of Lacey, including, but not limited to, the zoning ordinances, critical areas ordinances, all portions of the Shoreline Master Program other than goals and policies approved or adopted under Chapter 90.58 RCW, the land division ordinances, the Development Guidelines and Public Works Standards, development standards contained in the Stormwater Manual, together with any amendments thereto.

**17.15.059 Dike.** An embankment to prevent flooding by a stream or other water body, often referred to as a levee.

**17.15.060 Director.** The Director of the Department of Ecology.

17.15.061 Dock. Refer to "Pier".

**17.15.062 Document of Record.** The most current shoreline master program officially approved or adopted by rule by the department for a given local government jurisdiction, including any changes resulting from appeals filed pursuant to RCW 90.58.190.

**17.15.064 Dredging.** The removal or displacement of earth or sediments such as gravel, sand, mud or silt and/or other materials or debris from any stream, river, lake or marine water body and associated shorelines and wetlands.

**17.15.065 Drift Cell, Drift Sector, or Littoral Cell.** A particular reach of marine shore in which littoral drift may occur without significant interruption and which contains any natural sources of such drift and also accretion shore forms created by such drift.

**17.15.066 Drilling.** The process of cutting a hole into the earth for the purpose of obtaining natural resources.

17.15.067 Dry Land. All areas above the elevation of the Ordinary High-Water Mark (OHWM).

**17.15.068 Dwelling.** A building or portion thereof, designed or used for residential occupancy. The term dwelling shall not be construed to mean a motel, rooming house, hospital or other accommodation used for more or less transient occupancy.

**17.15.070** Ecological Functions or Shoreline Functions. 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.

**17.15.071 Ecosystem-Wide Processes.** 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.

**17.15.072 Education.** Any use or development undertaken for the support of public or private research or education.

**17.15.073 Emergency.** An unanticipated and imminent threat to public health, safety or the environment which requires immediate action with a time too short to allow full compliance with this master program. Emergency construction does not include development of new permanent protective structures where none previously existed. Where new protective structures are deemed by the administrator to be the appropriate means to address the emergency situation, upon abatement of the emergency situation the new structure shall be removed and any permits which would have been required by this SMP or the SMA, absent an emergency, must be obtained. Generally, flooding or other seasonal events that can be anticipated and may occur but are not imminent is not an emergency.

17.15.074 Environment. See "Shoreline Environment Designations".

**17.15.075 Exempt.** Developments set forth in WAC 173-27-040 and RCW 90.58.030 (3)(e), 90.58.140(9), 90.58.147, 90.58.355, and 90.58.515 which are not required to obtain a substantial development permit but which must otherwise comply with applicable provisions of the act and the local master program.

17.15.076 Extreme High Tide. The highest tide level line water will reach in any one year.

17.15.077 Extreme Low Tide. The lowest line on the land reached by a receding tide.

**17.15.080** Fair market value. The open market bid price for conducting the work, using the equipment and facilities, and purchase of the goods, services and materials necessary to accomplish the development. This would normally equate to the cost of hiring a contractor to undertake the development from start to finish, including the cost of labor, materials, equipment and facility usage, transportation and contractor overhead and profit. The fair market value of the development shall include the fair market value of any donated, contributed or found labor, equipment or materials.

**17.15.081 Feasible.** An action, such as a development project, mitigation, or preservation requirement, which meets all of the following conditions:

- A. The action can be accomplished with technologies and methods that have been used in the past in similar circumstances, or studies or tests have demonstrated in similar circumstances that such approaches are currently available and likely to achieve the intended results;
- B. The action provides a reasonable likelihood of achieving its intended purpose; and
- C. The action does not physically preclude achieving the project's primary intended legal use.
- D. In cases where these guidelines require certain actions unless they are infeasible, the burden of proving infeasibility is on the applicant.
- E. In determining an action's infeasibility, the reviewing agency may weigh the action's relative public costs and public benefits, considered in the short- and long-term time frames.

**17.15.082** Feeder Bluff. A reach of shoreline which contains both an eroding beach and a feeding upland as identified on the Coastal Drift maps of the Coastal Zone Atlas of Washington, Volume 8, or similar source from the Washington Department of Ecology.

**17.15.083** Fill. The addition of soil, sand, rock, gravel, sediment, earth retaining structure, or other material to an area waterward of the OHWM, in wetlands, or on shorelands in a manner that raises the elevation or creates dry land.

**17.15.084 Floats, Recreational.** Those platform structures anchored in fresh or marine waters for water recreational purposes such as swimming, diving or water skiing to include jump ramps. They may serve as temporary moorage facilities but for the purposes of this SMP are not intended to be used as boat storage.

**17.15.085 Flood Plain.** Synonymous with one hundred-year flood plain and means that land area susceptible to inundation with a one percent chance of being equaled or exceeded in any given year. The limit of this area shall be based upon flood ordinance regulation maps or a reasonable method which meets the objectives of the act.

**17.15.086 Flood Plain Management.** A long-term local government program to reduce flood damages to life and property and to minimize public expenses due to floods through a comprehensive system of planning, development regulations, building standards, structural works and monitoring and warning systems.

**17.15.087** Floodway. The area, as identified in a master program, that either: (i) has been established in Federal Emergency Management Agency (FEMA) flood insurance rate maps or floodway maps; or (ii) consists of those portions of a river valley lying streamward from the outer limits of a watercourse upon which flood waters are carried during periods of flooding that occur with reasonable regularity, although not necessarily annually, said floodway being identified, under normal condition, by changes in surface soil conditions or changes in types or quality of vegetative ground cover condition, topography, or other indicators of flooding that occurs with reasonable regularity, although not necessarily annually. Regardless of the method used to identify the floodway, the floodway shall not include those lands that can reasonably be expected to be protected from flood waters by flood control devices maintained by or maintained under license from the federal government, the state, or a political subdivision of the state.

17.15.088 Foreshore Marina. Refer to "Marina, Foreshore".

**17.15.089** Forestry or Forest Practices. The raising and harvesting of trees as a crop as defined by WAC 222-16, as amended. Within the City or its urban growth area all class 1, 2 or 3 forest practices shall be administered as class 4 conversions, and shall be subject to local land use regulations.

**17.15.090 Functions and Values**. When referred to in the text of the SMP, this term includes the full range of physical characteristics, processes and resources attributed to a shoreline reach if allowed to function in its natural capacity. Each reach of shoreline has identified processes and particular ecological components that make up the character of the reach and its potential as a resource with identified values. Generally, this might include such things as associated wetlands that would act as storm water storage and help water quality, habitat for a range of species that might include salmon, trout and other fish. It might also include significant natural physical processes like long shore drift and feeder bluffs that are important for the maintenance of stretches of beach that if modified could potentially change the character of an entire beach shoreline.

**17.15.0891 Gabions.** Cages, cylinders, or boxes filled with soil, sand, or rock that are used in civil engineering, for erosion control, dams or foundation construction. They may be used to stabilize shorelines or slopes against erosion. Other uses include retaining walls, temporary floodwalls, to filter silt from runoff, for small or temporary/permanent dams, river training, or channel lining. They may be used to direct the force of a flow of flood water around a vulnerable structure. Gabions have also been used as fish barriers on small streams.

**17.15.092** Geologically Hazardous Areas. Areas susceptible to severe erosion or slide activity, such as unstable bluffs, and including areas with high potential for earthquake activity. They may be identified in critical areas inventories or the Coastal Zone Atlas. In general, they are not suitable for placing structures or locating intense activities or uses due to the inherent threat to public health and safety.

**17.15.093 Geotechnical Report or Geotechnical Analysis.** A scientific study or evaluation conducted by a qualified expert that includes a description of the ground and surface hydrology and geology, the affected land form and its susceptibility to mass wasting, erosion, and other geologic hazards or processes, conclusions and recommendations regarding the effect of the proposed development on geologic conditions, the adequacy of the site to be developed, the impacts of the proposed development, alternative approaches to the proposed development, and measures to mitigate potential site-specific and cumulative geological and hydrological impacts of the proposed development, including the potential adverse impacts to adjacent and down-current properties. Geotechnical reports shall conform to accepted technical standards and must be prepared by qualified professional licensed engineer(s) or geologist(s) who have sufficient professional expertise about the regional and local shoreline geology and processes.

**17.15.094** Grading. The movement or redistribution of the soil, sand, rock, gravel, sediment, or other material on a site in a manner that alters the natural contour of the land.

**17.15.095** Grandfathered Status. Is a status given to a legal nonconforming structure or use that recognizes it as an existing use and provides the use with limited rights. Limited rights include the ability to continue the use and to accomplish normal repair and maintenance activities necessary for the use to continue operation. A grandfathered use is subject to all requirements of a nonconforming use.

**17.15.096 Groin.** Structure built seaward perpendicular to the shore for the purpose of building or preserving an accretion beach by trapping littoral sand drift. Generally narrow and of varying lengths, a groin may be built in a series along the shore.

**17.15.097 Guidelines or SMP Guidelines.** Those standards adopted to implement the SMA policy for regulation of use of the shorelines of the state prior to adoption of master programs, and to provide criteria to local governments and Ecology for developing shoreline master programs (SMP). Chapter 173-26 WAC or as amended.

**17.15.100 Hazard Tree.** Any tree that is dead, dying, damaged, diseased, or structurally defective, recently exposed by adjacent clearing, or some other factor that will subject the tree to failure and the tree could reasonably reach a target, as determined by the City's tree protection professional. Pursuant to Chapter 14.32.050 B. of the Lacey Municipal Code, the City of Lacey "tree protection professional" makes the determination of what tree(s) are designated hazard tree(s).

**17.15.101 Hearings Board.** The State Shorelines Hearings Board established by the Act in RCW 90.58.170.

**17.15.102 Height.** Is measured from average grade level to the highest point of a structure. Provided that television antennas, chimneys, and similar appurtenances shall not be used in calculating height, except where it obstructs the view of a substantial number of residences on areas adjoining such shorelines, or the applicable master program provides otherwise. Provided further that temporary construction equipment is excluded in this calculation.

**17.15.103** Historic Building or Historic Site. A building, structure, or site on the local, State or National Register of Historic Places.

**17.15.104 Houseboat.** A vessel, principally used as an over-water residence. Houseboats are licensed and designed for use as a mobile structure with detachable utilities or facilities, anchoring, and the presence of adequate self-propulsion and steering equipment to operate as a vessel. A registered water-going vessel where the owner lives aboard shall not be construed as a "houseboat."

**17.15.106 Instream Structure**. Is a structure that is waterward of the ordinary high water mark and either causes or has the potential to cause water impoundment or diversion, obstruction or modification of water flow.

**17.15.110 Impervious Surface.** Those surfaces that either prevent or obstruct the downward passage of water.

**17.15.111 Industrial Developments.** Facilities for processing, manufacturing and storage of finished or semi-finished goods.

**17.15.115 Jetties.** Structures generally built singly or in pairs perpendicular to the shore at harbor entrances or river mouths to prevent the shoaling or accretion of littoral sand drift. Jetties also protect channels and inlets from storm waves and cross-currents.

**17.15.116 Junk.** Old iron, steel, brass, cooper, tin, lead or other base metals; old cordage, ropes, rags, fibers or fabrics; old rubber; old bottles or other glass, bones; wastepaper, plastic and other waste or discarded material which might be prepared to be used again in some form; any or all of the foregoing; and motor vehicles, no longer used as such, to be used for scrap metal or stripping of parts; however, "junk" shall not include materials or objects accumulated by a person as by-products, waste or scraps from the operation of his own business or materials or objects held and used by a manufacturer as an integral part of his own manufacturing process.

17.15.120 Landfilling. Refer to "Fill".

**17.15.121 Land Division.** Land division is a general term that refers to the division of land by means described in Chapter 15 of the Lacey Municipal Code, including land divided through a plat, short plat, binding site plan or condominium.

**17.15.122 Launch Ramp.** An inclined slab, set of pads, planks, or graded slope used for launching boats with trailers. Parking and turn-around areas are usually accessory to such a site.

17.15.123 Legislative Body. The City Council of the City of Lacey.

**17.15.124** Levee. A natural or man-made embankment on the bank of a stream for the purpose of keeping flood waters from inundating adjacent land. Some levees have revetments on their sides.

**17.15.125 Local Government.** Any county, incorporated city or town which contains within its boundaries shorelines of the state subject to Chapter 90.58 RCW.

**17.15.126** Lot. "Lot" means a platted or unplatted parcel of land unoccupied, occupied or intended to be occupied by a principal use or building and accessory buildings, together with all yards, open spaces and setbacks required by the Lacey zoning code (LMC Chapter 16).

**17.15.127** Lot Area. "Lot area" means the total land space or area contained within the boundary lines of any lot, tract or parcel of land and may be expressed in square feet or acres.

**17.15.128** Lot, Front. "Lot Front" means that portion of a lot which is located along an existing or dedicated public street, or, where no public street exists, along a public right of way or private way.

**17.15.129** Lot Length. The maximum lineal dimension of a lot, not including an access road(s) less than twenty five (25) feet in width.

**17.15.130** Lot Width. "Lot width" means the horizontal distance between side lot lines measured at right angles to the lines comprising the depth of the lot at a point midway between the front lot line and the rear lot line.

17.15.131 Low Intensity Recreation. See "Recreation, Low Intensity".

**17.15.140 Marina.** A facility with water-dependent components that consists of boat launch facilities and piers, buoys or floats to provide moorage for five (5) or more boats.

**17.15.141 Marina, Backshore.** Marina located landward of the OHWM. There are two types of backshore marinas, one with wet-moorage that is dredged out of the land to artificially create a basin; and the other, dry moorage with upland storage that uses a hoist, marine travel lift or ramp for water access.

**17.15.142** Marina, Foreshore. Marina located in the intertidal or offshore zone waterward of the ordinary high water mark and may require breakwaters of open type construction (floating breakwater and/or open pile work) and/or solid type construction (bulkhead and landfill), depending on the location.

**17.15.143 Marine.** Pertaining to tidally influenced waters, including oceans, sounds, straits, marine channels, and estuaries, including the Pacific Ocean, Puget Sound, Straits of Georgia and Juan de Fuca, and the bays, estuaries and inlets associated therewith.

**17.15.144 Marsh.** A low, flat area on which the vegetation consists mainly of herbaceous plants such as cattails, bulrushes, tules, sedges, skunk cabbage, and other aquatic or semi-aquatic plant. Shallow water usually stands on a marsh, at least during a considerable part of the year. The surface is commonly soft mud or muck.

**17.15.145 Master Program.** The comprehensive use plan for a described area, and the use regulations together with maps, diagrams, charts, or other descriptive material and text, a statement of desired goals, and standards developed in accordance with the policies enunciated in RCW 90.58.020.

**17.15.146 Maximum Density.** The largest number of dwelling units per acre allowed by the SMP or local development regulations.

**17.15.147 Maximum Impervious Surface.** The largest amount of hard surfaces allowed with a parcel, which could include roof area, pavement, patios, walkways, driveways and gravel parking areas. Provided hard surfaces designed to be pervious may be exempt from impervious surface calculations pursuant to guidance in the City of Lacey Drainage Manual.

**17.15.148 May.** "May" implies discretionary authority exercised by the City, based upon complexity of issues that are not necessarily routine or predictable and need to be considered in the bigger picture of the public's best interest and community vision. This term will often apply to a situation, use or action that might be acceptable, provided it conforms to the provisions of this chapter, meets the intent of provisions of the Lacey Comprehensive Land Use Plan and is approved by the administrator after consideration of issues that could adversely impact the public's best interest or compromise the long range vision of the community.

**17.15.149 Mixed Use Development.** A single structure with two (2) or more different land uses, or a group of physically integrated and easily accessible structures with two (2) or more different land uses. Combinations of land uses might include residential, office, retail, public, or entertainment. The uses need not be mixed within the same structure, but can include separate uses within different buildings.

**17.15.150 Mooring Buoy.** Floating object anchored to the bottom of a water body to provide tie-up capabilities for vessels.

17.15.151 Multi-Use Path. Refer to "Shared Use Path".

17.15.152 Must. Denotes a mandate; the action is required.

17.15.160 Native Vegetation. Refer to "Vegetation, Native".

**17.15.161** Natural or existing topography. The topography of the lot, parcel, or tract of real property immediately prior to any site preparation or grading, including excavation or filling.

**17.15.162** Nonconforming Building or Structure. A building or structure or portion thereof which was lawfully erected, altered or maintained, but no longer conforms to the present regulations or standards of the Master Program.

**17.15.163** Nonconforming Lot. A parcel of land legally established prior to May 21, 1976 (the effective date of the City's first Shoreline Master Program) which does not conform to the lot size or area requirements of this Master Program.

**17.15.164** Nonconforming Use. "Nonconforming use" means an activity in a structure or on a tract of land that was legally in existence prior to the effective date of the ordinance codified in this title, which does not conform to the use regulations of the use district in which it is located.

**17.15.165** Nonwater-Oriented Uses. Those uses that are not water-dependent, water-related, or water-enjoyment.

**17.15.166** Normal Maintenance. This includes those usual acts to prevent a decline, lapse or cessation from a lawfully established condition.

**17.15.167** Normal Repair. To restore a development to a state "comparable" to its original condition within a "reasonable period" after decay or partial destruction, except where repair involves "significant replacement" which is not common practice or causes substantial adverse effects to the shoreline resource or environment. For the purposes of this definition "comparable" shall include but not be limited to its size, shape, configuration, location and external appearance; "significant replacement" shall be defined as repair or replacement valued at 50% or more of the value of the structure being replaced; and "reasonable period" shall be less than 2 years.

17.15.170 On-Premise Sign. Refer to "Sign, On Premise".

17.15.171 Off-Premise Sign. Refer to "Sign, Off Premise".

**17.15.172 Open Space.** Land and natural wetlands which retain their natural or semi-natural character because they have not been developed with structures, paving or other development or modification and, for the purposes of this program, are normally required of residential and/or recreation developments. In the context of urban land divisions, open space refers to land within specific tracts required for recreational purposes and for tree tract requirements under Lacey's Land Division regulations, Urban Forest Management Plan and tree protection ordinance. Open Space does not refer to submerged lands or tidelands waterward of the OHWM that are sometimes shown platted in waterfront parcels.

**17.15.173 Ordinary High Water Mark (OHWM).** The mark on all lakes, streams and tidal water which 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: PROVIDED, that in any area where the ordinary high-water mark cannot be found, the ordinary high-water mark adjoining salt water shall be the line of mean higher high tide and the ordinary high-water mark adjoining fresh water shall be the line of mean high water.

**17.15.174 Over Water.** Location of a structure or development above the surface of the water, or waterward of the OHWM including placement of buildings on pilings, floats, or perimeter rock foundations.

**17.15.180 Parcel.** A lot or contiguous lots owned by an individual, related individuals, an organization or organizations having similar membership.

**17.15.181 Parking.** Any space or area specifically allotted for the purpose of temporary, daily or overnight off-street storage of motor vehicles as an accessory use.

**17.15.182 Party of Record.** Includes all persons, agencies or organizations who have submitted written comments in response to a notice of application; made oral comments in a formal public hearing conducted on the application; or notified local government of their desire to receive a copy of the final decision on a permit and who have provided an address for delivery of such notice by mail.

**17.15.183 Pedestrian path or trail.** A path or trail designed and intended to serve only pedestrians. A pedestrian path will typically be less than seven feet wide and may be either soft or hard surfaced. Surface may use wood chips, a boardwalk, or other surface type if appropriate to the setting and use. Pedestrian paths and trails are environmental friendly and material and width will consider location, use and design for protection of shoreline functions and values.

**17.15.184 Permit.** Any substantial development, variance, conditional use permit, or revision authorized under Chapter 90.58 RCW.

**17.15.185 Person.** An individual, partnership, corporation, association, organization, cooperative, public or municipal corporation, or agency of the state or local governmental unit however designated.

**17.15.186 Pier and Dock.** Structure generally built from the shore extending out over the water to provide moorage for commercial or private recreation. "Piers" are those structures built on fixed platforms above the water, whereas "docks" are those structures which float upon the water. When a pier or dock is to serve five (5) or more boats, it is considered a marina.

**17.15.187 Planned Residential Development.** A residential development which permits departures from the conventional siting, setback and density requirements of other sections of the Lacey zoning code in the interest of achieving superior site development, creating open space, and encouraging imaginative design by permitting design flexibility.

**17.15.188 Planning Department.** A part of the City of Lacey's Community Development Department responsible for land use planning and authorized to administer the provisions of the Act, WACs and this master program.

**17.15.189 Ports.** Centers for waterborne traffic that have become gravitational points for industrial/manufacturing firms.

**17.15.190 Pre-Existing Approved Use.** A status only given to a specific use at a specific site called out in the policy of the Shoreline Master Program that is based upon unique land use and environmental circumstances of a particular site and use. The designation provides the one specific site and use with all rights and privileges normally granted of a permitted use but with special requirements that must be satisfied for expansion.

**17.15.191 Priority Habitat.** A habitat type with unique or significant value to one or more species. An area classified and mapped as priority habitat must have one or more of the following attributes:

- A. Comparatively high fish or wildlife density;
- B. Comparatively high fish or wildlife species diversity;

- C. Fish spawning habitat;
- D. Important wildlife habitat;
- E. Important fish or wildlife seasonal range;
- F. Important fish or wildlife movement corridor;
- G. Rearing and foraging habitat;
- H. Important marine mammal haul-out;
- I. Refugia habitat;
- J. Limited availability;
- K. High vulnerability to habitat alteration;
- L. Unique or dependent species; or
- M. Shellfish bed.

A priority habitat may be described by a unique vegetation type or by a dominant plant species that is of primary importance to fish and wildlife (such as oak woodlands or eelgrass meadows). A priority habitat may also be described by a successional stage (such as, old growth and mature forests). Alternatively, a priority habitat may consist of a specific habitat element (such as a consolidated marine/estuarine shoreline, talus slopes, caves, snags) of key value to fish and wildlife. A priority habitat may contain priority and/or nonpriority fish and wildlife.

**17.15.192 Priority Species.** Species requiring protective measures and/or management guidelines to ensure their persistence at genetically viable population levels. Priority species are those that meet any of the criteria listed below:

- A. State-listed or state proposed species. State-listed species are those native fish and wildlife species legally designated as endangered (WAC 232-12-014), threatened (WAC 232-12-011), or sensitive (WAC 232-12-011). State proposed species are those fish and wildlife species that will be reviewed by the Department of Fish and Wildlife (POL-M-6001) for possible listing as endangered, threatened, or sensitive according to the process and criteria defined in WAC 232-12-297.
- B. Vulnerable aggregations. Vulnerable aggregations include those species or groups of animals susceptible to significant population declines, within a specific area or statewide, by virtue of their inclination to congregate. Examples include heron colonies, seabird concentrations, and marine mammal congregations.
- C. Species of recreational, commercial, and/or tribal importance. Native and nonnative fish, shellfish, and wildlife species of recreational or commercial importance and recognized species used for tribal ceremonial and subsistence purposes that are vulnerable to habitat loss or degradation.
- D. Species listed under the federal Endangered Species Act as proposed, threatened or endangered.

17.15.193 Property Lines. The exterior boundaries of a lot or parcel.

**17.15.194 Provisions.** Policies, regulations, standards, guideline criteria or environment designations.

**17.15.195 Public Access.** A trail, path, road, easement, park, parcel of land, launching ramp, view corridor, or other mechanism/feature by which the general public is provided an opportunity to reach, public waters. This term can also be applied to an opportunity to view public water, such as a designated view corridor where no physical access is available.

**17.15.196 Public Interest.** The interest shared by the citizens of the state or community at large in the affairs of government, or some interest by which their rights or liabilities are affected including, but not limited to, an effect on public property or on health, safety, or general welfare resulting from a use or development.

**17.15.203 Recreational Development.** Provides opportunities for the refreshment of body and mind through forms of play, sports, relaxation, amusement or contemplation. It includes facilities for passive recreational activities such as hiking, photography, viewing and fishing. It also includes facilities for active or more intensive uses such as parks, campgrounds, golf courses and their support buildings, and other outdoor recreation areas.

17.15.204 Recreational Floats. See "Floats, Recreational".

**17.15.205 Residence, Multifamily** "Multifamily" means two or more living units under the same ownership where land has not been divided, i.e., duplex, triplex, quadraplex and apartment units.

**17.15.206 Residence, Single-Family detached.** A building designed for occupancy by one (1) family and containing one (1) dwelling unit and may include an accessory dwelling. With the exception of an accessory dwelling, the residence will be detached from other dwelling units and will normally be the only dwelling unit on the lot that it occupies.

**17.15.207 Residence, Single-Family Attached.** A building containing a number of dwelling units for individual families under individual ownership. This housing form can include condominiums, townhomes and other concepts that have multiple attached dwelling units in individual ownership.

**17.15.208 Residential Development.** One or more buildings, structures, lots, parcels or portions thereof that are designed for and used or intended to be used to provide a place of abode for human beings. Residential development includes single-family dwellings; duplexes; other detached dwellings; floating homes; multi-family development (apartments, townhouses, mobile home parks, other similar group housing); condominiums; subdivisions; and short subdivisions, together with accessory and appurtenant uses and structures normally applicable to residential uses including but not limited to garages, sheds, tennis courts, swimming pools, parking areas, fences, cabanas, saunas and guest cottages.

**17.15209 Restore, Restoration or Ecological Restoration.** The reestablishment or upgrading of impaired ecological shoreline processes or functions. This may be accomplished through measures including, but not limited to, revegetation, removal of intrusive shoreline structures and removal or treatment of toxic materials. Restoration does not imply a requirement for returning the shoreline area to aboriginal or pre-European settlement conditions.

**17.15.210** Revetment. A sloped shoreline structure (constructed of riprap or other substantial material) built to protect an existing eroding shoreline or newly placed fill against waves, wakes, currents, or weather.

**17.15.211 Riprap.** Broken stone placed on shoulders, slopes or other such places to protect them from erosion.

**17.15.212 Roads and Railroads.** Those passageways, and associated facilities and activities used by or associated with pedestrians, vehicles and trains, including but not limited to: all public and private roads; major highways; freeways; railways; the corridors in which they are placed; bridges; culverts; riprapping; landfills; cuts; turnouts; rest stations; viewpoints; picnic areas; landscaping; and soil erosion safeguards.

**17.15.220** Scientific Education. Any activity undertaken for the support of public or private science education, such as scientific studies, classroom field trips and observation, interpretive trails and similar generally low impact activities. This category also includes sites and areas having scientific and educational values. For the purposes of this SMP this term does not include development of structures for habitation or institutional education such as schools or museums.

**17.15.221 Seawalls.** Structures normally more massive than bulkheads and revetments, built for the purpose of protecting the shore and uplands from heavy wave action and incidentally, retaining uplands and fills. Seawalls are not common to the Puget Sound region.

**17.15.222** Setback. An area in which development of structures is restricted. Setbacks apply to structures and in general are intended to maintain a certain distance from some designated point to accomplish certain objectives. Objectives include such things as:

- A. To maintain a minimum distance on a side yard to provide adequate light, circulation and air between adjacent structures (side yard setback);
- B. To maintain a minimum distance in a front yard between a structure and the right of way to maintain a desired streetscape, provide area for future right of way expansion, to provide area for utility (front yard area setback);
- C. To keep a structure located a safe distance from an unstable bluff (critical area setback from unstable slopes with a buffer function);
- D. To keep enough space between a structure and natural shoreline processes (e.g. wave action and erosion) to avoid the need for bulkheading or other shoreline stabilization measures (shoreline setback from ordinary high water mark with a buffer function);
- E. To maintain distance from critical/sensitive areas to protect the critical/sensitive area from disturbance (critical area setback with a buffer function);
- F. To leave area for retention of natural vegetation or establishing naturalized landscaping to provide buffering and protective functions for designated areas (Shoreline setback from ordinary high water mark with buffering function);
- G. To improve shoreline aesthetics and protect shoreline views by the restriction of structures (shoreline setback from ordinary high water mark).

For the purposes of this Shoreline Master Program, the term setback will often be used in association with the term buffer, as the purpose(s) and function(s) of the setback will often overlap with the purpose(s) and functions of a buffer as described above. One distinction between the two terms, is buffers generally restrict a range of activity and use in a designated area, while setbacks generally only apply to location of a structure within a designated area or more specifically location of the structure a certain distance from a particular point. See also definition of buffer, 17.15.035.

17.15.223 Shall. Denotes a mandate; the action must be done.

**17.15.224 Shared Use Path.** A facility physically separated from motorized vehicular traffic within the highway right-of-way or on an exclusive right-of-way with minimal crossflow by motor vehicles. It is designed and built primarily for use by bicycles, but is also used by pedestrians, joggers, skaters, wheelchair users (both non-motorized and motorized), equestrians, and other non-motorized users.

**17.15.225** Shorelands or Shoreland Areas. Means those lands extending landward for two hundred feet in all directions as measured on a horizontal plane from the ordinary high water mark; floodways and contiguous floodplain areas landward two hundred feet from such floodways; and all wetlands and river deltas associated with the streams, lakes, and tidal waters which are subject to the provisions of this chapter; the same to be designated as to location by the Department of Ecology.

**17.15.226** Shoreline Access Incentive Dedication Agreement Program. The Shoreline Access Incentive Dedication Agreement Program is a program designed to achieve dedication of public access objectives of shoreline areas for public use and protection. In return for dedication of shoreline areas to the public, density bonuses and transfers are provided for development to upland

areas on the subject site, outside of shoreline jurisdiction, or other areas throughout the city that are determined to be consistent with the intent of the Comprehensive Land Use Plan.

To promote innovative developments with superior quality and functionality, the program combines economic incentives for the development community (through significant density credit) goals of the Comprehensive Land Use Plan (for quality urban neighborhoods) and flexible application of normal zoning code standards (to permit flexibility and encourage innovation).

**17.15.227** Shoreline Areas and Shoreline Jurisdiction. Means all shorelines of the state and shorelands as defined in RCW 90.58.030.

**17.15.228** Shoreline Environment Designation. Means the categories of shorelines of the state established by the master program to differentiate between areas whose features imply differing objectives regarding their use and future development.

**17.15.229 Shoreline Jurisdiction.** All "shorelands" as defined in RCW 90.58.030. Refer to "Shorelands or Shoreland Areas". For the purposes of this SMP, this term refers to all lands and aquatic area falling under the jurisdiction of this SMP; generally including all land within 200 feet landward of the OHWM, all designated associated wetland areas, and area waterward of the OHWM under the jurisdiction of the City of Lacey.

**17.15.230** Shoreline Management Act. The Shoreline Management Act of 1971 (Chapter 90.58 RCW, as amended).

**17.15.231** Shoreline Master Program or Master Program. Means the comprehensive use plan element for a described area, and the use regulations together with maps, diagrams, charts, or other descriptive material and text, a statement of desired goals, policies and standards developed in accordance with the policies enunciated in RCW 90.58.020.

As provided in RCW 36.70A.480, the goals and policies of a shoreline master program for a city approved under Chapter 90.58 RCW shall be considered an element of the city's comprehensive land use plan. All other portions of the shoreline master program for a county or city adopted under Chapter 90.58 RCW, including use regulations, shall be considered a part of the city's development regulations.

**17.15.232** Shoreline Modifications. Those actions that modify the physical configuration or qualities of the shoreline area, usually through the construction of a physical element such as a dike, breakwater, pier, weir, dredged basin, fill, bulkhead, or other shoreline structure. They can include other actions, such as clearing, grading, or application of chemicals.

17.15233 Shoreline Permit. Refer to "Permit".

**17.15.234** Shoreline Stabilization/Protection. Action taken to reduce adverse impacts caused by current, flood, wake or wave action. This action includes all structural and nonstructural means to reduce these impacts due to flooding, erosion and accretion. Specific structural and nonstructural means included in this use activity are bulkheads, dikes, levees, riprap, sea walls, shoreline berms, beach feeding and breakwaters.

**17.15.235** Shorelines. All of the water areas of the state, including reservoirs, and their associated shorelands, together with the lands underlying them; except

- A. Shorelines of statewide significance;
- B. Shorelines on segments of streams upstream of a point where the mean annual flow is twenty cubic feet per second or less and the wetlands associated with such upstream segments; and
- C. Shorelines on lakes less than twenty acres in size and wetlands associated with such small lakes.

**17.15.236** Shoreline Access Segment. Is a part of the shoreline parcel which is fifteen (15) linear feet wide parallel to the shoreline or twenty percent (20%) of the parcel width, whichever is smaller, and extends upland to the existing or proposed structure.

**17.15.237** Shorelines of Statewide Significance. The following shorelines of the state are so designated:

- A. The area between the ordinary high water mark and the western boundary of the state from Cape Disappointment on the south to Cape Flattery on the north, including harbors, bays, estuaries, and inlets;
- B. Those areas of Puget Sound and adjacent salt waters and the Strait of Juan de Fuca between the ordinary high water mark and the line of extreme low tide as follows:
  - 1) Nisqually Delta -- from DeWolf Bight to Tatsolo Point,
  - 2) Birch Bay -- from Point Whitehorn to Birch Point,
  - 3) Hood Canal -- from Tala Point to Foulweather Bluff,
  - 4) Skagit Bay and adjacent area -- from Brown Point to Yokeko Point, and
  - 5) Padilla Bay -- from March Point to William Point.
- C. Those areas of Puget Sound and the Strait of Juan de Fuca and adjacent salt waters north to the Canadian line and lying seaward from the line of extreme low tide;
- D. Those lakes, whether natural, artificial, or a combination thereof, with a surface acreage of one thousand acres or more measured at the ordinary high water mark;
- E. Those natural rivers or segments thereof as follows:
  - 1) Any west of the crest of the Cascade range downstream of a point where the mean annual flow is measured at one thousand cubic feet per second or more,
  - 2) Any east of the crest of the Cascade range downstream of a point where the annual flow is measured at two hundred cubic feet per second or more, or those portions of rivers east of the crest of the Cascade range downstream from the first three hundred square miles of drainage area, whichever is longer.
- F. Those shorelands associated with A, B, D, and E.

**17.15.238** Shorelines of the State. The total of all shorelines and shorelines of statewide significance within the State of Washington.

**17.15.239** Should. Denotes that the particular action is required unless there is a demonstrated, compelling reason, based on policy of the Shoreline Management Act, WAC 173-26 (2), against taking the action.

**17.15.240 Sign.** Means any commercial communication device, structure or fixture that is intended to aid an establishment in identification and to advertise and/or promote a business, service, activity or interest. For the purpose of this chapter, a sign shall not be considered to be building or structural design, but shall be restricted solely to graphics, symbols or written copy that is meant to be used in the aforementioned way.

**17.15.241** Sign, Off-Premise. Means a permanent sign not located on the premises of use or activity to which the sign pertains.

**17.15.242** Sign, On-Premise. Any sign identifying the premises on which located or the occupant(s) thereof, or relating to goods or services manufactured, produced or available on the premise.

**17.15.243** Sign, Off-Premise Directional. Means an off-premise sign designed to guide the public to an area, place, business or service.

**17.15.244** Sign, Real Estate or Property for Sale, Rental or Lease Sign. Means any sign pertaining to the sale, lease or rental of land or buildings.

**17.15.245** Sign, Wayfinding. A type of street sign which provides directions to local attractions and sites.

**17.15.246 Significant Vegetation Removal.** Means the direct and indirect removal of trees and/or ground cover from any public or private undeveloped, partially developed, or developed lot, public lands or public right-of-way. This shall also include any destructive or inappropriate activity applied to a tree that will result in its death or effectively destroy the trees appearance and/or functionality, such as topping. The removal of invasive or noxious weeds does not constitute significant vegetation removal.

17.15.247 Single Family Residence. See Residence, Single Family.

**17.15.248 Solid Waste.** All solid, semi-solid, and liquid wastes including garbage, rubbish, ashes, plastics, industrial wastes, wood wastes and sort yard wastes associated with commercial logging activities, swill, demolition and construction wastes, abandoned vehicles and parts of vehicles, household appliances and other discarded commodities.

17.15.249 Stairs. A series of steps or flights of steps for passing from one level to another.

**17.15.250** Stair Tower. A structure twelve (12) feet or taller in height typically consisting of one (1) or more flights of stairs, usually with landings to pass from one level to another.

**17.15.251** Stairway. One or more flights of stairs, usually with landings to pass from one level to another.

**17.15.252** State Master Program. The cumulative total of all master programs approved or adopted by the Department of Ecology.

**17.15.253 Streambank.** The area running along the course of a stream and rising from the ordinary high water mark (OHWM) up to the first significant break in slope. The first significant break in slope is a bench at least fifteen (15) feet wide. The streambank ends at the top of the bank where that break in slope occurs. NOTE: This definition is not intended to include the concept of a buffer for streams. It is only a definition of a physical feature associated with streams.

**17.15.254 Streamway.** That corridor of a single or multiple channel or channels within which the usual seasonal or stormwater runoff peaks are contained. The flora, fauna, soil and topography is dependent on or influenced by the height and velocity of the fluctuating currents.

17.15.255 Street. See Road.

**17.15.256** Street, Flanking. A street, alley or right of way other than the one on which a corner lot has its main frontage.

17.15.257 Street, Public. A street in public ownership.

**17.15.258 Structure.** A permanent or temporary edifice or building, or any piece of work artificially built or composed of parts joined together in some definite manner, whether installed on, above, or below the surface of the ground or water, except for vessels.

**17.15.259** Submerged Lands. Those areas below the ordinary high-water mark of marine waters, lakes and rivers.

17.15.260 Substantially Degrade. Means to cause significant ecological impact.

**17.15.261 Substantial Development.** Any development of which the total cost or fair market value exceeds five thousand dollars (\$5,718), or any development which materially interferes with the normal public use of the water or shorelines of the state. The dollar threshold established in this subsection must be adjusted for inflation by the office of financial management every five years, beginning July 1, 2007, based upon changes in the consumer price index during that time period. "Consumer price index" means, for any calendar year, that year's annual average consumer price index, Seattle, Washington area, for urban wage earners and clerical workers, all items, compiled by the bureau of labor and statistics, United States Department of Labor. The Office of Financial Management must calculate the new dollar threshold and transmit it to the office of the code reviser for publication in the Washington State Register at least one month before the new dollar threshold is to take effect.

The following shall not be considered substantial developments for the purpose of this master program:

- A. Normal maintenance or repair of existing structures or developments, including damage by accident, fire, or elements;
- B. Construction of the normal protective bulkhead common to single family residences;
- C. Emergency construction necessary to protect property from damage by the elements;
- D. Construction and practices normal or necessary for farming, irrigation, and ranching activities, including agricultural service roads and utilities on shorelands, and the construction and maintenance of irrigation structures including but not limited to head gates, pumping facilities, and irrigation channels. A feedlot of any size, all processing plants, other activities of a commercial nature, alteration of the contour of the shorelands by leveling or filling other than that which results from normal cultivation, shall not be considered normal or necessary farming or ranching activities. A feedlot shall be an enclosure or facility used or capable of being used for feeding livestock hay, grain, silage, or other livestock feed, but shall not include land for growing crops or vegetation for livestock feeding and/or grazing, nor shall it include normal livestock wintering operations;
- E. Construction or modification of navigational aids such as channel markers and anchor buoys;
- F. Construction on shorelands by an owner, lessee, or contract purchaser of a single family residence for his own use or for the use of his or her family, which residence does not exceed a height of thirty-five feet above average grade level and which meets all requirements of the state agency or local government having jurisdiction thereof, other than requirements imposed pursuant to WAC 173-26;
- G. Construction of a dock, including a community dock, designed for pleasure craft only, for the private noncommercial use of the owner, lessee, or contract purchaser of single and multiple family residences. This exception applies if either: (A) In salt waters, the fair market value of the dock does not exceed two thousand five hundred dollars; or (B) in fresh waters, the fair market value of the dock does not exceed ten thousand dollars, but if subsequent construction having a fair market value exceeding two thousand five hundred dollars occurs within five years of completion of the prior construction, the subsequent construction shall be considered a substantial development for the purpose of WAC 173-26 or this Master Program;

- H. Operation, maintenance, or construction of canals, waterways, drains, reservoirs, or other facilities that now exist or are hereafter created or developed as a part of an irrigation system for the primary purpose of making use of system waters, including return flow and artificially stored groundwater for the irrigation of lands;
- I. The marking of property lines or corners on state owned lands, when such marking does not significantly interfere with normal public use of the surface of the water;
- J. Operation and maintenance of any system of dikes, ditches, drains, or other facilities existing on September 8, 1975, which were created, developed, or utilized primarily as a part of an agricultural drainage or diking system;
- K. Site exploration and investigation activities that are prerequisite to preparation of an application for development authorization under this chapter, if:
  - 1) The activity does not interfere with the normal public use of the surface waters;
  - 2) The activity will have no significant adverse impact on the environment including, but not limited to, fish, wildlife, fish or wildlife habitat, water quality, and aesthetic values;
  - 3) The activity does not involve the installation of a structure, and upon completion of the activity the vegetation and land configuration of the site are restored to conditions existing before the activity;
  - 4) A private entity seeking development authorization under this section first posts a performance bond or provides other evidence of financial responsibility to the local jurisdiction to ensure that the site is restored to preexisting conditions; and
  - 5) The activity is not subject to the permit requirements of RCW 90.58.550.
- L. The process of removing or controlling an aquatic noxious weed, as defined in RCW 17.26.020, through the use of an herbicide or other treatment methods applicable to weed control that are recommended by a final environmental impact statement published by the Department of Agriculture or the department jointly with other state agencies under RCW 43.21C.

17.15.262 Surface Water Body. Any water area which is within the shorelines of the state.

**17.15.270 Tideland.** The land on the shore of marine water bodies between OHWM or MHHW and the line of extreme low tide which is submerged daily by tides.

**17.15.271 Transmit.** To send from one person or place to another by means of mail, email, or hand delivery. The date of transmittal for mailed items is the date that the document is postmarked for emailed items the date emailed and for hand-delivered items the date of receipt at the destination.

**17.15.272 Transportation Facilities.** Those structures and developments that aid in land and water surface movement of people, goods and services. They include roads and highways, bridges and causeways, bikeways, trails, railroad facilities, ferry terminals, float plane terminals, heliports and other related facilities.

**17.15.273** Utilities. Services and facilities that produce, convey, store, process or dispose of electric power, gas, water, sewage, stormwater, communications (including cellular towers), oil, waste and the like.

**17.15.274** Utilities, Accessory. Those small-scale on-site services connected directly to a primary use along the shoreline.

**17.15.275** Variance. Is a means to grant relief from the specific bulk, dimensional or performance standards set forth in the applicable master program and not a means to vary a use of a shoreline.

**17.15.276 Vegetation, Native.** Native plants commonly found in Thurston County. Generally comprised of three vegetative levels including an overstory of trees, an understory of shrubs, and a floor of herbs.

**17.15.277 Vegetation Management, Active.** Involves aquatic weed control as well as the restoration of altered or threatened shorelines using a technology called soil bioengineering. Soil bioengineering reestablishes native plant communities as a dynamic system that stabilizes the land from the effects of erosion.

**17.15.278 Vegetation Management, Passive.** Deals with protection and enhancement of existing diverse native plant communities along all shorelines including rivers, wetlands, lakes and steep bluffs.

**17.15.279** Vessel. This includes ships, boats, barges or any other floating craft that is designed and used for navigation and does not interfere with the normal public use of the water.

**17.15.280 Water-Dependent Use.** A use or portion of a use which cannot exist in a location that is not adjacent to the water and which is dependent on the water by reason of the intrinsic nature of its operations.

Water-dependent uses include, but are not limited to:

- A. Aquaculture,
- B. Boat launch facilities,
- C. Ferry terminals,
- D. Hydroelectric power plants,
- E. Marinas,
- F. Marine construction, dismantling and repair,
- G. Marine and limnological research and education,
- H. Private and public docks for moorage,
- I. Terminal and transfer facilities for marine commerce and industry,
- J. Water intakes and outfalls,
- K. Log booming, and
- L. Tug and barge facilities.

**17.15.281 Water-Enjoyment Use.** A recreational use or other use that facilitates public access to the shoreline as a primary characteristic of the use; or a use that provides for recreational use or aesthetic enjoyment of the shoreline for a substantial number of people as a general characteristic of the use and which through location, design, and operation ensures the public's ability to enjoy the physical and aesthetic qualities of the shoreline. In order to qualify as a water-enjoyment use, the use must be open to the general public and the shoreline-oriented space within the project must be devoted to the specific aspects of the use that fosters shoreline enjoyment.

Water-enjoyment uses include but are not limited to:

- A. Aquarium, with direct water intake,
- B. Restaurants,
- C. Public golf courses,
- D. Museums,
- E. Shared use paths,
- F. Boardwalks, and
- G. Viewing towers.

**17.15.282 Water-Oriented Use.** A use that is water-dependent, water-related, or water-enjoyment, or a combination of such uses.

**17.15.283 Water Quality.** The physical characteristics of water within shoreline jurisdiction, including water quantity, hydrological, physical, chemical, aesthetic, recreation-related, and biological characteristics. Where used in this master program, the term "water quantity" refers only to development and uses regulated under this chapter and affecting water quantity, such as impermeable surfaces and storm water handling practices. Water quantity, for purposes of this chapter, does not mean the withdrawal of ground water or diversion of surface water pursuant to RCW 90.03.250 through 90.03.340.

**17.15.284 Water-Related Use.** A use or portion of a use which is not intrinsically dependent on a waterfront location but whose economic viability is dependent upon a waterfront location because:

- A. The use has a functional requirement for a waterfront location such as the arrival or shipment of materials by water or the need for large quantities of water; or
- B. The use provides a necessary service supportive of the water-dependent uses and the proximity of the use to its customers makes its services less expensive and/or more convenient.

Water-related uses include, but are not limited to:

- A. Warehousing or storage facilities,
- B. Support services for fish hatcheries,
- C. Seafood processing plants,
- D. Wood products manufacturing,
- E. Log storage,
- F. Watercraft sales, and
- G. Boating supplies.

17.15.285 Weir. A device placed in a stream or river to raise or divert the water.

**17.15.286 Wetlands.** Areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from non-wetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may include those artificial wetlands intentionally created from non-wetland areas to mitigate the conversion of wetlands.

### 17.20.000 Jurisdiction, Designations and Map

## **17.20.005** Shoreline Jurisdiction, Designations and Map - Conflicts Between Designation and Criteria

In the event that any of the boundaries shown on the maps conflict with the criteria outlined in Sections 17.20.010 to 17.20.035, the criteria shall control.

It is anticipated that all areas within Lacey's shorelines are properly mapped and designated. However, if for any reason an area within shoreline jurisdiction is not mapped and/or designated, it shall automatically be assigned an urban conservancy designation until the shoreline can be redesignated through a master program amendment.

## 17.20.010 Shorelines of the State

The jurisdiction of this master program is "shorelines of the state", which includes all "shorelines" and "shorelines of statewide significance", as defined in RCW 90.58.030.

## **17.20.015** Shoreline Jurisdiction for Marine Waters

Shoreline jurisdiction for tidal or marine waters shall include the shorelines of Puget Sound and:

- 1. Those lands which extend landward two hundred (200) feet as measured on a horizontal plane from the ordinary high water mark; and
- 2. Those wetlands which are in proximity to and either influence or are influenced by the tidal water. This influence includes but is not limited to one or more of the following: periodic tidal inundation, hydraulic continuity, formation by tidally influenced geohydraulic processes, or a surface connection through a culvert or tide gate.

## **17.20.020** Shoreline Jurisdiction for Lakes

Shoreline jurisdiction for lakes larger than twenty (20) acres in size shall include:

- 1. Those lands which extend landward two (200) hundred feet as measured on a horizontal plane from the ordinary high water mark; and
- 2. Those wetlands which are in proximity to and either influence or are influenced by the lake. This influence includes but is not limited to one or more of the following: periodic inundation or hydraulic continuity.

## **17.20.025** Shoreline Jurisdiction for Streams and Flood Plains

Shoreline jurisdiction for streams where the mean annual flow is twenty (20) cubic feet per second or greater shall include the greater of the following:

- 1. Those lands which extend landward two (200) hundred feet as measured on a horizontal plane from the ordinary high water mark;
- 2. All of the one hundred (100) year flood plain within the associated shorelands;
- 3. Those wetlands which are in proximity to and either influence or are influenced by the stream. This influence includes but is not limited to one or more of the following: periodic inundation; location within a flood plain, or hydraulic continuity; and
- 4. Those lands within a river delta flood plain except for those lands that can reasonably be expected to be protected from flood waters by flood control devices maintained by or maintained under license from the federal government, the state, or a political subdivision of the state.

## **17.20.027** Shoreline Jurisdiction and Relationship to Associated Wetland Buffers

For the purposes of this SMP, the shoreline jurisdiction shall not include the buffer of an associated wetland or other critical area buffer, except those portions of the buffer located on shorelands within 200 feet of the OHWM.

## **17.20.030** Shorelines within the City of Lacey and its Urban Growth Area

The City of Lacey shall have authority over those shorelines within its municipal boundaries. Those shorelines within the City of Lacey and its Urban Growth Area which have been inventoried and found to meet the criteria of the Sections 17.20.015, 17.20.020, and 17.20.025 are as follows:

- Marine Waters:
   A. Nisqually Reach
- 2. Lakes:
  - A. Chambers Lake
  - B. Hicks Lake
  - C. Long Lake
  - D. Pattison Lake
  - E. Southwick Lake
- 3. Streams and Floodplains:
  - A. Woodland Creek

## **17.20.035** Shoreline Jurisdiction for Shorelines of Statewide Significance

Shoreline jurisdiction for "shorelines of statewide significance" shall include:

Those areas of Puget Sound between the ordinary high water mark and the line of extreme low tide as follows: Nisqually Delta from Dewolf Bight to Tatsolo Point.

Those shorelands associated with the above referenced areas.

## 17.20.040 Purpose and Intent

The Shoreline Master Program Guidelines (Chapter 173-26 WAC) recommends a classification system for designating shorelines. The purpose and designation criteria, for each of these "Shoreline Environment Designations" or "SEDs" are described in Sections 17.20.045 to 17.20.075.

### 17.20.045 Aquatic – Purpose

The purpose of the aquatic environment is to protect, restore, and manage the unique characteristics and resources of the areas waterward of the ordinary high-water mark.

## 17.20.046 Aquatic – Designation Criteria

Assign an aquatic environment designation to lands waterward of the ordinary high-water mark (OHWM).

### 17.20.050 Aquatic – Management Policies

- 1. Allow new over-water structures only for water-dependent uses, public access, or ecological restoration.
- 2. The size of new over-water structures should be limited to the minimum necessary to support the structure's intended use.
- 3. In order to reduce the impacts of shoreline development and increase effective use of water resources, multiple use of over-water facilities should be encouraged.
- 4. All developments and uses on navigable waters or their beds should be located and designed to minimize interference with surface navigation, to consider impacts to public views, and to allow for the safe, unobstructed passage of fish and wildlife, particularly those species dependent on migration.
- 5. Uses that adversely impact the ecological functions of critical saltwater and freshwater habitats should not be allowed except where necessary to achieve the objectives of RCW 90.58.020, and then only when their impacts are mitigated according to the sequence described in Section 17.40.015 of this SMP as necessary to assure no net loss of ecological functions.
- 6. Shoreline uses and modifications should be designed and managed to prevent degradation of water quality and alteration of natural hydrographic conditions.

## 17.20.055 Natural - Purpose

The purpose of the natural environment is to protect those shoreline areas that are relatively free of human influence or that include intact or minimally degraded shoreline functions intolerant of human use. These systems require that only very low intensity uses be allowed in order to maintain the

ecological functions and ecosystem-wide processes. Consistent with the policies of the designation, local government should include planning for restoration of degraded shorelines within this environment.

## 17.20.060 Natural Designation - Criteria

The natural environment designation has been applied to shoreline areas with the following characteristics:

- 1. The shoreline is ecologically intact and therefore currently performing an important, irreplaceable function or ecosystem-wide process that would be damaged by human activity;
- 2. The shoreline is considered to represent ecosystems and geologic types that are of particular scientific and educational interest;
- 3. The shoreline is unable to support new development or uses without significant adverse impacts to ecological functions or risk to human safety.

Lacey's shoreline areas that meet this criteria include largely undisturbed portions of shoreline areas with wetlands, the Woodland Creek stream corridor system and the ecologically intact shoreline habitat by Butterball Cove in the Hawks Prairie Planned Community.

Ecologically intact shorelines, as used here, means those shoreline areas that retain the majority of their natural shoreline functions, as evidenced by the shoreline configuration and the presence of native vegetation. Lacey's ecologically intact shorelines around Hicks Lake and the Woodland Creek corridor are generally free of structural shoreline modifications, structures, and intensive human uses. These areas have been designated as OSI under Lacey's zoning code for over a decade to protect wetland areas. Prior to that time they were not developed because other properties that were easier to develop were available.

The marine area in the Hawks Prairie Planned Community is also considered "ecologically intact". These areas are generally forested and include native vegetation with diverse plant communities, multiple canopy layers, and the presence of large woody debris available for recruitment to adjacent water bodies. These areas have also been protected by critical area regulations and ownerships that have been good land stewards. Much of the Woodland Creek corridor is under the ownership of Saint Martin's Abbey that has placed a high priority on preservation of the Creek's natural functions and values and has protected the Creek from development. The Hawks Prairie Planned Community also included protection of the marine area by designating it as open space and protecting its natural character.

The term "ecologically intact shorelines" applies to all shoreline areas meeting the above criteria ranging from larger reaches that may include multiple properties to small areas located within a single property.

## **17.20.061** Natural Designation – Management Policies

1. Any use that would substantially degrade the ecological functions or natural character of the shoreline area should not be allowed.

- 2. The following new uses should not be allowed in the "natural" environment:
  - A. Commercial uses,
  - B. Industrial uses,
  - C. Nonwater-oriented recreation,
  - D. Roads, utility corridors, and parking areas that can be located outside of "natural" designated shorelines.
- 3. Single family residential development may be allowed but limited to a density and intensity of such use as necessary to protect ecological functions and be consistent with the purpose of the environment designation. Incentive programs are also planned to make transfer of densities off site to upland areas outside of shoreline jurisdiction more valuable than development of the property within shoreline jurisdiction.
- 4. Scientific, historical, cultural, educational research uses, and low-intensity water-oriented recreational access uses may be allowed provided that no significant ecological impact on the area will result.
- 5. New development or significant vegetation removal that would reduce the capability of vegetation to perform normal ecological functions should be prohibited. Development of property in a configuration that, to achieve its intended purpose, will require significant vegetation removal or shoreline modification that adversely impacts ecological functions should be prohibited. Incentives will be developed that encourage development outside of shoreline jurisdiction in exchange for significant density transfer bonuses.

## 17.20.065 Urban Conservancy - Purpose

The purpose of the urban conservancy environment is to protect and restore ecological functions of open space, flood plain and other sensitive lands where they exist in urban and developed settings, while allowing a variety of compatible uses.

# **17.20.066 Urban Conservancy - Designation Criteria**

The urban conservancy environment designation has been applied to shoreline areas appropriate and planned for development that is compatible with maintaining or restoring of the ecological functions of the area. These areas are generally not suitable for water-dependent uses. Areas designated urban conservancy generally have the following characteristics:

- 1. Shoreline areas that are suitable for water-related or water-enjoyment uses;
- 2. Shoreline areas that are open space, flood plain or other sensitive areas that should not be more intensively developed;
- 3. Shoreline areas that have potential for ecological restoration;
- 4. Shoreline areas that retain important ecological functions, even though partially developed; or

5. Shoreline areas that have the potential for development that is compatible with ecological restoration.

## **17.20.067** Urban Conservancy - Management **Policies**

- 1. Uses that preserve the natural character of the area or promote preservation of open space, floodplain or sensitive lands either directly or over the long term should be the primary allowed uses. Uses that result in restoration of ecological functions should be allowed if the use is otherwise compatible with the purpose of the environment and the setting.
- 2. Standards have been established for shoreline stabilization measures, vegetation conservation, water quality, and shoreline modifications within the "urban conservancy" designation. These standards are designed to promote no net loss of shoreline ecological functions or values.
- 3. Public access and public recreation objectives shall be implemented according to priorities of Lacey's Public Access Plan whenever feasible and significant ecological impacts can be mitigated.
- 4. Water-oriented uses will be given priority over non-water oriented uses.

### **17.20.070 Shoreline Residential - Purpose**

The purpose of the shoreline residential environment is to accommodate residential development and appurtenant structures that are consistent with the SMP, state guidelines and this chapter. An additional purpose is to provide appropriate public access and recreational uses.

## **17.20.072** Shoreline Residential Designation - Criteria

The shoreline residential environment designation is designed for shoreline areas inside urban growth areas, as defined in RCW 36.70A.110, and incorporated municipalities and areas that are predominantly developed with single-family or multifamily residential development or are planned and platted for residential development. Areas meeting this criterion within Lacey have been designated shoreline residential.

## **17.20.075** Shoreline Residential - Management Policies

1. Standards for density, setbacks, buffers within the setback area, lot coverage limitations, shoreline stabilization policies and standards, vegetation conservation and restoration requirements, critical area protection, and water quality have been set based upon the

inventory and characterization report and existing use to promote no net loss of shoreline ecological functions.

- 2. Shoreline environment designations take into account the environmental limitations and sensitivity of specific shoreline area (reaches). Designations also consider the level of infrastructure and services available, recommendations from state agencies with expertise and other comprehensive planning considerations.
- 3. Areas that have been designated Shoreline Residential meet criteria for this designation are generally already urbanized to some extent and are planned for residential use under Lacey's GMA based Comprehensive Land Use Plan.
- 4. Multifamily and multi-lot residential and recreational developments should be required to provide public access according to Lacey's Public Access Plan. Flexibility in land form (type of residential development planned; SFR, attached, detached, multifamily etc.), will be allowed to encourage residential forms that can be clustered to minimize environmental impacts and accomplish public access objectives.
- 5. Access, utilities, and public services should be provided to be available and adequate to serve proposed and future development.

### 17.20.100 Official Map

- 1. Approximate Shoreline Jurisdiction and the Shoreline Environment Designations are delineated on a map, hereby incorporated as a part of this SMP that shall be known as the "City of Lacey Shoreline Master Program Map"; see Map 1.
- 2. For the purposes of coordination of shoreline requirements with general land use regulations and the City Comprehensive Land Use Plan, the shoreline designations are also shown as an overlay on the Comprehensive Land Use Plan Map and Zoning map.
- 3. The boundaries of shoreline jurisdiction on the map are approximate. The extent of shoreline jurisdiction shall be based upon an on-site inspection and the criteria found in Sections 17.20.015 to 17.20.035.
- 4. The official copy of this map shall reside with the Washington State Department of Ecology.

Copies of this map are available for public use from the City of Lacey, Community Development Department.



A marker delineates a wetland associated with the major wetlands system south of Hicks Lake. The delineation will mark off the area that is wetland and a required buffer that is dedicated to the City for preservation of the system and its functions and values over the long term.



Picture showing the view residents enjoy from the north side of Chambers Lake.

## **17.24.000** Tables for Permitted Uses, Development Standards and Modifications

#### 1. Uses and Activities:

- A. Guidelines for vegetative improvements, when required, are provided in Section 17.41.021 Table 1.
- B. Uses and activities may be allowed by shoreline environment designation as listed in Table 3.
- C. Uses and activities shall be subject to the development standards for the specific use(s) or activity and as provided in Table 4.
- D. When there are no development standards for a specific use or activity, application for such use or activity shall be processed as a CUP and the design of the proposed use shall satisfy the goals and policies in Section 17.44 and promote no net loss of shoreline ecological functions and values.
- E. The tables are considered summary information for quick review. If there is a conflict between the standards provided in the tables and text of sections dealing with specific uses, modifications or activities, the text shall prevail; individual text sections provide detailed consideration of the topic with the intent behind the standards.

## 2. Shoreline Modifications, Table of Shoreline Modifications by Shoreline Environment Designation:

- A. Shoreline modifications may be allowed by shoreline environment designation as listed in Table 5.
- B. Shoreline modifications shall be subject to the development standards for the specific type of shoreline alteration as described in separate sections dealing with each type of modification and as listed in Table 4.
- C. When there are no development standards for a specific shoreline modification, the shoreline modification shall follow the intent described in general goals and policies provided throughout this SMP, as well as applicable discussion and any goals and policies provided that are applicable to the specific modification. The fundamental requirement to promote no net loss of shoreline ecological functions expressed throughout this SMP shall be used as benchmark for consideration.

### 17.24.010 Table 3 - Uses and Activities

USES & ACTIVITIES	Shoreline Residential	Urban Conservancy	Natural	Aquatic
Agriculture	Х	X	Х	Х
Aquaculture				
Shellfish Aquaculture	S	S	С	S*
• Fish Hatcheries and other Commercial Aquaculture	S	S	X**	S*
Boating Facilities				
Launch Ramps	S	S	С	S*
Marinas	Х	$X \setminus S^+$	Х	S*
Covered Moorage	Х	Х	Х	х
(Refer to Table 5 for Piers and Docks)				
Commercial	Х	Х	Х	Х
Forestry	Х	Х	Х	Х
<ul> <li>Historical or Archeological</li> <li>Protection, Rehabilitation and Restoration</li> </ul>	N/A	N/A	N/A	N/A
Reconstruction of Replica	С	С	С	С
Industrial	Х	x	Х	Х
Mining	Х	Х	Х	Х

For description of permit types see Section 17.30. S = Requires a Shoreline Substantial Development Permit

E = Requires a Shoreline Exemption; and must comply with applicable Master Program sections C = Requires a Shoreline Conditional Use Permit

X = Prohibited; not eligible for a Substantial Development or Conditional Use Permit

1 = Within one hundred (100) feet of the ordinary high water mark

2 = From one hundred (100) feet from the OHWM to the landward edge of shoreline jurisdiction

\* = In the Aquatic environment the use or shoreline modification may be allowed if it is allowed in the adjacent upland shoreline environment designation

\*\*Existing uses shall be given a status of "pre-existing approved use and treated as a permitted use. Provided the use meets requirements of Section 17.47 and any expansion is processed as a conditional use permit.

USES & ACTIVITIES	Shoreline Residential	Urban Conservancy	Natural	Aquatic
<ul> <li>Parking</li> <li>Serving an approved use</li> <li>Serving any other use including paid</li> </ul>	S X	S X	S** X	X X
Recreation • Water-dependent	S	S	S	S
Ĩ	-			
• Water-related	S	S	S	S
• Water-enjoyment	S	S	S	С
• Non-water oriented	$\mathbf{C}^1 / \mathbf{S}^2$	$C^1 / S^2$	$X^1 / C^2$	Х
• Pedestrian trail, surfaced with wood chips or other natural permeable material. Designed to minimize impact to shoreline functions and values.	N/A	N/A	N/A	N/A
• Pedestrian trail in a boardwalk design in sensitive area or buffer for public access. Designed to minimize impacts to shoreline functions and values.	N/A	S	S	N/A
<ul> <li>Residential <ul> <li>Single-Family</li> <li>Land Division</li> <li>Attached Single Family &amp; Multi-Family</li> </ul> </li> </ul>	E C S	E C S	C C X	X X X
Scientific or Educational	N/A***	N/A***	С	N/A***
<ul><li>Signage</li><li>On Premise and Way Finding</li><li>Off Premise</li></ul>	N/A X	N/A X	N/A X	N/A X
Solid Waste Disposal	Х	Х	Х	Х
<ul><li>Transportation</li><li>Roads and Railroads</li><li>Shared Use Path</li></ul>	$C^1 / S^2$ S	$C^1 / S^2$ S	C S	C* S*
Utilities • Primary	$C^1 / S^2$	$C^1 / S^2$	С	C*
• Accessory to primary use	Refer to primary use	Refer to primary use	Refer to primary use	Refer to primary use

S = Requires a Shoreline Substantial Development Permit

E = Requires a Shoreline Exemption; and must comply with applicable Master Program sections

C = Requires a Shoreline Conditional Use Permit

X = Prohibited; not eligible for a Substantial Development or Conditional Use Permit

N/A=Not applicable, refer to the appropriate Master Program section for additional standards. Such uses and activities may not meet the definition of development or threshold to be considered "substantial development".

1 = Within one hundred (100) feet of the ordinary high water mark

2 = From one hundred (100) feet from the OHWM to the landward edge of shoreline jurisdiction

+= New marinas are prohibited until and unless the City's Comprehensive Plan for Outdoor Recreation demonstrates a need. See additional provisions in Section 17.49.020.

\* = In the Aquatic environment the use or shoreline modification may be allowed if it is allowed in the adjacent upland shoreline environment designation

\*\* Parking in the natural designation is limited to a single family garage attached to the house. Public access sites may have limited surface parking meeting development standards appropriate to the use provided the applicant illustrates it is infeasible to locate necessary parking outside the shoreline jurisdiction. \*\*\*Provided a Conditional Use Permit may be required according to the provisions of Section 17.66 1.G. of this SMP

## 17.24.015 Development Standards Table 4 – Development Standards by Shoreline Environment Designation

DEVELOPMENT STANDARDS	Shoreline Residential	Urban Conservancy	Natural	Aquatic
Aquaculture OHWM setback <sup>@</sup> Building height	15° 35'	25' 35'	50° 35°	NA 10'
<b>Boating Facilities</b> (Boat Launches, Marinas)				
Water-dependent OHWM setback <sup>@</sup> Building height	0' 30'	0' 30'	0', 25'	NA 20'
Water-related OHWM setback <sup>@</sup> Building height	15' 30'	15' 30'	25' 25'	NA NA
Parking facilities (surface)	50'	75'	150'	N/A
Recreation Development				
Water-dependent OHWM Setback <sup>@</sup> Building Height	25' 25'	25' 25'	25' 25'	NA 10'
Water-related & enjoyment OHWM Setback <sup>@</sup> Building Height	50' 25'	50' 25'	50' 25'	NA 10'
Nonwater-oriented OHWM Setback <sup>@</sup> Building Height	100' 25'	100' 25'	100' 25'	NA 10'
Shared Use Path OHWM Setback <sup>@</sup>	25'***	50'***	75'***	NA
Pedestrian Trails and Shoreline Access Segment	0'	0'	0'	
Residential Development Single-Family Dwellings				
Maximum Density OHWM Setback <sup>@</sup> Building Height Maximum Impervious Surfaces Minimum Lot Size/Width	4*du/ac 50' 35' 50% 7,500 s.f. <sup>+</sup> /50'	1 du*/ac 100' 35' 30% +/50'	1du*/10 ac 150' 35' 10% +/50'	NA NA NA NA
Attached Single Family & Multi-Family Dwellings Maximum Density OHWM Setback <sup>@</sup> Building Height Maximum Impervious Surfaces Minimum Lot Size/Width	4* du/ac 50 feet 35' 50%	1* du/ac 100' 35' 30% +	1* du/10 ac**** 150' 35' 10%**** +	NA NA NA NA
Accessory structures	50'	100'	150'	N/A
Transportation Roads and Railroads OHWM setback <sup>@</sup>	50'	75'	150'	NA

Utilities OHWM setback <sup>@</sup> Building height	50', 0'** 25 <sup>1</sup> /35 <sup>2</sup>	75', 0** 25 <sup>1</sup> /35 <sup>2</sup>	150°, 0** 20 <sup>1</sup> / 30 <sup>2</sup>	NA, 0'** NA
Accessory to primary use	Refer to Primary	Refer to Primary	Refer to Primary	Refer to Primary
	Use	Use	Use	Use

OHWM = Ordinary high water mark

NA = Not applicable, refer to the appropriate Master Program section for additional standards

+= Refer to residential lot size and width provisions in Section 17.63.025.

1 = Within one hundred (100) feet from the ordinary high water mark

2 = From one hundred (100) feet to the edge of the shoreline jurisdiction

@ = Refer to shoreline vegetation conservation provisions in Sections 17.41.

\*\*Water dependant utilities (such as a desalination plant) may extend into the water and will not be subject to a setback, as determined by the administrator.

\*\*\* The Administrator may authorize lesser setbacks upon granting of a variance, according to a site specific analysis considering purpose, need, environmental conditions and design, and provided no other alignment is practical or feasible. If a lesser setback is permitted, objectives of no net loss shall be satisfied. \*\*\*\* Housing must be clustered and be designed to have the least impact to shoreline resources, including utilization of low

\*\*\*\* Housing must be clustered and be designed to have the least impact to shoreline resources, including utilization of low impact development techniques. Emphasis is to encourage use of incentive programs, providing higher value and density opportunities when shoreline area is dedicated to the public. Under incentive programs all development and associated density is transferred out of shoreline jurisdiction to a designated receiving area.

## **17.24.020** Table 5 - Shoreline Modification by Shoreline Environment Designation

SHORELINE MODIFICATIONS	Shoreline Residential	Urban Conservancy	Natural	Aquatic
Dredging	NA	NA	NA	С
Grading and Fill Ecological Restoration Project	S	S	S	S
All Other Activities	С	С	Х	С
Buoy	S	S	С	*
Pier and Dock	$C^1 / S^2 / C^3$	$C^{1, 3} / S^2$	C**	C**
Recreational Float	S	S	С	*
Shoreline Stabilization				
Beach Restoration and Enhancement	S	S	S	S
Bioengineering	S	S	С	С
Revetment and Gabion	С	С	Х	С
Bulkhead	С	С	Х	С
Breakwater, Jetty, Groin and Weirs	Х	Х	Х	Х
Dike, Levee and Instream Structure	С	С	Х	C*
Stair Tower	Х	Х	Х	Х
****Replacement of Modification (repair exceeds 50% of replacement value)	С	С	С	С
**** <b>Repair of Modification</b> (repair value is less than 50% of replacement value)	Е	Е	Е	Е

S = Requires a Shoreline Substantial Development Permit

E = Requires a Shoreline Exemption; and must comply with applicable Master Program sections

C = Requires a Shoreline Conditional Use Permit

X = Prohibited; not eligible for a Substantial Development or Conditional Use Permit

NA = Not applicable, refer to the appropriate Master Program section for additional standards

1 = Serving one (1) property

2 = Serving two (2) or more properties and exceeding the exemption threshold for a Substantial Development Permit pursuant to Section 17.30.035 (7).

3 = Serving more than one property but under the exempt threshold for a Substantial Development Permit pursuant to Section 17.30.035 (7). \*The use or shoreline modification may be allowed in the Aquatic Environment if it is allowed in the adjacent upland environment. In such case the underlying permit process will be used for review and conditioning of the use or modification to ensure mitigation and no net loss of function or value.

\*\* Use is prohibited in the Natural designation, and Aquatic designation when located adjacent to shorelands with the Natural designation, except as provided in Section 17.61.020 (4), (8) and (9)

\*\*\*\* Value will be calculated from the International Building Code Tables used to calculate the value of improvements for determining the cost of permits. If no value can be assigned from the IBC, other means for determining the "fair market value" will be utilized.

## 17.25.000 Nonconforming Uses, Lots, and Structures:

Lacey's SMP has been written with the concern of having a home that is designated as nonconforming in mind. Lacey's strategy simply excludes the footprint of an existing legally established residence located within the shoreline setback from the ordinary high water mark (OHWM) from being labeled as nonconforming, while achieving no net loss of shoreline resources through mitigation as redevelopment or expansion occurs.

## 17.25.005 Nonconforming Concept and Lacey's Use of this Concept in this SMP:

#### 1. Traditional application of the term nonconforming:

The terms nonconforming use or nonconforming structure are used in zoning ordinances. Generally in zoning ordinances, a legal nonconforming status indicates a structure or use does not meet a standard in the current ordinance which has changed and is different from the standard in the ordinance in place at the time the use or structure was legally established.

Because of the public interest, the nonconforming structure or use may be strictly regulated. Dependent upon a jurisdiction's emphasis on gaining compliance over time, regulations can vary from being permissive to very restrictive.

Restrictive treatment might include preventing replacement of a structure or restrictions on any expansion. However, generally a balanced approach is taken weighing the public interest with the fair treatment of structures and uses legally established prior to the code requirement.

#### 2. Concern with implications:

Because of possible adverse implications a designation of "nonconforming" could have on a home, the City of Lacey has chosen not to create a situation where existing, legally established single family homes are labeled nonconforming as a result of new setbacks from the OHWM in this SMP.

At the same time, the City has determined the new setbacks and associated vegetation management areas and retention standards are necessary to achieve protection of shoreline resources and functions such as water quality.

## **3.** Lacey's approach for setbacks and related vegetation management areas for existing, legally established residential houses:

A. Policy: When establishing the setback from the OHWM on a waterfront lot for purposes of administering this SMP, the City will "draw" the setback and the associated vegetation management area around the footprint of any single family residential house that falls within the new OHWM setback and vegetation management area. In such cases, the setback and vegetation management area will wrap around the existing house in a configuration that excludes the footprint of the residence from the OHWM setback and vegetation management area. This will provide for a setback and vegetation management area surrounding the house, but will exclude the footprint of the existing residence from being labeled as nonconforming because of its location within such area.

**B. Policy**: An existing, legally established home where the setback and vegetation management area wrap around its perimeter, as outlined above, will be considered conforming to the OHWM setback standards in this SMP. Because of its location in relationship to the setback from the OHWM which surrounds it, such houses will be referred to as "conforming, expansion limited".

#### 4. Maintaining conforming status with an approved expansion:

- **A. Policy**: A proposal for enlargement or expansion of a residence that is designated "conforming, expansion limited" will be considered in the same way as a proposal for expansion of a structure that is designated nonconforming. Both should meet applicable requirements of this SMP for avoidance, minimization, and mitigation of impacts and no net loss of shoreline function and value.
- **B. Policy**: If expansion of a "conforming, expansion limited" house can be accommodated pursuant to the policies and standards of Sections 17.25.015 and 17.25.020, upon approval of the expansion the setback line and vegetation management area may be redrawn around the new footprint of the expanded structure to maintain the residence's status as "conforming, expansion limited".

#### 5. Nonconforming term used for other structures:

**Policy**: The term nonconforming will be applied to accessory residential structures, such as garages, storage sheds, decks and similar structures not used as the principle living area where such structures are located within the setback and/or vegetation management area.

#### 6. General provisions:

- **A. Policy**: Uses, lots, or structures within shoreline jurisdiction that were legally established prior to Lacey's update of this SMP on October 13, 2011, which do not meet the specific standards of this Master Program, are subject to the provisions of Section 17.25.
- **B. Policy**: Subject to the provisions of this program, a nonconforming use, lot, or structure lawfully existing prior to the effective date of this program, October 13, 2011 or any amendment thereto, which is rendered nonconforming or "conforming, expansion limited" by adoption of the Program or an amendment, may continue as is and in the manner and to the extent that it existed upon the effective date of the Program or amendment, respectively.

### 17.25.010 Continuance - Contiguous Lots

**Policy**: When a nonconforming lot is contiguous to another lot and both lots have the same owner, the contiguous lots are deemed a single, undivided lot for purposes of this Program unless:

- 1. Each lot has a dwelling;
- 2. The purchase of an adjacent lot is subsequent to the adoption of this Program (i.e., May 21, 1976); or
- 3. Pursuant to RCW 58.17.170, one or more of the lots is a platted lot, and less than five (5) years has lapsed since the final plat in which either of the lots is located was filed for record.

### **17.25.015** Alterations and Expansions of Nonconforming or "Conforming, Expansion Limited" Residential Structures

- 1. General Policies:
  - **A. Policy**: Expansion of all residential structures should meet requirements and standards of the environment designation in which they are located, including setbacks from the OHWM.
  - **B. Policy**: Proposals for expansion of a non conforming structure, or a structure designated "conforming, expansion limited", should include consideration of the potential for loss of ecological function.
  - **C. Policy:** Expansion of a nonconforming structure or "conforming, limited expansion" structure should meet the test of no increase in nonconformance. No increase in nonconformance means an action will not increase an aspect of the structure that resulted in it being designated nonconforming or "conforming, expansion limited" and that it does not materially interfere or jeopardize further the public interest.
  - **D. Policy:** Vertical expansions (within permissible height restrictions), expansion to the side (within permissible side yard restrictions), or expansion away from the OHWM will generally not be considered an increase in nonconformity. However, expansions vertically or to the side in areas that overlap the OHWM setback or vegetation management area may be considered an increase in nonconformance. Expansion requests of this type should comply with mitigation sequencing and minimize impacts to views and view corridors.
  - **E. Policy:** Dependent upon impacts identified and appropriate use of the mitigation sequence, expansion of a nonconforming structure or a structure designated "conforming, expansion limited" may be able to expand without increasing overall impact to shoreline resources and result in no net loss of ecological functions.
  - **F. Policy:** Landscaping standards of this SMP should be used to help implement the community's expectations for protection of Lacey's natural aesthetic qualities and capitalize on the benefits trees and native vegetation provide as identified in Lacey's Urban Forest Management Plan.
  - **G. Policy:** Expansion of a structure within the OHWM setback area or vegetation management area will require a vegetation management and mitigation plan to ensure all unavoidable impacts are mitigated for and that no net loss of shoreline ecological function occurs.

#### 2. Mitigation Standards:

- **A. Standard**: Requests for expansion of a nonconforming structure or "conforming, expansion limited" residential structure shall utilize the mitigation sequence and mitigation strategies set forth in this SMP to satisfy no net loss requirements.
- **B.** Standard: Expansions of nonconforming or "conforming, expansion limited" structures within the vegetation management area shall provide compensatory mitigation in accordance with the thresholds outlined in Section 17.41.021, Table 1.

- **C. Standard**: If expansion of a nonconforming structure or "conforming, expansion limited" structure will result in better management of shoreline resources expansion shall be approved.
- **D.** If impacts cannot be mitigated or the proposal cannot demonstrate protection and/or the maintenance of ecological function of shoreline resources expansion may be denied.

#### 3. Expansion of any structure for a nonconforming use prohibited:

**Policy**: Expansions of a structure into the OHWM setback is prohibited when the expansion is to accommodate a nonconforming use. However, when expansion of a structure involves encroachment into setbacks other than the setback from the OHWM, said expansion may be permitted pursuant to other requirements of this SMP.

## 4. Permit requirements for expansion of a nonconforming structure or a structure designated "conforming, expansion limited":

- **A. Standard**: Expansion of a nonconforming structure or a structure designated "conforming, expansion limited" where such expansion is proposed to further encroach on the OHWM setback by decreasing the distance between the structure and the OHWM, shall require a variance under Section 17.30.020. This does not apply to expansions to the side or rear of the structure within the setback/vegetation management area.
- **B.** Standard: Expansion of a nonconforming structure or a structure designated "conforming, expansion limited", where such expansion does not further encroach into the OHWM setback or vegetation management area by decreasing the distance between it and the OHWM, shall follow permit process requirements outlined in Section 17.30 and Table 3.

### **17.25.025** Expansions of Nonconforming Uses

**Standard**: The expansion of a nonconforming use shall be prohibited. An intensification of use is permitted when the intensified use is contained within the existing structure, or area which has been in use, and is not different in kind from the existing nonconforming use. Refer to Section 17.47 for policies and standards relating to expansion of a pre-existing approved use as defined in this SMP.

### 17.25.030 Relocation of Nonconforming or "Conforming, Expansion Limited" Structure

- 1. **Policy**: When a nonconforming structure or a structure designated "conforming, expansion limited" is moved, the new location should decrease the nonconformance or increase the setback from the OHWM and not result in an impact on shoreline functions and values. In circumstances where compliance with the OHWM setback is not possible or would result in extraordinary hardship, the Administrator may allow the structure to be moved to a new location within the setback area.
- 2. **Standard**: A nonconforming or "conforming, expansion limited" structure shall be brought into compliance with the Shoreline Master Program when it is moved. The decision to allow such a structure to be relocated to another location within the setback area shall be at the sole discretion of the Administrator, through application of the mitigation sequence.

3. **Standard**: The process for reviewing relocation of a nonconforming structure or "conforming, expansion limited" structure to another location within the setback area shall be a conditional use permit.

## **17.25.035 Resumption of Discontinued or Abandoned Nonconforming Use**

**Standard**: A nonconforming use, when abandoned or discontinued, shall not be resumed. Discontinuance or abandonment is presumed to occur when land or a structure is not used for a particular use for eighteen (18) consecutive months pursuant to Lacey's nonconforming use provisions in LMC 16.93.030. Any person may appeal the Administrator's determination that discontinuance or abandonment has occurred pursuant to the requirements of LMC 2.30 and Chapter One of the Development Guidelines and Public Works Standards.

## 17.25.040 Development of a Nonconforming Lot

**Policy**: When the shape or size of an existing, legally created lot would prevent development consistent with the applicable bulk or dimensional requirements in this SMP, the Administrator may authorize development under the following conditions:

- A. A written request is received from the project proponent;
- B. The development will be located as far landward as possible from the ordinary high-water mark;
- C. The decision of the Administrator is based upon the shoreline variance criteria found in Section 17.30.020.

## **17.25.045** Notification for Development of a Nonconforming Lot

- 1. **Policy**: Upon receiving a written request, the Administrator shall mail notice of the request to all property owners within three hundred (300) feet. At a minimum, the notice shall state the following:
  - A. The decision on the request will be made within ten days from the date that the notice was mailed; and
  - B. Interested citizens may contact the Shoreline Administrator for further information and to learn the Administrator's decision.
- 2. **Policy**: Appeal of the Administrator's decision shall be made in accordance with the procedures of appeal established in LMC 2.30 and Chapter One of the Development Guidelines and Public Works Standards.

## **17.25.050** Reconstruction of a Nonconforming Structure

- 1. **Policy**: In the event that a nonconforming structure is destroyed by fire, explosion, natural catastrophe, or act of public enemy, nothing in this Program shall prevent the reconstruction of that or a more conforming structure provided a building permit must be obtained for reconstruction within one (1) year after the destruction and timely progress towards completion of the reconstruction must be demonstrated.
- 2. **Policy**: If progress towards completion is not demonstrated the building permit shall expire without an opportunity for renewal.

### 17.25.055 Conversion of a Nonconforming Use

Policy: A nonconforming use may not be converted to a prohibited use.



A swing set and deck adjacent to Pattison Lake off Rumac will provide fond memories for residents, but the structures are considered nonconforming and would not meet new standards.

### **17.30.000 Shoreline Permits**

Shoreline permits and exemptions shall be processed according to the procedures described in Chapter I of the City Development Guidelines and Public Works Standards.

### 17.30.010 Substantial Development Permit Criteria

- 1. A shoreline substantial development permit shall be required for all proposed uses and developments of shorelines unless the proposal is specifically exempted by Section 17.30.030.
- 2. In order to be approved, the City of Lacey shall find that the proposal is consistent with the following criteria:
  - A. All regulations of this program appropriate to the shoreline environment designation and the type of use or development proposed shall be met, except those bulk and dimensional standards that have been modified by approval of a shoreline variance under Section 17.30.020;
  - B. All general goals and policies of this program, and goals, policies and standards specific to the appropriate shoreline environment designation and the type of use or development activity proposed shall be considered and substantial compliance demonstrated.
- 3. Consideration shall be given to the cumulative environmental impact of additional requests for like actions in the shoreline vicinity. For example, if shoreline substantial development permits were granted for other developments in the area where similar circumstances exist, the sum of the permitted actions should also remain consistent with the policy of RCW 90.58.020 and should not produce significant adverse effects to the shoreline ecological functions and processes or other users.
- 4. The City of Lacey is the final authority for a Shoreline Substantial Development Permit, unless there is an appeal filed with the State Shoreline Hearing Board.

## 17.30.015 Shoreline Conditional Use Permit

The purpose of a conditional use permit is to provide a system within the master program which allows flexibility in the application of use regulations in a manner consistent with the policies of RCW 90.58.020. In authorizing a conditional use, the City or Department may attach special conditions to the permit to prevent undesirable effects of the proposed use and/or to assure consistency of the project with the Act and the local master program.

- 1. Uses which are classified or set forth in the City of Lacey's Shoreline Master Program as conditional uses may be authorized provided that the applicant demonstrates all of the following:
  - A. That the proposed use is consistent with the policies of RCW 90.58.020 and the master program;
  - B. That the proposed use will not interfere with the normal public use of public shorelines;
  - C. That the proposed use of the site and design of the project is compatible with other authorized uses within the area and with uses planned for the area under the Comprehensive Land Use Plan and Shoreline Master Program;

- D. That the proposed use will cause no significant adverse effects to the shoreline environment in which it is to be located; and
- E. That the public interest suffers no substantial detrimental effect.
- 2. In the granting of all conditional use permits, consideration shall be given to the cumulative impact of additional requests for like actions in the area, for example, if conditional use permits were granted for other developments in the area where similar circumstances exist. The total of the conditional uses shall also remain consistent with the policies of RCW 90.58.020 and shall not produce substantial adverse effects to the shoreline environment.
- 3. Other uses which are not classified or set forth in Lacey's Master Program may be authorized as conditional uses provided the applicant can demonstrate consistency with the requirements of this section, and the requirements for conditional uses contained in the Shoreline Master Program, and the intent of provisions of the Comprehensive Land Use Plan.
- 4. Uses which are specifically prohibited by the Shoreline Master Program may not be authorized.

### 17.30.020 Shoreline Variance Permit

The purpose of a variance permit is strictly limited to granting relief from specific bulk, dimensional or performance standards set forth in the applicable master program where there are extraordinary circumstances relating to the physical character or configuration of property such that the strict implementation of the master program will impose unnecessary hardships on the applicant or thwart the policies set forth in RCW 90.58.020.

- 1. Variance permits should be granted in circumstances where denial of the permit would result in a thwarting of the policy enumerated in RCW 90.58.020. In all instances the applicant must demonstrate that extraordinary circumstances shall be shown and the public interest shall suffer no substantial detrimental effect.
- 2. Variance permits for development and/or uses that will be located landward of the ordinary high water mark (OHWM) and/or landward of any wetland as defined in this Master Program may be authorized provided the applicant can demonstrate all of the following:
  - A. That the strict application of the bulk, dimensional or performance standards set forth in Lacey's Master Program precludes or significantly interferes with reasonable use of the property;
  - B. That the hardship described in (A.) of this subsection is specifically related to the property, and is the result of unique conditions such as irregular lot shape, size, or natural features and the application of the master program, and not, for example, from deed restrictions or the applicant's own actions;
  - C. That the design of the project is compatible with other authorized uses within the area and with uses planned for the area under the Comprehensive Land Use Plan and Shoreline Master Program and will not cause adverse impacts to the shoreline environment;
  - D. That the variance will not constitute a grant of special privilege not enjoyed by the other properties in the area;
  - E. That the variance requested is the minimum necessary to afford relief; and

- F. That the public interest will suffer no substantial detrimental effect.
- 3. Variance permits for development and/or uses that will be located waterward of the ordinary high water mark (OHWM) or within any wetland as defined in this Master Program may be authorized provided the applicant can demonstrate all of the following:
  - A. That the strict application of the bulk, dimensional or performance standards set forth in Lacey's Master Program precludes all reasonable use of the property;
  - B. That the proposal is consistent with the criteria established under Section 17.20.030. 2 A-F; and
  - C. That the public rights of navigation and use of the shorelines will not be adversely affected.
- 4. In the granting of all variance permits, consideration shall be given to the cumulative impact of additional requests for like actions in the area, for example, if variances were granted to other developments and/or uses in the area where similar circumstances exist. The total of the variances shall also remain consistent with the policies of RCW 90.58.020 and shall not cause substantial adverse effects to the shoreline environment.
- 5. Variances from the use regulations of the Shoreline Master Program are prohibited.
- 6. Water-oriented and water-related uses may be located within the required shoreline setback and vegetation management area without a shoreline variance, provided other required permits are obtained and the mitigation sequence is followed. Uses that may locate within the setback and vegetation management area without a variance include the following:
  - A. Boating facilities accessory to a single-family residential development including piers, docks, buoys and floats;
  - B. Pedestrian beach access structures including stairs, with the exception of stair towers;
  - C. Public access trails and paths and structures for public access including but not limited to stairways, piers, docks, or floats.

### 17.30.030 Shoreline Exemption Criteria

- 1. An exemption from the substantial development permit process is not an exemption from compliance with the Act or this Program, or from any other regulatory requirements. To be authorized, all uses and developments must be consistent with the policies and regulatory provisions of this Program and the Act. A statement of exemption shall be obtained for exempt activities.
- 2. Exemptions shall be construed narrowly. Only those developments that meet the precise terms of one or more of the listed exemptions may be granted exemptions from the substantial development permit process.
- 3. The burden of proof that a development or use is exempt is on the applicant or proponent.

- 4. If any part of a proposed development is not eligible for exemption, then a substantial development permit is required for the entire project.
- 5. A development or use that is listed as a conditional use pursuant to this Program or is an unlisted use must obtain a shoreline conditional use permit even if the development or use does not require a shoreline substantial development permit.
- 6. When a development or use is proposed that does not comply with the bulk, dimensional and/or performance standards of the Program, such development or use shall only be authorized by approval of a shoreline variance even if the development or use does not require a substantial development permit.
- 7. All permits or statements of exemption issued for development or use within the shoreline jurisdiction shall include written findings prepared by the Administrator, including compliance with bulk, dimensional standards and policies and regulations of this Master Program. The Administrator may attach conditions to the approval of exempt developments and/or uses as necessary to assure consistency of the project with the Act and the Program.

## 17.30.035 Shoreline Exemptions Listed

The following shall be considered exempt from the requirement to obtain a shoreline substantial development permit.

- Any development of which the total cost or fair market value is less than five thousand seven hundred and eighteen dollars (\$5,718), and does not materially interfere with the normal public use of the water or shorelines of the state. The dollar threshold established in this subsection must be adjusted for inflation by the Office of Financial Management every five years, beginning July 1, 2007, based upon changes in the consumer price index during that time period. "Consumer price index" means for any calendar year that year's annual average consumer price index of all items in the Seattle, Washington area for urban and clerical workers, compiled by the Bureau of Labor and Statistics, United States Department of Labor. The Office of Financial Management must calculate the new dollar threshold and transmit it to the Office of the Code Reviser for publication in the Washington State Register at least one month before the new dollar threshold is to take effect.
- 2. Normal maintenance or repair of existing structures or developments, including damage by accident, fire, or elements; see also section defining "normal" maintenance and repair and permit requirements for maintenance that does not qualify under this exemption.
- 3. Construction of the normal protective bulkhead common to single family residences.
- 4. Emergency construction necessary to protect property from damage by the elements.
- 5. Construction or modification of navigational aids such as channel markers and anchor buoys.
- 6. Construction on shorelands by an owner, lessee, or contract purchaser of a single family residence for his own use or for the use of his or her family. The residence must not exceed a height of thirty-five feet above average grade level, and meet all requirements of the state agency or local government having jurisdiction thereof, other than requirements imposed pursuant to this chapter.

- 7. Construction of a dock, including a community dock, designed for pleasure craft only, for the private noncommercial use of the owner, lessee, or contract purchaser of single and multiple family residences. This exception applies if either: (A) In salt waters, the fair market value of the dock does not exceed two thousand five hundred dollars; or (B) in fresh waters, the fair market value of the dock does not exceed ten thousand dollars, but if subsequent construction having a fair market value exceeding two thousand five hundred dollars occurs within five years of completion of the prior construction, the subsequent construction shall be considered a substantial development for the purpose of this chapter.
- 8. Operation, maintenance, or construction of canals, waterways, drains, reservoirs, or other facilities that now exist or are hereafter created or developed as a part of an irrigation system for the primary purpose of making use of system waters, including return flow and artificially stored groundwater for the irrigation of lands.
- 9. The marking of property lines or corners on state owned lands, when such marking does not significantly interfere with normal public use of the surface of the water.
- 10. Operation and maintenance of any system of dikes, ditches, drains, or other facilities existing on September 8, 1975, which were created, developed, or utilized primarily as a part of an agricultural drainage or diking system.
- 11. Site exploration and investigation activities that are prerequisite to preparation of an application for development authorization under this chapter, if:
  - A. The activity does not interfere with the normal public use of the surface waters;
  - B. The activity will have no significant adverse impact on the environment including, but not limited to, fish, wildlife, fish or wildlife habitat, water quality, and aesthetic values;
  - C. The activity does not involve the installation of a structure, and upon completion of the activity the vegetation and land configuration of the site are restored to conditions existing before the activity;
  - D. A private entity seeking development authorization under this section first posts a performance bond or provides other evidence of financial responsibility to the City of Lacey local jurisdiction to ensure that the site is restored to preexisting conditions; and
  - E. The activity is not subject to the permit requirements of RCW 90.58.550.
- 12. The process of removing or controlling an aquatic noxious weed, as defined in RCW 17.26.020, through the use of an herbicide or other treatment methods applicable to weed control that are recommended by a final environmental impact statement published by the Department of Agriculture or the Department jointly with other state agencies under RCW 43.21C.

## **17.30.040** Letter of Exemption from Substantial Development Permit Process

The proponent of a project that qualifies for an exemption must obtain confirmation that it conforms to the Shoreline Master Program and to state law. If it conforms, a letter of exemption will be issued stating that there are no further shoreline permits to obtain, and may contain conditions which the proponent must meet.

## 17.30.045 Unclassified Uses

This program does not attempt to identify or foresee all conceivable shoreline uses or types of development. When a use or development is proposed which is not readily classified within an existing use or development category, it shall require a conditional use permit. During processing of the application, the Administrator and Hearing Examiner shall identify and apply those program policies and regulations which will best promote the policies of the Shoreline Management Act and the Shoreline Master Program, with special reference to the policies of the environmental designation in which the use will be located. In addition, general goals, policies and standards shall also apply.

## **17.30.047** Maintenance and Repair Activities -Exemption Threshold and Activity Not Exempted

- 1. Normal maintenance and repairs to an existing shoreline modification (see description of modification in Section 17.45.000), shall be exempt from acquiring a substantial development permit in accordance with Section 17.30.035 if such repair and maintenance activities are valued at less than 50% of the replacement value of the structure or modification.
- 2. Where the value of repair of an existing modification is equal to or exceeds 50% of the replacement value, it shall be considered a replacement and a conditional use permit shall be required.
- 3. When a conditional use permit is required for replacement and the existing modification does not meet standards in this SMP and may be having an adverse impact on shoreline functions and values, review shall include consideration of, and preference for, other more ecologically sound practices that can achieve the same function.
- 4. Placement of a modification or replacement of an existing modification designed for stabilization must be designed for protection or stabilization of a residence(s) that is in danger from active erosion. Such modification may be permitted through a conditional use permit, if it is demonstrated by a qualified geotechnical engineer, that it is the only feasible way to protect the residence(s), and such modification will not result in a net loss of ecological function or otherwise conflict with the public's interest.
- 5. Where it is demonstrated that replacement of a modification is necessary for the maintenance of shoreline ecological functions and is in the public interest, such activity may be exempt from permit requirements as determined by the administrator if such replacement does not exceed the exemption threshold for a Substantial Development Permit pursuant to Section 17.30.035 (7).

## 17.30.050 Inspections

Pursuant to RCW 90.58.200, the Administrator or his authorized representative(s) of that local government may enter land or structures to enforce the provisions of this program. Entry shall be at reasonable times. If the land or structures are occupied, the Administrator shall first present proper credentials and request entry; and if the land or structures are unoccupied, the Administrator shall first make a reasonable effort to locate the owner, or other person having control of the property, and request entry.

## 17.30.055 Penalties and Enforcement

The Shoreline Management Act imposes significant penalties for violation of the act, regulations and master programs. A violation constitutes a gross misdemeanor, which is punishable by fine or imprisonment (RCW 90.58.220). In addition to the criminal penalty, the Act imposes liability on any person violating the act or conditions of a permit for all damage to public or private property arising from the violation. Furthermore, the violator may have to restore an area affected by a violation, and pay the entire cost of restoration, including attorney's fees and court costs (RCW 90.58.230). There may also be civil penalties that apply (RCW 90.25.210).

## **17.35.000** Relationship to Other Land Use Regulations

## **17.35.005** Local Permits, Approvals and Shoreline Exemptions

- 1. Activities requiring Shoreline Permits In the case of development subject to the shoreline permit requirement of this program, the Administrator shall not issue a building permit for such development until a shoreline permit has been granted. Also, any permit issued by the Administrator for such development shall be subject to the same terms and conditions that apply to the shoreline permit.
- 2. Activities exempt from shoreline permit requirements In the case of development subject to regulations of this program but exempt from the shoreline substantial development permit requirement, any required statement of exemption shall be obtained prior to issuance of the building permit or applicable approval. For single family residences, a building permit reviewed and signed off by the Administrator and including any conditions, may substitute for a written statement of exemption.
- 3. All land use planning permits The City shall use a "shoreline zoning overlay" designation to integrate the Shoreline Master Program map and all standards of the Shoreline Master Program with the Lacey zoning code. This overlay zoning will provide the basis for review and application of standards and conditions for all of the City's land use planning processes and permits. For all planning permits and approvals the Administrator shall attach conditions and mitigation measures as necessary to ensure that the design, development, functionality and use is consistent with the goals, policies, standards and intent of this program.

## **17.35.010** Compliance with Existing Development Regulations

Use and development within shoreline jurisdiction shall comply with City development standards, and applicable state and federal regulations, provided they do not conflict with the shoreline goals, shoreline policies, and development regulations of this program. In the case of conflicts between specific standards and regulations the most restrictive shall usually apply and goals and policies of the Shoreline Management Act and this Master Program shall always guide interpretation of the most appropriate standard to apply.

## **17.35.020** Critical Areas Regulations within Shoreline Jurisdiction

#### 1. Adoption of Critical Area ordinances of LMC Chapter 14, with exceptions:

The City of Lacey Critical Area Ordinances, in Title 14 of the Lacey Municipal Code, shall be adopted as a part of this SMP, with a few exceptions. The intent of referencing and use of critical

area legislation is to provide the best protection for these resources. It is also the intent of this SMP, to apply a consistent and efficient consolidated process for review and action on proposals involving these resources. To these purposes, the critical area ordinances are adopted as part of the SMP with the following exceptions:

#### A. Exceptions of certain provisions in conflict with the intent of the SMP.

Where there are provisions in chapter 14 that are less restrictive than the SMP, those provisions will not be applied. However, where there are provisions that are more restrictive than the SMP, they will generally be applied, except as provided for in this section of the SMP (17.35). The intent is to ensure the provision providing the most protection is always applied. To this purpose, the following provisions within Chapter 14 shall not apply to proposals involving critical areas that are within shoreline jurisdiction:

- "Exempt uses and activities" or "exceptions" or "exemptions" LMC 14.28.140, LMC 14.33.080, and LMC 14.37.080. The only "exemptions" allowed within shoreline jurisdiction are those listed as being exempt from a shoreline substantial development permit.
- 2) "Administratively authorized uses and activities" or "allowed activities" Any activity which is not exempt within shoreline jurisdiction will require a shoreline substantial development permit, shoreline conditional use permit, or shoreline variance.
- 3) "Reduction of standard buffer zone width" LMC 14.28.300. Reduction of the standard wetland buffer width within shoreline jurisdiction may be permitted in accordance with subsection (C) below. When outside the shoreline residential designation, reductions may be permitted in accordance with the provisions outlined in LMC 14.28.300 when not used in combination with provisions for buffer averaging. Further reductions will require a shoreline variance.
- 4) "Administrative variances" Administrative variances, being variances authorized by the administrator without the use of a shoreline variance, are prohibited within shoreline jurisdiction.
- 5) "Standard buffer width averaging" LMC 14.28.310, LMC 14.33.116 G (3) and LMC 14.33.117 D (4). Wetland buffer averaging within shoreline jurisdiction is not permitted when used in combination with buffer reduction. If averaging is permitted, the buffer width shall not be reduced by more than 25% of the standard buffer of be less than 35 feet in any location; further averaging will require a shoreline variance. In the case of an associated wetland, the edge of the wetland is the edge of the shoreline jurisdiction. Habitat buffers for both riparian and non-riparian habitats may be averaged if such averaging does not result in a buffer width of less than 75% of the recommended buffer width. Averaging may not be used in combination with reductions. Further averaging will require a shoreline variance.
- 6) "Reduction to wetland replacement ratios" LMC 14.28.445 (B) and 14.28.450 D (2). A reduction of the wetland replacement ratio within shoreline jurisdiction will require a shoreline variance.
- 7) "Reasonable use exception" LMC 14.28.350 (E). Within a shoreline jurisdiction, a shoreline conditional use permit and/or shoreline variance will serve as a reasonable use exception review. The Administrator shall determine whether a CUP or variance is required depending upon the proposed activity and purpose for which relief is sought; see Sections 17.30.015-17.30.020 of the SMP.
- Determination of a Wetland Boundary LMC 14.28.090. Within shoreline jurisdiction, identification of wetlands and delineation of their boundaries shall be done in accordance with the approved federal wetland delineation manual and applicable regional supplements. See WAC 173-22-035.
- 9) "Building Setback Lines" Within shoreline jurisdiction, the requirement to locate the setback line a distance that corresponds to the required yard area setback for the

underlying zone from the edge of a wetland buffer (LMC 14.28.340) or designated priority habitat or species buffer (LMC 14.33.190) shall not apply.

B. Exception of certain provisions related to permit process and timing:

Permit processes: Where processes or timelines identified in the SMP conflict with critical area permit processes or timelines in LMC Chapter 14, the requirements of the SMP shall apply. Specific permits used to review and condition proposals within chapter 14 of the LMC shall be dovetailed with the underlying SMP permit or approval. The underlying permit, process and timeline used in the SMP shall be utilized.

C. Exception related to buffer widths for freshwater critical areas in the Shoreline residential zone: Within the shoreline residential environment designation, buffers for freshwater critical areas along lake front platted lots may be reduced to match setbacks from the OHWM as identified for the most intensive use expected for the property as illustrated in Section 17.24.015, Table 4.

## 2. Standards of critical area ordinances and principals and requirements of the SMP:

- A. All standards and provisions of the critical area ordinances, relative to performance standards and protection of critical areas and resources are considered a fundamental requirement.
- B. No net loss of ecological function and value and mitigation sequencing are the baseline criteria for permit and exemption actions.

### 3. Critical Area Principles

**Principles**: The following principles are embodied within Lacey's Critical Area Ordinances, but are not so stated in relationship to shoreline management areas. These principals are stated here for clarity of purpose in application in shoreline jurisdiction under this SMP:

- 1) Planning Objectives: The planning objective for critical areas in shoreline jurisdiction is the protection of existing ecological functions and ecosystem-wide processes and restoration of degraded ecological functions and ecosystem-wide processes.
- 2) Regulatory provisions: The regulatory provisions for critical areas are intended to protect existing ecological functions and ecosystem-wide processes.
- 3) Protection, use and enjoyment: An underlying intent is to promote human uses and values that are compatible with the other objectives of the Shoreline Management Act and this Shoreline Master Program, such as public access and aesthetic values, provided they do not significantly adversely impact critical areas and shoreline ecological functions.

## 17.35.030 Critical Saltwater Habitat and Marine Riparian Habitat

- 1. Location and type: The marine shoreline in Lacey runs generally from the Butterball Cove area to Mallard Cove. The shorelands are adjacent to aquatic areas that are designated as critical saltwater habitat, which includes pocket estuaries, eel grass beds, forage fish spawning habitat and feeder bluffs; see Map L14 in the inventory.
- 2. Shoreline Designation: With the exception of the area where an existing marina is located in Mallard Cove, area landward of the OHWM and associated wetlands and pocket estuaries have

been designated as Natural. Areas immediately surrounding the marina are designated urban conservancy. Areas water ward of the OHWM are designated aquatic; see Appendix 6.

**3.** Land Use: The majority of this area is in the Hawks Prairie Planned Community. Conditions for the planned community restrict development and preserve the area for enjoyment as passive open space. Trails provide visual and physical access to the beach. The trail is owned by the Planned Community's homeowners association, but historically this access has also been used by the general public.

The existing marina in Mallard Cove is private and belongs to the Beachcrest Community. The Beachcrest subdivision is located in Thurston County, but a portion of the Marina falls within the Hawks Prairie Planned Community and within the City of Lacey.

## **17.35.031** Goals and Policies for Protection of Marine Riparian Habitat

- 1. Goal: Protect Lacey's marine riparian habitat areas and achieve no net loss of ecological functions or values in these areas.
  - **A. Policy:** Utilize best available science recommendations provided in literature from state resource agencies when developing standards and reviewing habitat management plans, as provided for in LMC 14.33 and incorporated into this SMP, for activities in marine riparian habitat areas.
  - **B. Policy:** Utilize standards in Lacey's critical areas ordinances and tree and vegetation protection legislation, as appropriate, to protect marine riparian areas and achieve no net loss objectives of this SMP.
  - **C. Policy:** Utilize the recommendations and "general conclusions" of the white paper "Protection Of Marine Riparian Functions In Puget Sound, Washington" prepared by the State's Aquatic Habitat Guidelines (AHG) Program when considering the importance of marine riparian areas and reviewing proposed uses and activities in these areas, including:
    - 1) "General conclusions" identified in Section VI of the report
    - 2) "Overarching" recommendations identified in Section VI of the report
    - 3) "Impact specific" recommendations identified in Section VI of the report.
  - **D. Policy:** Adopt the "general conclusions" in Section IV of the AHG white paper as findings in regard to the importance of marine riparian areas. These conclusions should be considered when designing projects and developing management strategies for activities proposed within marine riparian areas.
    - 1) Riparian areas perform important hydrologic, geomorphic, and biological functions. These areas encompass complex above- and below-ground habitats created by the convergence of biophysical processes in the transition zone between aquatic and terrestrial ecosystems.
    - 2) Riparian areas cannot be thought of in isolation from associated water bodies. The characteristic geomorphology, plant communities, and associated aquatic and wildlife species of riparian and marine systems are intrinsically linked.
    - 3) Natural riparian systems have adapted to specific disturbance regimes. Managing riparian areas without regard to their dynamic patterns and influences of adjacent water bodies ignores a fundamental aspect of how these systems function.

- 4) Riparian areas, in proportion to their area within a watershed, perform more biologically productive functions than do uplands. Riparian areas provide a wide range of functions, such as microclimate modification and shade, bank stabilization and modification of sediment processes, contributions of organic matter and large wood to aquatic systems, nutrient retention and cycling, wildlife habitat, and general food web support for a wide range of aquatic and terrestrial organisms.
- 5) Riparian areas are effective in filtering and transforming materials (such as dissolved and particulate nonpoint source pollutants) from hill slope runoff.
- 6) Because riparian areas are located at the convergence of terrestrial and aquatic ecosystems, they are regional hot spots of biodiversity and often exhibit high rates of biological productivity in marked contrast to the larger landscape.
- 7) During the last decade, a patchwork of federal, state, and local laws and programs has come to acknowledge the importance of riparian areas and to require or encourage special management to restore or protect their essential functions, although the degree of protection, the focus, and the spatial coverage of these laws and programs are highly variable among federal, state, and local levels.
- E. **Policy:** Adopt the "overarching recommendations" in Section IV of the AHG white paper as management strategies for marine riparian areas. These strategies should be considered in the design and management of all projects proposed within marine riparian areas.
  - 1) Protect marine riparian soils and vegetation prevent damage to native riparian soils and vegetation, including clearing and grading, compaction, covering (paving) and removal.
  - 2) Restore damaged marine riparian habitat restore vegetation, soil characteristics.
  - 3) Account for scale issues (temporal and spatial) when evaluating riparian conditions, current functions and potential for future functions, and cumulative effects of alterations. The dynamic nature and connectivity of riparian areas and linkages between riparian and aquatic systems operate at multiple scales.
  - 4) Exclude all major sources of contamination from the riparian buffer, including construction, impervious surfaces, mining, septic system drain fields, agricultural activity, clear cutting and application of pesticides and herbicides.
  - 5) Manage riparian areas for the long-term. For many sites, substantial time, on the order of years to decades, will be required for vegetation to become fully functional.

## **17.35.032** Standards for Protection of Marine Riparian Habitat

- 1. Standard: The following "Recommendations to Avoid or Minimize Specific Impacts" from the AHG white paper, as modified, shall be incorporated into the design and management of all projects within marine riparian areas. Compliance with these standards shall be detailed within a habitat management plan. If one of the provisions below is less restrictive than another applicable provision in Lacey's critical area regulations and in this SMP, the most restrictive and protective shall apply:
  - A. Vegetation removal on shorelines and bluffs shall be avoided to the maximum extent possible. If vegetation must be removed, the area and amount removed shall be minimized and located as far landward of the ordinary high water mark as possible. Ground disturbance, removal of mature trees, and introduction of nonnative vegetation, especially invasive species such as English Ivy, shall be minimized.
  - B. Impervious surfaces shall not be located in marine riparian areas. If impervious surfaces must be located within or adjacent to marine riparian areas, the footprint shall be minimized and

impacts shall be mitigated through techniques such as the use of pervious surfaces like pervious pavers and concrete, bioretention facilities such as rain gardens, green roofs, cisterns, etc. Pollutant loading shall be minimized. Bioretention and other facilities that infiltrate water, if located along slopes and bluffs, shall be designed so as to not increase the likelihood of mass failures or erosion.

- C. Shoreline modification shall be avoided to the maximum extent possible. Existing native vegetation shall be maintained, particularly at and near the land-water interface. If shoreline alterations must occur they shall be done in a way that minimizes potential negative impacts to natural functions and shall use the least intrusive methods including bioengineering or relocating structures where feasible and practicable. All adverse impacts shall be fully mitigated.
- D. Invasive plant species shall be removed from marine riparian areas. Purple Loosestrife, Himalayan blackberry, English Ivy and other invasive plants compete with native species, particularly in disturbed sites along marine bluffs and shorelines.
- E. As appropriate through the mitigation sequence, restore and replant marine riparian areas with native vegetation to improve the connectivity between upland and marine riparian habitat and to restore functions that benefit the nearshore and beach ecosystems. Replanted marine riparian areas shall be properly maintained so as to guarantee plant survival.
- F. Buildings shall be discouraged within the riparian buffers. If authorized through the appropriate permitting process contained in this SMP, the footprint and site disturbance of structures shall be minimized and structures shall be located as far landward of the water's edge areas as possible.
- G. Septic systems and new waste water systems are prohibited in marine riparian areas. Existing systems within the drainage basin that could impact the riparian area shall be maintained, and operated in such a way that human waste and nutrients are prevented from leaching into local water bodies.
- H. Disturbance to native vegetation shall be avoided in marine riparian areas, especially near the water's edge, with the goal of maintaining vegetation communities that are resilient to disturbance from surrounding land uses and able to regenerate with minimal human intervention. Nutrients, pathogens, toxics, and fine sediments associated with land-use practices shall be prevented from entering marine water bodies.
- I. Salvage or removal of downed trees, LWD or snags in riparian areas and on beaches shall be avoided. All efforts shall be made to maintain complex, multi-aged riparian forest cover and wide buffers to allow natural recruitment of LWD over long time frames.
- J. Mitigation sequencing of Section 17.40.015 shall be utilized for all activities in marine riparian buffers. Impacts that cannot be avoided shall be fully mitigated.

## **17.35.033** Goals and Policies for Protection of Critical Saltwater Habitat

- 1. Goal: Protect Lacey's critical saltwater habitat areas and achieve no net loss of ecological functions or values in these areas.
  - **A. Policy:** Utilize best available science recommendations provided in literature from state resource agencies when developing standards and reviewing habitat management plans for projects intruding into or over critical saltwater habitat areas.
  - **B. Policy:** Because ecological functions of marine shorelands can affect the viability of critical saltwater habitat, effective protection of critical saltwater habitats should integrate the policies for management of shorelands, outlined in Section 17.35.031, with management policies for submerged areas.
  - **C. Policy**: Activities in, over or adjacent to critical saltwater habitat should consider the following, where applicable:
    - 1) Protecting a system of fish and wildlife habitats with connections between larger habitat blocks and open spaces and restoring such habitats and connections where they are degraded;
    - 2) Protecting existing and restoring degraded riparian and estuarine ecosystems, especially salt marsh habitats;
    - 3) Establishing adequate buffer zones around these areas to separate incompatible uses from the habitat areas;
    - 4) Protecting existing and restoring degraded near-shore habitat;
    - 5) Protecting existing and restoring degraded or lost salmonid habitat;
    - 6) Protecting existing and restoring degraded upland ecological functions important to critical saltwater habitats, including riparian vegetation;
    - 7) Improving water quality;
    - 8) Protecting existing and restoring degraded sediment inflow and transport regimens; and
    - 9) Correcting activities that cause excessive sediment input where human activity has led to mass wasting.

## **17.35.035** Standards for Protection of Critical Saltwater Habitat

- 1. Standard: Docks, bulkheads, bridges, fill, floats, jetties, utility crossings, and other humanmade structures shall not intrude into or over critical saltwater habitats except when all of the conditions below are met.
  - A. The public's need for such an action or structure is clearly demonstrated and the proposal is consistent with protection of the public trust, as embodied in RCW 90.58.020;

- B. Avoidance of impacts to critical saltwater habitats by an alternative alignment or location is not feasible or would result in unreasonable and disproportionate cost to accomplish the same general purpose;
- C. The project including any required mitigation will result in no net loss of ecological functions associated with critical saltwater habitat.
- D. The project is consistent with the state's interest in resource protection and species recovery.
- E. Docks for community use may be authorized provided that:
  - 1) Avoidance of impacts to critical saltwater habitats by an alternative alignment or location is not feasible;
  - 2) The project, including any required mitigation, will result in no net loss of ecological functions associated with critical saltwater habitat.

### 17.35.036 Buffer requirements for Protection of Lacey's Marine Riparian Areas and Critical Saltwater Habitat

- 1. Standard: The minimum baseline marine riparian habitat area buffer shall be 200 feet measured landward from the OHWM. The Administrator may authorize reduction of the standard buffer under the conditions and through the process provided for in LMC 14.33 and incorporated into this SMP.
- 2. Standard: Activities and structures associated with water oriented public access opportunities may intrude into marine riparian area or critical saltwater habitat area buffers, provided such public access is consistent with the intent and applicable provisions of Lacey's Public Access Plan, is approved and maintained by the City of Lacey, is the minimum intrusion necessary to support the authorized use, and the mitigation sequence is followed.

### 17.35.037 Critical Fresh Water Habitat

- 1. Location and Type: Critical fresh water habitat areas in Lacey include Woodland Creek, its floodplain, and the associated, almost continuous, stretch of wetland complex that connects and extends around portions of area lakes; including Hicks Lake, Pattison Lake, and Long Lake, to the extent such areas fall within shoreline jurisdiction, and the lake basins. See map L-1 in the inventory.
- 2. Shoreline Designation: The shoreline residential designation has been applied to properties around Lacey's lakes where residential development has occurred. These areas are predominantly built out. Woodland Creek is designated urban conservancy and natural, and the large, associated wetland complex connecting them all is designated natural. Protection of the vast complex of wetland areas surrounding Hicks, Pattison and Long Lake has come naturally as it was considered unusable. Most all of this complex has been protected and remains undeveloped.

**3.** Land use: Land use along Woodland Creek and Lakes within Lacey and Lacey's UGA is somewhat variable, ranging from undeveloped land to low density residential, with some commercial land uses along Woodland Creek's associated wetlands north of Martin Way. Most of Woodland Creek from this point north within Lacey and its UGA is undeveloped and has maintained critical area functions, particularly in regard to flood storage capacity and habitat associated with wetland areas. Where lakefront property contained developable area, it has generally been platted and developed with residential uses. Continuation of the residential uses and reasonable expansions are anticipated to continue to occur.

## **17.35.038 Goal and Policies for Protection of Critical Fresh Water Habitat**

- 1. Goal: Protect Lacey's critical fresh water habitats and achieve no net loss of function or value in these areas. Strive for greater levels of ecological function in vegetation management areas over the long term.
  - **A. Policy:** Utilize best available science recommendations provided in literature from state resource agencies when developing standards and reviewing habitat management plans for activities proposed within or adjacent to critical freshwater habitat.
  - **B. Policy:** Utilize standards in Lacey's critical areas ordinances and tree and vegetation protection legislation as incorporated into this SMP, as appropriate, to protect critical freshwater habitat areas and achieve no net loss objectives of this SMP.
  - **C. Policy:** Accommodate existing uses while achieving no net loss of functions and values with new development and implement mitigation strategies designed to improve the functionality of vegetation management areas.
  - **D. Policy:** Emphasize protection and no net loss of ecological function of critical fresh water habitat in the future under GMA and when considering future land uses in shoreline areas.
  - **E. Policy:** Where critical areas occur along designated critical freshwater habitat, buffer requirements should be based upon standards identified in Lacey's critical area ordinances as incorporated into this SMP. Exceptions to this policy are outlined in Section 17.35.020 (1) (C).
  - **F. Policy:** Water dependant uses and structures or modifications supporting public access or such uses should be authorized uses within critical freshwater habitat, critical areas, critical area buffers and the OHWM setback within any shoreline designation.

## **17.35.039 Standards for Critical Fresh Water Habitat**

- 1. Uses, structures or modifications that are not water dependant or do not provide public access shall not be permitted within critical freshwater habitat areas or critical areas or their buffers.
- 2. A water dependant or public access use, structure, or modification may be approved within critical freshwater habitat areas and critical areas and their buffers provided it meets all of the following requirements:

- A. Such use, structure, or modification is associated with a residential use on the same property, or if a public use is identified in the Comprehensive Plan for Outdoor Recreation or the Public Access Plan.
- B. All standards of this SMP applicable to the use, structure or modification are met including provisions in Part 2 and 3 of the SMP.
- C. The intrusion is the minimum amount necessary to support the authorized use and the proposal complies with mitigation sequencing.
- D. The proposal can demonstrate no net loss of shoreline ecological function and value.
- 3. Proposals for activities within critical freshwater habitat areas shall include development of a habitat management plan. The habitat management plan shall illustrate how the proposal complies with the goals, policies and standards relating to critical freshwater habitat areas and critical areas, as applicable, in this SMP.



A reach of shoreline just east of Nisqually, viewed from a kayak.



A picnic table stands as the last remnant of open space improvements in an area north of Long Lake that once was the site of a recreation vehicle park.



Picture of Chamber's Lake from Lakeview Drive. Unfortunately, most views surrounding Lacey's lakes are obscured from public view by homes and fences designed for privacy of residents. In this case "Lakeview Drive" does not really provide visual access to the general public. To take this picture the photographer had to climb on top of his car to get a peek-a-boo view for the camera. One issue considered in this Master Program is visual access for the public to designated "shorelines of the state". New standards require consideration of views when designing plats. While this plat has an area of open space that could be enjoyed by residents and the public, fences obscure everyone's view except for the few who enjoy lakeside access. New standards require consideration of both resident's privacy and public view opportunities. Well planned developments can achieve both.

## PART TWO

## ENVIRONMENTAL CONCEPTS, SHORELINE VALUES AND FUNCTIONS, VEGETATION AND RESTORATION

Elected officials, City staff and citizens working together at the January 19, 2010 open house

Picture of Cynthia Pratt, Lacey Council, in blue coat, and Sandra Romero, Thurston County Commissioner, discussing shoreline issues at the Lacey Open House for the Shoreline Master Program update. Also shown in the background on the left side of the photo, working with several citizens to answer questions, is David R. Burns, AICP, Lacey's Principal Planner. In the background, on the right hand side of the photo, Lacey Council member Andy Ryder is seen discussing shoreline issues with Rick Walk, AICP, Lacey's Community Development Director.

Picture by Lori Flemm

### **17.40.000 Shoreline Ecological Functions**

### 17.40.005 General Provisions

The SMA and the Guidelines for the SMP place an emphasis on the protection of ecosystem-wide processes and ecological functions. This SMP must contain policies, regulations and standards designed to achieve "no net loss" of these processes and functions. To accomplish this objective, Lacey has developed this SMP with the necessary goals, policies and development regulations to assure development within the shoreline jurisdiction will promote no let loss of ecological functions necessary to sustain the natural shoreline.

## **17.40.007** General Goals and Policies for Protection of Ecological Functions

- 1. Goal: Use the comprehensive unique inventory and characterization report provided in Appendix 4 to recognize, appreciate and respect the individual nature of Lacey's shoreline reaches and the natural ecological processes important to the health and vitality of these shorelines.
  - **A. Policy:** Designate shorelines based upon findings of the shoreline inventory and what designation is best suited to each individual reach considering its identified functions and values.
  - **B. Policy:** Require design that is sensitive to shoreline processes and the requirements necessary for protection of identified functions and values. Design and density shall promote no net loss of ecological functions. To further this intent, the City will consider incentive programs to encourage dedication of shoreline property to the City for management and protection over the long term.
- 2. Goal: Plan land use around shoreline resources considering the characterization report and cumulative impacts analysis, and responsibly balance impacts from urbanization required under GMA with the necessary protection of these limited and valuable resources over the long term.
  - **A. Policy:** Require a vegetation management area appropriate to each designation and expected use, to promote the natural functions of stormwater absorption and treatment and promote water quality and natural habitat functions and values.
  - **B. Policy:** Allow alternatives for vegetation improvements within the vegetation management area as long as the area will achieve similar results in mitigating upland development and impacts of urbanization on the shorelines natural functions and values.
- 3. Goal: Achieve goals of the Shoreline Management Act for state interests, and achieve local interests for the protection of identified functions and values. This shall include enjoyment of these resources for both passive and active recreation opportunities, as appropriate given characteristics, functions and values of individual shoreline areas.

- **A. Policy:** Ensure that uses and activities address the goals and policies in Sections 17.40 through 17.70.
- **B. Policy:** Public use of shoreline will be a priority pursuant to the City Public Access Plan. However, public access must be balanced with the needs of each individual reach for maintaining a healthy shoreline and its ecological functions and values.
- **C. Policy:** Public access with active or intensive uses should not be planned where critical areas are present or the shoreline would be particularly sensitive to the planned use.
- **D. Policy:** Access should be integrated into shoreline areas with the least amount of impact possible and impacts should be mitigated to promote no net loss of ecological function.
- **E. Policy:** To balance public access and use of shoreline resources with ecological function, Lacey will consider offsite mitigation and restoration consistent with priorities in the City's Restoration Plan. Offsite mitigation can be used to achieve no net loss on a community wide basis if this cannot be achieved onsite.

## 4. Goal: Promote new development only where appropriate for the shoreline designation and ensure all development is sensitive to and protects ecological processes and functions.

- **A. Policy:** Design and locate all development and structures, including residential development, to make beach stabilization measures and other shoreline modifications unnecessary, including but not limited to, protective measures such as filling, beach feeding, bulkheading, shoreline berms, construction groins or jetties, or substantial grading of the site.
- **B. Policy:** Ensure that permits for shoreline modifications address the goals and policies in Sections 17.40 through 17.70.
- **C. Policy:** Ensure that exemptions and permits for uses, activities and shoreline modifications use mitigation sequencing in Section 17.40.015.
- **D. Policy:** Programs that enhance opportunities for the development community as well as meet City and state goals for shoreline protection should be given priority. An example is a program that would allow significant increased density credit that can be transferred to upland areas outside shoreline jurisdiction or off site in exchange for dedication of the shoreline area to the public. This can enhance development opportunities and achieve GMA goals and environmental protection of shoreline resources over the long term.

### 17.40.015 Mitigation Sequencing

A shoreline permit applicant or project proponent shall include measures in their proposal to mitigate environmental impacts not otherwise avoided or mitigated by compliance with the SMP and other applicable regulations. Where required, mitigation shall occur in the following prioritized order:

- 1. Avoiding the adverse impact altogether by not taking a certain action or parts of an action, or moving the action.
- 2. Minimizing adverse impacts by limiting the degree or magnitude of the action and its implementation by using appropriate technology and engineering, or by taking affirmative steps to avoid or reduce adverse impacts.

- 3. Rectifying the adverse impact by repairing, rehabilitating or restoring the affected environment.
- 4. Reducing or eliminating the adverse impact over time by preservation and maintenance operations during the life of action.
- 5. Compensating for the adverse impact by replacing, enhancing, or providing similar substitute resources or environments and monitoring the adverse impact and the mitigation project and taking appropriate corrective measures.

## **17.40.020** Development Standards for Protection of Ecological Functions

- 1. Standards applicable to ecological functions, generally: The entire Shoreline Master Program has an emphasis on protection of ecological functions and promoting no net loss of ecological functions and values. Standards achieving this are found throughout the document under sections dealing with specific uses and modifications. All goals, policies and standards in this section of the SMP (LMC 17.40) are applicable to protection of ecological functions and are considered fundamental to management of shoreline resources. All goals, policies and standards in LMC 17.40 shall be satisfied with any use, activity, structure or modification under shoreline jurisdiction:
  - A. General goals, policies and standards applicable to all uses, activities and modifications in Sections 17.44 and 17.45.
  - B. General goals, policies and standards for uses and modifications in Sections 17.46 through 17.70.
  - C. All vegetation management policies and standards of Section 17.41.
  - D. All restoration policies and standards of Section 17.42.
- 2. Vegetation management areas when critical areas are not present: Where no designated critical area exists within shoreline jurisdiction, a vegetation management area shall be required to overlay the setback from the OHWM for the primary and most intensive use planned for the site.

Along lakes in Lacey, the most intensive use will generally be residential homes. Matching the vegetation management area with the setback for the most intensive use permitted on the property is intended to correspond to the general needs and character of each shoreline designation and uses permitted within the designation.

- **3.** Buffers when critical area is present: Where critical areas occur, the intent and requirements of Sections 17.35.020 shall be satisfied.
- 4. Vegetation requirements for vegetation management areas: Vegetation Management Areas required in item 17.40.020 (2) above shall consist of native species typical to riparian areas, or a functional equivalent. There are several intents to this provision which include:
  - A. To promote no net loss of ecological functions as further urbanization or more intensive use of individual sites occur.

- B. To maintain the health and value of the shoreline, as well as individual properties, when new development takes place by maintaining areas that can help mitigate impacts and result healthy riparian areas over the long term.
- C. To implement requirements that are flexible to meet individual needs (provide a tool box of options accomplishing the intended objectives) and are proportionate to planned improvements.

See Section 17.41.021 Table 1 for vegetation guidelines for vegetation management areas.

- 5. Uses designated for location within a vegetation management area must promote shoreline goals: Generally, structures and activities that do not promote shoreline goals as expressed in the SMA and this SMP are prohibited within the designated vegetation management and setback areas. Examples include:
  - A. New or expanded lawns and gardens (typically heavily fertilized, contaminate the water body through nutrient loading, generally not efficient in filtering runoff or allowing water to infiltrate and provide little habitat value);
  - B. New or expanded parking and stormwater facilities (potential to contribute significant contaminants);
  - C. New or expanded fences (that degrade the natural look and aesthetics of shorelines and restrict movement of wildlife and people); and
  - D. New or expanded accessory structures (which can have a range of adverse impacts).
  - E. New or expanded uses, structures, activities and modifications not otherwise permitted in this SMP that can adversely impact shoreline functions and values.

### **17.41.000 Vegetation Management**

### 17.41.010 Importance of Vegetation

Native vegetation along the shoreline provides and supports many ecological functions or processes which are critical to the health, vitality, function and value of Lacey's shorelines. These functions and values include but are not limited to:

- A. Providing shade necessary to maintain water temperatures required by salmonids, forage fish, and other aquatic biota.
- B. Regulating microclimate in riparian and nearshore areas.
- **C.** Providing organic inputs necessary for aquatic life, including providing food in the form of various insects and other benthic macro invertebrates.
- **D.** Stabilizing banks, minimizing erosion and sedimentation, and reducing the occurrence/severity of landslides.
- **E.** Reducing fine sediment input into the aquatic environment by minimizing erosion, aiding infiltration, and retaining runoff.
- F. Improving water quality through filtration and vegetative uptake of nutrients and pollutants;
- **G.** Providing a source of large woody debris to moderate flows, create hydraulic roughness, form pools, and increase aquatic diversity for salmonids and other species.
- H. Providing habitat for wildlife, including connectivity for travel and migration corridors.

Based upon identified functions and values and the role vegetation plays in maintenance of these functions and values, Lacey will promote proper restoration, landscaping and maintenance of its shoreline areas. The goals and policies in Sections 17.41.015 and general development standards in Section 17.41.020 are intended to provide the vision and general framework for this effort.

## **17.41.015** Vegetation Management - Goals and Policies

- 1. Goal: Over the long term, achieve vegetated shorelines with materials supportive of natural shoreline functions and values that will help maintain and improve water quality and habitat.
  - A. Policy: Limit the removal of vegetation within shoreline jurisdiction to the minimum necessary to accommodate authorized shoreline development. Designate a vegetation management area corresponding to each designation's setback area as outlined in Section 17.24.010, Table 4. To be providing buffering functions, it is assumed such areas are well vegetated with native species appropriate to the eco-region. Where buffering functions are compromised by loss of, lack of, or replacement of native vegetation, vegetation management plans should focus on improving buffering function.

- **B. Policy:** Native/approved vegetation is desired within designated vegetation management areas to further the City's goals of shoreline restoration and to promote no net loss of ecological function and value with new development. A Vegetation Management Plan should be developed for uses and activities proposed in shoreline jurisdiction, and should consider legitimate competing interests for shoreline areas. These interests include but are not limited to habitat, views and compatibility and integration of the full range of land use activities anticipated in the applicable shoreline environment and adjacent uplands. Example Vegetation Management Plans are provided in Appendix 2.
- **C. Policy:** The Administrator may allow selective pruning of native/approved vegetation for view corridors and limited vegetation removal for shoreline access segments, provided ecological functions are not compromised. Proposals to remove vegetation for shoreline access segments should follow the mitigation sequence. All proposals for vegetation removal or pruning should be reviewed by the City Forester/Arborist, who will provide a recommendation to the Administrator. See Sections 17.41.020 (3) and 17.41.020 (10).
- **D. Policy:** Preserve existing native vegetation along the shoreline, encourage and incentivize planting when it does not exist, and avoid, minimize and mitigate for impacts to shoreline vegetation.
- **E. Policy:** Provide flexibility when balancing overlapping shoreline policies and priorities in including vegetation conservation, preferences for water-dependant uses, and requirements to provide public access.
- F. Policy: When nonconforming or "conforming, expansion limited" structures are expanded within designated vegetation management areas and native/approved vegetative does not exist within the vegetation management area, the City should encourage the installation of vegetation within these areas to the level the site can reasonably accommodate and commensurate to offset the proposed level of expansion. If through review of the Vegetation Management Plan, the Administrator determines there is not adequate space onsite to accommodate vegetation that will adequately offset and mitigate impacts anticipated from the expansion, the Administrator may consider offsite mitigation or payment of fees in lieu of onsite mitigation.
- **G. Policy:** Vegetation within designated vegetation management areas should be comprised of three vegetative levels including an over story of trees, an understory of shrubs, and a floor of herbs and with native plants commonly found in riparian areas of Thurston County; see example Vegetation Management Plans in Appendix 2.
- **H. Policy:** Where revegetation of vegetation management areas is anticipated, such areas should be planted to resemble native conditions. The Administrator may consider and approve use of other vegetative materials that are demonstrated through the Vegetation Management Plan to achieve protection or maintenance of shoreline ecological function equivalent to native vegetation.
- I. **Policy:** Where uses or activities are proposed along shorelines that also contain critical areas, Vegetation Management Plans may be consolidated with Habitat Management Plans required under Section 17.35.



**Cyanobacteria algae bloom in another community in Spanaway Lake caused by surrounding urbanization and its related drainage impacts and use of septic tank drainfields**. This contamination is becoming a major problem in nearby Pierce County communities. This particular species is highly toxic to wildlife and humans producing a very potent liver toxin that will kill dogs and wildlife after just a couple of drinks. It is also toxic to humans and is a danger just from contact with your skin. Health departments post warning signs where these blooms occur to keep humans away from the water. The pollutants that head the list leading to Cyanobacteria blooms are nitrogen and phosphorous.

To avoid the situation pictured above, it is critical to maintain existing native vegetation and restore natural vegetation in designated buffer areas along our shorelines. Positive drainage features like rain gardens can filter and clean runoff before entering the adjacent water body.

Lacey lakes have not yet faced this problem, and Lacey is working very hard to maintain our healthy water resources. Landscaping requirements are part of this effort and are designed to prevent the type of situation displayed in this picture for the benefit of shoreline property owners as well as the larger community.

Picture taken by Don Russell.

## 2. Goal: Develop and implement public information efforts that put shoreline vegetation restoration and management tools in the hands of shoreline property owners.

- **A. Policy:** Because of the importance of vegetation in managing water quality, the City will promote public education on this topic.
- **B. Policy:** Develop a full range of materials to share with the public ranging from how to implement shoreline revegetation requirements in accordance with this SMP to basic

information regarding shoreline functions and values and how vegetation management can be involved in maintaining shoreline property.

**C. Policy:** The City will support efforts of realtors and work in partnership with the local Board of Realtors to inform new and existing shoreline property owners of protective covenants that may be applicable to shoreline properties, and on the topic of ecologically friendly vegetation management. This may include a range of strategies such as educational presentations at realtor membership meetings, presentations to home owner associations, scheduling informational meetings with lot owners or perspective buyers and helping to develop brochures for general circulation to interested groups.

## **17.41.020** Vegetation Management - Development Standards

1. Standard: A Shoreline Vegetation Management Plan shall be developed and implemented for any shoreline parcel as a requirement of a shoreline substantial development permit, shoreline conditional use permit, shoreline variance and any action requiring an exemption letter. If there is no permit or exemption letter required for an activity, structure or use, a Shoreline Vegetation Management Plan is not required. However, in such situations any new landscaping of the site must adhere to the goals, policies and standards of the SMP with regard to the intent to promote natural functions and values of shoreline property. See Appendix 2 for sample Vegetation Management Plans.

Parcels within shoreline jurisdiction which do not front onto a lake or stream and have property within a required shoreline buffer shall still be required to develop and implement a Shoreline Vegetation Management Plan pursuant to requirements for this section. Said plan will have a different focus than lots with shoreline frontage. Focus for these parcels will be runoff and drainage treatment, overstory vegetation to promote tree canopy and proper maintenance, involving use and minimizing fertilizers and other contaminants that could impact water quality.

- 2. Standard: The Shoreline Vegetation Management Plan shall include or address the following:
  - A. The plan shall cover the entire project area or parcel(s) upon which uses or activities requiring authorization are proposed, as outlined above. The plan shall illustrate the location of the OHWM, the dimensions and location of the vegetation management area and of any shoreline access segment or clear zone established under Section 17.41.020 (7). The plan shall also illustrate the contours and general slope of the lot, the dimension of all existing and proposed structures (principle and accessory), impervious surfaces, lawn or turf areas, easements, and utility lines/connections. The plan shall illustrate general areas, approximate dimensions, and species makeup of vegetated areas located on portions of the subject site within shoreline jurisdiction but outside of the designated vegetation management area. Where combined with a Habitat Management Plan, the combined plan shall also illustrate the location and type of critical area(s) existing on the site in accordance with the provisions in Section 17.35 of this SMP. This plan shall be prepared by a licensed landscape architect, Washington certified nurseryperson or Washington certified landscape professional. When combined with a Habitat Management Plan, the plan shall also incorporate information from a qualified biologist or ecologist. The Administrator may waive the requirement for a qualified professional to prepare the plan, under appropriate circumstances as determined by the Administrator.

- B. The Plan shall provide for the retention and/or replanting of native shoreline vegetation, or its functional equivalent, within the required vegetation management area; see example Vegetation Management Plans in Appendix 2. When expansion of a nonconforming structure, "conforming, expansion limited" structure, or development of a nonconforming lot is proposed within the vegetation management area, or when the impacts of development outside of the vegetation management area cannot be offset because of insufficient native vegetation in the vegetation management area, vegetative improvements (replanting) proposed to offset unavoidable impacts through the mitigation sequence shall be provided according to the schedule and tier threshold provisions in Section 17.41.021, Table 1.
- C. Authorized uses or development shall retain all vegetation occurring on the lot until such time as a building permit or shoreline authorization is issued. Such permit or authorization shall specify the extent to which and in what locations vegetation can be removed. Development occurring outside of vegetation management areas will generally satisfy the first step in the mitigation sequence (avoidance). If, in the opinion of the Administrator, the use or activity may still result in a net loss of shoreline ecological function due to the character of the proposed activity or because of specific site conditions, the Administrator may require compensatory mitigation commensurate to offset identified impacts.
- D. Specific revegetation strategies that are developed to meet objectives of this SMP may differ from those in Table 1 provided the Administrator finds such strategies are proportionate to provide for equivalent levels of shoreline function.
- E. The Administrator may waive the requirement for preparation of a Shoreline Vegetation Management Plan when the proposed permit or action seeks to improve ecological functions of the shoreline, such as the removal of a bulkhead. In this situation, the level of functional improvement resulting from the proposed action shall be proportionate to that which would be provided through implementation of a Vegetation Management Plan, as determined by the Administrator.
- F. Example Vegetation Management Plan: To aid applicants in preparation of Shoreline Vegetation Management Plan, the City has provided example Vegetation Management Plans and a general list of preferred species for Lacey's shoreline areas in Appendix 2. Species listed in Appendix 2 have been selected based upon characteristics that contribute and support the natural functions and values of the shorelines. The example plans shall be utilized by applicants to achieve mitigation or incentivized restoration efforts unless an alternative approach is authorized by the Administrator utilizing the criteria outlined in 17.41.020 (D) above.
- **3. Standards for Review of Vegetation Management Plan**: The Shoreline Vegetation Management Plan shall be reviewed by the City Arborist and Tree Protection Professional who shall utilize guidance from the Department of Fish and Wildlife and the information in Appendix 2 to evaluate preferred and proposed species and functional needs. The Arborist/Tree Protection Professional shall consult the Shoreline Inventory, Characterization and Analysis Reports for information on shoreline functions and values relative to the individual shoreline and subject reach where activities are proposed. Based upon the review, he/she shall provide recommendations to the Administrator for action on the Plan. Plans that do not protect and mitigate for impacts to shoreline ecological functions will not be approved.
- 4. Standards for Maintenance: Each Shoreline Vegetation Management Plan shall contain a maintenance component that details maintenance requirements. This shall include proper use of fertilizers to reduce impacts to water quality, irrigation needs and responsibilities, and adaptive management requirements to guarantee implementation of the plan.

- **5. Standards to Ensure Retention**: Each Shoreline Vegetation Management Plan shall be retained and implemented throughout the life of the use and/or development by means of a conservation easement or similar legal instrument recorded with the Thurston County Auditor, prior to issuance of a permit or exemption.
- 6. Standards for Use of Lawn as Landscaping: Lawn or turf is not permitted within the designated vegetation management area because it compromises the buffering effectiveness of the area and does not serve a buffering function. Turf also generally encourages fertilization, which can result in an increased the nutrient load to the water body and compromise water quality. Turf shall only be permitted within the vegetation management area in the following situations when approved by the Administrator:
  - A. When expansion of an existing nonconforming or "conforming, expansion limited" structure is authorized, or when construction on a nonconforming lot involves encroaching into a designated vegetation management area, the portion of the vegetation management area within 10 feet of the structure, as allowed pursuant to Section 17.41.020 (7), may include or remain turf. New development shall apply the mitigation sequence to avoid conflicts with vegetation such that this clear zone for turf or lawn within the vegetation management area is not needed, to the extent feasible.
  - B. When new construction is proposed, turf shall not be utilized in the designated vegetation management area. However if the Administrator determines there is no reasonable alternative that provides the applicant with usable yard space, lawn or turf may be utilized within up to 10 feet of the principle structure within the vegetation management area. The Administrator shall review the proposal utilizing the variance criteria in Section 17.30.020 and shall only approve such requests utilizing the mitigation sequence and when the allowance is the minimum necessary to afford relief.
  - C. Wherever lawn is permitted it shall meet requirements of Section 17.41.020 (4) concerning proper use of fertilizer.
- 7. Standards for Shoreline Access Segments and Clear Zones Permitted around Structures: Nonconforming or "conforming, expansion limited" structures proposing to expand may maintain non buffer related vegetative improvements adjacent to and within a 10 foot radius of the structure (clear zone). As outlined above, new residential construction shall be sited so that any lawn or turf area is located outside of the vegetation management area, to the extent feasible. New residential uses on shoreline parcels may establish a shoreline access segment as defined in 17.15.236. In locating shoreline access segments or locating clear zones, the mitigation sequence shall be followed. Compensatory mitigation shall offset direct impacts from structural expansion as well as from any resulting loss of function due to expansion of the clear zone further into the vegetation management area, if applicable. Compensatory mitigation shall also be provided for unavoidable impacts resulting from the establishment of shoreline access segments. Compensatory mitigation shall be authorized by the Administrator and may include such things as:
  - A. Vegetative improvements in other portions of the vegetation management area, as outlined in Table 1;
  - B. Strategies designed to provide more effective buffering functions within the vegetation management area, such as installation of rain garden that is particularly effective in mitigating runoff impacts;

- C. Activity that improves the existing function and value of the shoreline in ways other than installing vegetation, as outlined in Table 1. Such activities may include removing overwater structures that do not provide public access or serve a water dependent use, replacing materials on docks with light penetrating materials, or removing hard shoreline stabilization structures where softer measures would provide adequate shoreline stabilization;
- D. Other strategy or techniques designed to provide functions proportionate to and to compensate for buffering functions within the vegetation management area that are lost, as approved by the Administrator.
- E. If reasonable effective opportunities for compensatory mitigation have been exhausted on site, off site mitigation may be conducted at priority restoration sites as determined by the Administrator. At such time as the City has designed and implemented a fee in lieu of program, paying a fee in lieu of additional on site mitigation shall also be an option at the sole discretion of the Administrator.
- 8. Standards for Covenants for New Plats: Protective covenants and articles of incorporation for new plats shall include discussion of the location of and required maintenance for designated vegetation management areas. The discussion shall include a responsibility for the homeowners association to call the attention of residents to policies and standards in this SMP. It shall also detail the responsibility of individual lot owners to follow prescribed rules in regard to protection and maintenance of vegetation and appropriate maintenance practices to preserve water quality.
- **9. Standards for Hazard Trees**: Hazard trees within vegetation management areas or critical area buffers may be converted to habitat tree or pushed over toward the aquatic area and retained as large woody debris. Such proposals shall be reviewed by the City's Tree Protection Professional and approved by the Administrator in accordance with the process for hazard tree review in LMC 14.32 as incorporated into this SMP.
- **10.** Standards for Limbing Trees: The limbing or crown thinning of trees larger than three (3) inches in caliper shall comply with National Arborist Association pruning standards, unless the tree is a hazard tree as defined by the Program. No more than twenty-five percent (25%) of the limbs on any single tree may be removed and no more than twenty-five percent (25%) of the canopy cover in any single stand of trees may be removed for a single view corridor. All limbing shall comply with Lacey's Tree Protection and Preservation Ordinance (LMC 14.32) and applicable policies and criteria of the Lacey Urban Forest Management Plan, as incorporated into this SMP.
- **11. Standard:** Requirements of this SMP to maintain and conserve vegetation shall not apply to the removal of aquatic weeds and fresh water algae undertaken pursuant to WAC 173-201.



View of a backyard along the north side of Chambers Lake. Notice the storm drain located in the foreground. While the situation provides a serene environment for residents, drainage into the lake and cultivation of lawn is a real threat to the quality of our water and the health and productivity of shoreline resources. Lawns also encourage geese by providing an area free of predators and has led to many complaints because of the mess visiting geese can create. Native landscaping can provide an attractive setting for residents, a healthier shoreline and also discourage geese. New standards require functional and productive landscaping designs with indigenous species and discourage the utilization of grass.

### **17.41.021** Table 1: Vegetation Management -**Re-vegetation and Mitigation Schedule and Tiers**

Because use of vegetation management for mitigation and restoration may involve a myriad of activities and designs that can meet the objectives of this SMP, the description of tiers/improvements given in this table should be used as a guideline. Table 1 is intended to provide a basic framework for meeting objectives and should be used when considering expectations for revegetation and mitigation, when necessary. However, the thresholds listed in this table are standards and shall be utilized in all Vegetation Management Plans.

Improvements specified in the table and example plans provided in Appendix 2 can be used by applicants that prefer a standardized approach. As outlined in Section 17.41.020, applicants may develop a non-standard plan utilizing other strategies and approaches provided the plan incorporates the thresholds included in Table 1 and that the plan meets the same objectives for functional equivalency and no net loss of shoreline ecological function. These thresholds and tiers/improvements are in addition to applicable requirements for revegetation of disturbed areas and landscaping in the Lacey Zoning Codes.

Level of Expansion/Action in	Thresholds *	Description of	
the Vegetation		Tiers/Improvements * **	
Management Area			
No expansion permit – Permit associated with residential structure and no expansion; Electrical, plumbing, roofing permit, etc.	Not applicable.	Not applicable.	
Low Impact Expansion – Expansion with no increase in impervious surface (vertical)	Tree and Tier One	Tree Tier - Meet minimum tree requirements of Chapter 14.32, as incorporated into this SMP. Required trees must be placed within vegetation management area.         Tier One- Provide a 10 foot strip of landscaped area of native plants in the vegetation management area.	
Minor Expansion - Expansion of building footprint by up to 500 square feet or up to 10% of structure (whichever is less)	Tier Two	<b>Tier Two</b> - Install native vegetation in at least <b>50%</b> of the vegetation management area. Priority given to overstory vegetation along the shoreline.	
OR Expansion of impervious surface by up to 1,000 square feet or up to 10% (whichever is less)		<ul> <li>OR</li> <li>*Reduced Vegetation/Structure and Use Option – Install native vegetation in at least 25% of the vegetation management area. Priority given to overstory vegetation along the shoreline. AND, do one of the following:</li> <li>Replace solid surfaces on piers and docks with light penetrating surfacing materials.</li> <li>Remove over water structures that do not provide public access, or do not serve a water dependent use.</li> <li>Remove and replace hard shoreline stabilization structures with bioengineered or softer shoreline stabilization measures.</li> </ul>	
<b>Moderate Expansion</b> - Expansion of the building footprint by more than 500 square feet or between 10.1 to 25% (whichever is less)	Tier Three	<b>Tier Three</b> – Install native vegetation in at least <b>80%</b> of the vegetation management area. Priority given to overstory vegetation along the shoreline.	

OR		OR
Expansion of impervious surface by more than 1,000 square feet, or between 10.1 to 25% (whichever is less)		<ul> <li>*Reduced Vegetation/Structure and Use Option – Install native vegetation in at least 50% of the vegetation management area. Priority given to overstory vegetation along the shoreline. AND, do one of the following:</li> <li>Replace solid surfaces on piers and docks with light penetrating surfacing materials.</li> <li>Remove over water structures that do not provide public access, or do not serve a water dependent use.</li> <li>Remove and replace hard shoreline stabilization structures with bioengineered or softer shoreline stabilization measures.</li> </ul>
Major Expansion – Expansion of the building footprint by more than 25%, or	Tier Four	<b>Tier Four</b> – Install native vegetation in 100% of the vegetation management area.
redevelopment (replacement/teardown) of existing structures involving more than 25% of the square footage of the existing structure, or all new construction on an undeveloped lot. Or Expansion of impervious surface by more than 25%		<ul> <li>OR</li> <li>*Reduced Vegetation/Structure and Use Option – Install native vegetation in at least 75% of the vegetation management area. Priority given to overstory vegetation along the shoreline. AND, do one of the following:</li> <li>Replace solid surfaces on piers and docks with light penetrating surfacing materials.</li> <li>Remove over water structures that do not provide public access, or do not serve a water dependent use.</li> <li>Remove and replace hard shoreline stabilization structures with bioengineered or softer shoreline stabilization measures.</li> </ul>
New Development or expansion outside of the vegetation management area, where native vegetation within the vegetation management area is not sufficient to offset the impacts of development.	Tree and Tier One	See row two above for description of tiers.

\* Requirements may vary according to the following considerations:

- Where a property has been fully landscaped with qualifying vegetation and meets all other requirements of the SMP, no additional landscaping will be required.
- Credit will be given for participation in weed control provided the property also practices landscaping strategies that do not contribute to weed growth (this does not include standard herbicide use). Credit will be proportionate to the investment made in weed control and the relative priority that should be given to weed control considering the existing condition of property being developed.

\*\* Vegetation used should include native varieties or approved alternatives. For trees, select from the Lacey General Tree List in Lacey's Urban Forest Management Plan or in Appendix 2. For shrub and ground cover types, preferred species are listed in Appendix 2. Alternative varieties may be approved by the Administrator.

<sup>+</sup> The Administrator may grant additional credit for certain activities such as weed control as outlined in the footnotes above, and reduce required landscaping. Such reductions will be dependent on the scope of the proposed expansion, site conditions, and shall be at the sole discretion of the Administrator.

### **17.42.000 Restoration - Goals and Policies**

- 1. Goal: Identify and take advantage of opportunities where restoration goals can be integrated into the design and planning of public or private shoreline development projects.
  - A. Policy: Recognize that restoration and enhancement may result from:
    - 1) Mitigation of impacts from new development.
    - 2) Adoption of shoreline setbacks and vegetation management areas with a protective function, which are based upon shoreline ecological functions and processes.
  - **B. Policy:** Reestablish, rehabilitate and/or otherwise improve impaired shoreline ecological functions and/or processes through voluntary and incentive-based public and private programs and actions that are consistent with this master program and other approved restoration plans.

## 2. Goal: Where opportunities are present, work with other state and local jurisdictions in planning and implementation of restoration projects that cross jurisdictional boundaries.

A. Policy: Encourage and facilitate cooperative restoration and enhancement programs between local, state, and federal public agencies, tribes, non-profit organizations, and landowners to address shorelines with impaired ecological functions and/or processes.

## **3.** Goal: Implement restoration efforts consistent with the City Shoreline Restoration Plan: Appendix **3**.

- A. Policy: Integrate restoration and enhancement with other parallel natural resource management efforts such as the WRIA 13 Salmonid Recovery Plan, Puget Sound Salmon Recovery Plan, and the City of Lacey Comprehensive Land Use Plan and its Environmental Protection and Resource Conservation element.
- **B. Policy:** Ensure restoration and enhancement is consistent with and, where practicable, prioritized based on the biological recovery goals for early Chinook, bull trout populations and other species and/or populations for which a recovery plan is available.
- **C. Policy:** Target restoration and enhancement towards improving habitat requirements of priority and/or locally important wildlife species.
- **D. Policy:** Restoration should be carried out in accordance with an approved vegetation management plan and in accordance with the policies and regulations of this SMP.
- E. Policy: Prioritize restoration actions and stand-alone projects in the following order:
  - 1) Create dynamic and sustainable ecosystems.
  - 2) Restore connectivity between stream channels, floodplains and hyporheic zones.
  - 3) Restore natural channel-forming geomorphologic processes.
  - 4) Mitigate peak flows and associated impacts caused by high stormwater runoff volume.
  - 5) Reduce sediment input to streams and associated impacts.
  - 6) Improve water quality.
  - 7) Restore native vegetation and natural hydrologic functions of degraded and former wetlands.
  - 8) Replant native vegetation in riparian areas to restore functions.
  - 9) Restore nearshore ecosystem processes, such as sediment transport and delivery and tidal currents that create and sustain habitat.

- 10) Restore pocket estuaries that support salmon life histories, including feeding and growth, refuge, osmoregulation, and migration.
- 11) Remove obsolete and no longer needed shoreline modifications.

## 4. Goal: Achieve natural beach areas by restoration that meets needs of the land owner without hard armoring.

- **A. Policy:** Insure that permits for beach restoration and enhancement projects address the goals, policies and development standards within the Shoreline Ecological Function Chapter 17.40.000.
- **B. Policy:** Give preference in permitting beach restoration and enhancement projects which use naturally regenerating systems, rather than bulkheads and other structures to prevent and control beach erosion where:
  - 1) The length and configuration of the beach will accommodate such systems.
  - 2) Such protection is a reasonable solution to the needs of the specific site.
  - Beach restoration/enhancement will accomplish one or more of the following objectives:
     a) Recreate or enhance natural shoreline conditions.
    - b) Create or enhance natural habitat.
    - c) Reverse otherwise erosion-prone conditions.
    - d) Enhance access to the shoreline, especially to public shorelines.
- **C. Policy:** Design and construct beach enhancement projects so that they will not degrade aquatic habitats, water quality and flood holding capacity.
- D. Policy: Prefer self-maintaining designs over those which depend upon regular maintenance.
- **E. Policy:** Require supplementary beach nourishment where structural stabilization works are likely to increase impoverishment of existing beach materials at or downdrift from the project site.
- **F. Policy:** Limit the waterward extent of beach enhancement to that which is necessary to achieve the intended results.
- **G. Policy:** Encourage the beneficial reuse of dredged materials for beach restoration and enhancement projects when it has suitable organic and physical properties.

## **17.42.020** General Development Standards for Restoration

- 1. All restoration activities utilizing landscaping materials shall meet the vegetation management standards of Section 17.41.020 according to the tier threshold schedule in Table 1 (17.41.021).
- 2. Projects proposed on shoreline property shall meet applicable standards for restoration identified for specific uses, activities and modifications in Sections 17.44 through 17.70.
- 3. If off site mitigation is used, it shall be consistent with Lacey's Restoration Plan and the plan's goals, policies and priorities. Restoration priority will generally be for no net loss of function and value on site where a proposal is planned and implemented. However, when comprehensive on site restoration is not possible, Lacey may use off site mitigation to achieve no net loss of

function and value. Such determination to use off site mitigation, in association with a public or private proposal, will be at the City's option and sole discretion.

- 4. Beach restoration and enhancement:
  - A. Beach restoration and enhancement shall be the preferred way to protect an existing singlefamily residence or to maintain access to an authorized shoreline use, as opposed to hard shoreline stabilization structures such as bulkheads, landfills, levees, dikes, groins, or jetties.
  - B. Beach restoration and enhancement may be permitted to restore or enhance degraded shoreline functions.
  - C. The location and design of beach restoration and enhancement projects shall utilize the best available technology, such as the use of gravel berms, large woody debris, and sediment mixtures designed to either move within the drift cell or to resist the normal wave action of the site.
  - D. Beach restoration and enhancement project shall demonstrate that they will not:
    - 1) Cause significant change in littoral drift or river currents,
    - 2) Adversely affect adjacent properties,
    - 3) Adversely affect adjacent spawning grounds or other areas of biological significance, and
    - 4) Interfere with the normal public use of the navigable waters of the state.

# PART FOUR: APPENDICES

Appendix 1 – Public Access Plan for Lacey and Lacey's Urban Growth Areas

#### LACEY CITY COUNCIL

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### I. Introduction

#### A. Background

<u>Generally</u> - This shoreline access plan has been created to provide an analysis of public access needs and opportunities to Lacey's Shoreline areas and to plan for the acquisition and long term management of shoreline access for public use. It meets the requirements of the Shorelines Management Act for Lacey's shoreline public access planning process and is intended to guide Lacey's efforts in achieving public shoreline access goals.

This Plan provides an inventory of existing public access to shorelines, discussion of opportunities for additional access and criteria for evaluation of access opportunities. In addition, this Plan discusses specific strategies and programs to acquire shoreline areas and access for public use and provides policy guidance for achieving shoreline access goals.

This shoreline access plan has been created as an appendix of Lacey's Shoreline Master Program and is intended to be used in concert with the Shoreline Master Program, the Comprehensive Land Use Plan and the Comprehensive Plan for Outdoor Recreation for goal and policy guidance on issues involving public shoreline access and open space.

<u>Requirements of state law for public shoreline access planning</u> - There are three basic policy goals to the Shoreline Management Act: shoreline use, environmental protection and public access. The SMA emphasizes accommodation of reasonable and appropriate uses, protection of shoreline environmental resources, and protection of the public's right to access and use the shorelines (see RCW 90.58.020).

Master programs must include a public access element making provisions for public access to publicly owned areas, and a recreational element for the preservation and expansion of recreational opportunities.

The overarching policy is that "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. Alterations of the natural conditions of the shorelines of the state, in those limited instances when authorized, shall be given priority for...development that will provide an opportunity for substantial numbers of people to enjoy the shorelines of the state."

The SMA also implements the common law Public Trust Doctrine. The essence of this court doctrine is that the waters of the state are a public resource for the purposes of navigation, conducting commerce, fishing, recreation and similar uses and that this trust is not invalidated by private ownership of the underlying land. The doctrine limits public and private use of tidelands and other shorelands to protect the public's right to use the waters of the state.

Public access is defined as the ability of the general public to reach, touch, and enjoy the water's edge, to travel on the waters of the state, and to view the water and the shoreline from adjacent locations (WAC 173 26 221(4)(a)).

#### **B.** Timeline

A timeline for the complete Shoreline Master Program update (a multi-year program) is below:

## TABLE 1: TIMELINE FOR THE SHORELINE MASTER PROGRAM UPDATE FOR THE CITY OF LACEY.

Phase	Update Schedule	Timeline
1	<ul> <li>Determine what shorelines are regulated under the act</li> <li>Conduct an inventory of all existing and available data for shorelines</li> <li>Public Open Houses</li> </ul>	Winter 2008
2	Analyze and characterize shoreline conditions	Spring 2008
3	<ul> <li>Categorize each shoreline segment into a designation such as urban, suburban, or rural. Each will have a different set of rules.</li> <li>Develop draft rules and policies</li> <li>Public meetings</li> </ul>	Fall 2008 Winter-Spring 2009
4	<ul> <li>Analyze the cumulative impacts of expected shoreline development or redevelopment</li> <li>Develop a restoration (and preservation) plan, including public access</li> </ul>	Winter-Spring 2009
5	<ul> <li>Planning Commission Consideration of the Regional Draft</li> <li>Development of a Shoreline Master Program specific to Lacey</li> <li>Public hearings</li> <li>Planning Commission recommendation</li> <li>City Council approval</li> </ul>	Late 2009-2011
	<ul><li>State approval</li></ul>	

#### C. Methods and Sources of Information

The shoreline Public Access Plan compliments other Lacey planning documents that address our natural resource and environmentally sensitive areas. It provides the same emphasis and vision expressed throughout Lacey's comprehensive planning documents for the wise use, protection and conservation of natural resource and sensitive areas.

This overriding theme and culture is articulated throughout Lacey's Comprehensive Land Use Plan and its many elements including the Environmental Protection and Resource Conservation Plan, the Comprehensive Plan for Outdoor Recreation and the core Land Use element. These documents, and the vision they provide for the community, guide Lacey in its efforts to acquire, develop and manage shoreline properties for parks, habitat, and other recreational and cultural needs and activities.

### D. Purpose, Content and Use of this Plan

<u>Summary</u> – This plan is meant to provide a comprehensive analysis of public access to shorelines, with several areas of focus.

One focus is a review of what public access includes and how it relates to goals for protection of shoreline natural functions and values. In defining what public access is, the Plan identifies various types of public access and use. In relationship to shorelines protection, the Plan discusses expectations for use based upon shoreline designation. The designation informs appropriate use and management over the long term.

Another focus is an analysis of shoreline access use and public value. This includes an inventory of existing public access, what types of access are of public value, what opportunities might exist for additional public access, and what criteria should be considered when planning and developing public access.

A third major focus is a discussion of strategies for acquiring public access. This reviews regulatory control, incentive based programs, and development of public property and how these might be utilized to achieve Lacey's public access goals.

A final focus is the articulation of specific public access goals and policies. Goals and policies cover a full range of public access issues.

Together discussion of these focus areas is intended to guide Lacey's effort in meeting the public access needs of the Lacey community and the requirements of state law.

This Plan builds up on the vision expressed in Lacey's existing Comprehensive Land Use Plan, the Comprehensive Plan for Outdoor Recreation and the Lacey Shoreline Master Program. These documents provide a vision for the long term management and protection of Lacey's shoreline resources.

<u>Shoreline designation determines management options</u> – This Plan discusses the balance needed between types and levels of intensity of public access and natural limitations of shoreline areas. Through the SMP, shorelines are given environment designations based upon specific characteristics and identified functions and values.

Long term management of these shoreline areas needs to consider both, and match access opportunities and activities with wise management and protection of the shorelines. This Plan provides general guidance for the appropriate public use of shoreline areas while also protecting their functions and values over the long term.

<u>Analysis of opportunity and need</u> - This plan establishes an inventory of existing public access sites to shorelines and examines what opportunities may be available for additional access. It sets forth criteria for classification of access types and provides criteria and a framework for use in assessing the public value of future access opportunities. The plan also identifies ways to achieve access goals through shoreline development review and incentive programs.

<u>Advantages of using a Public Access Plan as part of Lacey's shoreline program</u> - Public access for every project or type of shoreline may be problematic. Some projects or shorelines may not be well suited for public access. State law allows local governments to consider public access comprehensively through a

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public access planning process rather than instituting uniform, site-by-site access requirements. Lacey has used this process and identified issues to consider when public access will be required under shoreline regulatory authority as a condition of a permit.

Developing a public access plan creates an inventory of existing public access and identifies future needs and opportunities that can be implemented through shoreline development proposals with site specific assessments. The public access plan is the foundation for development of public access in the public interest.

# **II. Shoreline Management Act Public Access Requirements**

### **A. Three Broad Policies**

The Shoreline Management Act has three broad policy goals:

- 1. Give priority to water-dependent uses
- 2. Protect shoreline natural resources
- 3. Promote public access and enjoyment

### **B.** Public Access Planning Process, Purpose and Use

The Shoreline Management Act requires local Shoreline Master Programs to contain a public access element that provides for public access to publicly owned shoreline areas. The public access element should be a comprehensive analysis of public access need and opportunity and a blueprint to guide the acquisition, development and management of public access to shoreline resources over the long term.

WAC 173-26-221 (4) Public Access (c) planning process to address public access, states "At a minimum, the public access planning should result in public access requirements for shoreline permits, recommended projects, port master plans, and/or actions to be taken to develop public shoreline access to shorelines on public property...."

WAC 173-26-221 (4) (d) further states that shoreline master programs should "provide standards for the dedication and improvement of public access in developments for water-enjoyment, water-related, and nonwater-dependant uses and for the subdivision of land into more than 4 parcels. In these cases, public access should be required except: (A) Where the local government provides more effective public access through a public access planning process described in WAC 173-26-221 (4)(c). ...."

These WAC provisions provide the City more flexibility in when and how to achieve its shoreline public access goals.

# III. Type, Use and Value of Various Forms of Shoreline Public Access

<u>Public access defined</u> - As stated in the introduction of this plan, state law defines public access as "the ability of the general public to reach, touch, and enjoy the water's edge, to travel on the waters of the state, and to view the water and the shoreline from adjacent locations (WAC 173 26 221(4)(a))."

Shoreline access may take many forms and have many different uses associated with it and it may have a wide variety of infrastructure requirements and impacts.

<u>Relationship to the City's Comprehensive Plan for Outdoor Recreation</u> - The requirement to plan for public access is very close in concept to the City's planning process used to develop its Comprehensive Plan for Outdoor Recreation. This was once an optional GMA plan that the City developed years ago to accomplish park planning, including city park facilities and properties adjacent to shorelines and waterfront acquisition and development.

The City's Comprehensive Plan for Outdoor Recreation looks at the City's need for outdoor recreation and provides a comprehensive plan for the delivery of this service to the Lacey community. This plan spans a wide range of public activities from what are termed passive (low activity non intrusive recreation use) to very intensive, high activity use; (Long Lake Park for example). This includes our water front property like Long Lake and Wanchers Park, and it includes trail systems that provide shoreline access opportunities.

The Comprehensive Plan for Outdoor Recreation has level of service standards, service area radius standards and a long term plan for management. Essentially it covers the City's need to provide recreation areas for the public, including waterfront active recreation opportunities. This aspect of public access planning does not need to be duplicated in this public access plan.

However, the Comprehensive Plan for Outdoor Recreation does not deal specifically with shoreline access, nor does it look at the types of small shoreline access opportunities that may be beneficial to Lacey and as may be acquired through regulatory action. This access plan will focus on classification of shoreline access types, inventory of existing and potential shoreline access, and strategies to acquire access.

Large significant access to shorelines, generally over an acre in size, will be considered a public responsibility and task requiring public ownership. Major recreation uses can be measured with nationally accepted level of service standards that look at acreage and active recreation land needs. However, there will be many smaller access opportunities that cannot be characterized using level of service standards. These opportunities may require a different level of service standard such as an access point for a certain length of shoreline area and a number of access points considered necessary for each reach. This plan focuses on basic access opportunities not covered with level of service standards; please refer to the Comprehensive Plan for Outdoor Recreation in discussing and detailing goals and policies for larger, publically owned recreation areas.

#### Identification and classification of various types of public shoreline access -

For classification of shoreline public access types we can fashion descriptions similar to how our Comprehensive Plan for Outdoor Recreation classifies parks. That system classifies parks according to intended use, size, and service radius. For shoreline public access, this plan focuses on intended use and public value. This focus provides a framework for assessing need and assigning priority for particular public access types, uses and location. <u>General Park Classifications</u> - Classification of parks considers intended use, client base, service radius and associated infrastructure and maintenance needs. Park types are divided into the following classifications in the 2010 Comprehensive Plan for Outdoor Recreation (see page 22 of that Plan);

- A. <u>Plazas and Public Spaces</u> such as children's playgrounds and downtown parks, located within 2 or 3 blocks of every home or business, typically provided by residential developments and retained, maintained and managed by their Homeowners Associations;
- B. <u>Neighborhood parks</u> of 5 to 20 acres, located within one-half mile of every residential area, with a minimum of 2 acres per every 1,000 residents;
- C. <u>Community parks</u> of 40 to 100 acres that offer a broad range of facilities located within 2 to 3 miles of every residential area, with a minimum of 3 acres per 1,000 residents;
- D. <u>Regional parks</u> offers recreation opportunities to a county wide or larger region;
- E. <u>Other</u> There are also special purpose facilities, linear parks, open space and conservancy site classifications, which also have specific purposes and use, design criteria, and infrastructure requirements.

<u>Proposed Shoreline Access Classifications</u> - For the purposes of classifying shoreline public access types, we can consider some of the same elements in regard to client base and location. Shoreline public access may or may not have park activities associated with it, so an acreage per capita level of service measure as utilized for public parks will not be applicable to access opportunities unless they are being considered for park development.

However, there are also differences between shoreline public access and parks when considering location requirements and service radius. For example, shoreline access is geographically limited to the lakes and stream corridors. We cannot choose to place them within a certain distance to all neighborhood areas as we would with a neighborhood park site.

For the purpose of classification of access to shorelines this plan uses the following descriptions:

<u>Mini residential access, localized interest</u> - localized access generally designed for a specific development or neighborhood, may be part of a subdivision's required open space, and may be designed for active or passive recreation. Designed for a local service of homes within a 2-3 block radius, generally less than one acre. Infrastructure and maintenance issues are minimal and may be the responsibility of a Home Owners Association (HOA) if the access is owned by the association.

Either implementation strategy (regulatory and/or incentive) discussed in Section V of this plan could be utilized to acquire this type of access for the public;

• <u>Mini residential access, regional interest, active or passive, associated facilities</u> - Small opportunity designed to provide a recognized value to larger community (view point opportunity, rest stop along trail system, etc.), normally but not necessarily associated with a trail system, park, or other recreational opportunity that can provide more than local visibility and access.

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Infrastructure needs may vary depending upon intended activities. Active recreation opportunity needs to be located along shoreline areas appropriately designated for active use.

These opportunities should normally be pursued where available because associated recreation opportunities are of a finite nature limited by proximity to other supporting facilities and activities.

Either implementation strategy (regulatory and/or incentive) discussed in Section V of this plan could be utilized to acquire this type of access for the public.

• <u>Mini access, regional interest, passive only</u> - Small opportunity that provides view point, scientific classroom study or other non invasive, passive activity valued by the public because of unique, rare, or sensitive features of the property.

Infrastructure investment would be minimal except signing and control of access to protect shoreline values.

This type of access can be associated with a conservancy or natural designation where functions and values are still relatively un-impacted and conservation and protection is the highest priority.

Opportunities for this type of access are always valued and should be pursued where opportunities exist.

Regulatory and incentive strategies discussed in Section V of this plan could be utilized to acquire this type of access for the public.

• <u>Neighborhood and Community Access</u> - These facilities are designed for the entire community and use intensity and infrastructure needs would be expected to be relatively significant.

Such an access will be utilized by persons who live in areas with no other shoreline access opportunities. It is expected to serve a range of intensities of use from passive to active. It may include swimming, boating and fishing. This type of access will require public ownership and infrastructure investment.

Strategies to acquire ownership for such types of access are discussed in Section V and could include both regulatory and incentive strategies.

<u>Note of caution when classifying access opportunities</u> - This classification system is intended for general guidance only. Opportunities for shoreline access will present themselves in a number of shapes and forms with many possible combinations of use opportunities.

#### Public Value used in evaluating access opportunities and priority -

Shoreline property is limited. Every development further limits options for acquisition of property for public use and access.

Generally, because this is a limited resource that is becoming rarer and scarcer, it will be in the public's best interest to carefully review development proposals to identify opportunities for public access and to

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take advantage of what is available before they are lost. The criteria that will be used to consider public value and help assign priority include:

- Opportunity to provide access to a geographic area that does not have an existing access or the only access is limited, or is not convenient based upon physical limitations/boundaries/other barriers;
- Area needed to provide connectivity to other shoreline access areas;
- Particularly unique and interesting areas because of some feature;
- Sensitive areas that provide a particular rare view or special habitat;
- Viewpoints providing quality opportunity for views of the water or waterfront area. This will be particularly valuable as part of a trail system, or simply sidewalk strolling experience for neighborhood walks;
- The site has opportunities for active recreation and can help meet identified priorities and level of service demands of the Lacey community.

<u>Location considerations</u> - The City's Comprehensive Plan for Outdoor Recreation divides the City into service areas based upon proximity to residential areas, barriers for travel and access to various services. When considering locations for shoreline public access, criteria should address which portion of the water body access is being provided to. For example, three accesses at the same lake property will only provide one experience. Three accesses in different reaches of the lake may provide a more comprehensive access experience.

Valuable opportunities for shoreline access will provide connectivity to shorelines and properties adjacent to shorelines that can interconnect open space areas, parks, key neighborhood focus areas, trails and other sites of value. As the City reviews planning permits, including non shoreline permits, projects should be reviewed for connectivity opportunities using the Comprehensive Land Use Plan map and trail/pedestrian features as a guide.

# **IV. Existing Public Access Inventory and Opportunities for Additional Public Access along Shorelines**

<u>Identification of access, existing and potential</u> - The City has identified partially developed shoreline parcels and buildable land with the potential to develop and exceed the threshold whereby consideration of public access is required (more than four lots). These areas may represent an opportunity for access and should be reviewed and considered as such as discussed in Section V of this plan. These areas are shown on maps A1-1 through A1-6.

In development of these maps, an underlying assumption was made that parcels under an acre with existing development will generally not be subject to considering public access. Subdivisions of up to 4 parcels are not required to consider public access. Lacey's minimum lot size in the LD 0-4 zone, which generally applies to shoreline parcels within the City, is 7,500 square feet. Parcels under an acre in size with existing improvements are not expected to be able to carve out more than 4 lots in an infill scenario.

The resulting maps show parcels greater than 1 acre that are considered under developed (and may redevelop) or un-developed. Symbols have also been placed to identify existing public improvements and activities such as boat launch, swimming facility, water access, etc.

The process of conditioning a project to require access through regulatory review can only accomplish limited opportunities. Development of significant public access opportunities for active recreation, like Long Lake Park, requires City ownership and public resources to create and maintain.

It is expected that major access opportunities will be on public property and developed by the public. From this standpoint, every effort should be made to utilize special programs as discussed in Section V. of this plan to acquire community access that is owned by the public. This may be possible through permit regulation, but only if innovative incentive programs are utilized.

Table 2 lists existing public access opportunities on various shorelines in Lacey and the Lacey growth area, which correspond to Maps A1-1 through A1-6. Table 2 also identifies planned public access as well as other opportunities that should be considered for future acquisition and provision of public access/open space/recreation activities.

# TABLE 2: EXISTING, PLANNED, AND OPPORTUNITIES FOR PUBLIC ACCESS FOR LACEY AND UGA.

		AND UGA			
Shoreline	Existing Public Access	% and Length of shoreline in public ownership	Planned Public Access	Other Opportunitie	Goals for es specific water body
Marine Wate	ers				
Nisqually Reach (Map A1- 5)	The public has accessed this marine shoreline for many years. However, the Planned Community developed on the property has the open space, associated trail system and marine shoreline dedicated as a Home Owner Association ownership. No official "General Public" access is shown on plat documents. At this time the Home Owners Association has not controlled access to the beach and the trail system is still accessed by the general public.	Shoreline length: 8,249 ft Length in public ownership: 0 ft (0%)	None	The Hawks Pra Planned Community preserves this stretch of land part of the plan community's of space. It curren provides a trail the beach and view area of th reach. Historica the public has been able to access this bea However, it is n a public dedica trail and by condition of the Master Plan Community on serves the planned community residents. Given maintenance issues it may b the advantage the residents to have the City involved in maintenance, security and protection of the shoreline for th benefit of the general public. The City could initiate discuss with the home owner's	public access to marine shoreline for viewing. Preservation of this marine area in its natural state. Work with the Hawks prairie Planned Community Home Owners Association to maintain the access to the beach the public has enjoyed over the last several decades. Consider working with the Home Owners Association to take ownership of the property for long term maintenance and management.

Shoreline	Existing Public Access	% and Length of shoreline in public ownership	Planned Public Access	Other Opportunities	Goals for specific water body
				association to transfer ownership and acquire these areas for maintenance and management for all of Lacey's citizens.	
Rivers/Strea	ams				
Woodland Creek (Map A1- 6)	Pleasant Glade Park (City of Lacey) St. Martin's University has walking trails in the wetland area south of Interstate 5 used for campus activities and research.	Shoreline length: 12,210 ft Length in public ownership: 4,426 ft (36%)	Urban Trails – preserve the Woodland/Mill Creek Corridor for public access and resource conservation.	The Lacey Comprehensive Land Use Plan shows a future trail system throughout the Woodland Creek corridor. Currently the City has a park and trail system around Lake Lois. These trails tie into trails through Saint Martin's property. Saint Martin's property, north of Martin Way, is the start of the Woodland Creek shoreline jurisdiction. This area has a system of trails that provide the opportunity to create a partnership with Saint Martin's to provide access for educational opportunities consistent with Saint Martin's campus policy and trail use.	

Shoreline	Existing Public Access	% and Length of shoreline in public ownership	Planned Public Access	Other Opportunities	Goals for specific water body
Lakes					
Chambers Lake (Map A1- 1)	Chehalis Western Trail (Thurston County) Boat ramp (State)	Shoreline length: 22,156 ft Length in public ownership: 5,705 ft (26%)	Plans for the Chambers Lake Open Space include public access (City of Olympia).	A large parcel containing a designated wetland on the east side of Chambers Lake was acquired by Lacey as part of a plat dedication. This property is owned by the City of Lacey and provides the opportunity for development of public access and use. This lake is also adjacent to the Chehalis Western Trail providing opportunities for connectivity.	Connectivity to Regional trail and preservation of shorelines
Hicks Lake (Map A1- 2)	Wanchers Park (City of Lacey) Boat Ramp (State)	Shoreline length: 13,854 ft Length in public ownership: 811 ft (6%)	South Hicks Lake Wetlands (City of Lacey) trails planned. West Hicks Lake Wetlands (City of Lacey) – plans to have a connected trails system between the park, boat ramps, and wetlands.	As part of platting requirements the city acquires wetland areas that are adjacent to the lake to facilitate preservation and proper management of these resources. This provides opportunities for various forms of passive recreation opportunities for the public.	Fishing, swimming, viewing at established Wanchers Park. Connectivity to planned trails surrounding the associated wetland systems and establishment of trail points with habitat views. Ownership of 100% of associated wetlands and 30% or more of waterfront shoreline;10% in

Shoreline	Existing Public Access	% and Length of shoreline in public ownership	Planned Public Access	Other Opportunities	Goals for specific water body
					residential designated areas for active use and 20% in designated Natural areas and associated wetland systems for passive use and preservation
Long Lake (Map A1- 3)	Long Lake Park (City of Lacey) (swimming, sunbathing, volleyball). Boat ramp (state)	Shoreline length: 39,084 ft Length in public ownership: 2,097 ft (5%)	Long Lake park expansion to adjacent parcels.	Several portions of the wetlands on the south west side and at the south end of Long Lake were acquired as plat requirements and are owned by the City of Lacey. These properties have opportunity for a trail around the outside edge of the wetland buffer that could also provide access to the lake. This area is considered sensitive but could provide passive recreation opportunity.	Swimming, boating, fishing, views, connectivity to trail systems, preservation of associated wetland areas. Ownership of 10% of shoreline waterfront in residential areas for active use and 100% of shoreline in designated Natural areas and associated wetland systems for connectivity to trails and Preservation.
Pattison Lake (Map A1- 4)	Lake Pointe Open Space Institutional Designation	Shoreline length: 23,442 ft Length in public ownership: 95 ft (<1%)		There is a Homeowners association open space on the west side of the lake where the tip has lake frontage. This site may provide an opportunity for future limited public access. This open space	

Shoreline	Existing Public Access	% and Length of shoreline in public ownership	Planned Public Access	Other Opportunities	Goals for specific water body
				corridor has limitations concerning parking potential and the portion touching the lake is not large enough to meet expectations for most recreation activities.	

Shoreline	Existing Public Access	% and Length of shoreline in public ownership	Planned Public Access	Other Opportunities	Goals for specific water body
Southwick (Map A1- 2)	The City of Lacey and the North Thurston Public Schools own the majority of the property immediately adjacent to the south end of Southwick Lake. With the exception of one property, these properties run contiguous to one another and provide lake access. The City of Lacey acquired its wetland property and buffers along the south end of Southwick lake as plat requirements, when properties developed in the late 1990s. North Thurston's wetland area was dedicated	Shoreline Length: 5,491 ft Length in public ownership: 1,541 ft (28%)		Lacey currently owns two open space parcels along the lake. These could accommodate a section of trail around the lake for public use at some time in the future. A major city park (Rainier Vista) is immediately across Ruddell Road to the west and could be used as a staging area for a trail system around the lake.	Preserve lake shoreline in natural state for views. Connectivity to surrounding residential areas and Rainier Vista park.

to open space a requirement whe established a so on the property.	en it hool		

# TABLE 3: COMMUNITY ACTIVE RECREATION USE: NEEDASSESSMENT

# **NOTE:** Additional material and periodic updates will be added pending update of the Comprehensive Plan for Outdoor Recreation.

Swimming	Boating	Fishing	Trails	General Access
An opportunity	Lacey's lakes	The Parks	Trails are	A full range of
for swimming	are relatively	Department has	planned to be	access points
along Hicks Lake	small and not	identified	added as	are needed to
has been	conducive to	significant use	identified in	provide
identified as	motor boating,	of its existing	Lacey's	convenient and
having benefit for	given other uses	facilities at the	Comprehensive	interconnected
Lacey's	present.	Community	Land Use Plan	access to all of
recreation	Opportunities	Center and has	map. Lacey's	Lacey's lakes
program.	currently	plans for	vision is for	and other
Wancher's Park	available at	addition of	interconnection	appropriate
is currently being	Long Lake,	public fishing	of trail systems	shoreline areas
evaluated for	Hicks Lake and	piers at lakes	around Hicks	as identified on
having an area	Pattison Lake.	where it can be	and Southwick	the Lacey
designated for		accommodated	Lakes,	Comprehensive
this use.	Additional	given the	Woodland	Land Use Plan
	facilities need to	shoreline	Creek and	map. All
	be reviewed and	functions and	public access at	projects near a
	a public need	values.	Butterball	designated trail
	demonstrated	Any	Cove.	area should be
	before acquiring	opportunities to	Pedestrian trails	reviewed for
	new sites for this	provide area for	that tie into key	potential use
	use.	this amenity	neighborhood	and benefit.
		should be	access areas,	
		reviewed for	parks and other	
		potential.	neighborhood	
			focus points are	
			a priority.	

# TABLE 4: IDENTIFIED CRITERIA/PERCEIVED NEED FOR SPECIFICPUBLIC RECREATION/ACCESS OPPORTUNITIES

# NOTE: Additional activities/criteria will be updated with the update of the Comprehensive Plan for Outdoor Recreation and Development of Updated Priorities

	Surimmina	Desting	Fishing	Trails	General
	Swimming	Boating	Fishing	Trans	
					Access
Description	An opportunity	Opportunity	Additional	As specified on	One access for
and	at each lake	needed at	fishing	Comprehensive	every 1/4 mile
discussion	capable of	each lake	opportunities	Land Use Plan	of shoreline
of need:	supporting a	capable of	needed for	map. A	and at least
	community	supporting	the	number of trail	one for each
	swimming	this use. The	community.	connections	reach with
	facility;	lakes of Long,	At least one	that may or	distinct
	Expected use of	Hicks and	public fishing	may not	characteristics.
	Hicks Lake as	Pattison all	pier for each	involve	Trail access
	an additional	currently	lake that is	physical access	with views or
	resource to	provide this	capable of	to lakes are	rest stops that
	supplement	opportunity.	supporting	needed.	may or may
	community's	No additional	this activity	Wherever an	not provide
	opportunity at	access need	and	interconnection	direct access
	Long Lake.	for this use	opportunity	is available that	will be needed
	C	has been	for two if the	would enhance	The need for
		identified.	opportunity	opportunities	connectivity is
			becomes	for the overall	expected to be
			available.	trail system it	significant and
			Demand for	should be	every project
			this activity	reviewed	should be
			would	Whenever new	evaluated for
			support a	homes are	its potential
			number of	being proposed	benefit and
			additional	there will be a	suitability for
			opportunities	need and a	this function
			at Long,	nexus for	this function.
			Hicks.	connection and	
			Pattison and	use of the trail	
			potentially	system.	
			Chambers	5,500111.	
			Lakes.		
Assessment	Unmet need		Unmet need	Unmet need	Unmet need
Assessment	Unifiet field		Unifiet field	Unifiet field	Unifiet field

### V. Approaches and Strategies to Achieve Goals for Public Access and Protection and Management of Lacey's Shorelines

### A. Regulatory Mandate

<u>Shoreline regulation and jurisdiction</u> - State law requires the review and regulation of land use on property within the shoreline jurisdiction. There is an established permitting and review process required for all projects being developed within this jurisdiction (within 200 feet of the ordinary high water mark of a designated shoreline management water body).

As part of this review process, with a few exceptions, there is a requirement to review proposed projects and apply a condition for appropriate public access.

This review process, and guidance under WAC 173.26.221, allows Lacey to review the proposal, the specific project site, applicable environmental criteria and assess the need and potential for establishing public access on the site as a condition of the permit.

<u>Considerations</u> - Generally, when new public access opportunities are identified the City will review individual site suitability and potential impacts to the shoreline environment. This evaluation should include the suitability of the site to accommodate improvements required for the public access, considering its proposed use, and the shoreline designation and environmental sensitivity. In addition, public access planning, for sites being evaluated as part of a permit requirement, should be integrated with and support the goals of the private applicant.

<u>Environmental protection concerns</u> - As part of a site's evaluation, the site must be judged for its suitability for a range of public access and use needs; active water recreation or passive recreation, view opportunities only or full conservation with no physical interaction with the shoreline. Generally, only public access use compatible with the protection of the shorelines identified functions and values should be considered.

<u>Accommodating infrastructure and design needs of the public access use</u> - Along with considerations of suitability for protection of shorelines there are a number of criteria for suitability that go with accommodating various public use scenarios; will there be a need for parking and can it be accommodated, is there a need for sanitary facilities, can public access be designed to complement the existing neighborhood character and design, or would it disrupt the livability of residents and compromise privacy and enjoyment of surrounding residential homes? Is there an opportunity for "eyes" on the area to provide regular monitoring and surveillance of the area, or would there be a security risk?

<u>Integration with the applicant's needs and goals</u> - In addition to environmental and public design considerations, a project needs to consider goals of the private land owner. Without compromising overall goals of the public access program, individual access needs should accommodate goals of the applicant. The applicant's proposed project and public access use and design should both be evaluated for opportunities where one can complement the other. Every effort should be made to achieve both the goals of the applicant and the needs of the public.

Where a residential subdivision is involved, a design for public access should be developed that will provide what home buyers would consider an amenity to the neighborhood. It must consider the values residents consider important and address privacy, security, aesthetics and long term management and maintenance. Most importantly, it must add what residents will consider value to the investment they have made in their home.

Something that adds value to the development and is seen as a long term asset will sell itself. A poorly designed concept, or request for public access for an unquantified use and undisclosed need, will not be as palatable to our development community. In the worse case, a poorly conceived condition for public access might be considered a taking and devaluing of their product and sales potential.

### **B.** Incentive Based Programs

<u>Generally</u> - Another strategy Lacey will use to achieve public access and open space objectives is the development and implementation of unique innovative programs to provide incentives for land owners to dedicate public access and shorelines property to the city for public use and long term protection and management.

These programs will focus on providing incentives to property owners that give the owner special value and opportunities in exchange for the provision of shoreline property and access that provides a special benefit and asset to the public.

<u>Incentive Dedication Density Bonus Strategy</u> - During the beginning stages of the Shoreline Master Program update, advanced planners from the three cities of Lacey, Olympia and Tumwater met to discuss Regional's preliminary work on the first draft being produced with the Department of Ecology's grant. Planners met on a regular basis to review the preliminary work, identify issues and consider new opportunities and strategies.

One idea discussed was the concept of density incentives for a land owner/developer that dedicated shoreline area and public access. In developing this idea, a set of criteria was developed considered necessary for an incentive program to work. These included the following points:

- A. Incentive programs should provide an option that is superior for the shorelines considering, environmental protection and public use/interest, that meets all requirements of the Shoreline Management Act and furthers its spirit and intent;
- B. The opportunity for the developer should be superior from a market and business standpoint to result in an independent decision to pursue the program opportunity;
- C. Any development resulting from the program should be compatible and further the intent of GMA plans and further the concepts the city is emphasizing in implementation of GMA and its community vision;
- D. Any development that results from the program should be compatible and complementary to the existing neighborhood in which it is located;
- E. Innovative approaches and unique ideas should be encouraged to find ways to make preferred concepts work. Flexibility in general code standards should be permitted with an emphasis on design for compatibility with surrounding developments and functionality considering livability and improvements to a resident's quality of life;

These same points are adopted as goals and policies in Section VI of this plan.

Within this framework, Lacey should develop an optional program for a land owner to dedicate shoreline property and the right for public access for significantly enhanced development opportunity.

#### City of Lacey Shoreline Master Program September 2011 Revised April 9, 2015

Shoreline regulations already restrict what can be developed within the shoreline jurisdiction and the master program has regulatory authority for application of conditions for public access. In looking at development opportunity for shoreline areas there are many restrictions that impact density and location. If wetlands are present development is prohibited within the wetland and its associated buffer.

The incentive program could provide a developer another option to consider when weighing these standards and restrictions in designing a development that will be successful in the market place. In exchange for dedication of the shoreline portion of an ownership to the City, an option with significant benefits over a traditional development approach can be encouraged. Opportunity might include the following:

- A. Significantly enhanced density, over what the underlying shoreline and zoning designation would normally permit.
- B. Opportunity for a project designed with a mix of uses not normally permitted within the underlying zoning district. This might be a range of residential forms and types or limited commercial activity consistent with village concepts;
- C. Relaxation of normal zoning standards in favor of a design focus that can achieve Comprehensive Land Use Plan goals for compatibility and functionality. This needs to result in a higher quality of life and a superior neighborhood experience for residents.
- D. Opportunity to transfer benefits of the program for a project throughout the city consistent with the framework of this program considering the emphasis on GMA principals and the vision for neighborhoods articulated in the Comprehensive Land Use Plan.
- E. Opportunity to build a project designed with these special features on the subject property if the physical development takes place outside the shoreline jurisdiction on the sites upland areas;
- F. Potential opportunity to build a portion of a project within the shorelines jurisdiction if the fronting shoreline area is dedicated to the public providing significant public benefit and all other public interest goals of the program are satisfied and all shoreline requirements of the Shoreline Master program are met.

Implementation of this program can be accomplished with specific Comprehensive Land Use Plan goals and policies providing the intent and expectations of the program. These relate to the community's vision for quality neighborhoods and compliance with principals and strategies of GMA.

In addition, zoning provisions can be developed to provide for this program throughout a variety of zones and in a variety of areas as a permitted use or in overlay designations or "receiving areas".

Design expectations exist in the design chapter to require a design considering both aesthetic values and functionality for enhanced livability.

# C. Use of Shoreline Classifications and Designation for Best Use and Management of Shorelines

An important emphasis of shorelines management is protection of the natural values and functions of our shorelines. As part of the Shoreline Master Program update, Lacey did an inventory and characterization

#### City of Lacey Shoreline Master Program September 2011 Revised April 9, 2015

of its shoreline areas. Through evaluation of individual reaches shorelines were assigned designations appropriate for shoreline use and environmental protection.

Appropriate designations have been assigned based upon the evaluation of functions and values and what the science suggests for management of shoreline over the long term. Designations applied to Lacey's shorelines include Natural, Urban Conservancy, and Shoreline Residential.

These have varying degrees of intensity of use, going from very restrictive under the Natural designation, to accommodating significant residential development under the residential designation. As access opportunities become available a one size fits all approach will not be an acceptable way of establishing and developing public access and public use. When sites are reviewed for public access opportunities, the shoreline designation applied to an individual site should guide the type and intensity of public use considered.

Generally the Natural designation should not accommodate intensive recreation uses. These areas are sensitive, usually have significant wetland resources in addition to shorelines and because of sensitive aspects are still relatively undeveloped. These types of areas need protection and are opportunities for passive activities with view points and trails providing views of the shorelines. They will generally not be well suited for active water related activities.

The Urban Conservancy environment, as the name implies, is also a designation where restrictions are applied because of the value and sensitivity of shoreline resources and a need for care in management. This designation is also generally not an area expected to accommodate intensive public or private use.

The areas designated Shoreline Residential is predominantly developed out with intensive residential use of the shorelines. These areas may be suited for intensive use and recreation activity and can be worked into development concepts as part of a development recreation/open space requirement.

# VI. Goals and Policies Concerning Public Access to Shorelines in

Lacey and the Lacey Urban Growth Area: These Lacey specific goals and policies

supplement the more general goals and policies recommended by the State guidebook which are found in the Shoreline Master Program in Section 17.46.000

### 1. Goal - Provide a full range of shoreline access and use for the Lacey community.

- **A. Policy** Consider the type of public shoreline access that is needed for the Lacey community; passive, active, view points, beach recreation etc. Determine what access opportunities exist and what additional opportunities should be pursued based upon value to the public.
- **B.** Policy Develop an inventory of existing and public access to shorelines. Develop an inventory of potential opportunities for public access that Lacey could pursue in achieving its public access goals.
- **C. Policy** To support implementing efforts, particularly regulatory actions of conditioning permits, Include a discussion of identified public access opportunities in planning documents with justification and expectations for acquisition and development; The Comprehensive Land Use Plan; the Comprehensive Plan for Outdoor Recreation and the Capital Facilities element.
- **D.** Policy Consider a range of strategies and programs to acquire valued public access opportunities.
- **E. Policy** Actively pursue public access opportunities with a variety of special programs such as the incentive dedication strategy.
- 2. Goal Develop special innovative program(s) to achieve Lacey's public access goals with incentives attractive to the development community.
  - **A. Policy** Craft Incentive programs to gain needed public access opportunities that provide a development option that is superior for the shorelines considering, environmental protection and public use/interest, that meet all requirements of the Shoreline Management Act and furthers its spirit and intent;
  - **B.** Policy Develop program strategies that offer opportunity for the developer that is superior from a market and business standpoint and will result in a developer's independent decision to pursue the program opportunity;
  - **C. Policy** Any development resulting from an incentive program needs to be compatible and further the intent of GMA plans and further the concepts the city is emphasizing in implementation of GMA and its community vision;
  - **D. Policy** Any development that results from an incentive program needs to be compatible and complementary to the existing neighborhood in which it is located;
  - **E. Policy** Innovative approaches and unique ideas should be encouraged to find ways to make preferred concepts work. Flexibility in general code standards should be permitted with an emphasis on design for compatibility with surrounding developments and functionality considering livability and improvements to a resident's quality of life;
- **3.** Goal Establish a shoreline access program that compliments the need for shorelines protection and recovery and restorative planning.
  - **A. Policy** Lacey will manage shoreline access opportunities consistent with the emphasis to protect, restore and improve our shorelines identified functions and values.
  - **B. Policy** When applying conditions for public access, Lacey will select public access sites appropriate to the shoreline designation and requirements for its environmental protection and maintenance of its natural functions and values.
  - **C. Policy** Site evaluation shall include a site's potential to accommodate the improvement requirements necessary for various public access activities.

- **D.** Policy Public access facilities such as fishing piers may be developed over water if ecological impacts are mitigated.
- 4. Goal Implement a shoreline access strategy that meets City of Lacey needs through permit administration to achieve its shoreline access goals while being sensitive to needs of landowners.
  - **A. Policy** Lacey will demonstrate need for an access to provide the applicant a reason, purpose and justification for public access;
  - **B.** Policy Lacey will provide specificity of the use and intended design for the applicant to assess and have a comfort level with successful integration of the intended public access with his/her own goals and objectives.
  - C. Policy Lacey will increase public access to publically owned shorelines.
  - **D. Policy** Lacey will consider objectives of private projects and landowners as it develops plans for public access and as much as possible, without compromising Lacey's public access goals and goals of the state, will design the access and long term management in a way that accomplishes both.
  - **E. Policy** Public access developed as part of a shoreline permit requirement should be designed to enhance the proposed project by adding value to the property for current and future residents of the site/ownership/development. Ideally, the relationship should be considered a partnership between the developer and the city, where the establishment of public access tied into other public amenities (regional trail, lake trail, parks etc.) will improve a projects marketability and attractiveness, adding value to the proposed development by establishing an amenity residents of the site/ownership/development will see as added value to their home.

### **VII. Resources**

City of Lacey, 2008. Lacey Comprehensive Plan, (including Capital Facilities Chapter).

City of Lacey, 2004. Lacey Comprehensive Plan for Outdoor Recreation.

Thurston Regional Planning Council, 2008. Draft Shoreline Inventory for the Cities of Lacey, Olympia, and Tumwater and their UGAs.

ESA Adolfson, 2009. Lacey, Olympia, and Tumwater - Shoreline Analysis & Characterization Report, prepared for Thurston Regional Planning Council.

Thurston County, 2008. Thurston County Comprehensive Plan (including Capital Facilities Chapter). Thurston Regional Planning Council, 2007. Thurston Regional Trails Plan.

# Appendix 2

**Green Shoreline Landscaping: Examples and Guidelines** 

### LACEY CITY COUNCIL

Tom Nelson, Mayor Virgil Clarkson, Deputy Mayor Jeff Gadman Jason Hearn Ron Lawson Cynthia Pratt Andy Ryder

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# Appendix 2 Green Shoreline Landscaping: Vegetation/Landscaping Examples and Guidelines

# **Section One**

# **Section Two**

SHORELINE PRACTICES FOR A HEALTHY LAKE	
LIVING WITH LAKES - HINTS FOR HOME LANDSCAPE AND GARDEN	35
THE SECRET LIFE OF LAKES	
THE VALUE OF RIPARIAN VEGETATION	
ALGAE AND WATER QUALITY	40
RESOURCES	

# Introduction

The following Appendix uses material taken from a guidebook titled "Green Shorelines" and other publications and technical papers developed by the City of Seattle and King County. They are designed to provide information to shoreline landowners about alternatives to the use of bulkheads and other shoreline armoring and generally developing and maintaining more naturalized and healthier shoreline through naturalized landscaping concepts.

Hard engineering is currently the standard approach for erosion control along lake front property, but it has several negative impacts on nearshore habitat as well as the fish and wildlife that depend on them. More sustainable practices, referred to as green shorelines, use plants, beaches, and other natural materials to protect private property and the environment and provide a more ecologically friendly and attractive beach front property.

### Green shorelines provide three types of benefits for homeowners:

Green shorelines substantially improve habitat for wildlife while maintaining shoreline stability; they allow improved water access for homeowners and guests, making swimming and shoreline enjoyment easier; and they offer a softer, more natural aesthetic that can enhance views by adding variety and seasonal interest.

Lakes in Lacey embody the best of Western Washington: clean water, bountiful recreational opportunities, striking mountain views, and access to thriving cities. These qualities have inspired many people to make their homes on the shores of our lakes and the Lacey area in general. Over the last several decades, urbanization in Lacey, and that area that is now designated as urban growth area under GMA, has transformed much of what use to be forested waterfronts to a residential one. This change has led to a variety of problems, including loss of important wildlife habitat and some of the area's natural charm. But, lakefront homeowners have opportunities to protect our lakes and regain some of the natural look and feel and the function and value that has been lost.

While homeowners often find green shorelines attractive, many have concerns about effectiveness, reliability, building and maintenance costs, the permitting process, and the potential loss of lawn. The material in this appendix (Appendix 2) addresses these and other concerns by assembling technical information from a wide range of sources and providing local examples. Although much of the information utilized in this appendix was written by the City of Seattle and King County, the principles described can be applied to homes around those lakes in Lacey and Lacey's urban growth area. Technical advice in these pages is offered as guidance; this appendix is not a building code. In the case of any discrepancies, defer to local, state, and federal regulations for shoreline development.

Green shorelines are attractive, reliable, and sustainable. The idea of having your own beach is a major motivator for many people to buy waterfront property. So, why give up your beach for a bulkhead? Why settle for traditional landscaping that threatens your lakes water quality and habitat value, when there are more functional and attractive alternatives that are less expensive and easier to maintain? The following sections explain and illustrate what the concept of green shorelines is and how these approaches work, where they might be used, and what they look like. Although described separately, keep in mind that in most cases, these strategies are typically used in combination with one another. While the

### City of Lacey Shoreline Master Program September 2011 Revised April 9, 2015

concepts outlined here will give you a broader understanding of the options for improving your shoreline, it is advisable for you to seek professional assistance to get your project designed and built. Suggestions for selecting designers and contractors are provided in the first section in the subsection titled "Choosing a Shoreline Professional."

When this appendix uses the term "restoration," it does not mean returning a lake shore to its predevelopment condition. Rather, it refers to restoring specific ecological processes. The shorelines shown in this section look different than they did 150 years ago, but they still can protect fish, wildlife, and water quality in many of the same ways.

Together with design and construction advice, the concepts explored in this appendix provide suggestions to help you get through your permitting process more quickly. Because our lakes may be home to multiple species on the Endangered Species list, lakeshore construction often has to be approved by not only local, but state and federal agencies as well.

While specifics vary, the growing trend across regulatory agencies is to encourage projects that improve shoreline habitat quality through requirements, incentives, and streamlined permitting. Following the principles in this appendix can help you avoid unnecessary permitting hurdles (see "Getting Permits"). Photos of restored shorelines throughout the appendix are included to help demonstrate specific green shoreline techniques, and they also display the aesthetic benefits of natural beaches and plantings. Further, they provide samples of the diverse shoreline restoration projects that already exist around Lacey's lakes.

Bulkheads and docks have altered or eliminated much of the shallow-water habitat around our lakes. By reflecting wave energy back into a lake, these structures tend to wash away nearshore sediment, causing deeper water over time. Lawns have replaced much of the diverse vegetation that provided cover for young fish. Bulkheads also can compromise homeowners' access to the water and negatively affect views. Entering the water from a bulkhead can be awkward or even dangerous; shoreline armoring accelerates nearshore erosion, deepening the water and making wading difficult.

Further, the widespread use of shoreline armoring is bad for waterfront aesthetics—while homeowners typically prefer greener, natural-looking lakeshores, armoring creates a more heavily developed look along the shoreline. The information provided in this appendix explores some alternatives and how a more natural shoreline can help you achieve and maintain a healthy and attractive shoreline property.

# The Water's Edge

People love to live in places where water and land meet. Shorelines provide work and recreation opportunities, mild climate, and tranquil views.

People are not the only ones drawn to shorelines, however. Due to the diverse resources and habitats that occur along lakeshores, they tend to be biologically rich and productive places. Our lakes are no exception—numerous plant, bird, fish, mammal, and insect species call Lacey's shorelines and associated wetland complexes home.

# Problems with "Business as Usual"

Unfortunately, some of the natural elements that attract people to waterfront properties are often casualties of development. Trees, shrubs, and wildflowers are cleared to make way for houses, lawns, and open views. Bulkheads built to control bank erosion displace beaches and cause erosion below the water line. Removal of vegetation along the shore allows contaminants to flow directly into the lake. As beaches and vegetation are replaced by lawn and concrete, prime wildlife habitat disappears, taking with it birds, beneficial insects, and fish.

Beach slope is a critical component of a successful restoration project. A well-designed slope provides resistance to erosion, reducing the need for maintenance. Slopes of 7:1 or flatter are ideal (seven horizontal feet for each vertical foot), but slopes up to 4:1 can be stable in some circumstances. New beaches should be made of an appropriate gravel material. Although people tend to think of sand when they think of shorelines, sand erodes quickly in most parts of Lake Washington. Instead, use clean, well-rounded gravel 1/8" to 2" size – specifics will depend on wave energy and your proximity to known sockeye spawning grounds. Contact the Washington State Department of Fish and Wildlife to learn about requirements in your area (see "Contacts"). If sand is desired it should either be placed well above the water line or physically separated from the gravel beach using stone or wood. Additionally, a successful design for a restored beach must address how the beach will meet neighboring properties. This is not a concern if your neighbors already have or are restoring their own beaches, but it is necessary to plan how the edges of a beach will meet any neighboring bulkheads.

# **Attractive Alternatives**

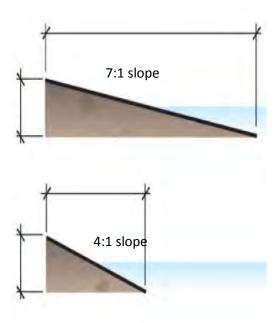
The good news is that people are finding new strategies for protecting their property while also protecting and restoring habitat. Instead of concrete and sheetpile, these practices use a combination of plantings, gravel, stone, logs, and slope modification to protect against shoreline erosion. The ideal is to set structures back far enough to preserve the natural shoreline and vegetation.

Because a good percentage of our lakes in Lacey are already developed, this appendix focuses on positive steps that you can take to reduce the impact of an existing waterfront home.

Whether your site can accommodate a full beach restoration or only incremental improvements, a wide range of options is available, including:

- full beaches,
- beach coves,
- setting back bulkheads,
- log installation,
- vegetated buffers and
- slope bioengineering.

# **Green Shoreline Practices**



# **Full Beaches**

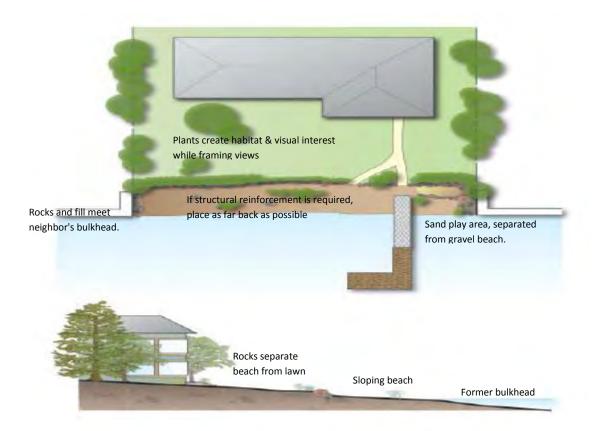
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If sand is desired it should either be placed well above the water line or physically separated from the gravel beach using stone or wood.

Additionally, a successful design for a restored beach must address how the beach will meet neighboring properties. This is not a concern if your neighbors already have or are restoring their own beaches, but it is necessary to plan how the edges of a beach will meet any neighboring bulkheads.

### There are two strategies for meeting adjacent bulkheads:

- Install rocks, wood, plantings, or concrete walls at the edges of your beach to reinforce the transition area from beach to bulkhead these areas will be subject to greater erosive forces.
- Add extra fill below the water line at the edges of your property this protects your beach from the erosive forces of neighboring bulkheads and protects the bulkheads from undercutting. For shoreline restoration purposes, 25 cubic yards of fill are allowed outright in the water so long as they do not create dry land. More may be approved depending on site conditions.



Some erosion to beaches is normal over time. This can be offset by beach nourishment, the periodic addition of gravel. When a project is designed and installed properly, some nourishment is likely to be necessary every five to ten years. To make beach nourishment easier, it is ideal to include periodic fill as part of the maintenance plan in your initial construction permit. This can help you avoid needing to obtain a local permit to add gravel to your beach in the future. If nourishment is not covered in your initial permit, you will need to obtain a shoreline exemption for each instance of beach nourishment. Time and costs for this process depends on your local jurisdiction. Regardless of whether a local permit is necessary, beach nourishment projects need permits from the Washington State Department of Fish and Wildlife and Army Corps of Engineers. Both have relatively simple application processes so long as your nourishment project will be adding 25 cubic yards of fill or less. Total wait time for both agencies is likely to be 10 to 30 days, and neither permit requires a fee.

### **Beach Coves**

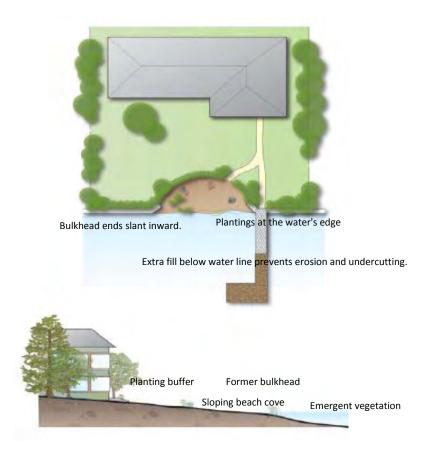
Beach coves or "pocket beaches" are currently the most common type of green shoreline installed around Lake Washington. A beach cove is a beach along a portion of a property's waterfront, flanked on both sides with hard structural elements. This is a useful strategy to improve habitat quality and water access while keeping armoring if it is necessary. While recommended slope, width, and depth of beach coves vary depending on site conditions, several features are advisable for most beach cove projects. Like full beaches, beach coves should use appropriately sized gravel, and typically not sand. Beach nourishment

will be needed with about the same frequency as with a full beach restoration (every 5-10 years), but less fill is needed since the beach area is smaller.

# Localized erosion can occur where the bulkhead meets the beach on either side of the cove. Two techniques that help prevent this from happening include:

- Angling the ends of the bulkhead away from the water to dissipate wave energy and decrease erosion.
- Adding extra gravel fill below the water line to help prevent undercutting of the bulkhead.

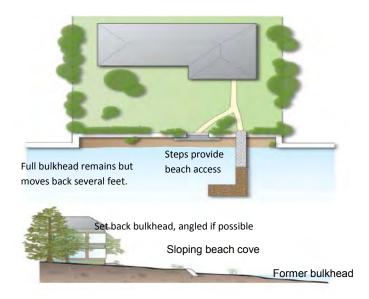
As with full beaches, beach cove slopes should typically be no steeper than 4:1, i.e., four horizontal feet to one vertical foot. Again, 7:1 is a good goal, but steeper slopes can be stable when appropriate materials are used. Beach coves should not be the first choice if your property can accommodate full beach restoration. They provide less shoreline for wading and other beach activities, and they do less to improve habitat. While fish biologists have observed juvenile salmon using pocket beaches around Lake Washington, research suggests that the fish gravitate to larger beaches and plantings when they are available. Specific criteria to help you consider the practicality of a cove versus a full beach are discussed in "Selecting the Right Approach."



# **Setting Back Bulkheads**

When houses have been built too close to the water, fewer options for shoreline management remain. If there is not an adequate setback between the water line and the house, a bulkhead really may be necessary to protect houses or other structures. In many cases, however, the bulkhead can at least be moved back from the high water mark, providing benefits to the homeowner and the lake ecosystem.

It is a simple concept but one that can make a big difference for access and ecological function. By moving a bulkhead back several feet from the water line, homeowners gain a beach and many of its advantages: safe wading and swimming access, an easy way to launch hand-carried boats, and waterfront play areas. The bulkhead is still there to help accommodate the grade change from house to water or to provide protection during large storms. Part of the bulkhead can be set back to create a reinforced beach cove, or the whole thing can be set back to create new a new beach all across the shoreline. If you need to keep a bulkhead because of how the site was developed, setting the bulkhead back from the water can simplify your permitting process. The Army Corps of Engineers does not claim jurisdiction above the ordinary high water line, so no federal permit is likely to be required for the new bulkhead provided that it is built before the existing bulkhead is removed. If the old bulkhead you are removing is located at high water, that part of the construction will still require an Army Corps permit.



As with beach coves, a project that sets back a bulkhead need not result in any loss of property. As long as beach fill is properly installed, the high water mark will remain the same distance away from your house as it was before renovation. You may displace some lawn or other upland planting area, but that area will be converted to usable beach. Like other beaches, a beach created by setting back a bulkhead will need periodic additions of gravel fill (see "Full Beaches"). Whether you are setting a bulkhead back or replacing it in the same location, angling back the batter (the slope of the bulkhead) is generally a good idea. With every wave that hits it, a vertical bulkhead reflects most of the wave energy back into the lake. This leads to turbulence and erosion, which results in deeper water at the bulkhead's base. A sloped bulkhead does a better job of absorbing and dissipating energy, creating less erosion and lengthening the service life of your investment. For Lake Washington, engineers generally recommend a bulkhead slope of 3:1 where site constraints will allow it.

### "Won't a beach attract more geese to my yard?"

While wildlife sightings are a major benefit of living on the water, all creatures are not greeted with equal enthusiasm; the noise, aggressive behavior, and messy habits of Canada geese frequently make them unwelcome guests. Although many worry that creating a new beach may draw more geese into their yard, a more natural shoreline can actually decrease the number of visiting geese.

A lawn extending to the lakeshore is a goose's equivalent of a 24-hour salad bar – geese eat turf grass and snails, and they prefer open areas with no shrubs and trees for predators to hide behind. Two strategies, used separately or together, act as effective deterrents to geese. First, separating the beach from your yard by a few steps makes the ascent too much of a hassle for most geese.



Second, plantings of native vegetation between your yard and the water can act as a visual and physical barrier, separating the geese from your grass. Even with a path through the plantings to allow beach access, geese are reluctant to walk through taller vegetation. "Our old yard was a landing strip for geese. Since we shrank the lawn area and added plants, the geese almost never come here anymore," reports a Bellevue homeowner. In addition to discouraging Canada geese, diverse plantings are likely to increase visits by songbirds and other desirable wildlife.

# Log Installation

Logs are useful construction materials for green shorelines projects. They can provide strategically placed "hard engineering" structural reinforcement while complementing the aesthetic of a more natural beach project and, in some cases, enhancing ecological function. A few key principles increase the effectiveness of logs.

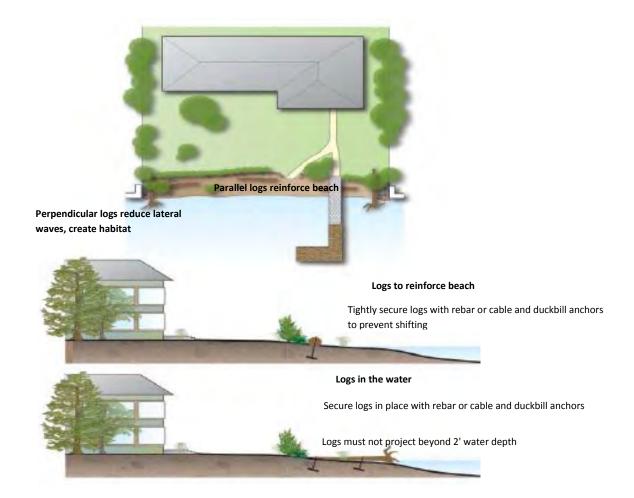


Logs must be anchored securely in place. Although the dense, weathered wood used for these projects does not float easily, a little buoyancy can be enough to pull a log loose during a storm. A loose log can be hazardous to people, structures, or boats. There are several ways to secure a log, but it is most commonly done using duckbill anchors and cables or by partially burying the log. Also, shorelines that place logs below or partially below the water line must be designed with particular care. Some - restoration efforts around the lake have installed logs perpendicular to the shoreline to enhance fish habitat.

While logs in the water can improve nearshore habitat by creating salmon refuge areas, they should not extend beyond a depth of 2' below ordinary high water. Anything beyond this is thought to create habitat for predator fish species that prey on salmon. In some cases, logs are not allowed to extend beyond the water line, since they can interfere with natural movement of sediments. If logs are used for habitat enhancement, they should be as complex as possible, with root wads and some branches still attached.

The use of trees, shrubs, and perennials is a key characteristic that distinguishes green shorelines from conventional shoreline management. When homeowners see examples of green shorelines, the plants are typically what make the biggest impression; instead of a monotonous swath of lawn and bulkhead, these shorelines use a rich variety of plantings to provide visual interest, create and protect habitat, and help stabilize the lakeshore. In this guidebook, two categories of plantings are discussed: vegetated buffers and slope bioengineering. Vegetated buffers primarily contribute to a shoreline by adding beauty, improving

habitat value, and protecting water quality. Slope bioengineering strategically uses plants as an engineering element to hold soil in place.





## **Shoreline Plantings**

The use of trees, shrubs, and perennials is a key characteristic that distinguishes green shorelines from conventional shoreline management. When homeowners see examples of green shorelines, the plants are typically what make the biggest impression; instead of a monotonous swath of lawn and bulkhead, these shorelines use a rich variety of plantings to provide visual interest, create and protect habitat, and help stabilize the lakeshore. In this appendix, two categories of plantings are discussed: vegetated buffers and slope bioengineering. Vegetated buffers primarily contribute to a shoreline by adding beauty, improving habitat value, and protecting water quality. Slope bioengineering strategically uses plants as an engineering element to hold soil in place.

# **Vegetated Buffers**

Vegetated buffers at the water's edge add visual interest to residential landscapes. A mix of textures, flowers, fruit, and colors brings a dynamic quality to your yard throughout the year. Native plants are ideal, not only because they have lower water and maintenance needs, but also because they help draw birds and beneficial insects to your yard.

Vegetated buffers are great options for any lakefront property, whether you have a bulkhead, a beach or a combination of the two. Diverse shoreline plantings contribute to aquatic habitat in four important ways. First, vegetation provides diffuse shade to the water's edge, creating conditions that help juvenile fish blend in with their surroundings.

Second, vegetative buffers restore natural food web processes to the shoreline – plants are home to insects and other small organisms, which become fish food when they fall into the water.

Third, vegetation provides twigs, branches and leaves, which create important refuges from birds and bigger fish.

Finally, planted strips protect water quality by filtering excess nutrients and other contaminants from stormwater. Rainwater flowing over lawns carries fertilizer, pet feces, gasoline, paint, and pesticides into the lake, but shrubs and perennials can help stop and neutralize these contaminants.

How wide should your buffer be? This depends on what your lot can accommodate. While bigger is better, even a few feet can provide a benefit. Most new residences along our lakes will be located in a designation called "Shoreline Residential". In this designation a setback of 50 feet is required. New lots will require the full buffer to be landscaped in a naturalized concept.

However, most of Lacey's lakes have been urbanized, except for those areas that contain sensitive property like wetlands. Where urbanization has occurred it took place under old setback standards. Many times homes were located closer than 50 feet to the ordinary high water mark. As such, these homes have become non-conforming and often will not have room for the full required buffer. In these cases, the buffer will depend upon the amount of property available to be planted. A 20' vegetated buffer will usually fit on most non conforming sites and a 20 to 40' buffer is often feasible.

An additional benefit of vegetated buffers: replacing turf with low-maintenance perennials and shrubs can cut down on yard work by shrinking the area that needs mowing.

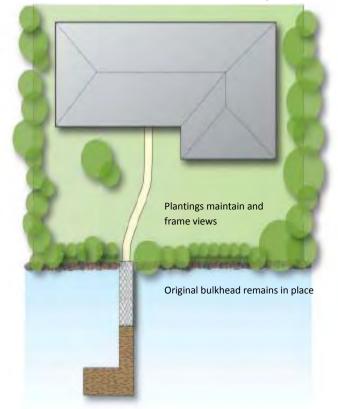
Ideally, shrubs and perennials should be directly adjacent to the water's edge, overhanging the lake wherever possible. When a property has a bulkhead, however, trees and large shrubs need to be sited carefully to prevent damage to shoreline armoring. Black cottonwood, for example, is an ideal tree to plant next to beach areas, but its vigorous root system could cause problems for a riprap bulkhead. Emergent plants provide excellent habitat and erosion control, but they may struggle on some of our lakes due to the hydrological conditions – the lake's water level.

Water level fluctuated dramatically on some Lakes and low water occurs in the winter. Emergent plants may work well in protected parts of our Lakes, or areas with shallow nearshore slopes. As long as all plants are placed above the high water mark, no permits are necessary to plant shoreline vegetation.

# "Sure, I like plants, but maintaining my view of the water is a higher priority."

Many homeowners favor large expanses of lawn because they see it as the best way to protect their view. The truth is that diverse plantings can accent and improve views. Framing views is an important principle of garden and landscape design. Identify which views you want to keep and enhance, and which views would be better screened. Strategic plant placement can help block or soften undesirable views (such as a neighbor's shed or boat house) while maintaining views of the water.

Since houses are always sited above the high water line, it's usually easy to keep views of the water over perennials and low shrubs. Most sites can also accommodate trees without losing views, so long as the trees are maintained properly; limbing them up (trimming out the lower branches to allow views under or through the canopy) may sometimes be desirable. Trees contribute to a sense of privacy, bring birds and other wildlife to your yard, absorb runoff, and can even reduce energy costs by shading your house in the summer. Looking at the examples throughout this appendix will give you more specific ideas of how plantings can preserve and enhance views while reducing your impact on the environment.





# **Slope Bioengineering**

Slope bioengineering is a term used for an array of different techniques that share an elegant principle. Instead of using concrete or sheetpile, bioengineering uses plant material as a self-renewing, ecologically sustainable way to hold soil and gravel in place. These "soft engineering" techniques are commonly used in parks and natural areas for ecological restoration projects, but they may also be used on residential properties.

# Each of the dozens of slope bioengineering techniques has its own advantages specific to different situations. A few examples are listed below:

Live stakes are a key element of almost all bioengineering projects. These are cuttings from plants that will grow roots when inserted into moist ground. Willows, dogwoods, and other shoreline species adapted to reproduce through cuttings are all viable candidates. Live stakes can be a simple and cost-effective way to bind soil in place and provide plant cover.

Fascines are long bundles of thin branches, tightly bound with twine. They are partially buried in trenches parallel to incoming waves and "nailed" into place with live stakes. These thick masses of branches provide immediate structural support, catch sediment coming from upslope, and can establish their own roots and new growth. Since they are usually composed of several different species, the resultant growth comes in as a thicket of mixed plants. For this reason, fascines should be placed carefully to avoid blocking views.

Live revetment is used to stabilize steep banks. Geo-textile fabric holds earth-filled terraces in place. Further structural support is provided by live stakes driven through the fabric. Be sure that cuttings are collected from an approved site – contact Lacey's park Department or the Washington Department of Natural Resources to find out where harvesting is allowed (see "Contacts"). Permits are required for any slope bioengineering installations at or below ordinary high water. However, permits for "green shoreline" eco-friendly stabilization are promoted under Lacey's shoreline Master Program, fees will be minimal and Lacey will process your permit in a fast-tracked review process.

### **Plant List**

Native plants offer many advantages for green shorelines and residential landscaping in general. Because they are adapted to local conditions, they rarely require irrigation. They are surprisingly diverse, offering a wide palette of shapes, textures, and colors to work with. They can be attractively mixed with many nonnative ornamental plants. Also importantly, they offer substantial habitat benefits for birds, beneficial insects, and fish. Finally, native plants do not need fertilizer and pesticide treatments that can put harmful chemicals in the lake.

Many of the plants on this list, like Oregon grape and mock-orange, can be found at any nursery. Others will only be available through nurseries that specialize in native plants. For an up-to-date list of native plant retailers, please contact the Washington Native Plant Society (www.wnps.org).

### City of Lacey Shoreline Master Program September 2011 Revised April 9, 2015 GREEN SHORELINE PRACTICES: SHORELINE PLANTINGS: PLANT LIST

### Trees

Latin name	Common	Exposure	Moisture	Height
	Name			
Abies procera	Noble Fir	sun/part shade	dry/moist	200
Acer circinatum	vine maple	part shade/shade	dry/moist	25
Acer macrophyllum	bigleaf maple	sun/part shade	dry/moist	105
Alnus rubra	red alder	sun/part shade	moist/wet	70
Betula papyrifera	paper birch	sun	moist	80
Crataegus douglasii	black hawthorn	sun/part shade	dry/moist	25
Crataegus douglasii var suksdorfi	Suksdorf's hawthorn	sun/part shade	dry/moist	20
Fraxinus latifolia	Oregon ash	sun/part shade	moist/wet	70
Malus fusca	Pacific crabapple	sun/part shade	dry/moist	40
Picea sitchensis	Sitka spruce	sun/part shade	dry/moist	200
Populus trichocarpa	black cottonwood	sun	moist	100
Populus tremuloides	trembling aspen	sun	dry/moist	75
Pseudotsuga menziesii	Douglas fir	sun/part shade	dry/moist	200
Rhamnus purshiana	cascara	sun/part shade	dry/moist	30
Salix spp.	willow	sun/part shade	moist/wet	6-40
Thuja plicata	Western red cedar	part shade/shade	moist/wet	200
Tsuga heterophylla	Western hemlock	sun/part shade	dry/moist	180

# Groundcover

Latin name	Common Name	Exposure	Moisture	Height
Achlys triphylla	vanilla leaf	part shade/shade	moist	1
Allium cernuum	nodding onion	sun	dry/moist	1
Asarum caudatum	wild ginger	part shade/shade	moist	0.5
Camassia quamash	common camas	sun/part shade	dry/moist	1
Cornus canadensis	bunchberry	part shade/shade	moist	0.5
Fragaria chiloensis	beach strawberry	sun/part shade	dry	1
Mahonia nervosa	low Oregon grape	sun/shade	dry/moist	2
Maianthemum dilatatum	false lily-of-the- valley	part shade/shade	dry/moist	1
Vancouveria hexandra	inside-out flower	part shade/shade	moist	1

### Shrubs

Latin name	Common Name	Exposure	Moisture	Height
Amelanchier alnifolia	Saskatoon serviceberry	sun/shade	dry/moist	20
Andromeda polifolia	bog rosemary	sun/part shade	wet	1.5
Cornus sericea	red-osier dogwood	sun/shade	moist/wet	15
Corylus californica	beaked hazelnut	sun/shade	dry/moist	20
Gaultheria shallon	salal	part shade/shade	dry/moist	5
Holodiscus discolor	oceanspray	sun/shade	dry	15
Lonicera involucrata	black twinberry	sun/part shade	dry/wet	8
Mahonia aquifolium	tall Oregon grape	sun/shade	dry/moist	8
Philadelphus lewisii	mock-orange	sun/part shade	dry/moist	9
Physocarpus capitatus	pacific ninebark	sun/shade	moist/wet	13
Rhododendron macrophyllum	pacific rhododendron	part shade/shade	dry/moist	20
Ribes sanguineum	red-flowering currant	sun/part shade	dry/moist	6
Rosa gymnocarpa	bald-hip rose	sun/part shade	dry/moist	5
Rosa pisocarpa	cluster rose	sun/part shade	moist/wet	6
Rosa nutkana	Nootka rose	sun/part shade	moist/wet	10
Rubus spectabilis	salmonberry	sun/shade	moist/wet	10
Sambucus racemosa	red elderberry	sun/part shade	moist/wet	20
Sorbus sitchensis	sitka mountain-ash	sun/part shade	moist	10
Spiraea douglasii	spiraea	sun/part shade	moist/wet	12
Symphoricarpos albus	snowberry	sun/shade	dry	5
Vaccinium ovatum	evergreen huckleberry	part shade	dry	12
Viburnum edule	highbush cranberry	sun/part shade	moist/wet	12

# Perennials

Latin name	Common	Exposure	Moisture	Height
	Name			
Aruncus sylvester	goat's beard	sun/part shade	moist/wet	5
Aster subspicatus	Douglas' aster	sun/part shade	moist	2
Athyrium fi lix- femina	lady fern	sun/shade	moist/wet	4
Aquilegia formosa	western columbine	sun/part shade	moist	2
Blechnum spicant	deer fern part	shade/part shade	moist/wet	3
Carex canescens	grey sedge	sun/part shade	moist/wet	2
Dicentra formosa	pacific bleeding heart	sun/part shade	moist/wet	1
Iris tenax	Oregon iris	sun/part shade	moist/wet	1
Lupinus polyphyllus	large-leaved lupine	sun	moist/wet	4
Mimulus guttatus	yellow monkey- flower	sun/shade	moist/wet	2
Polystichum munitum	sword fern	part shade/shade	moist	4
Sisyrinchium californicum	golden-eyed-grass	sun/part shade	moist/wet	1
Sisyrinchium idahoense	Idaho blue-eyed- grass	sun/part shade	moist/wet	2
Solidago canadensis	goldenrod	sun/part shade	dry/moist	4
Trillium ovatum	western trillium	part shade/shade	moist/wet	1.5

# **Emergent Aquatic Plants**

Latin name	Common	Exposure	Moisture	Height
	Name			
Alisma plantago- aquatica	water-plantain	sun/part shade	wet	3
Carex kelloggii	Kellogg's sedge	sun/part shade	moist/wet	2
Carex obnupta	slough sedge	sun/part shade	moist/wet	2
Carex stipata	saw beak sedge	sun/part shade	moist/wet	2
Sagittaria latifolia	arrowhead	sun/part shade	wet	3
Scirpus microcarpus	small-fruited bulrush	sun/part shade	wet	3
Scirpus acutus	hardstem bulrush	sun	wet	9

## Selecting the Right Approach

Not all of the practices discussed in this appendix are appropriate for every waterfront parcel. Vegetated buffers and logs can be incorporated into just about any shoreline project, including those that require some form of bulkhead. Slope bioengineering and setting back bulkheads also can be used on most sites. While full beach restoration and beach coves are the most desirable options for shoreline management, they may not be effectively implemented on every site.

In cases where bulkheads serve only to maximize lawn area, they can typically be replaced by a beach with minimal grading and little additional reinforcement. Other cases, such as properties where houses are set back just a few feet from the water or are perched steeply above the shoreline, require some amount of armoring. How can you tell which practices might be the most appropriate for your property?

Your property's potential for green shoreline improvements is determined by a combination of four factors: building setback from the water, nearshore slope moving from your shoreline into the lake, yard slope leading from your house to the shoreline, and the intensity of waves in your area.

"High wave energy" on the decision tree does not include the typical waves experienced along our lakes, but rather refers to sites with one or more of the following conditions:

- Site is adjacent to major boat traffic lane.
- Site receives waves that build up over a particularly long fetch (the distance over which waves pick up wind energy).

The decision tree presented here helps evaluate options based on a site's characteristics, but it is not definitive – individual sites may have additional or special characteristics that increase or limit design options.

<u>Setback</u>	<u>Nearshore</u>	<u>Yard Slope</u>	Wave Energy	<b>Type Solution</b>
30 feet or more	Slope 2:1 or less	4:1 or less	Low High	1. 2.
		Steeper than 4:1		2.
	Steeper than 2:1	4:1 or less Steeper than 4.1		2. 3.
30 feet or less	2.1 or less	4.1 or less		2.
		Steeper than 4.1		3.
	Steeper than 2:1			4.

1. Full Beach, beach coves, setting back bulkhead, bioengineering

2. Beach coves, setting back bulkhead, bioengineering

3. Setting back bulkhead, bioengineering

4. Bioengineering



### What's the goal - shade or no shade?

Permitting agencies encourage plants that hang over the water, but discourage overwater structures because they shade the water. So what's the difference? Natural shorelines provide complex habitat: varied sediment sizes, dappled shade, leaves, twigs, branches, logs, and varying depths. All of these factors help juvenile fish by providing shelter and food sources. Shoreline development, especially bulkheads and docks, tend to simplify habitat. It creates large, homogenous swaths, with shallow-water areas alternating between full sun (between docks) and full shade (under docks). Essentially, speckled or patchy shade can be beneficial for salmon, but conventional docks are the equivalent of a dark alley. More complex landscapes such as those promoted by green shoreline practices provide more habitat diversity, which in turn supports relatively high biological diversity. Simplified built landscapes provides homogenous habitat, and only support a few species.

People are often surprised to learn that docks can have a major impact on fish. While problems sometimes arise from toxic preservatives leaching off older docks, the bigger issue is that overwater structures change underwater light conditions, affecting the behavior of juvenile salmon and their predators. Regulators and the construction industry have worked together to address this problem, and new dock-building practices have dramatically decreased impacts on the nearshore environment. Research suggests certain modifications to docks that can improve conditions for fish while maintaining access for people.

# **Making Construction Clean and Green**

Like any construction along the shoreline, building or renovating a dock presents a potential disturbance to sensitive shoreline habitat. However, taking the following steps can decrease the impact: Work with a contractor who is conscientious about preventing spills and minimizing disturbance of sediments, following Best Management Practices. Carefully select wood preservatives for any lumber that will have contact with the water, or use untreated wood. The worst preservatives, creosote and pentachlorophenol, are now banned, but most of the remaining options contain arsenic or copper, which also pose threats to aquatic organisms.

Nontoxic alternatives can be difficult to find and are not yet approved under International Building Code. Fortunately, untreated Douglas fir and galvanized or epoxy-coated steel piles last a long time in freshwater. Use decking materials that will not require toxic finishes and cleaning agents.

No matter how careful you are in applying these chemicals, they end up in the lake. Metal, fiberglass or plastic grating, recycled plastic lumber, and naturally rot-resistant wood can help avoid the problem. For wood needing finishes, look for the least toxic product for the job. The signal word ("poison," "warning," "caution," etc.) at the top of the label gives a general sense of the potential hazards. Avoid products labeled "poison" or "warning" if possible, as these indicate are latively high hazard level.

Schedule construction within approved work windows to minimize disturbance to threatened species. These windows are determined based on the nesting season for bald eagles and the migration patterns of salmon. Work windows vary from one part of the lake to another. You will get information for your area during the application process for Hydraulic Project Approval (HPA) from the Washington Department of Fish and Wildlife (see "Getting Permits").

## Let the Sun Shine In

Juvenile Chinook salmon have a complicated relationship with docks. As fry, salmon tend to congregate under docks during the day. This can protect them from bird predation, but may make it easier for larger fish to get them. Additionally, during their migration as smolts, docks present an obstacle for salmon to swim around.

Allowing more light under docks is thought to help salmon during both the fry and smolt life stages. There are several ways to improve the light conditions under a dock:

- Use grated decking with openings that allow light to pass through.
- Make ramps and walkways narrower, ideally 4' or less for walkways and 3' or less for ramps.
- Do not use "skirts," i.e., boards on the sides of the dock that extend down to the water. Multiple agencies prohibit skirts because of their effect on light in the nearshore area.
- Design the dock such that the bottom of the entire structure is at least 18" above ordinary high water.
- Use structural beams such as glu-lams, which allow longer spans between piles.
- Avoid overwater lights that will be on all night. Although salmon need light during the day, artificial light makes them more vulnerable to predation at night.

### Estimated costs & maintenance

A survey conducted by Seattle Public Utilities found that most lakefront homeowners prefer vegetation and beaches over bulkheads, but they assume that green shorelines are more expensive than armoring. So what do these projects really cost? It varies, but in general, green shorelines cost about the same as conventional bulkheads. Up-front design, permitting, and construction costs tend to be slightly lower, but maintenance costs make up the difference. There is an enormous range of costs for shoreline construction. The price for any given renovation depends on site characteristics, the professionals that design and build your project, and, to a large extent, your preferences. Also, cost estimates presented here are based on 2008 rates – actual costs fluctuate.

### **Bulkhead removal**

If your site has an existing bulkhead, the cost to remove it is the same whether you are replacing it with a new bulkhead or an alternative. Costs typically range from about \$30 to \$125 per linear foot, depending on bulkhead material and site access.

### **Design and Construction**

Green shorelines projects tend to cost slightly less for design and permitting, since they tend to require fewer revisions to meet regulatory conditions. "We've found that natural shoreline projects sail through the permitting process. We frequently get permits in three months or less, while bulkhead projects can take up to a year," says one designer who specializes in residential beach restoration. A faster permitting process translates to less money spent sending your designer or contractor to government offices. Once the old bulkhead has been removed to make way for construction, slope bioengineering or beach construction cost about the same as a new bulkhead, while riprap generally costs somewhat less.

### Maintenance

Maintenance and long-term costs represent important differences between conventional approaches and green shorelines. While residential bulkheads typically require no maintenance over the course of their 25-50 year life spans, green shorelines may require periodic beach nourishment (see "Full Beaches").

Although green shorelines require upkeep, beaches and bioengineered shorelines have an important longterm advantage: while bulkheads settle, weaken, and eventually fail, the alternatives can last indefinitely if maintained properly. Aside from supplementary gravel and any replacement plants needed during the establishment period, no large future investments are likely to be needed.

# Several factors help determine whether your project is likely to fall at the low end or high end of the possible cost range:

#### Grading:

Projects that require large volumes of cut or fill are more expensive than those that do not require major excavation.

#### Access:

If your shoreline can be accessed by land, costs will be lower than they would be for sites that require equipment to be brought by water.

#### **Planting plan:**

Planting in the fall and using native plants can bring down costs. Both strategies decrease the need for irrigation and improve plant survival, reducing the need for replacement plantings in the first year.

#### **Project size:**

While larger projects cost more as a whole, they carry lower costs per unit. That is, cost per linear foot of a 70' long beach will be less than that of a 25' long beach. Along these lines, working with a neighbor to renovate both shorelines at the same time can substantially lower construction costs for each project.

#### **Bulkhead Removal Costs**

Site Access	Bulkhead Material (Removal)			
	Wood	Riprap	Concrete	
Accessible from land and water	\$30-40 per linear foot	\$45-60 per linear foot	\$95-110 per lineal foot	
Accessible from water only	\$40-55 per linear foot	\$55-80 per linear foot	\$100-125 per linear foot	

#### Shoreline Construction Costs (as of 2008)

	Conventional Treatments			Green Shorelines		
Cost Category	Solid Bulkheads	Riprap	Beach Establishment	Slope Bioengineering	Docks	
Capital Costs	Average rock or concrete bulkhead is \$350-400 per linear foot, sheetpile is \$800+ per linear foot	Average riprapped bank is \$125- 200 per linear foot	Average beach establishment is \$200-500 per linear foot	Average bioengineering project is \$200- 500	Average new dock costs \$100-130 per square foot	
Design and Permitting	10-15% of capital costs for larger projects (greater than \$100K), 20-25% for smaller projects		7-12% of capital projects (greater t 20% for smaller p	than \$100K), 15-	Similar to bulkheads	
Maintenance	No maintenance is usually required for 25-50 year life span of projects		Sand replenishment at a 1-5 year frequency, gravel at a 5-10 year frequency, both \$3-6 per square feet of beach – with proper maintenance, project can last indefinitely		Similar to bulkheads	

### **Choosing a Shoreline Professional**

Almost all shoreline projects, aside from minor landscaping above the water line, will require some hired help from one or more professionals. These individuals use their training and experience to help you navigate the technical details of designing, permitting, building, and maintaining a durable, attractive shoreline. The professionals that you hire help determine how smoothly your design and permitting processes will go, as well as the final outcome of your project. It is worth taking extra care at the outset to find the right professional for you.

Depending on your time, budget, and the specifics of your site, you may find yourself looking for a landscape architect, landscape designer, engineer, contractor, and/or permit specialist. Some companies do all of these things, and others specialize in one. Start by identifying your priorities for your new waterfront. Make a list of features or qualities that you like, either from this guidebook or from projects that you have seen around the lake.

Talk to friends and neighbors who have undertaken recent shoreline work. Their experiences can give you leads, or can help you cross candidates off your list. After identifying several candidates, ask to see photos of recent work or to visit any of their projects. Be sure to tell them that you are interested in a green shorelines or "soft engineering" approach for your project so they can show you the most relevant examples. Inquire specifically about the practices that each contractor uses to minimize impacts on the shoreline environment.

Once you have narrowed the list down to three or four companies invite representatives to your property to get personalized recommendations and estimates. As you interview potential designers or contractors, assess their experience as well as their willingness to help you realize your vision for the project. Make sure that you are confident in their abilities and that you will be able to have a collaborative relationship.

# **Getting Permits**

Staff from the agencies listed in "Contacts" can help you navigate through specific requirements. The Governor's Office of Regulatory Assistance can also provide guidance: Call 1-800-917-0043 or visit www.ora.wa.gov for free support regarding environmental permits and permitting processes. Additionally, jurisdictions at all levels are working to encourage the kinds of practices highlighted in this guidebook. Many of them already have some regulations that favor green shorelines, and most are working to make the process smoother for shoreline restoration. If you follow the recommendations in this guidebook, the permitting process is likely to be noticeably easier and faster. Good design and thorough documentation are always necessary for obtaining permits, but proposed projects that feature beaches and plantings will tend to be more successful than those that emphasize armoring.

# Any project that involves work in, over, under, or adjacent to water requires review from three levels. Each project may be required to obtain the following permits from the following agencies:

#### Local Jurisdiction (City of Lacey or Thurston County)

- Shoreline substantial development permit or exemption
- Environmentally Critical Area Permit
- State Environmental Policy Act (SEPA) permit or exemption
- General construction permits

#### **State Agencies**

- Washington State Department of Fish and Wildlife
- Hydraulic Project Approval (HPA)
- Washington Department of Ecology
- Section 401 Water Quality Certification
- Coastal Zone Management Certification
- NPDES Stormwater General Permit

#### **United States Army Corps of Engineers**

• Discharge of Dredge or Fill Material,

Section 404 Permit

• Work for Structures in Navigable Waters,

Section 10 Permit

#### **Application Materials**

In most cases, the permitting process will be handled by your project designer or contractor. Information that they will need to provide with the application includes:

- 1. Joint Aquatic Resources Permit Application (JARPA) form. In an effort to streamline permitting, multiple agencies have worked together to develop a single application form. The form is currently used by WDFW, Department of Ecology, and the Corps, and it may be used by some local jurisdictions in the future. Find the form and more information at http://www.epermitting.org/default.aspx.
- 2. Plans and, if applicable, surveys of existing conditions.
- 3. Plans for proposed construction, including plan (aerial) view and cross sections. The JARPA specifies an 8½"x 11" copy for fax and public notice purposes, but larger plans are required for most local reviews. Each municipality has its own standards for drawings, so be sure to research these before preparing your application packet.

- 4. Photos or aerial photos of existing conditions may be helpful.
- 5. Any additional studies or specifics you already have for your site erring on the side of too much information will help your application get through the process faster. For example, if one agency requires you to conduct a geotechnical study or biological evaluation, include the results in all of your permit applications. Many permit reviews are delayed while agencies wait for additional information from applicants. Remember to review application requirements, use the most current forms, provide all the required information, and obtain all the necessary signatures before attending a permit review meeting.

#### **Permit Application Timeline**

Permitting takes time. It is ideal to start the permit application process a full year before the desired work start date. While green shorelines projects are sometimes permitted in as little as three months, the process can be lengthy since several steps have to occur in a specific sequence.

Before you draw any plans, start by reviewing local permitting rules, Corps and WDFW design guidelines, and information requested on the JARPA form. Find out if there are any examples, conditions, or concerns for your specific type of project. Also understand what work windows are and how they might affect your project timeline (see "Building Better Docks").

Once you and your designer complete a concept design for your project, meet with your local agency for early design guidance and review of your preliminary plans. Taking this step before completing plans will save time and money. Since Corps permits are the most complex, consider submitting your applications to both the Corps and local jurisdiction at the same time.

As part of its review process, the Corps is required to consult with other agencies such as the Washington State Department of Ecology (DOE), tribal agencies, NOAA Fisheries, and the United States Department of Fish and Wildlife. Except for the DOE, you probably will not work directly with these other agencies. DOE will begin formal review of your application once it receives official notification from the Corps.

#### Tips to Facilitate the Army Corps Permit Process

The Corps has written several documents that can accelerate the process of getting federal permits. Most significant for green shoreline projects is a "Programmatic Biological Evaluation" for shoreline restoration that the Army Corps wrote in collaboration with NOAA Fisheries and the U.S. Fish and Wildlife Service. It includes criteria for cut beaches, fill beaches, and bulkhead plantings.

If your project meets the conditions listed, you will be able to forgo the site-specific Endangered Species Act analysis, which is typically the most involved part of getting federal permits. To determine whether your project meets the programmatic conditions, visit:

http://www.nws.usace.army.mil/PublicMenu/Menu.cfm?sitename=REG&pagena me=Programmatics.

The Corps has a series of general permits known as Nationwide Permits for activities that have minimal environmental impact. If your project does not meet the criteria of RGP3, Nationwide Permits 3, 13, and 27 may help streamline permitting. For more information, visit: http:// www.nws.usace.army.mil/PublicMenu/Menu.cfm?sitename =REG&pagename=What is NWP.

### Resources

The following publications and websites served as sources for this appendix. They include additional information based on shoreline restoration efforts around the country. For links to these sites and more, please visit the Green Shorelines website: www.seattle.gov/dpd/GreenShorelines.

Lakeside Living (King County) www.govlink.org/watersheds/8/action/lakeside-living Salmon-Friendly Gardening (City of Seattle) www.seattle.gov/util/Services/Yard/Natural\_Lawn\_&\_ Garden\_Care/Salmon\_Friendly\_Gardening/ index.asp

#### Lakescaping for Water Quality and Wildlife (Minnesota Department of Natural Resources), by Carrol Henderson, Carolyn Dindorf, and Fred Ros

by Carrol Henderson, Carolyn Dindorf, and Fred Rozumalski. May be purchased online at www.comm.media.state. mn.us/bookstore/bookstore.asp

#### Slope Stabilization and Erosion Control

(Washington State Department of Ecology) www.ecy.wa.gov/programs/sea/pubs/ 93-30/index.html

#### Alternative Bank Protection Methods for Puget Sound Shorelines (Department of Ecology) www.ecy.wa.gov/biblio/0006012a.html

#### Native Plant Resources Directory (King County)

Puget Sound Shoreline Stewardship Guidebook (Puget Sound Action Team)

www.kingcounty.gov/environment/watersheds/ central-puget-sound/shoreline-stewardship-guidebook.

#### The Shoreline Stabilization Handbook: Lake Champlain and Other Inland Lakes (Northwest Regional Planning Commission)

www.nrpcvt.com/nrpcvt/shoreline.html

#### Green Home Remodel series (City of Seattle)

In particular, see "Landscape Materials" and "Hiring a Pro." www.seattle.gov/dpd/GreenBuilding/ SingleFamilyResidential/Resources/RemodelingGuides/ default.asp.

#### The Water's Edge: Helping fish and wildlife on your waterfront property (Wisconsin Department of Natural Resources)

www.dnr.wi.gov/fi sh/pubs/thewatersedge.pdf

#### Governor's Office of Regulatory Assistance,

including documents such as a Aquatic Permitting Fact Sheet, a Permit Handbook, permit schematics, and an online permit questionnaire, www.ora.wa.gov

#### Army Corps of Engineers permit process overview

www.nws.usace.army.mil/PublicMenu/Menu.cfm?sitename=REG&pagename=mainpage\_Permit\_Applic ant Info

## Contacts

### United States Army Corps of Engineers,

Seattle District Office Mailing Address: P.O. Box 3755 Seattle, WA 98124 Street Address: 4735 E. Marginal Way South Seattle, WA 98134 (206) 764-3742 www.nws.usace.army.mil

#### Washington Department of Fish and Wildlife, Region 4

#### Department of Ecology, Southwest Regional Office

#### **Governor's Office of Regulatory Assistance**

1-800-917-0043 www.ora.wa.gov

#### City of Lacey, Community Development Department

Mailing Address: PO Box 3400 Lacey, WA 98509 Street Address: 420 College Street SE Lacey, WA 98503 (360) 491-5642

## Glossary

**Armoring:** Any hard engineering approach to shoreline protection. This includes structures made of concrete, riprap, and sheetpile. While needed on some properties, armoring is often unnecessary, and causes negative impacts on fi sh habitat, water quality, and access to the water.

**Beach nourishment:** Adding appropriate gravel to the shoreline in order to offset gradual erosion. Typically needed every five to ten years for beaches on Lake Washington.

**Emergent plants:** Plants that thrive while partially submerged. In addition to having striking visual qualities, emergent plantings are an effective way to enhance nearshore habitat and provide reinforcement against erosion. Often difficult to establish in Lake Washington, given the lake's unusual hydrology (see "Plant List").

**JARPA:** Joint Aquatic Resources Permit Application, a form developed by multiple regulatory agencies to streamline the environmental permitting process (see "Getting Permits").

**Nearshore habitat:** Shallow areas waterward of the shoreline, which make up the most biologically active part of the lake. Aquatic plants, juvenile salmon, shore birds, and numerous other organisms depend on this habitat. Nearshore slope can be a key factor in determining which kinds of restoration work on a given site (see "Selecting the Right Approach").

**Ordinary high water line:** The elevation where high water meets the shore. Water level in Lake Washington, which peaks in the summer at 21.85 feet above sea level, is regulated at the Ballard Locks. In most cases, local, state, and federal permitting processes are triggered when development occurs at or below the ordinary high water line.

**Riprap:** Stone commonly used for bulkheads or other bank stabilization efforts; ranging from about 4" to 2' in diameter. Also known as rip-rap, rubble, revetment, or rock armoring.

**SEPA:** State Environmental Policy Act, a state process that requires state and local agencies to consider the environmental consequences of a proposal before approving or denying the proposal.

**Sheetpile:** A type of wall used as a bulkhead on sites with shallow setbacks. Typically made of steel, vinyl, fi berglass, or treated wood, sheetpile walls have all the negative effects of concrete and typically cost more.

**Shoreline exemption:** A determination that a proposed project does not require a shoreline substantial development permit. Shoreline substantial development permits are required by state law for many development activities in shoreline areas, but most single-family residential projects are exempt (see "Getting Permits").

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# Section 2

Material in this section was taken from King County Fact Sheets. Various topics that may be helpful to shoreline property owners are included. While these fact sheets were prepared in King County most of the information is applicable to Lacey's lakes and may be helpful to shoreline property owners.

### Shoreline Practices for a Healthy Lake

#### Preserve native vegetation around your lake

A strip of natural plants between the lake and buildings, lawns or cleared areas keeps your lake healthy. The wider this "buffer" of native plants, the better it is for the lake. Natural vegetation:

- filters sediment and nutrients out of surface runoff
- provides habitat and food for fish, insects and other wildlife
- stabilizes banks
- controls erosion and dissipates floodwaters

A buffer of native plants at water's edge can also discourage waterfowl from taking over your lawn. A lawn right to the shore attracts waterfowl which add nutrients to the lake.

#### Protect your lake from your septic system

Know your system - where it is and how to maintain it. Have your septic tank checked every other year and pumped when necessary. Conserve water to avoid stressing your septic system, and keep solvents, phosphate detergents, additives and other hazardous materials out of the system.

#### Consider "green gardening" for your lawn

Keep pesticide, herbicide and fertilizer use to a minimum - or replace your lawn with ground cover or shrubs. Native trees and shrubs require little maintenance and look great.]

#### Locate buildings well back from the shoreline

Build structures in accordance with Lacey's regulations for shoreline development. The Lacey Residential shoreline designation requires a 50 setback from the shoreline. In this areas avoid waterfront structures that require lots of tree clearing, excavating or filling. Again, keep a wide buffer of native vegetation between structures or cleared areas and the lakeside.

Get involved with your lake management district.

Lacey Water Resources Staff and Community Development Staff will provide technical assistance to lakeside residents and others on lake quality and management issues.

### Living with Lakes Hints for Home Landscape and Garden

A gently contoured backyard sweeping down to a glistening lake where fish jump and waterfowl nest and play- this is the scene many people in Lacey imagine when thinking about lakeside life. But if improperly tended, beautiful backyards like these can harm lake water quality and habitats. Lakeside dwellers can protect their lake by carefully planning and maintaining their yards and gardens.

#### **Problems with Soil and Sediment**

Transported by surface water runoff, sediment can wreak havoc on a lake's biological productivity. Sediment stresses and damages fish gills and cuts off sunlight that nourishes aquatic plants and animals. Pollutants (including metals and nutrients) can also adhere to these particles. Suspended in water, they can disturb the delicate balance of the lake ecosystem.

Where does this excess sediment come from? In undisturbed areas, rainfall is absorbed by the earth or filtered by vegetation before it can slowly enter a lake. But as people move in, they build roofs, driveways and other hard or impervious surfaces that prevent rain from soaking in. The water can no longer be absorbed, but flows faster, directly into the lake carrying sediment and pollutants with it.

This runoff water with its load of sediment, nutrients and other pollutants can be controlled by structural and non-structural or behavioral measures (called "best management practices" or BMPs) and by maintaining a buffer of native plants around the shoreline of a lake.

#### A Buffer of Native Plants

Preserving a natural buffer of native plants is one of the best ways to protect a lake. Shoreline plants filter sediment and chemicals from runoff, provide food and shelter for fish and wildlife and can slow or prevent shoreline erosion. Shade from overhanging shrubs and trees can keep waters cool and oxygenrich while limiting the growth of unwanted aquatic plants.

Established lake buffers are best left undisturbed. Even where a lake's natural plant cover has been removed or damaged, a buffer can usually be restored. An ideal buffer should be at least 20 feet wide, planted with an assortment of native trees, shrubs and groundcovers. Paths or walkways to the lake should remain small so as to minimize shoreline impacts. A lake-friendly landscaper can suggest ways to optimize lake vistas while retaining shoreline vegetation. Low-cost native plants can be obtained from several local suppliers.

#### **Keeping Your Lake Chemical-Free**

Fertilizers and pesticides may provide a "quick fix" for lawns and gardens, but can have long-term impacts on the health of a lake. Both can be carried by wind and rain from lawns and gardens into lakes, with significant consequences for aquatic life. Reducing the use of pesticides protects lakes and contributes to a healthier environment for fish, wildlife and people. So instead of chemical pesticides, try a system of natural checks and balances to care for your lakeside plants:

Ask yourself whether you can live with some plant damage and whether destroying a pest is really necessary.

Use organic controls. Discourage pests with scattered borax; dishearten them with soap washes; destroy them with natural enemies like ladybugs or species-specific nematodes, both available at gardening stores.

Outwit pests by rotating crops and timing plantings to avoid peak insect invasions.

If pesticides cannot be avoided, choose the least lethal ones, and be sure they are not toxic to aquatic life. Never apply pesticides during windy weather or with-in 100 feet of a lake. Follow label directions and properly dispose of all hazardous waste at an appropriate collection site.

Chemical fertilizers, especially phosphorus, can stimulate plant growth in your yard as well as in the lake. Nutrients are all too easily washed from land surfaces into ditches and streams or directly into lakes, where they can feed aquatic plants and cause nuisance algal blooms. Organic fertilizers such as composted animal manure, commercially prepared organic soil additives or composted food and garden waste will break down slowly and improve the make-up of garden soils. Composting also keeps garden wastes out of lakes and puts it to good use through recycling.

If you do fertilize the lawn, remember that less fertilizer more often is better than a single, large application. Apply plant or lawn fertilizers only when plants show a need- not because you are following a schedule.

#### Waterfowl: Too Much of a Good Thing?

In recent years, non-migratory ducks and geese have been living the good life, protected and encouraged by human development in Thurston County. These waterfowl love to feed on the succulent grasses of well kept lawns. With few natural enemies to keep their numbers in balance, geese and ducks can overpopulate and become a nuisance. Large flocks can overgraze lawns, littering yards and docks with droppings and molted feathers. Their droppings pollute lakes with nutrients, and, to make matters worse, their intestines may contain a tiny parasite that can cause a condition known as "swimmer's itch."

Canada geese are protected by the International Migratory Bird Treaty Act and, therefore, should not be harmed. However, these and other waterfowl can be discouraged by deterrents such as two-foot-high fences, large helium balloons, scarecrows, streamers or reflectors. Because geese and ducks are attracted to lawns or domestic grass growing along lake shorelines, a buffer of natural vegetation between the water's edge and a homeowner's lawn will deter them. Most importantly, do not feed waterfowl and discourage others from feeding them as well.

#### Lakeside Logic

Remove trash, old tires and other unnatural objects from the lake shore. Leave fallen logs, root masses and other wild "clutter" to help form natural habitats.

Keep cars and livestock away from the lake shore. Construct boardwalks and ramps that allow reasonable access to lakes without causing shoreline erosion.

Don't leave soil exposed and vulnerable to erosion. Cover any exposed soils with leaves, straw or other mulching materials. Ideally, the shoreline itself should be planted with native species, rather than bulkheaded with rocks or concrete. Native vegetation buffers provide good shoreline stability and offer refuge for beneficial insects, fish and wildlife.

Most large-scale shoreline projects require a shorelines permit from the **City of Lacey or Thurston County** and a hydraulic permit from the **Washington State Department of Fish and Wildlife (360)775-1311** in Olympia.

### The Secret Life of Lakes

Ever wonder why you sometimes feel a layer of cold water when you are swimming in a lake? Or why some lakes shrink in the summer while others stay full year-round? The answers are in the thermal properties of water, the hydrologic cycle, climate and their effects on lakes.

#### What is the Hydrologic Cycle?

Water moves from the atmosphere to the ground and back again, in a circular pattern called the hydrologic cycle. Clouds hold water vapor, which falls to the earth as rain, snow or sleet. About three-fourths of that water returns directly to the air- either by evaporating from the earth's surface or transpiring from the pores of plants. Much of the water that remains on the earth's surface is stored in streams, lakes, ponds, wetlands, groundwater and oceans. Lakes serve as temporary holding areas for water before it circulates again through the hydrologic cycle.

#### The Water Budget

The water in a lake is constantly changing. New water enters from several sources: direct precipitation, surface runoff, flows from rivers and streams, and subsurface flows of groundwater. Water also leaves lakes through several different routes, including surface outflows, direct evaporation and seepage into groundwater. The sum of all the water moving into a lake and the water already present in the lake, minus the water leaving the lake on an annual basis makes up the water budget. Timing, duration and intensity of precipitation have dramatic affects on a lake. At the end of summer, lake waters are generally at their lowest levels. In the fall, as the rainy season begins, soils become saturated, streams begin to fill, and lake levels rise. Lacey's lakes acquire most of their water during the six-month period of cool, wet weather, from October to March.

#### **The Time Factor**

Some lakes stay relatively clean and clear year-round, while others seem to be more vulnerable to pollution, poor water quality, and algae blooms or other signs of increased productivity. Why? It may be because of each lake's hydraulic residence time- the total time that it takes to completely replace the volume of water through natural inflow to, and outflow from, the lake. Lakes with relatively short hydraulic residence times (days or weeks) stay relatively free of algae, because most of these single-celled plants are flushed out before they can grow and multiply. Lakes with long hydraulic residence times (months or years) favor the growth of algae and are more susceptible to the effects of pollution and decaying aquatic plants.

#### Layers of Water

The density of water varies with its temperature. At 39 degrees Fahrenheit, water molecules draw closely together and water becomes as dense and heavy as it can get. At temperatures both higher and lower than 39 degrees, the molecules spread out and the water becomes lighter and less dense. Because ice is less dense than water, it forms at a lake's surface and not at the bottom. If not for the unique properties of water, lakes would be very different systems. Lacey's lakes have fairly consistent water temperatures from month to month.

#### Watersheds and Their Lakes

A watershed is the area of land that drains to a lake or other water body. Watersheds vary in size from just a couple of acres to thousands of square miles. The characteristics of a watershed and the land use activities within it have profound effects on lakes. If a hillside is clear cut or a wetland drained, a lake may receive significant pollution loads or its water cycle may be altered. Changing from undeveloped to

residential land uses may result in a 700-percent increase in phosphorus loading to a lake. Much of this increase can be traced to the loss of forests and the removal of plant material- both of which naturally bind phosphorus, keeping it out of lakes and other water bodies. Other sources of phosphorus in lakes include failing septic systems and activities such as car-washing and landscaping. Watersheds and human activities determine how and at what rate water enters the lake.

Larger watersheds accumulate more water that may flush through lakes at a greater rate. In watersheds with wetlands, lake levels will fluctuate more slowly, because wetlands act as sponges, soaking up and gradually releasing precipitation. As watersheds become urbanized and acquire more rooftops, parking lots and other places where water can't sink in or infiltrate, lakes receive more surface runoff all at onceand more pollutants carried by the runoff.

## The Value of Riparian Vegetation

Stream or river banks are riparian areas, and the plants that grow there are called riparian vegetation. Riparian vegetation is extremely important because of the many functions it serves.

# 1. Bank Stabilization and Water Quality Protection

The roots of riparian trees and shrubs help hold streambanks in place, preventing erosion. Riparian vegetation also traps sediment and pollutants, helping keep the water clean.

#### 2. Fish Habitat

As dying or uprooted trees fall into the stream, their trunks, root wads, and branches slow the flow of water. Large snags create fish habitat by forming pools and riffles in the stream. Riffles are shallow gravelly sections of the stream where water runs faster. Many of the aquatic insects that salmon eat live in riffles. Salmon also require riffles for spawning. They use pools for resting, rearing and refuge from summer drought and winter cold.



#### 3. Wildlife Habitat

Over 80 percent of all wildlife species in western Washington use riparian areas during some part of their life cycle. Riparian vegetation provides food, nesting, and hiding places for these animals. Unfortunately, forested riparian areas account for the smallest percentage of forest land in Washington.

#### 4. Food Chain Support

Salmon and trout, during the freshwater stage of their life cycle, eat mainly aquatic insects. Aquatic insects spend most of their life in water. They feed on leaves and woody material such as logs, stumps and branches that fall into the water from streambanks. Standing riparian vegetation is habitat for other insects that sometimes drop into the water, providing another food source for fish.

#### 5. Thermal Cover

Riparian vegetation shields streams and rivers from summer and winter temperature extremes that may be very stressful or even fatal to fish and other aquatic life. The cover of leaves and branches brings welcome shade, ensuring that the stream temperature remains cool in the summer and moderate in the winter. Cooler, shaded streams have less algae and are able to hold more dissolved oxygen, which fish need to breathe.

#### 6. Flood Control

During high stream flows, riparian vegetation slows and dissipates floodwaters. This prevents erosion that damages fish spawning areas and aquatic insect habitats.

Riparian vegetation is essential for maintaining high water quality in streams, rivers, lakes, and along shorelines. However, riparian vegetation remains relatively unprotected from poor agricultural practices, residential and commercial construction, landscaping, and logging. In recognition of this, the City of Lacey Sensitive Areas Code (SAC) requires the preservation of riparian vegetation along Woodland Creek, around wetlands, and in other sensitive areas in order to protect the water quality and habitat value of these areas.

# Algae and Water Quality

The condition and characteristics of a lake can change over time because of natural processes. However, our actions both along the shoreline and within the surrounding watershed can also cause changes and even create water quality problems.

Nutrients used by algae, such as nitrogen and phosphorus, are necessary for them to grow, and our planet would be sterile without their success.

However, big increases in nutrients in lakes due to human activities can cause algae to grow much more rapidly and become nuisances. Cloudy water, thick scums, and foul odors can make lakes unattractive for fishing, swimming, boating or even just hanging out on the beach.

Human activities, including gardening and daily household practices, septic and other waste treatment systems, agriculture, forestry, and land development, serve as pollutant sources and may have dramatic effects on lake water quality.

#### Green Links in a Great Chain

Algae are tiny aquatic plants that are found as single cells or in colonies of various sizes. They make a primary link in the aquatic food chain, acting as food for microscopic animals called zooplankton. These tiny animals are eaten by many fish and other aquatic animals. As a by-product of photosynthesis, algae also release oxygen into the water that can be used by fish and other aquatic animals. However, when large populations of algae are produced and then die, the process of decomposition also uses oxygen, which can limit its availability for other life in the lake.

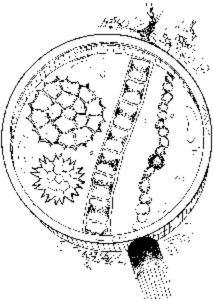
An algae bloom is a sudden explosion of algal growth, typically encouraged by warm water temperatures, sunshine and an abundance of nutrients in the water column. Spring blooms are common in many lakes, as the days lengthen and nutrients are abundant from winter water inputs. Once the nutrients are used up, most lakes will settle into summer conditions with less algae. Lacey's lakes also sometimes experience summer blooms, if nutrients are still present. Fall blooms occur as winds and cooler temperatures mix lake water, bringing up nutrients from the deeper parts of the water column.

Blooms usually last several weeks, then "crash" as conditions change to limit their growth. Depending on the type of algae and its characteristics, a greenish scum may occasionally form on a lake's surface, sometimes causing a foul smell and taste to the water. Sometimes bluegreen algae blooms produce toxins that could be harmful to people, pets, and wildlife.

#### **Be Algae Aware**

If your lake's water looks like pea soup or has an offensive smell, it is probably undergoing an algal bloom. Lakeside residents and visitors should consider taking these steps:

- If a significant bloom is observed, notify the **City of Lacey Water Resources Division** to arrange a site investigation and possibly laboratory testing.
- Keep your pets away from the water and, in particular, do not allow them to drink it.
- Rinse off with tap water immediately after swimming in an algae-filled lake and dry off vigorously with a towel.
- Never drink untreated lake water, regardless of its clarity or algae content.



Many lakes can have an occasional algae bloom over the years when conditions are just right, just like the perfect storm. However, repeated blooms throughout each year or having blooms that cause nuisance conditions should be investigated for deterioration of the ecosystem of the lake.

A lake management plan investigates a lake's physical, chemical and biological characteristics and identifies appropriate methods for controlling nutrients that stimulate algae. These might include such actions as reducing watershed nutrient sources from stormwater runoff, implementing lake-friendly lawn and gardening practices and maintaining on-site septic systems to regularly prevent nutrients from entering the water. In other cases, in-lake management actions such as alum treatments or hypolimnetic aeration might be appropriate.

### City of Lacey Shoreline Master Program September 2011 Revised April 9, 2015

# Resources

Algae and King County Lakes [225KB PDF]

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City of Lacey Shoreline Master Program September 2011 Revised April 9, 2015

# June 2010

**Shoreline Master Program** 

# Appendix 3 - Restoration Plan for the City of Lacey and the Lacey Urban Growth Area

Updated information and analysis June 2010



### **CITY OF LACEY MISSION**

Our mission is to enrich the quality of life in Lacey for all our citizens. To build an attractive, inviting, and secure community; We pledge to work in partnership with our residents to foster community pride, to develop a vibrant, diversified economy, to plan for the future, and to preserve and enhance the natural beauty of our environment.

### LACEY CITY COUNCIL

Tom Nelson, Mayor Virgil Clarkson, Deputy Mayor Jeff Gadman Jason Hearn Ron Lawson Cynthia Pratt Andy Ryder

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# I. Introduction

## A. Background

**About this report**: This report is the final restoration plan for the City of Lacey, and Lacey's urban growth area. The report has been created as part of Lacey's Shoreline Master Program. It has been prepared from a generic draft created by Thurston Regional Planning Council (Regional) with a grant provided by the Department of Ecology. The generic draft identified issues and opportunities from a bigger picture review of drainage basin wide issues. As a generic document designed for use by the three jurisdictions of Lacey, Olympia and Tumwater, this level of focus was necessary. The generic draft Regional developed was intended to provide a starting point for local jurisdictions.

To address Lacey's specific circumstances and need for protection and restoration of its shorelines, the generic draft was significantly modified during a review and refinement process by the Lacey Planning Commission and Lacey City Council. This final report reflects those modifications.

**Detail related to Lacey was generated as part of Lacey's SMP update process**: It is important to note that the original generic draft necessarily made many broad conclusions when reviewing bigger picture restoration needs across the full spectrum of shoreline areas in Olympia, Tumwater and Lacey together with all of the associated UGAs. However, when considering restoration opportunities at the local level, Lacey only has jurisdiction over area within its incorporated boundaries. From this standpoint, it is important to specifically address those areas and situations Lacey can regulate and equally important to note differences in regulatory requirements Lacey has implemented that have had positive results towards restoration and protection.

During Lacey's evaluation, the original restoration analysis was taken a step further and review focused on specific sites with known issues and a range of strategies that could achieve desired outcomes. The Planning Commission's work-sessions over a nine month period were the heart of Lacey's SMP update process and acted as the forum for the deliberation, discussion and development of this material.

This plan represents a transparent public process involving neighborhood groups, professional organizations, shoreline landowners, developers, interested members of the community and state resource agencies. These organizations and individuals were tapped for specific insight, expertise, and ideas on topic issues. The observations, conclusions and proposed strategies from this process have been integrated into this report.

Lacey's history of strong environmental legislation: In the original generic draft restoration plan, a number of statements were made regarding filling of wetlands and removal of riparian vegetation that has impacted the health of local shorelines. However, a close look at Lacey's situation paints a different picture. While this may be true in areas outside Lacey, in Lacey there have been stricter regulations protecting wetlands and urban forest resources (trees) for over three decades.

In Lacey, progressive environmental regulations protected these valuable resources many years before it was fashionable in other jurisdictions, or required by state law. In fact, Lacey has lost

very little of its original large wetland areas around its lake systems. The majority of riparian habitat along that portion of Woodland Creek within Lacey has been well established and protected for decades. Riparian vegetation around Lacey's lakes has been impacted to some degree as a result of moderate density urban development.

Tree protection in Lacey predated 1980 and Lacey continued to improve the concept receiving an award from the Washington State Chapter of the American Planning Association (APA) for update of its tree protection ordinance in 1992.

Through environmental focus and development of 1992 environmental legislation and 1994 GMA Plans, Woodland Creek within Lacey was protected with a 200 foot buffer. In addition, that portion of Marine Shoreline in the City was designated as open space in the Hawks Prairie Master Planned Community and has been left in its natural state. Continuing this focus today, most of these areas have been designated as Natural in the updated SMP for permanent protection.

Overall, in the face of significant growth required under GMA, Lacey has maintained a diligent effort at preservation and protection of Lacey's environmentally sensitive areas and the quality of life enjoyed by its citizens.

Conclusions of the original reports have been reviewed and reworked based upon these facts and restoration priorities have been reworked and tailored to Lacey's specific restoration needs.

**Use of this Plan**: This plan is meant to provide a planning-level framework for understanding these issues and considering priorities for restoration and enhancement of shoreline ecological functions in the city of Lacey and Lacey's UGA. Restoration is defined under the shoreline guidelines as: *"reestablishment or upgrading of impaired ecological shoreline processes or functions."* 

It is important to note that for the purposes of shoreline management, the term restoration does not imply returning shoreline areas to aboriginal or pre-European settlement conditions. Instead, the concept is to work with areas that have been impacted by urbanization and to restore the natural functions and values of our shoreline resources as much as practical given what was existing at the time of the inventory and characterization. Little by little, opportunity by opportunity, we can halt and begin to reverse the damage done to promote a cleaner, healthier environment and quality of life. This is our vision, this is our challenge, and this restoration plan is intended to guide this effort.

## B. Timeline

A timeline for the complete Shoreline Master Program update (a multi-year program) is below:

Phase	Update Schedule	Timeline
1	<ul> <li>Determine what shorelines are regulated under the act</li> <li>Conduct an inventory of all existing and available data for shorelines</li> <li>Public Open Houses</li> </ul>	Winter 2008. Accomplished under Regional contract with DOE
2	• Analyze and characterize shoreline conditions	Spring 2008. Accomplished under Regional contract with DOE
3	<ul> <li>Categorize each shoreline segment into a designation such as urban, suburban, or rural. Each will have a different set of rules.</li> <li>Develop draft rules and policies</li> <li>Public meetings</li> </ul>	Fall 2008 Winter-Spring 2009. Accomplished under Regional contract with DOE
4	<ul> <li>Analyze the cumulative impacts of expected shoreline development or redevelopment</li> <li>Develop a restoration (and preservation) plan, including public access</li> </ul>	Winter-Spring 2009. Accomplished under Regional contract with DOE and refined by Lacey late 2009 and early 2010
5	<ul> <li>Public hearings</li> <li>Planning Commission recommendation</li> <li>City Council approval</li> <li>State approval</li> </ul>	Early 2010

## C. Purpose and Scope of Plan

This document has been prepared to comply with the state's SMP guidelines for restoration planning (WAC 173-26-201(2)(f)). The guidelines require that restoration plans:

- Identify degraded areas, impaired ecological functions, and sites with potential for ecological restoration
- Establish overall goals and priorities for restoration of degraded areas and impaired ecological functions

- Identify existing and ongoing projects and programs that are currently being implemented, or are reasonably assured of being implemented (based on an evaluation of funding likely in the foreseeable future), which are designed to contribute to local restoration goals
- Identify additional projects and programs needed to achieve local restoration goals, and implementation strategies, including identifying prospective funding sources for those projects and programs
- Identify timelines and benchmarks for implementing restoration projects and programs and achieving local restoration goals
- Provide mechanisms or strategies to ensure that restoration projects and programs will be implemented according to plans and to appropriately review the effectiveness of the projects and programs in meeting the overall restoration goals

## D. No Net Loss of Shoreline Ecological Functions

The concept of no net loss of shoreline ecological functions is rooted in the Act and in the goals, policies, and governing principles of the state's shoreline guidelines. The Act states: "permitted uses in the shoreline shall be designed and conducted in a manner that minimizes insofar as practical, any resultant damage to the ecology and environment of the shoreline area." According to the governing principles of the guidelines (WAC 173-26-186), protection of shoreline ecological functions are accomplished through the following:

- Meaningful understanding of current and potential shoreline ecological conditions
- Regulations and mitigation standards that ensure that permitted developments do not cause net loss of ecological functions
- Regulations that ensure exempt developments in the aggregate do not result in net loss of ecological functions
- Goals and policies for restoring ecologically impaired shorelines
- Regulations and programs that fairly allocate the burden of mitigating adverse cumulative impacts among development opportunities
- Incentives and voluntary measures designed to restore and protect ecological functions

It is not enough to simply prevent further loss of ecological functions, master programs provisions must also "...achieve overall improvements in shoreline ecological functions over time when compared to the status upon adoption of the master program." The mandate to improve functions over time provides the basis for restoration planning and creates a distinction between mitigation and restoration in the context of the SMP.

Under the Act, applicants for shoreline permits must fully mitigate new impacts caused by their proposed development. Generally, applicants are not required to restore past ecosystem damages as a condition of permit approval. However, development standards can incrementally achieve restoration objectives simply by requiring a better design that is more in tune with the community's needs for resource management. An example is zoning and landscaping standards adopted to implement a community vision for attractive and healthy shorelines. Standards can

require landscaping with native species that will present a visually attractive appearance and promote restoration of the natural functions and values of Lacey's shoreline resources.

Another important tool Lacey will utilize for protection and restoration of ecological function through the SMP is establishment of setbacks and vegetation management areas along shoreline areas as recommended by The Department of Fish and Wildlife, to promote water quality and habitat objectives. These protections, when established in concert with landscaping standards can be a highly effective strategy for restoration. Setbacks will stabilize the use of the shoreline area and landscaping standards can be used to fill in areas of the setback that currently lack natural vegetative cover. Over the long term, incremental improvements will contribute to buffers of native vegetation that provide water quality benefits and habitat. This promotes restoration objectives for Lacey shoreline resources.

In addition to development regulations designed to promote restoration, Lacey has also provided incentive and other opportunities for protection and restoration. Two examples are options for easier permitting processes when replacing modifications like bulkheads under many situations, and incentives for dedication of shoreline property to the public.

Faced with a significant review process to construct a new bulkhead or replace a bulkhead, the alternative for installation of softer shoreline stabilization measures may be very attractive to a landowner. More ecologically friendly, soft bioengineered approaches for beach stabilization may not meet the definition of development or substantial development so may be exempt from having to obtain a Shoreline Substantial Development permit. This promotes restoration objectives.

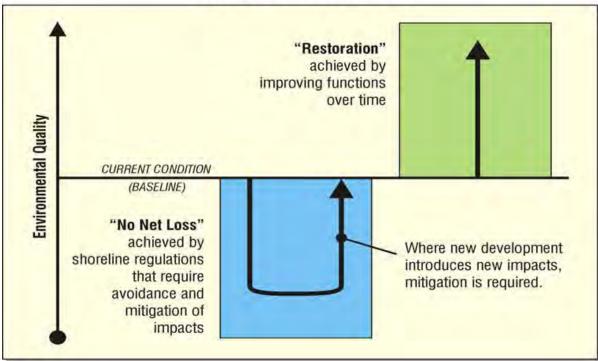
Incentives for transfer of significant density bonuses to upland sites or other ownerships across the City will encourage dedication of shoreline property to the public. Once in public ownership, plans for protection, restoration and/or use of shoreline area can be implemented.

This will work particularly well where shorelines are sensitive and already have development limitations. Getting significant density credit for property that cannot be utilized for intensive development provides value to the landowner/developer. This could lead to the City being able to acquire shoreline properties for no cost to the public. The City simply allows development on appropriate sites in the City where the density can be accommodated. This actually helps the City meet the intent of GMA as well as gaining control over important shoreline resources.

The figure below (Figure 1) shows the distinction between mitigation and restoration as it is applied through the Shoreline Master Program process.

FIGURE 1: MITIGATION VERSUS RESTORATION IN SHORELINE MASTER PROGRAMS.

### Two Distinct Objectives: No-Net Loss of Shoreline Ecological Functions and Restoration Over Time



<sup>(</sup>SOURCE: DEPARTMENT OF ECOLOGY)

### E. Methods and Sources of Information

This restoration plan is built upon the identification of degraded areas, impaired ecological functions, and sites with potential for ecological restoration identified in the Shoreline Analysis and Characterization Report by ESA Adolfon (Phase 1).

Overall goals and priorities were drawn from existing plans, including Lacey's Comprehensive Plan.

Existing and on-going projects were obtained from the groups and jurisdictions active in shoreline preservation and restoration in the region.

Additional projects and programs were identified at the planning level from existing plans.

All of the sources were considered by the lacey Planning Commission as part of the SMP update. In addition, Lacey's analysis involved a "hands on" approach, with Planning Commission agendas dedicated to specific issues and discussion with organizations and individuals with a direct interest in specific topic areas. Examples of topic areas and interested parties relative to restoration activities included the following:

- State resources agencies were invited and participated in discussion of habitat, buffers and restoration needs,
- Lake front homeowners were invited and participated in discussion of specific issues related to permit requirements and how restoration with vegetation plans and permit requirements is expected to work.
- Beginning in June 2010, the Beachcrest Community Association was invited and participated in discussing the value and concerns for its marina and restoration needs and opportunities.

# **II.** Shorelines

Table 2 lists the shorelines identified in the Shoreline Inventory for Lacey, and Lacey's Urban Growth Area, classified into functional systems.

Туре	Area	System		
Marine Waters				
Nisqually Reach	Lacey & UGA	Nearshore/Marine		
Rivers/Streams				
Woodland Creek	Lacey & UGA	Woodland Creek System		
Lakes	Lakes			
Chambers Lake	Lacey & Olympia	Freshwater Lake		
Hicks Lake	Lacey	Woodland Creek System		
Long Lake	Lacey & UGA	Woodland Creek System		
Pattison Lake	Lacey & UGA	Woodland Creek System		
Southwick Lake	Lacey & UGA	Freshwater Lake		

# **III.** Overview of Restoration Priorities

This section provides an overview of areas that are considered priorities for restoration based on the <u>Lacey</u>, <u>Olympia</u>, and <u>Tumwater Shoreline Analysis and Characterization Report</u>. This section will be broken into two components:

- Summary of the Ecosystem Wide Processes and Restoration Potential
- Summary of Reach/System Scale Issues and Restoration Opportunities

A number of shoreline restoration projects are currently underway or are in the planning stages in Lacey. These projects have been initiated by various private, regional, state and federal entities resulting in several successful shoreline restoration and enhancement projects. They will be summarized in the following chapter.

### A. Assessment of Nearshore Marine Shorelines

**Initial Review:** The initial qualitative assessment of the overall condition of the nearshore marine environment within the study area was developed in the <u>Lacey, Olympia, and Tumwater</u> <u>Shoreline Analysis and Characterization Report</u>. The assessment looked at bigger picture conditions of the drainage basin generally. Lacey has about 1.8 miles of marine shoreline in its jurisdiction.

The Lacey, Olympia, and Tumwater Shoreline Analysis and Characterization Report assessed the relative condition of each of the marine nearshore reaches based on a number of characteristics and parameters such as freshwater inputs, structural hydro-modifications, known water quality degradation, presence of important habitat types, etc. The results were translated into numerical scores then divided into three groups (high, medium and low). This provided a simplified assessment of the overall condition of each reach.

Reach	Condition	Notes
Nisqually 1	High	Low level of alteration, several key habitats.
Nisqually 2	Medium	Medium to high level of alteration with development of marina and roads serving marina and community beach. Several key sediment and habitats.

# TABLE 3: RELATIVE CONDITION OF LACEY AND UGA MARINE NEARSHORE REACHES.

These results should only be used for general discussion; no sensitivity analysis or other quality control has been performed on this approach. However, these results have generally good agreement with the preservation and restoration recommendations included in the Marine Shoreline Sediment Survey and Assessment (Herrera 2005). Reaches that have been designated high priority for forage fish spawning protection in the 2005 report are listed as 'high' in this assessment.

Based upon Planning Commission discussion and review, the analysis and conclusions represent the best available knowledge and ideas for achieving restoration objectives over the long term.

Lacey's Review during the Update: Lacey's update focused specifically on properties in Lacey and Lacey's Urban Growth Area. Lacey's analysis included individual properties with known modification and impact to the natural function of its marine shoreline. This review only identified two concerns:

• Atlas Powder Dock: This is a large abandoned historic dock/pier located on Jubilee Beach at the end of a beach access from the Hawks Prairie Planned Community. The pier/dock dates back to World War II and was used for the transport of dynamite from the Dupont facility. This old dock/pier would have had creosote treated piles. This was typical of construction at the time, but would not be permitted today because it presents a serious water quality issue.

The pier is also in disrepair and is unusable without extensive repair. Thought has been given to the possibility of cleanup and reconstruction of the dock to serve in the capacity as a community fishing pier with an access opportunity for the general public. This would have benefits of cleaning up the site and the establishment of an amenity for the entire community. However, it would be expensive and would also have new impacts that would need to be mitigated to meet the requirements of no net loss.

In addition, there is no true "public" access to this area. The access trail from Hawks Prairie Planned Community is owned and maintained by the HOA. A project to reconstruct the existing historic pier would need to consider acquiring both the access trail and pier for public use. Because of the access situation and expense reconstruction of the pier represents, there are no firm plans for this at this time. However, the use tables in the SMP contain provisions that leave this idea open for consideration, provided any such project meets requirements of no net loss and environmental impacts at the site are fully mitigated.

• The Beachcrest Marina: Most of the marine shoreline environment under Lacey's jurisdiction is protected as open space in the Hawks Prairie Planned Community. However, a private marina (which occupies approximately 350 feet of shoreline), its associated access road and the adjacent Beachcrest community (which are not within the City of Lacey), have had impact to the surrounding shoreline environment dating well into the last century.

The whole shoreline associated with Beachcrest was engineered in the 1940s as part of the Beachcrest development. It is a use that is expected to continue over the long term.

The marina and its access road have changed the original shoreline processes in this area. What was once a feeder bluff now has a fronting road that is heavily armored. In addition, the function of a pocket estuary was impacted by changing tidal flow in to the estuary for development of a permanent pond and fountain.

Restoration requirements are generally not applied to situations that predate inventory and analysis. While restoration of this area to improve habitat and natural estuary functions would be good for the ecology of the area and the larger community, it is not regulated as a requirement of permitting under this SMP. However, because of the value of pocket estuaries, restoration opportunities should be discussed, considered a priority and pursued where available.

**Discussion with the Beachcrest Community Association and Use of Incentives to Encourage Restoration:** Discussion with the Beachcrest Community Association representatives in June 2010 indicates the current Beachcrest community has an interest in restoration and doing what is healthy for the ecological functions of this area. A recent salmon restoration project is an example of its cooperation in achieving restoration of valuable ecological function. The marina will require continued maintenance and repair. Restoration is something that could be encouraged as maintenance activity occurs. Incentives to promote restoration should be considered that could help gain broad community support to move in this direction.

Beachcrest and the road are located in unincorporated Thurston County. Because of jurisdiction, options are limited for Lacey's lead on restoration of this area. This is a topic for joint planning discussions. At a minimum, consideration should be given to an interlocal agreement that would place permit and exemption requirements with one jurisdiction. The split jurisdiction in the cove would make permitting very complex for the Beachcrest community.

## **B.** Freshwater Ecosystem-Wide Processes and Restoration Potential

**Initial Review:** Ecosystem-wide processes that create, maintain, or affect the three City's shoreline resources were characterized using an adapted version of the five-step approach to understanding and analyzing watershed processes described in *Protecting Aquatic Ecosystems: A Guide for Puget Sound Planners to Understand Watershed Processes* (Stanley et al, 2005), and presented in Chapter 3 of the original Lacey, Olympia, and Tumwater Shoreline Analysis and Characterization Report. Lacey has jurisdiction for 19.58 miles of freshwater shoreline.

The analysis specifically looked at hydrologic processes, where the important areas are, and how they have been altered over time. The two results are then taken together to suggest areas where protection or restoration of ecosystem process would be the most effective. While the analysis was specifically focused on hydrologic processes, the parameters used are fairly general landscape-level measures that can be used as a general proxy for overall level of functioning.

Important areas and level of alteration for freshwater systems were initially assessed using a three-step framework developed by Ecology to create a relative ranking of where protection or restoration would be most appropriate at the watershed scale. The framework develops a High, Medium 1, Medium 2, or Low score for both importance and alteration for each sub-basin within a study area. The scores for both importance and alteration are then taken together to develop an overall ranking of appropriate actions. Important areas include: 1) rain on snow areas; 2) surface storage (historic depressional wetlands) and floodplains; 3) recharge areas; 4) storage capacity areas; and 5) discharge areas.

The types of alterations that the framework considered are: 1) forest clearing; 2) filling of depressional wetlands; 3) channelization of streams; 4) road presence and density; and 5) impervious surface. The analysis helps identify a set of actions that would be most appropriate for each sub-basin within the watershed.

Considering this bigger picture, Figure 2 shows how the combined alteration and importance rankings are used to prioritize where development, protection and restoration could occur in the watershed to target a net gain in ecosystem functioning. Areas providing a high level of important watershed processes and having a high level of degradation or alteration would be most suitable for "Restoration." Areas providing a low level of watershed processes and are highly altered would be most suitable for "Development." Finally, those areas with high level of

providing important watershed processes and with low alteration are designated most suitable for "Protection." In the middle of the matrix, areas are denoted Protection/Restoration, as either method may be more appropriate. Please note, however, that this analysis should not be interpreted to indicate the only action that is appropriate in any given basin. The resolution of this analysis is limited by the resolution of the supporting datasets, and can only identify high-level trends in the landscape.

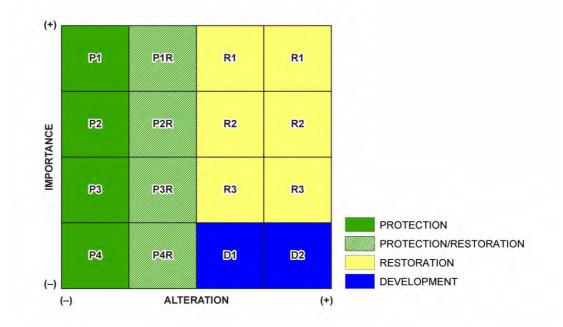


FIGURE 2: CONCEPTUAL VIEW OF THE LANDSCAPE ANALYSIS FRAMEWORK.

The integrated results shown in the <u>Lacey</u>, <u>Olympia</u>, <u>Tumwater Shoreline Analysis and</u> <u>Characterization Report</u> identify the highest restoration potential along the Deschutes River and within the urban core of the Regional study area. Clearly, wholesale restoration of the area is difficult or impossible to achieve, given current infrastructure. However, the restoration of key aquatic areas within the urban area can provide important corridors and connections between the upper watershed and the marine nearshore. The remainder of the area is located within the Preservation/Restoration area. Preservation-only areas are identified outside of the growth area – and are limited to a sub-basin in the upper Deschutes basin, and three small sub-basins along the marine nearshore.

Please note that there are no "Development" subbasins, since there are no "Low" importance areas identified in the Thurston study area. The Protection/Restoration category was applied more broadly.

### Lacey's Review during the Update:

Restoration needs identified are primarily directed at residential properties along developed lakeshores that Lacey has jurisdiction over and retrofitting of outdated drainage infrastructure both in Lacey and its UGA where opportunities arise.

Emphasis along lakefronts is re-establishment of vegetation to promote water quality and habitat functions. This can be done through a combination of general vegetation management requirements and mitigation and restoration opportunities during the review and processing of

new permits. Part Two of the SMP is dedicated to discussion of the purpose and strategies to accomplish these objectives.

A significant focus is also being placed on elimination of existing septic tank drainfields in areas of Lacey's UGA in close proximity to Woodland Creek and lakes, which are currently impacting water quality and local shellfish resources. Specific standards in this SMP are adopted in this regard under the water quality section.

# C. Summary of Issues and Restoration Opportunities at the Reach System Scale

While the initial review focused on the bigger picture of watershed and sub-basin priorities, later analysis has included more localized site specific micro issues.

Additional discussion and edits have been made to this Plan and associated tables after the original generic draft. This was done to more specifically address and represent Lacey's area of jurisdiction and influence and to consider issues and restoration opportunities identified while updating the SMP.

The following tables, summary of key management issues and restoration opportunities were developed as part of Chapter 5 of the <u>Lacey</u>, <u>Olympia</u>, <u>and Tumwater Shoreline Analysis and</u> <u>Characterization Report</u>, prepared as part of the Shoreline Master Program update. The tables provide a summary of shoreline functions, levels of alteration, and restoration opportunities for shoreline reach systems within the study area. Several of these areas are within Lacey and the Lacey UGA:

- Nearshore/Marine Environment –Nisqually Reach
- Woodland Creek System Woodland Creek, Long Lake, Pattison Lake, and Hicks Lake

### Nearshore/Marine Environment

Table 4 of the original Analysis and Characterization report summarizes the status of the Nearshore / Marine Planning Area and describes the shoreline functions, the level of alteration compared to historical conditions, and the restoration opportunities to improve shoreline functions. However, it should be noted that by considering both the marine areas in Olympia and Lacey in the same table, specific characteristics of Lacey were not emphasized. Changes to the tables have been made in this final report to reflect analysis specific to Lacey and its UGA.

### City of Lacey Shoreline Master Program September 2011 TABLE 4: ASSESSMENT OF NEARSHORE/MARINE FUNCTIONS WITHIN LACEY AND LACEY'S UGA

Process: Function	Level of Alteration	Potential Protection and Restoration Measures and Opportunities
Habitat: Estuarine habitat; subtidal and intertidal mudflats and salt marshes provide transition habitat between fresh and salt water environments.	Moderate to Low Lacey's Marine shoreline is relatively intact with associated pocket estuaries. A portion of the small Beachcrest Marina is in Lacey and has had an impact on natural functions of the area, including impact to pocket estuaries. Recent restoration activities at the Beachcrest open space in Lacey's UGA seek to reestablish some of these functions that were impacted when the pocket estuary there was closed off to create a pond and the shoreline was armored with rip rap.	Moderate to Low Lacey's marine shoreline is relatively intact. Butterball cove is currently designated as open space in a Master Planned Community, and has been designated Natural in the SMP. The pocket estuary behind the Beachcrest marina has also been designated Natural, with th exception of the physical space occupied by the marina. That area has been designated Urban Conservancy. There may be opportunity to improve/restore the area around Mallard Cove where the marina is located, particularly to enhance the function of pocket estuaries.
Hydrology: Attenuation of wave energy.	Moderate to Low Marine shorelines within the City limits, including Butterball Cove, remain unarmored. However, the Beachcrest Marina and an access road to the marina in the UGA have modified the function of wave attenuation. The general trend in harder shorelines has resulted in less overall attenuation than in pre- disturbance conditions.	Moderate to Low Lacey's marine shoreline is relatively intact. Butterball Cove is currently designated as open space in a Master Planned Community, and has been designated Natural in the SMP. The pocket estuary behind the Beachcrest marina has also been designated Natural, with the exception of the physical space occupied by the marina. That area has been designated Urban Conservancy. Armoring of areas within the City limits has been and will continue to be prohibited to support existing hydrologic processes and functions. The strategy is to simply let natural processes take place in this area. Non exempt maintenance activities at the marina, in that portion under Lacey's jurisdiction, will be reviewed for restoration opportunities. No expansion will be permitted.
Sediment Generation and Transport: Sediment delivery from coastal bluffs and streams.	Low to Moderate Bluffs within the city limits have not been modified and no structures exist at the toe. However, the toe of the bluffs and the bluffs themselves, as well as streams delivering sediment into pocket estuaries, have been modified in Lacey's UGA by the installation of roads and rip rap armoring and residential construction.	Moderate to Low Maintenance of existing connections between bluffs and the nearshore is a high priority. Maintenance of the existing connections between stream mouths and the nearshore, for sediment delivery and other habitat benefits, is also a high priority. Designation of the marine shoreline as Natural and Urban Conservancy and continued protection of this system is appropriate.

Process: Function	Level of Alteration	Potential Protection and Restoration Measures and Opportunities
Water Quality: Wetland removal of pollutants through sedimentation and adsorption.	Low to Moderate Reduction of wetland areas along Lacey's marine shorelines has not occurred. However alterations to pocket estuaries in Lacey's marine UGA have likely affected the presence, extent and function of wetlands.	Moderate to Low Through the SMA assigned environment designations, little to no development is anticipated within Lacey's marine shorelines. Expansion of the Beachcrest marina in Lacey's UGA is prohibited. Maintenance and repair activities occurring at the marina will be reviewed for restoration opportunities.
Water Quality: Delivery, movement, and loss or removal of nutrients, pathogens, and toxicants; storage of phosphorus and removal of nitrogen and toxins through sedimentation and adsorption.	Low to Moderate The Butterball Cove area and the marine shoreline within Lacey to the east of Butterball Cove are substantially unaltered. Uplands in this area were designated as reserved area for future development in the Hawks prairie master planned community or open space. This area did not face pressure for urbanization until recently. Wetland and tree protection regulations covering upland area has maintained critical functions and values. This function has been impacted in Lacey's UGA where upland sources of the pollutants have increased and potential storage has decreased through wetland loss and the installation of impervious surfaces.	Low to Moderate Lacey's wetland protection regulations and tree protection regulations that predated GMA requirements have effectively preserved and protected associated upland wetlands. Wetlands primarily associated with the marine shoreline have not experienced pressure for urbanization until recently. However, with development upland sources of these pollutants and sediment have increased. Cleanup of the historical atlas powder dock might have some benefit, depending upon the impact the pier is currently having to water quality. The impact 60+ year old creosote pilings are having is unknown. This might be considered in association with reconstruction of the pier as a public access and community fishing pier.
Habitat: Shoreline habitat for wildlife; vegetation provides structure for invertebrates, birds, amphibians, reptiles, and mammals.	Low to Moderate Natural vegetation is well established and protected along and adjacent to almost all of Lacey's marine shoreline area in the City limits. However, the small private Beachcrest marina and associated access road has had an impact on shoreline habitat in Lacey's UGA.	Low to Moderate No alterations exist along Lacey's marine shorelines that will be designated "Natural", with the exception of an old abandoned pier. The active Beachcrest Marina, in Lacey's UGA, should be given high priority when considering restoration efforts.
Habitat: Source and delivery of LWD.	Low to Moderate In Lacey there has been a tree protection ordinance in effect since the early 1980s. This ordinance has historically prohibited loss of trees within the riparian corridor and shoreline environments and loss of canopy in upland areas. Where the Beachcrest marina and open space exist in Lacey's UGA, both the source and delivery of LWD have been altered.	Low to Moderate Within the city limits, Lacey's marine system is well established and the natural processes have not been significantly impacted by urbanization of upland area because of sensitive area ordinance regulations. In the UGA at Beachcrest, protection of existing routes for delivery of LWD in the form of stream corridors and maintenance of the source in the form of mature trees on the bluffs will ensure there are no further losses.

### **Key Management Issues**

The key management issues within the South Puget Sound area of Nisqually Reach include the following:

- In Lacey, continued protection of the marine shoreline with a designation of Natural is appropriate. Continued restoration efforts of the shoreline and estuaries at Mallard Cove and just east of Lacey's jurisdiction in unincorporated Thurston County UGA should be supported as high priority. Incentives in the form of permit exemptions for maintenance activities and improvements that accomplish restoration objectives should be pursued.
- Nutrient input to the nearshore from upland sources and freshwater tributaries is contributing to the eutrophication of marine waters in the South Puget Sound. The flushing action and circulation of the South Puget Sound is slower than other parts of the Sound, resulting in sensitivity to nutrient loading.
- In Lacey, continued protection of tree resources pursuant to its Urban Forest Management Plan and implementation through its tree and vegetation protection and preservation ordinance is appropriate.
- Focus should continue on non point source pollution of the Woodland Creek corridor from existing septic tank drainfields, which empties into the Puget Sound.

### **Restoration Opportunities**

Restoration opportunities in the South Puget Sound have been identified in the Nearshore Sediment Survey conducted by Herrera (2005). High priority beaches for preservation and for restoration were identified.

- High priority preservation of Butterball Cove in the Nisqually Reach. Designation of the Butterball Cove area as Natural is part of the SMP update.
- Restoration of pocket estuaries just east of Lacey's UGA should be a high priority.
- Allow natural sediment processes.
- Preservation of unarmored shorelines to minimize further impacts to the South Puget Sound beach habitat.

### Woodland Creek System

This section summarizes the status of the shorelines in the Woodland Creek system based upon the inventory information, and describes the shoreline functions, the level of alteration compared to historical conditions, and the opportunities to protect and restore shoreline conditions (Table 5). The Woodland Creek system includes Woodland Creek, Long Lake, Pattison Lake, and Hicks Lake. Generally this table covers all freshwater systems in Lacey, and has been made applicable to Southwick and Chambers Lakes as well. Woodland Creek drains to Henderson Inlet, which lies within Thurston County Shoreline jurisdiction. These tables have been modified from the original Analysis and Characterization Report to specifically address shoreline areas in Lacey and its UGA.

Process: Function	Level of Alteration	Potential Protection and Restoration Measures and Opportunities
Hydrology:	Moderate	Moderate
Channel and floodplain connection.	Infrastructure such as railroad crossings and roads has altered connections between Woodland Creek and its associated lake/wetland complexes. Levels in Chambers Lake are manipulated by the Ditch District. However, as far as Woodland Creek itself, the channel is relatively well defined and there is no significant floodplain. Wetlands associated with the Creek have been well protected and preserved.	Continued protection of these critical areas and their connections and floodplains under Lacey's SMP is appropriate. Restoration opportunities are low as significant infrastructure expenditures and investments would be necessary to restore connections where railroad dikes or roads have been constructed.
Hydrology:	High	Moderate
Summer low flows.	Generally, upstream land uses and development have resulted in less water flowing in urban streams. Woodland Creek is no exception during the summer low-flow periods. The Woodland Creek system is also relatively flashy; stormwater runoff is not held in the system for long and the basin is relatively small.	Preservation of wetlands and headwater lakes will maintain base flows to Woodland creek. Use of stormwater management practices that encourage low impact development and infiltration may minimize impervious surfaces in the basin. Opportunities are limited however by the relative size of the basin.
Hydrology:	Low	Low
Flood flow retention.	Large wetland complexes still provide flood storage, except in areas of high groundwater. Chambers Lake levels are managed by a ditch district.	Continued preservation of floodplain areas and hydrologic connections between water bodies during development will assist in retaining flood flows.

**TABLE 5:** Assessment of Freshwater Shoreline Functions in Lacey and UGA.

Process: Function	Level of Alteration	Potential Protection and Restoration Measures and Opportunities
Sediment Generation and Transport: Upland sediment generation.	Moderate Fine sediment loading has increased due to build-up and wash-off from urban land uses.	Moderate Implementation and retrofit of water quality BMPs to the existing stormwater system can reduce fine sediment loading. Requirements and incentives to restore areas of shoreline vegetation can help capture sediment and nutrients it has captured before it enters water bodies.
Water Quality: Wetland removal of pollutants through sedimentation and adsorption.	<b>Low</b> Protection of the large wetland complexes under Lacey's critical area ordinances has maintained this function in Lacey.	Low Continuation of existing wetland protection strategies and protection of buffer and vegetation management areas is appropriate. Setbacks will assist in distancing sources of pollutants and sediment from water bodies.
Water Quality: Delivery, movement, and loss or removal of nutrients, pathogens, and toxicants; storage of phosphorus and removal of nitrogen and toxins through sedimentation and adsorption.	High The delivery, transport, and disposition of nutrients, pathogens, and toxins have been significantly altered from the pre-disturbance condition. Upland sources of these pollutants have increased significantly as a result of urban land uses within the Woodland Creek drainage basin and Southwick and Chambers lakes. Potential storage has decreased through installation of impervious surfaces. The development of the TDML for Woodland Creek has highlighted potential sources of point-source pollution and flow reduction.	Moderate to High Significant source control and remediation efforts are currently underway to remove and avoid pollutant discharge to the riverine environment. Significant opportunity exists to reduce septic tank drainfield contamination by sewer or corrective actions for failing septic tank systems. Significant opportunity also exists to minimize the introduction of nutrients, pathogens and toxicants with water quality and setback standards in the SMP, and to increase sedimentation and adsorption of these contaminants through vegetation restoration.
Habitat: Shoreline habitat for wildlife; vegetation provides structure for invertebrates, birds, amphibians, reptiles, and mammals.	Low to Moderate Native riparian vegetation has been removed during past development along lake shorelines. However, significant sections of the creek and portions of the lakes where wetlands exist retain the natural riparian vegetation.	Moderate Opportunity exists for replanting and enhancement of natural vegetation on lakefront lots. Conditions for proper landscape maintenance will be placed on authorizations during redevelopment or expansion of existing residences. Over the long term this could increase habitat values for wildlife and reduce contamination and nutrient loading of lakes from improper landscaping and fertilization.

Process: Function	Level of Alteration	Potential Protection and Restoration Measures and Opportunities	
Habitat:	Moderate	Moderate	
Source and delivery of Large Woody Debris (LWD).	Sensitive area ordinances have protected wetlands and shorelines in Lacey and prevent modification of these areas including removal of LWD or other material or conditions valuable for habitat. However, historic development of lake shorelines for residential use has changed the vegetative profile of lakeside lots where residential development has occurred.	The potential to re-introduce LWD, either through planting or placement exists. This should be a focus for the updated SMP.	

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### **Key Management Issues**

The key management issues for Woodland Creek drainage system are the following:

- Increases in sediment, nutrients, pathogens and other pollutants have accelerated eutrophication of the lakes and reduced water quality in Woodland Creek. This has resulted in downstream impacts to Henderson Inlet, including shellfish closures. Fecal coliform is the main pollutant resulting from septic systems, urban runoff and/or agricultural sources.
- Increased sediments and nutrients in the lakes within this basin (Pattison, Southwick, Long, and Hicks) but also in Chambers and Southwick lakes have encouraged growth of invasive aquatic plants and algae. Phosphorus loading is a problem, although water quality is improving on some lakes.
- Development has resulted in some decreased riparian habitat along Woodland Creek and the lakes within its basin. However, within Lacey Woodland Creek and significant wetland areas adjacent to the lakes have been protected and preserved with extensive buffers and tree protection regulations.

### **Restoration Opportunities for Woodland Creek**

According to the limiting factors analysis for WRIA 13 (Haring and Konovsky, 1999) for Woodland Creek the following restoration opportunities exist:

- Take corrective action to improve water quality in the creek basin, specifically to control pollutants and sediment transport from urban runoff.
- Restore LWD to stream channels to improve in-stream habitat.
- Restore riparian habitat around lakes and woodland creek wherever feasible.
- Preserve and restore headwater wetlands so as to enhance habitat and protect water quality.
- Enhance fish passage by removing barriers.

In addition, Thurston County has initiated the Woodland Creek Pollutant Load Reduction project. Possible corrective actions noted to reduce pollution and restore Woodland Creek and the lakes within its basin included:

- Improving riparian vegetation;
- Improve septic systems and retrofit to improve water quality in basin;
- Encourage low impact development strategies to manage stormwater; and
- Review alternative stormwater conveyance systems.

It should be noted that the study includes portions of the creek that are in unincorporated Thurston County, where Lacey will have little if any regulatory influence.

### Fresh Water Lake Systems

### **Key Management Issues**

The key management issues for freshwater lakes in the study area include:

- Loss of riparian forest surrounding the lake shore.
- The installation of artificial bank strengthening.
- The sources and pathways for excess nutrients, pathogens and toxins are significantly altered from the pre-disturbance condition. Increased nutrient loading can significantly modify the trophic status of lakes.

### **Restoration Opportunities for Freshwater Lakes**

There are several programmatic restoration opportunities that can be implemented to improve the overall ecological functioning of the freshwater lakes in the study area.

- Protect, restore and/or enhance riparian forests surrounding lake shores. Because sensitive areas are already protected this will necessarily include developed property where limited opportunity will exist. However, Lacey's tree protection ordinance limits tree removal on every lot within the City, including water front lots. This has resulted in the retention of some heavily wooded lake front lots; see picture on front cover of this SMP.
- With this SMP, policies have been developed to incentivize and require landscaping of designated vegetation management areas along the shoreline that corresponds to the shoreline setback. Depending upon the specific regulatory trigger, this will generally be accomplished through zoning landscaping requirements, tree protection regulations, mitigation related to development or restoration opportunities.
- Implement source control and/or stormwater treatment retrofitting throughout the contributing basin to improve water quality.
- Replacement of artificial bank strengthening (e.g., bulkheads) with soft or no-armor solutions. With new SMP standards, review of modifications will be required when maintenance exceeds 50% of the cost of replacement. At that time maintenance is

City of Lacey Shoreline Master Program September 2011 defined as a replacement and a CUP will be required. CUP review requires consideration of alternatives and choosing soft solutions over armoring where practical.

# **IV.** Existing Restoration Partners and Programs

The cities of Lacey, Olympia, and Tumwater work with Thurston County on restoration activities throughout the study area through a variety of different programs and departments. In addition there are many other government and non-profit groups active in North Thurston County. Many are listed in the table below.

Group	Description	Restoration Activities	
<b>Stream Team</b> Thurston County, Lacey, Olympia and Tumwater	Stream Team is a program for citizens interested in protecting and enhancing water resources in Thurston County watersheds. The program is jointly coordinated by Thurston County and the cities of Lacey, Olympia, and Tumwater.	Education Volunteer stream vegetation plantings and water quality monitoring Salmon steward training Storm drain marking Habitat Restoration	
Stormwater Utilities Thurston County, Lacey Olympia and Tumwater	Stormwater utility departments in all four jurisdictions' work to reduce stormater pollution from urban runoff.	Stormwater utility departments design and build projects to reduce flooding, pollution and erosion caused by stormwater runoff Projects may involve replacing failing drywells and catch basins (storm drains), building stormwater ponds, installing "infiltration galleries," or installing separating devices that remove pollutants. Stormwater utilities also manage NPDES permits and are involved in education and outreach.	
<b>Parks Departments</b> Thurston County, Lacey, Olympia and Tumwater and State	Parks departments in all local jurisdictions, in addition to the State, own and manage waterfront property.	Restoring native vegetation and shorelines along park properties. General environmental cleanup.	
Capitol Lake Adaptive Management Plan (CLAMP) Steering CommitteeThe Department of General Administration manages the Capitol Lake as part of the Capitol Campus. The Capitol Lake Adaptive Management Plan (CLAMP) Steering Committee advises General Administration on long-range planning for the lake.		Capitol Lake is a 260-acre lake located on the State Capitol Campus in Olympia and Tumwater. It was created in 1951 when a dam was constructed at the mouth of the Deschutes River, blocking the tidal action of Puget Sound, to form a reflecting pool for the Legislative (Capitol) Building. Research into the feasibility of recreating an estuary at the mouth of the Deschutes River (removing the Capitol Lake dam) has been completed. An evaluation of several alternative scenarios has been prepared. A decision of how best to manage the lake basins is anticipated during the 2 <sup>nd</sup> half of 2009.	

**TABLE 6:** GROUPS ACTIVE IN SHORELINE RESTORATION IN NORTHERN THURSTON COUNTY.

City of Lacey Shore	eline Master Program	September 2011

Group	Description	Restoration Activities
LOTT Alliance Lacey, Olympia, Tumwater and Thurston County	The LOTT Alliance is a partnership between Lacey, Olympia, Tumwater, and Thurston County to provide wastewater management and reclaimed water production services for the urbanized area of north Thurston County.	LOTT invests in capital projects, to help preserve and protect public health, the environment, and water resources. Invests in water conservation, water quality and habitat improvement projects in the Deschutes River watershed, including Budd Inlet, as compensation for being allowed to increase wintertime discharges from the treatment plant to Budd Inlet. An example of this is the Gull Harbor Estuary.
Squaxin Island Tribe	The Squaxin Island Tribe is a historic steward and a conscientious co-manager and protector of natural resources, working in cooperation with numerous federal, state and county government agencies and organizations.	The tribe participates in natural resources enhancement and protection programs with other groups and agencies to ensure that today's decisions provide for a healthy future.
Nisqually Indian Tribe	The Nisqually Indian Tribe operates as a "Self-Governance" Tribe and utilizes resources from its Tribal economic enterprises as well as Federal program dollars. Their mission of their salmon recovery program is to protect, restore, and enhance the treaty- protected resources of the Nisqually Indian Tribe.	<ul> <li>Salmon Recovery:</li> <li>Plan for the recovery of all Nisqually salmon</li> <li>Restore salmon habitat</li> <li>Study Nisqually salmon, salmon habitat; monitor effectiveness of actions</li> <li>Teach people about salmon habitat (Stream Stewards)</li> <li>Involve people in protecting and restoring salmon habitat (Stream Stewards)</li> </ul>
Thurston Conservation District	The Thurston Conservation District promotes voluntary stewardship among private landowners in Thurston County. Conservation Districts (CDs) are legal subdivisions of state government that administer programs to conserve natural resources.	Conducts, oversees and participates in various restoration projects throughout Thurston County. Works to restore 'riparian habitats' (any habitats near water) since these areas are crucial for the health of all wildlife, especially 'salmonids' (salmon and trout). Also involved with agricultural assessments, education and outreach.
Port of Olympia	The Port of Olympia is a major landowner of shoreline property in Budd Inlet.	<ul> <li>Contaminant cleanup in Budd Inlet and upland properties:</li> <li>Cascade Pole</li> <li>Dioxin cleanup in Budd Inlet (shipping berths)</li> <li>East Bay Redevelopment site</li> </ul>

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Group	City of Lacey Shoreline Master Program September 2011           Description         Restoration Activities		
Budd Inlet Restoration	The Cities of Olympia and	The first phase of the Action Plan includes:	
Partnership	Tumwater, <u>Port of Olympia</u> , <u>Thurston County</u> , <u>LOTT Alliance</u> , and <u>Washington State University</u> <u>Thurston County Extension</u> are forming a partnership to develop an action plan for Budd Inlet restoration.	<ul> <li>an inventory/assessment of major current efforts related to Budd Inlet restoration</li> <li>summary of partner interests, needs and goals relative to Budd Inlet; a community forum to solicit concerns and priorities</li> <li>identification of potential opportunities to work together</li> <li>a project description and organizational frameworks for the next phase</li> <li>Planning for Phase II is underway.</li> </ul>	
Salmon Recovery Funding Board	Created in 1999 by the Washington State Legislature, the Salmon Recovery Funding Board (SRFB) provides grant funds to protect or restore salmon habitat and assist related activities. It works closely with local watershed groups known as lead entities. The board is composed of five citizens appointed by the Governor and five state agency directors.	The Salmon Recovery Funding Board supports salmon recovery by funding habitat protection and restoration projects. It also supports related programs and activities that produce sustainable and measurable benefits for fish and their habitat. SRFB has helped finance over 900 projects.	
South Puget Sound Salmon Enhancement Group	The South Puget Sound Salmon Enhancement Group (SPSSEG) is a 501(c)(3) non-profit organization committed to protecting and restoring salmon populations and aquatic habitat with an emphasis on ecosystem function through scientifically informed projects, community education, and volunteer involvement. Part of their mission is to seek out and work in cooperation with other organizations to help plan, fund, carry out, and monitor fishery enhancement and habitat restoration projects.	<ul> <li>Habitat Improvement:</li> <li><u>Engineered Log Jams (ELJs)</u></li> <li><u>Bulkhead Removal</u></li> <li><u>Riparian Plantings</u></li> <li>Fish Passage:</li> <li><u>Culvert Removal</u></li> <li><u>Other Barrier Removals</u></li> </ul>	
Puget Sound Partnership	The Puget Sound Partnership is a community effort of citizens, governments, tribes, scientists, and businesses working together to restore and protect Puget Sound.	Their Action Agenda will prioritize cleanup and improvement projects, coordinate federal, state, local, tribal, and private resources, and make sure that everyone is working cooperatively.	
Capitol Land Trust	Non-profit Land Trust	The Capitol Land Trust conserves important wildlife habitat and natural areas by accepting donations of <u>conservation</u> <u>easements</u> and gifts of land, or by working with partners to purchase lands. Since 1989, Capitol Land Trust has been instrumental in permanently conserving 2,957 acres in Mason, Grays Harbor and Thurston Counties.	

City of Lacey Shoreline Master Program September 2011

Group	Description	Restoration Activities
Nisqually Land Trust	Non-profit Land Trust	Since 1989, the Nisqually Land Trust has acquired, for permanent protection, nearly 1,700 acres of superior wildlife habitatfrom threatened old-growth forest near the Nisqually River's source to critical salmon habitat near its delta.

# V. Implementation Strategies

Restoration projects are implemented by all of the planning partners listed in the previous section. Each entity participates in a prioritization process that includes implementation strategies and identifying sources of funding. Projects are funded through a variety of sources including grants from state and federal sources.

In addition, this SMP is designed to build protection and restoration objectives into development requirements for land use form and design. Several strategies dovetail with other existing regulations to achieve these objectives. Major techniques are summarized below:

- Zoning, Land Use Form and Design: For undeveloped parcels, the proper use of design standards to promote the right form of land use development. Requiring environmentally sensitive design will promote protection and restoration opportunities, as well as match land form to shoreline needs and prevent additional impacts as areas urbanize. Rather than promoting standard single family detached housing that has had significant impact to shoreline areas, innovative techniques like clustering of homes can promote restoration objectives. As an example, development in a clustered cottage configuration and common open space with tree tracts and natural vegetation could significantly protect and/or enhance natural functions and values.
- Vegetation Management Areas: Vegetation management requirements are implemented in association with the needs of individual environment designations to correspond with setback requirements. Within vegetation management areas, standards are applied that protect and improve natural functions and value, such as avoidance of impacts and landscaping.
- Landscaping Standards: Restoration objectives will also be realized incrementally on single family lots that are redeveloped or expanded when existing vegetation is not sufficient to protect resources from impacts. Restoration objectives are promoted through implementation of landscaping requirements, in association with vegetation management requirements that set a vision for the community for shoreline aesthetics, water quality management, and provision of habitat.
- **Development Options:** Options for permit applicants may also promote restoration activities by providing alternatives for development that might not be permitted without restoration actions. An example would be expansion of a structure that does not meet new setbacks from the OHWM. While a structure not meeting setbacks might not normally be permitted to expand, restoration options can be used to offset no net loss concerns. This provides extra value to the landowner by additional use of property and the public by promoting public restoration objectives.
- **Incentives:** Incentives for dedication of property will also promote restoration objectives, by putting shoreline property in public ownership providing restoration opportunities through public management of the resource not otherwise available.

Table lists recent restoration projects within SMA jurisdiction or affecting SMA shorelines.

Shoreline	Jurisdiction/Group	Project Description	Restored Processes & Functions
General Lake Benefit	City of Lacey Parks/Public Works Departments	Stormwater treatment facility/wetlands (Horizon Point Park).	Stormwater treatment facilities generally promote flood flow retention, the removal of pollutants/sediment through sedimentation and adsorption, and mitigation of upland sediment generation. Wetlands perform these same functions and also help with groundwater recharge and low summer flows while providing shoreline habitat for wildlife such as invertebrates, birds, amphibians, reptiles, and mammals.
Hicks Lake	City of Lacey Parks/Public Works Departments	Stormwater treatment facility/wetlands.	See 'General Lake Benefit'.
Long Lake	City of Lacey	Stormwater mitigation area at north end of lake (wetland).	See discussion of wetlands under 'General Lake Benefit'.
	City of Lacey	Infiltration area at north end of lake.	Infiltration areas promote groundwater recharge and mitigate low summer flows.
Pattison Lake	City of Lacey Parks/Public Works Departments	Stormwater treatment facility/wetlands (Lakepoint Park).	See 'General Lake Benefit'.
Southwick Lake	City of Lacey Parks/Public Works Departments	Stormwater treatment facility/wetlands constructed by the City (Rainier Vista Park).	See 'General Lake Benefit'.
Woodland Creek	Lacey Stream Team	Installing fish weirs, depositing spawning gravel, native plant revegetation, and invasive removal.	These projects will restore shoreline habitat for wildlife, including invertebrates, birds, amphibians, reptiles, and mammals. Native plant revegetation provides erosion control. Depending on the size of native plantings, there is a potential for future sources of LWD.
Woodland Creek	Thurston County, Lacey Stream Team	Repairing drywells and bioswales, construction of rain gardens.	Flood flow retention, removal of pollutants, and providing vegetation for habitat (bioswales and rain gardens). They also promote groundwater recharge.

Shoreline	Jurisdiction/Group	Project Description	Restored Processes & Functions
Woodland Creek WOOD-1	St. Martin's University, City of Lacey	Construction of water quality treatment ponds that collect stormwater from 430 acres that drains to Woodland Creek.	See description of 'stormwater treatment facilities' under 'General Lake Benefit'.
	Lacey Stream Team	Purchased a 4.4 acre parcel along creek to-enhance protection of the stream corridor, performed riparian revegetation at site.	Revegetation helps promote flood flow retention, provides erosion control and storage of phosphorus and nitrogen while providing habitat for wildlife and a potential future source of LWD.
Woodland Creek Both Reaches	Lacey Stream Team	Removed concrete armoring from the stream channel at the outlet of Lake Lois, added spawning gravel to Woodland Creek immediately downstream. Location is upstream from the SMA-affected reaches of Woodland Creek.	The addition of spawning gravel will enhance shoreline habitat for fish, especially salmonids.
	Lacey Stream Team	Ongoing efforts to revegetate the riparian buffer in Woodland Creek Community Park. Location is upstream from the SMA-affected reaches of Woodland Creek.	See revegetation project described above under WOOD-1.
	City of Lacey Parks Department	Pond and stream restoration at Woodland Creek Community Park, as part of an overall construction project at the site.	This project will enhance shoreline habitat for wildlife.

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# **VI.** Other Restoration Opportunities

The new Shoreline Master Program provides for protection and restoration opportunities along developed shoreline parcels as redevelopment occurs through the requirement for a Shoreline Vegetation Management plan.

The idea is to slowly replace lawns and turf along shorelines with native vegetation as mitigation, when shoreline properties develop or redevelop.

The new standards apply on parcels with waterfront access when:

- A new structure is constructed
- An existing structure is remodeled and square footage is added
- An accessory structure (such as a garage, deck, or patio) is added
- Any development action requiring a shoreline permit is taken

In order to move toward the goal of restoring native vegetation to shorelines incrementally, the proposal includes a sliding scale for how much vegetation restoration is required. Generally, vegetation will be required when existing vegetation on site is not sufficient to mitigate impacts from the new or expanded use/development or when expansions or new structures are proposed within the setback/vegetation management area.

#### **New Structures**

Please see Chapter 17.41.021, Table 1 in the SMP.

# VII. Metrics and Ongoing Monitoring

Some of the potential metrics to measure progress in restoring ecological function and processes are listed below:

Metric	Monitoring	Status
Water quality	Thurston County Water Resources	Ongoing
Shellfish water quality	State Department of Health	Ongoing
Critical salt water habitat	Squaxin Island Tribe	Periodic
Fisheries	Various	Ongoing
Storm flows	USGS monitoring stations	Ongoing
Marine bulkheads	Thurston Regional Planning Council	Periodic evaluations
Lake shoreline armoring	None noted	Baseline evaluation should be done
Docks and Piers	Shoreline Master Program Inventory	Updated in 2008
Impervious Surfaces by Basin	Thurston Regional Planning Council	Last update in 2000
Forest Cover	Thurston Regional Planning Council	1985-2000
Wetland Ratings and Functions	None noted	Baseline evaluation should be done
Wetland Acreage	Shoreline Master Program Inventory	Updated in 2008
Contamination sites/cleanup status	State Department of Ecology	Ongoing

**TABLE 8:**POTENTIAL METRICS AND MONITORING.

# VIII. Timelines and Benchmarks in the Context of Restoration Objectives in this SMP

Discussion of organizations doing restoration work is presented in Table 7. For those looking for hard numbers and quantitative data sets, Table 8 presents sources of quantitative study elements provided for future reference. However, while these sources may be helpful in providing baseline data for review and evaluation of change, the data will be of limited value for much of the restoration effort Lacey's SMP and Restoration Plan are designed to promote and implement.

Expectations for determining timelines and benchmarks for Lacey's restoration objectives will generally need to be considered in the context of the market and decisions for private investment. Lacey's SMP is designed to move the community in the direction of restoration objectives by guiding new development, improving landscaping requirements and emphasizing environmentally sound decisions for landowners in management of shoreline properties. These activities involve non-public activities and generally do not lend themselves to reliable forecasts or benchmarks.

Lacey has no control over what the market might do on a macro scale and little if any control on a micro scale for individual property decisions. Development of specific timing expectations and specific benchmarks for measurement of restoration improvements in this arena is not practical or useful.

While significant successes may be realized in restoration objectives through public investment and public sponsored projects, the major restoration advances and the areas of emphasis for this SMP are things that will rely on the individual property owners and decisions on how to manage individual properties. It will also rely to a very large extent on the goal and policy vision set in the SMP and the regulatory language for its implementation.

Restoration strategies that are a focus in the SMP, like improving shoreline vegetation management for habitat and water quality functions, will fall within this private ownership/regulatory arena. Major strides in these areas will be by actions of private property owners developing and managing shoreline properties within the vision established by the community in the SMP and other community planning documents.

A quantitative level of review is not needed for these issues in the context of developing goals, policies and regulatory or incentive strategies for this SMP. Precise numbers are not as important as identifying probable cause and effect and general expectations of a particular course of action. These issues require a qualitative level of consideration. A qualitative process, based upon broad based citizen participation and evaluation of the issues, can achieve timelier and arguably comparable results for community planning purposes.

Lacey can make a difference and achieve restoration objectives by crafting strategies based upon extensive community dialogue and reasoned conclusions of those participating in the update of this SMP. The issues identified and the strategies developed are based on the discussion and reasoned conclusions of Lacey staff, the Planning Commission, the Lacey Council and those citizens and professional resource agency representatives participating in the SMP update.

There are no black and white answers, no spreadsheet that will ever be able to balance community needs, values and objectives. There is no benchmark for measurement that can be trusted to represent all of the variables involved in the complex issues restoration activity might include when encountered in the field.

#### City of Lacey Shoreline Master Program September 2011

Instead, community decisions for the effectiveness of restoration objectives will be based upon discussion and open communication with citizens involved in the issues as well as professional staff and resource agency representatives. Given the nature and complexity of these issues and the context decisions must be made in local government, a well developed intuition and reasoned judgment of Lacey's elected officials must serve as the final benchmark for measurement of success in achieving shoreline management objectives.

The timelines for judging the success of long range planning objectives are similarly unpredictable and often must be tested and measured in years. For the purposes of this SMP, the timeline is the same 20-year horizon used for other GMA plans. Periodic evaluation, review and refinement of major concepts is expected at least once every 7 years.

# IX. Restoration Goals and Policies

**Generally:** The SMP restoration goals and policies will be implemented through local projects both public and private. These will restore ecological function to the shorelines within the City of Lacey.

This restoration plan is not specific to the shoreline environment designations. In general, preservation areas have been designated Natural and developed areas have been designated Shoreline Residential.

Promoting and assigning priority to the general type of projects discussed and specific projects identified within this plan will improve ecological function by:

- Improving water quality (examples: construction of stormwater treatment facilities, establishing buffers around lakefront property with native vegetation)
- Restoring habitat for a variety of species (examples: invasive plant removal, landscaping buffers around lakefront property with native vegetation including trees)
- Creating new habitat (examples: installation of large woody debris in streams and rivers, restoring native vegetation to lakefront properties)

**Specific Goals, Policies and Standards:** Restoration goals, policies and development standards that have been developed through update of the SMP are as follows:

#### **Goals and Policies Related to Landscaping:**

- 1. Goal: Over the long term, achieve landscaped shorelines with vegetation supportive of natural shoreline functions and values that will help maintain and improve water quality and habitat.
  - **A. Policy:** Limit the removal of vegetation along the shoreline to the minimum necessary to accommodate the approved shoreline development and establish a buffer area of vegetation corresponding to each designation's setback area.
  - **B. Policy:** Native/approved vegetation along the shoreline will be required to further goals of restoration and promote no net loss of ecological function and value. Landscaping plans will require balancing legitimate competing interests. This will include habitat and view corridor opportunities as well as compatibility and integration with the full range of land use activities permitted and expected in the applicable shoreline classification.
  - **C. Policy:** The Administrator may allow limited selective pruning of native vegetation for view corridors and some limited clearing for access provided ecological functions are not compromised. The activity shall be reviewed by the City Forester/Arborist and a recommendation provided to the Administrator.
  - **D. Policy:** Preserve existing native vegetation along the shoreline and require planting when it does not exist.
  - **E. Policy:** Provide flexibility when balancing overlapping shoreline policies and priorities regarding vegetation conservation, a preference for water-dependant uses, and requirements to provide public access.
  - **F. Policy:** When remodeled structures are located too close to the ordinary high water mark and do not have room to install the normal vegetative improvements in the designated buffer area, the

#### City of Lacey Shoreline Master Program September 2011

City will require planting with vegetation the site can reasonably accommodate within the buffer area. In addition, to offset and mitigate impacts that occur for lack of adequate vegetative buffering, the city may require a commensurate amount of vegetation on other offsite priority restoration areas.

- **G. Policy:** Vegetation management development standards for the buffer shall apply to a new structure, to remodeled structures which add square footage, to the addition of an accessory structure, and any permit for a shoreline parcel(s) with waterfront access.
- **H. Policy:** Intact native shoreline vegetation shall be comprised of three vegetative levels including an overstory of trees, an understory of shrubs, and a floor of herbs of native plants commonly found in riparian areas of Thurston County.
- I. **Policy:** When intact native shoreline vegetation is lacking, required areas shall be planted to resemble native riparian vegetation or equivalent from the standpoint of function and value, see Table 1. This canopy should also have an understory of native plants commonly found in riparian areas of Thurston County or of benefit to lake shoreline in Lacey.
- J. Policy: A Shoreline Vegetation Management Plan shall address shoreline function and values.
- **K. Policy:** Vegetation conservation development standards shall not apply to the removal of aquatic weeds and fresh water algae undertaken pursuant to WAC 173-201.
- L. Policy: Additional tree regulations and policy can be found in Chapter 14.32 of the Lacey Municipal Code and Lacey's Urban Forest Management Plan. Per Section 17.35.010, the more restrictive development standard applies.
- **M. Policy:** The City of Lacey Critical Area Ordinances, including the ordinances for the protection of habitat and wetland areas, requires vegetation along a shoreline or wetland. These requirements will overlay those found within this section. Per Section 17.35.010, the more restrictive development standard applies.

# 2. Goal: Develop landscaping guidelines that will achieve goals for restoration and that are useful for property owners and will encourage and promote ecological friendly property management.

- **A. Policy:** Utilize the stated goals and policies for each of the different shoreline use and activities sections to explain to citizens the reasons for the regulations.
- **B.** Policy: Develop and provide examples of landscaping strategies and plans citizens can use to implement important concepts on their own property.

# 3. Goal: Implement a public informational effort that will put shoreline vegetation restoration and management guidelines, in the hands of shoreline property owners.

- **A. Policy:** Because of the importance of native vegetation in managing water quality, the City shall promote public education on this topic and help inform citizens of the purpose and need for retention/replanting/restoration of shoreline area to perform natural drainage mitigation.
- **B. Policy:** Develop a full range of techniques for informing the public of shoreline vegetation requirements as well as basic information regarding shoreline functions and values and how vegetation management is an ecologically friendly way of maintaining shoreline property.
- **C. Policy:** The City will support efforts of realtors and work in partnership with the local Board of Realtors in informing new and existing lot owners of requirements of protective covenants and proper vegetation management. This may include a range of strategies such as educational

#### City of Lacey Shoreline Master Program September 2011 presentations at realtor membership meetings, presentations to home owner associations, scheduling informational meetings with lot owners or perspective buyers and helping to develop brochures for general circulation to interested groups.

#### **Goals and Policies Related to General Restoration:**

- 1. Goal: Identify and take advantage of restoration opportunities where restoration goals can be integrated into the design and planning of public or private shoreline development projects.
  - A. Policy: Recognize that restoration and enhancement may result from:
    - 1) Mitigation of impacts from new development.
    - 2) Adoption of shoreline setbacks with a buffering function which are based upon shoreline ecological functions and processes.
  - **B. Policy:** Reestablish, rehabilitate and/or otherwise improve impaired shoreline ecological functions and/or processes through voluntary and incentive-based public and private programs and actions that are consistent with this master program and other approved restoration plans.
  - **C. Policy:** Restore and enhance shoreline ecological functions and processes as well as shoreline features through voluntary and incentive-based public and private programs.

# 2. Goal: Where opportunities are present, work with other state and local jurisdictions in planning and implementation of restoration projects that cross jurisdictional boundaries.

**A. Policy:** Encourage and facilitate cooperative restoration and enhancement programs between local, state, and federal public agencies, tribes, non-profit organizations, and landowners to address shorelines with impaired ecological functions and/or processes.

# **3.** Goal: Implement restoration efforts consistent with the City Shoreline Restoration Plan: Appendix **3**.

- A. Policy: Integrate restoration and enhancement with other parallel natural resource management efforts such as the WRIA 13 Salmonid Recovery Plan, Puget Sound Salmon Recovery Plan, and the City of Lacey Comprehensive Land Use Plan and its Environmental Protection and Resource Conservation element.
- **B. Policy:** Ensure restoration and enhancement is consistent with and, where practicable, prioritized based on the biological recovery goals for early Chinook, bull trout populations and other species and/or populations for which a recovery plan is available.
- **C. Policy:** Target restoration and enhancement towards improving habitat requirements of priority and/or locally important wildlife species.
- **D. Policy:** Restoration shall be carried out in accordance with an approved shoreline restoration plan and in accordance with the policies and regulations of this SMP.
- E. Policy: Prioritize restoration actions and stand-alone projects in the following order:
  - 1) Create dynamic and sustainable ecosystems.
  - 2) Restore connectivity between stream channels, floodplains and hyporheic zones.
  - 3) Restore natural channel-forming geomorphologic processes.
  - 4) Mitigate peak flows and associated impacts caused by high stormwater runoff volume.
  - 5) Reduce sediment input to streams and associated impacts.
  - 6) Improve water quality.
  - 7) Restore native vegetation and natural hydrologic functions of degraded and former wetlands.
  - 8) Replant native vegetation in riparian areas to restore functions.

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- 9) Restore nearshore ecosystem processes, such as sediment transport and delivery and tidal currents that create and sustain habitat.
- 10) Restore pocket estuaries that support salmon life histories, including feeding and growth, refuge, osmoregulation, and migration.
- 11) Remove obsolete and no longer needed shoreline modifications.

# 4. Goal: Achieve natural beach areas by restoration that meets needs of the land owner without hard armoring.

- 1. **Policy:** Insure that permits for beach restoration and enhancement projects address the goals, policies and development standards within the Shoreline Ecological Function Chapter 17.40.000.
- 2. Policy: Give preference in permitting beach restoration and enhancement projects which use naturally regenerating systems, rather than bulkheads and other structures to prevent and control beach erosion where:
  - A. The length and configuration of the beach will accommodate such systems.
  - B. Such protection is a reasonable solution to the needs of the specific site.
  - C. Beach restoration/enhancement will accomplish one or more of the following objectives:
    - 1) Recreate or enhance natural shoreline conditions.
    - 2) Create or enhance natural habitat.
    - 3) Reverse otherwise erosion-prone conditions.
    - 4) Enhance access to the shoreline, especially to public shorelines.
- **3. Policy:** Design and construct beach enhancement projects so that they will not degrade aquatic habitats, water quality and flood holding capacity.
- 4. Policy: Prefer self-maintaining designs over those which depend upon regular maintenance.
- **5. Policy:** Require supplementary beach nourishment where structural stabilization works are likely to increase impoverishment of existing beach materials at or downdrift from the project site.
- 6. Policy: Limit the waterward extent of beach enhancement to that which is necessary to achieve the intended results.
- 7. **Policy:** Encourage the use of dredged materials for beach restoration and enhancement projects when it has suitable organic and physical properties.

# X. Summary

The Restoration Plan is designed to meet the requirements for restoration planning outlined in the Department of Ecology Guidelines. A Restoration Plan is not a regulatory document or a set of regulatory requirements.

This plan is meant to be used as a resource for shoreline restoration planning for Lacey, identifying priorities and potential restoration opportunities.

Restoration efforts identified in Table 6 are ongoing and may change. Table 6 shows specific projects that were planned at the time of the Plan's development. Discussion in Tables 4 and 5 present various priorities based upon current knowledge and possible opportunities that may become available. These conclusions may also change.

This Plan should be used as a guidepost on the types of activities that may prove beneficial in achieving desired outcomes and priority for restoration activities based upon current available science and knowledge. It is not intended to be a regulation that sets one way to approach restoration policy, but only a reasoned intent to follow.

The best restoration strategy will be to plan for what the City can identify now, continue to look for and identify opportunities that may become available in the future and a willingness to try new innovative approaches to accomplish public objectives. This will require flexibility in how we approach each project. It will require a willingness to develop implementation solutions based upon each situation's unique features, the opportunity it presents and the customer service needs of the people involved.

# XI. Resources Used in Developing this Plan

City of Lacey, 2008. Lacey Comprehensive Plan, (including Capital Facilities Chapter).

City of Lacey, 2004. Lacey Comprehensive Plan for Outdoor Recreation.

- Thurston Regional Planning Council, 2008. Draft Shoreline Inventory for the Cities of Lacey, Olympia, and Tumwater and their UGAs.
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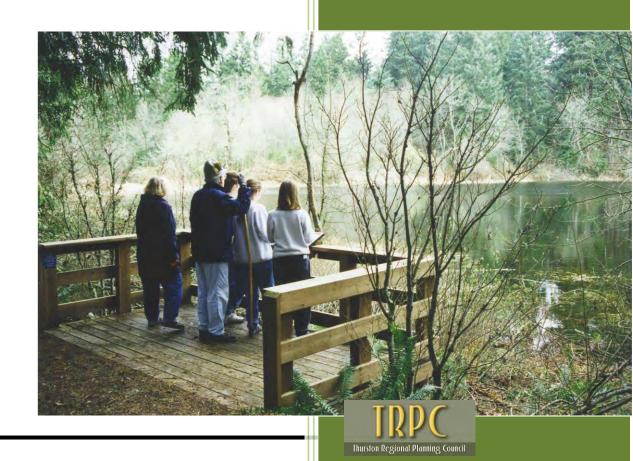
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January 2010 City of Lacey Shoreline Master Program update -Appendix 4

Characterization and Inventory; In original form as received from Thurston Regional Planning. Includes Lacey, Olympia, Tumwater and the their urban growth areas (UGAs)

# Shoreline Inventory for the Cities of Lacey, Olympia, and Tumwater and their Urban Growth Areas



**THURSTON REGIONAL PLANNING COUNCIL** (TRPC) is a 22-member intergovernmental board made up of local governmental jurisdictions within Thurston County, plus the Confederated Tribes of the Chehalis Reservation and the Nisqually Indian Tribe. The Council was established in 1967 under RCW 36.70.060, which authorized creation of regional planning councils.

TRPC's mission is to **"Provide Visionary Leadership on Regional Plans, Policies, and Issues."** The primary functions of TRPC are to develop regional plans and policies for **transportation** [as the federally recognized Metropolitan Planning Organization (MPO) and state recognized Regional Transportation Planning Organization (RTPO)], **growth management, environmental quality**, and other topics determined by the Council; provide **data and analysis to support local and regional decision making;** act as a "**convener**" to build **community consensus** on regional issues through information and citizen involvement; build **intergovernmental consensus** on regional plans, policies, and issues, and advocate local implementation; and provide **planning, historic preservation, and technical services** on a contractual basis.

#### 2009 MEMBERSHIP OF THURSTON REGIONAL PLANNING COUNCIL

Governmental Jurisdiction

Name of 2009 Representative

Virgil Clarkson, Councilmember

Joan Machlis, Councilmember

Ed Stanley, Councilmember

Robert Isom, Councilmember

Cathy Wolfe, County Commissioner

Graeme Sackrison. Board Member

Chuck Namit, School Board Member

Frank Wilson, School Board Member

Francine Lester, Tribal Councilmember

Lennea Magnus, Planning Director

Jeff Kingsbury, Board Chairman

Joseph Beaulieu, EDC President

Frank Kirkbride, Commissioner

**Dick Nichols,** Library Board Member **Paul Smith,** Director of Facilities Services

Ann Burgman, Board Member

Norman Abbott, Director

Paul Pickett, PUD Commissioner

Sandra Romero, Transit Authority Board Member

Ken Jones, Mayor

Kathy Martin, Mayor

**Dennis McVev.** Councilmember

City of Lacev City of Olympia City of Rainier City of Tenino City of Tumwater City of Yelm Town of Bucoda Thurston County Intercity Transit LOTT Alliance Thurston PUD North Thurston Public Schools Olympia School District Confederated Tribes of the **Chehalis Reservation** Nisqually Indian Tribe

#### Associate Members

CAPCOM Economic Development Council of Thurston County Lacey Fire District #3 Olympic Region Clean Air Agency Puget Sound Regional Council Timberland Regional Library The Evergreen State College

<u>Chair</u> **Ed Stanley** City of Tumwater Vice Chair Dennis McVey City of Rainier

<u>Secretary</u> Cathy Wolfe Thurston County

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City of Lacey Shoreline Master Program September 2011

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The staff at Thurston Regional Planning Council would like to acknowledge the many public and private agencies that have developed information on the shorelines of Thurston County that was used in this report.

This report was prepared with Grant Funding from the Washington State Department of Ecology SMA Grant Agreement No. G0800096

#### **About This Report**

Consistent with Governor Gregoire's Plain Talk Executive Order 05-03 (2005), this report is written in a manner that is brief and to-the-point, uses non-bureaucratic language and features a clean design that promotes fast scanning and reading.

Scientific and legal references are kept to a minimum, replaced by a full list of sources in the report appendix.

#### Explanation of limited inclusion in Lacey's SMP.

Because of the extensive nature of this report in covering the whole County, only minor sections that deal with Lacey have been reproduced in this SMP. However, the full version is included in an attached CD in a slip cover to this appendix.

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## I. Notes and Explanations

#### A. Water Quality Explanations

Water quality information comes from several sources, including federal, state and local agencies.

#### **State Water Quality Information**

The Washington State Department of Ecology measures water quality standards in surface waters, including rivers, lakes, and marine waters. Under the federal Clean Water Act, water quality standards must be adequate for the protection of beneficial uses of water bodies, including recreation, habitat for aquatic and marine life, and water supplies for agriculture and the general public.

The State Department of Ecology measures waterbodies and evaluates how observed measurements of water quality parameter affect each water body. Measurements of each water quality parameter are taken from water, sediment and tissue samples. Water bodies are then divided into categories, separated by varying degrees of degradation. The categories, as defined in Washington State's Water Quality Assessment for 2004 are as follows:

A. Category 5: Polluted waters requiring a  $TMDL^1$ .

Data has shown that water quality standards have been violated for at least one pollutant, and that there is no TMDL or pollution control plan in place. TMDLs must be created for waterbodies in this category.

B. Category 4: Polluted waters not requiring a TMDL.

Water bodies in this category have pollution problems that are being addressed by one of three methods:

- 1. Category 4a: Water bodies that already have an approved TMDL.
- 2. Category 4b: Water bodies that have another pollution control plan in place. They are required to exhibit many features of TMDL plans and must include legal or financial guarantees that the plans will be implemented.
- 3. Category 4c: Water bodies impaired by a non-pollutant, including low water flow, stream channelization and dams.

<sup>&</sup>lt;sup>1</sup> A TMDL or Total Maximum Daily Load is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. Water quality standards are set by States, Territories, and Tribes. TMDL is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. The calculation must include a margin of safety to ensure that the waterbody can be used for the purposes the State has designated. The calculation must also account for seasonal variation in water quality. The Clean Water Act, section 303, establishes the water quality standards and TMDL programs.

C. Category 2: Waters of concern.

Water bodies are placed in this category for several reasons. Pollution levels may not be high enough to violate water quality standards, or there may have been too few violations to characterize the water body as impaired under Ecology's policies. There could be data that indicates water quality violations, but the data may have been collected improperly.

D. Category 1<sup>2</sup>: Meets tested standards for clean waters.

This designation does not mean that a water body is free of pollutants, only that it met standards for the pollutants for which it was tested. Specific monitoring results can be found in each water body's individual listing.

The "State Information" in this report includes evaluations made by the Department of Ecology, based on water, sediment and tissue samples. Information is provided for Shoreline-regulated waterbodies within WRIA 13, and is separated into categories as defined by Ecology. A comprehensive listing of all water bodies in violation of water quality standards in the State of Washington is available from the Washington State Department of Ecology.

#### Local Water Quality Information

Thurston County also conducts its own water quality testing. In 2006, Thurston County Public Health and Social Services Department, Thurston County Water and Waste Management Department and the Storm and Surface Water Program in conjunction with the Public Works and Water Resources Programs of the cities of Olympia and Lacey, the City of Tumwater's Public Works Department and the Washington State Department of Ecology collectively published the Thurston County Water Resources Monitoring Report for the 2003-2004 and 2004-2005 Water Years. It includes water quality information on streams and lakes in Thurston County. This study separated water quality parameters into two sets of criteria: water contact recreation and freshwater aquatic life uses.

In addition to reporting on the status of various water quality parameters found during the study, water bodies were rated on a scale from "Excellent" to "Poor". The guidelines below, taken from the Water Resources Monitoring Report, show what considerations were used to rate water bodies in the study.

<sup>&</sup>lt;sup>2</sup> Category 1 listings were not included in this report.

#### **Stream Water Quality Categories**

"Excellent" - No water quality standard violations, and very low fecal coliform and nutrient concentrations.

"Good" - Usually meets water quality standards; OR violates only one part of the two part fecal coliform standard; OR the violation is most likely the result of natural conditions rather than pollution.

"Fair" - Frequently fails one or more water quality standards and other parameters such as nutrients indicate water quality is being impacted by pollution.

"Poor" - Routinely fails water quality standards by a large margin; other parameters such as nutrients are at elevated concentrations.

#### Lake Water Quality Categories

"Excellent" - Very low nutrient and chlorophyll *a* concentrations, and very high water clarity; Classified as Oligotrophic; Uses not impaired.

"Good" - Low to moderate nutrient and chlorophyll *a* concentrations, and moderate to high water clarity; Classified as Mesotrophic; Uses not impaired.

"Fair" - Moderate to high nutrient and chlorophyll *a* concentrations, and low to moderate water clarity; Classified as Eutrophic; Uses sometimes impaired.

"Poor" - High nutrient and chlorophyll *a* concentrations, and low water clarity; Classified as Eutrophic; Uses impaired during most of the summer season by excess algae and/or aquatic macrophyte (plant) growth.

#### B. Critical Areas

#### Wetlands

Wetland Indicator maps were prepared for the cities of Lacey, Olympia, Tumwater, and their urban growth areas during the early 1990s. Wetland consultants were used as described in Keany and Rozenbaum (1992), and on the TRPC web site - Wetland Mapping for the Thurston Region.

#### Landslide Hazard Areas

Each jurisdiction has identified steep slopes while developing their Critical Areas Ordinances. For local jurisdictions they are defined as follows:

- Lacey not applicable (no steep slopes or landslide hazard areas)
- Olympia 40 percent or greater slopes
- Tumwater 40 percent or greater slopes
- Thurston County 50 percent or greater slopes

#### Habitat Conservation Areas

Habitat conservation areas are the riparian buffer around streams protected under local Critical Area Ordinances by a riparian buffer. Buffers have been generalized for mapping purposes, and are shown in the table below:

**TABLE A - 1:** RIPARIAN BUFFER WIDTHS BY STREAM TYPE FOR LACEY, OLYMPIA, TUMWATER AND THURSTON

 COUNTY.

Streams	Lacey	Olympia	Tumwater	Thurston County	
Current Washington State Department of Natural Resources Stream Typing System					
Type S	n/a	250 ft	n/a	n/a	
Туре F	n/a	200 ft	n/a	n/a	
Туре N	n/a	150 ft	n/a	n/a	
Type U (unknown)	n/a	100 ft	n/a	n/a	
Previous Washington State Department of Natural Resources Stream Typing System					
Туре І	200 ft	n/a	200 ft	100 ft	
Туре II	200 ft	n/a	200 ft	100 ft	
Type III	200 ft	n/a	100 ft	100 ft	
Type IV	150 ft	n/a	50 ft	50 ft	
Туре V	150 ft	n/a	50 ft	25 ft	

#### **100 Year Floodplains**

Floodplains with a one in one hundred chance of flooding (hereafter know as *100 Year Floodplains*) were mapped by FEMA within the three cities and Thurston County during the late 1970s and early 1980s. Field data collection and surveying was accomplished along the major

#### City of Lacey Shoreline Master Program September 2011

rivers within Thurston County, including the Deschutes River. The results of the studies were published by FEMA in a report for each local jurisdiction City of Lacey (FEMA, 1981), City of Olympia (FEMA, 1981), City of Tumwater (FEMA 1984) and Thurston County (1982).

FEMA undertook a hydrologic study of Capitol Lake following the 2001 Nisqually earthquake. The recommendation of that report (URS & Dewberry, 2003) was to raise the elevation of the 100 Year Floodplain of Capitol Lake from 11.0 feet NVGD to 11.5 feet NVGD. FEMA then changed the FIRM panels for Capitol Lake. In response a slight berm was designed into the landscaping of Heritage Park which surrounds the eastern shore of the North Basin. (Schilperoot and Morrison, 2002) Improvements to the park and this landscaping to prevent flooding of downtown Olympia from the lake during a 100 year flood event were completed in 2006.

# II. Reach Break Methodology and Results

#### A. Overview

Reach breaks were developed by ESA Adolphson working in conjunction with TRPC staff, and with the Scientific and Technical Advisory Group review.

Main data sources used to develop the reach breaks included:

- Draft minimum SMA jurisdiction map developed by the TRPC;
- WA DNR shorezone mapping (2000);
- Recent (2006) NAIP aerial photography;
- WA DNR hydro streams GIS layer;
- The Draft Shoreline Inventory (TRPC, 2008); and
- The Capitol Lake Sediment Transport Study (USGS, 2006).

#### B. Lakes

In general, shoreline lakes in Lacey, Olympia and Tumwater area were considered to be each one reach. Most of the lakes within the study area have relatively consistent surrounding land uses, and generally homogenous morphologies. Reach breaks were assigned for lakes if:

- 1. There was a mapped inlet and outlet channel;
- 2. A city boundary ran along or through the lake (e.g., Chambers Lake);
- 3. Distinct land use and/or critical areas (e.g., wetlands or floodplains)

Capitol Lake was treated differently, and was broken into several segments (south, middle, north, and Percival Cove) to be consistent with past work. These breaks also constitute constructions in the lake.

Long Lake	LONG-1	Residential area in north basin
	LONG-2	Residential area in south basin
	LONG-3	Residential, wetland area, and inlet channel/ditch in south basin
	LONG-4	Residential area in south basin
	LONG-5	Residential area in north basin
	LONG-6	Wetland and outlet channel in north basin.
Chambers Lake	CHAM-1	Eastern basin
	CHAM-2	Less developed portion, generally within Olympia
	CHAM-3	Developed portion, generally within Lacey.
Southwick	SOU-1	
Hicks	HICKS-1	Wetland along south rim
	HICKS-2	Residential area
Pattison	PAT-1	Residential area north of road crossing
	PAT-2	Residential area in southwest portion
	PAT-3	Less developed and wetland area
	PAT-4	Mix of residential and wetland area, including outlet.

TABLE A -2: LAKE REACHES IN WITHIN LACEY
--

## C. Rivers

Reach breaks were typically assigned along river shorelines at:

- 1. Confluences of major tributaries;
- 2. City or UGA boundaries; and/or
- 3. Major morphologic breaks (e.g., Tumwater Falls on the Deschutes).

**TABLE A -3**: RIVER REACHES IN THE LACEY URBAN AREA.

Waterbody	Reach	Rationale
Woodland Creek	WOOD-1	I-5 to confluence with tributary
	WOOD-2	Tributary to UGA boundary
Chambers Creek	CHAM-1	Extent of SMA jurisdiction to Deschutes River

#### D. Marine

Reach breaks were assigned along the marine shoreline at:

- 1. Major shorezone unit boundaries as mapped by WA DNR; and/or
- 2. Major land use shifts.
- 3. The sub category of A and B for Nisqually 2 is used to delineate the line between Lacey and unincorporated Thurston County in Mallard Cove.

Not all shoreline units were used to break our reaches, but all of our reach breaks occurred at or very close to a shoreline unit break. Examples where we did not assign a reach break on a shoreline unit boundary included: shoreline unit boundaries that appeared to be based on a similar British Columbia coastal class unit (e.g., "sand beach" to "sand flat").

**TABLE A - 4:** MARINE REACHES IN THE LACEY AREA.

Waterbody	Reach	Rationale
Nisqually	NIS-1	UGA/City boundary to Drift cell, near Shorezone unit break, and land use break at Mallard Cove
	NIS-2A NIS-2B	City of Lacey Mallard Cove Unincorporated Thurston County Mallard Cove to UGA boundary.

# III. Establishing Minimum Jurisdiction for Select Lakes

The following study was undertaken to establish the Ordinary High Water Mark and/or Associated Wetlands for select lakes within the Olympia, Lacey, and Tumwater urban areas as part of the Shorelane Master Program Update process.



Wetland and Wildlife Consulting Services

416 S. Washington St., Suite 202 Olympia, WA 98501 (360) 352-9897 FAX (360) 352-9914

# SHORELINE REVIEW

# FOR THE

# SHORELINE MASTER PROGRAM

Lacey, Olympia, Tumwater, Thurston County

**APRIL 2008** 

prepared for:

Thurston Regional Planning Council Steven W. Morrison, Senior Planner 2424 Heritage Court SW, Suite A Olympia, WA 98502

prepared by:

Street

Steve Shanewise, PWS Senior Ecologist



Trpcsmpapril08rpt.doc

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Barnes Lake Bigelow Lake Chambers Lake Long Lake North Setchfield Lake Smith Lake Susan, Munn, and Trails and Lake

### **EXECUTIVE SUMMARY**

This report documents work performed to assist Thurston Regional Planning Council (TRPC) in updating the Shoreline Master Program (SMP) for the cities of Lacey, Olympia and Tumwater and their urban growth areas.

Field work was performed during winter high water conditions to determine the Ordinary High Water Mark (OHWM) and associated wetlands for all or portions of seven separate lake systems. Washington Department of Ecology personnel provided assistance through field review, particularly if any determination was difficult. TRPC provided detailed GIS maps for use in field review, including aerial photographs, topography and LIDAR depictions of each system reviewed.

Two systems reviewed, Smith and Setchfield Lakes, were determined to be below the 20acre minimum for Shoreline jurisdiction. Trail's End Lake was determined to not be associated with the Susan/Munn Lake system, and would therefore also fall below the 20acre Shoreline minimum.

Barnes Lake, which was not previously administered through Shoreline jurisdiction, was mapped at over 34 acres; putting it well within the 20-acre minimum limit for such jurisdiction.

Long Lake North had minor adjustments (increases) to the mapped OHWM, resulting in slight extensions of Shoreline jurisdiction within the adjacent landscape. The final two systems reviewed, Chambers, and especially Bigelow Lake, had significant expansions of OHWM and, for Bigelow, associated wetlands. Indeed, Bigelow Lake changed from being below the 20-acre minimum for Shoreline jurisdiction to exceeding 78 acres of OHWM area.

#### SHORELINE REVIEW FOR THE SHORELINE MASTER PROGRAM

## INTRODUCTION

Thurston Regional Planning Council (TRPC) is updating the Shoreline Master Program (SMP) for the cities of Lacey, Olympia, and Tumwater and their urban growth areas. This SMP update is being done in cooperation with Thurston County. Assistance was sought by TRPC to help locate the Ordinary High Water Mark (OHWM) and the extent of associated wetlands on several lakes within the three cities. This report documents the findings of that field review.

SHORELINE REVIEW FOR THE SHORELINE MASTER PROGRAM

#### METHODS

#### 1. Winter Ordinary High Water Mark Conditions

Field reviews for this project were primarily conducted during the month of March to coincide with the normal, seasonal occurrence of the OHWM conditions within the lakes. This allowed for maximum ease and certainty of locating the OHWM by simply identifying the extent of surface water conditions within each landscape.

#### 2. Ordinary High Water Mark Review

Specific field reviews involved accessing each system at as many points as possible around the perimeter shorelines. The number of individual points accessed at each lake was based on Best Professional Judgment of what would be necessary to determine the OHWM condition for the entire system. Public access points were always used where available, but access permission from private landowners was also requested if no public access was available. However, not all private access requests were successful; Some landowners denied access and others were not available for consent.

#### 3. Associated Wetland Review

Determination of the extent of associated wetlands was performed simultaneously with the OHWM field review in many cases, and also included review of Thurston County Soil Maps, aerial photography, topography and LIDAR maps. Finally, personal knowledge from previous field work was frequently used.

#### 4. GIS Mapping

Thurston Regional Planning Council generated all the GIS maps for this analysis. They provided high quality, matched sets of aerial photography and LIDAR depictions of the shoreline landscapes reviewed. These maps also displayed the existing designated shoreline boundaries, as well as photo-interpreted wetland conditions. These maps were especially helpful in determining the extent of associated wetlands. TRPC remapped the location of the OHWM based upon field reconnaissance. TRPC also provided the area of calculations from these GIS maps to determine the SMA Jurisdiction in this report.

#### 5. Washington Department of Ecology Assistance

On 10 March and 7 April 2008, Brad Murphy of the Washington Department of Ecology assisted with field reviews and made jurisdictional determinations where conditions were not clear. Specifically, Mr. Murphy made the determination of OHWM association for Trails End Lake and the north end of Long Lake North. He also reviewed portions of OHWMs for Barnes, Bigelow and Setchfield Lakes.

SHORELINE REVIEW FOR THE SHORELINE MASTER PROGRAM

#### RESULTS

#### A. Barnes Lake

Much of the Barnes Lake shoreline was viewable from public roads. Direct shoreline access was made at two locations. This system has almost no associated wetlands due to the highly developed shoreline. It appears that past grading activities have basically pushed upland ground right up to the edge of the OHWM. Only minor adjustments were made to the previous OHWM depiction. The area of the OHWM for Barnes Lake is well above the SMA jurisdictional threshold at approximately 34.7 acres. TRPC remapped the location of the OHWM based upon the new delineation.

#### **B.** Bigelow Lake

The mapped OHWM for this system was confined to the open water portion of the lake. Field review determined that the actual OHWM extends dramatically beyond this limit into densely vegetated emergent, shrub and forested wetlands around the entire perimeter of open water. In addition, because the overall system has been significantly drained by past ditching, extensive areas of associated wetlands occur well beyond the current OHWM limit.

Field access to this system was fairly comprehensive except for portions of the central east and west shorelines, and most of the southwest lobe, where access was limited to only a handful of sites. In this latter location, the extent of the OHWM was primarily identified through vegetation patterns on aerial photography and not from ground-truthed review of the existing waterline. However, the edge of associated wetlands here, as well as throughout the remainder of the system, were precisely identified through topography (uplands rise distinctly from a flat wetland bottom) and previous delineation work. The area of the OHWM for Bigelow Lake is now well above the SMA jurisdictional threshold at approximately 78.1 acres. TRPC remapped the location of the OHWM based upon the new delineation.

#### C. Chambers Lake

Field review for this system only included the south end of both lake basins. The mapped OWHM for this system was limited to the visible open water of the lake. The actual OHWM is located another 10 to 100 feet further out into the lake from this old limit within vegetated wetland, and the associated wetlands then extend another 10 to 200 feet beyond this. Nearly the entire shoreline reviewed for this system was directly checked in the field because it is primarily public land. Chambers Lake has been drained in the past and is managed by an active Drainage District. The area of the OHWM for Chambers Lake is well above the SMA

SHORELINE REVIEW FOR THE SHORELINE MASTER PROGRAM

jurisdictional threshold at approximately 142.7 acres. TRPC remapped the location of the OHWM based upon the new delineation.

#### D. Long Lake North

Review of this system was limited to the outfall channel at the north end of the lake. The mapped OHWM for Long Lake North stops at a vegetation break between emergent and shrub habitat conditions. Field review confirmed that the OHWM extends throughout the shrub as well as emergent areas. TRPC remapped the location of the OHWM based upon the new delineation.

Review here also focused on whether the Long Lake North SMA jurisdiction should extend north to include Long Pond and its associated wetlands. WDOE aided in the field delineation at this site, and concluded that the railroad embankment crossing the outfall from Long Lake North constituted a significant break in hydrology and sustained a "uni-directional" flow through this artificial barrier. The railroad embankment therefore will constitute the new northern limit of SMA jurisdiction for Long Lake North. Long Pond, by itself, is below the jurisdictional minimum of 20 acres for shoreline designation.

#### E. Setchfield Lake

The mapped OHWM for this system was confined to the open water of the lake. Field review determined that the actual OHWM extends considerably beyond this limit into densely vegetated shrub and forested wetlands around the entire perimeter of interior open water. Field review included walking nearly all of the northern and southern portions of the system, plus some of the west side; access to the east side was not achieved.

The northern limit of the OHWM was determined (Brad Murphy, WDOE) to be the point where surface water from the lake begins to drain out through a defined, excavated channel, separating Setchfield Lake from an extensive, connected wetland system to the north. Even though the true OHWM designation for this system increased considerably to 18.88 acres from the previous shoreline depiction, it continues to falls below the 20 acre minimum threshold for SMA jurisdiction. TRPC remapped the location of the OHWM based upon the new delineation.

#### F. Smith Lake

The primary focus for this system was to determine if the mapped OHWM was accurate because it was within one acre of the SMA's jurisdictional 20-acre threshold. However, brief review of the north and south ends of the lake determined that the mapped depiction was actually excessive. The area of the

SHORELINE REVIEW FOR THE SHORELINE MASTER PROGRAM

OHWM for Smith Lake is well below the SMA jurisdictional threshold at approximately 17.1 acres. TRPC remapped the location of the OHWM based upon the new delineation.

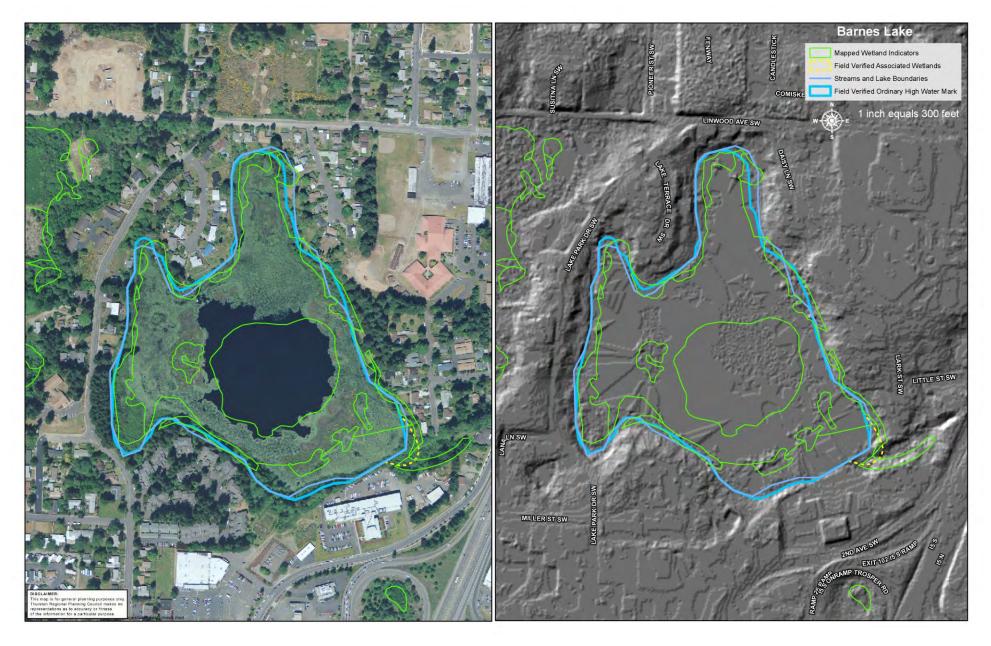
#### G. Susan, Munn, and Trails End Lakes

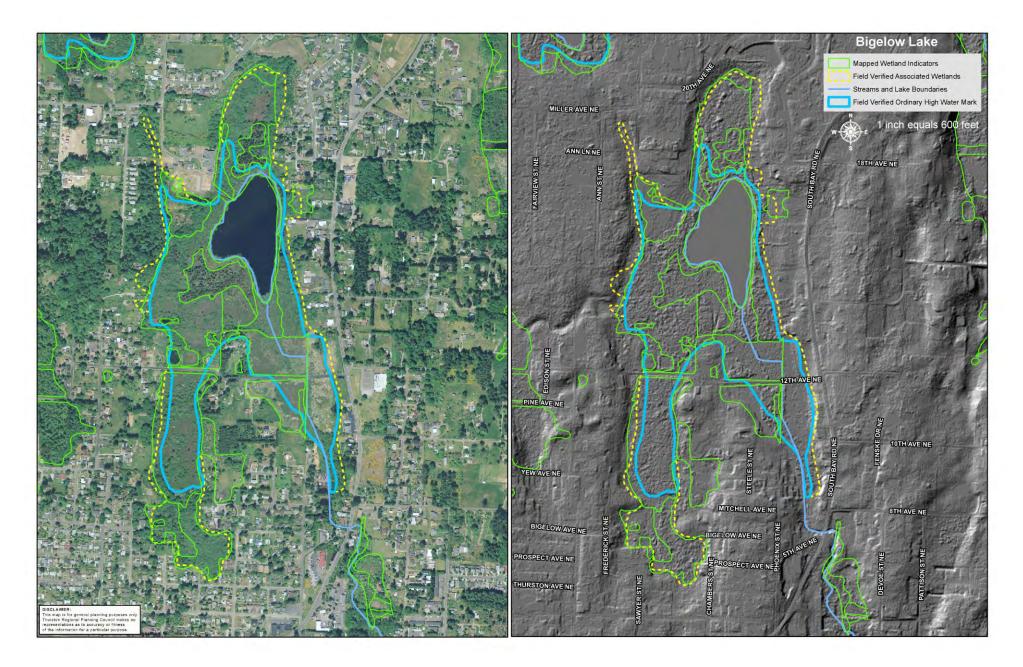
This site was investigated to determine whether or not Trails End Lake would be considered connected to Munn Lake, and therefore part of Shoreline Management Act (SMA) jurisdiction. Because the water flow through the road culvert connecting Trails End Lake to Munn Lake was determined to be "uni-directional" (water only flows from Trails End to Munn, and never the reverse). Trails End Lake was determined to not be a part of the Munn/Susan Lake system for purposes of determining SMA jurisdiction. Once this determination was made, no further review of the OHWM or associated wetland conditions for Trails End Lake were performed.

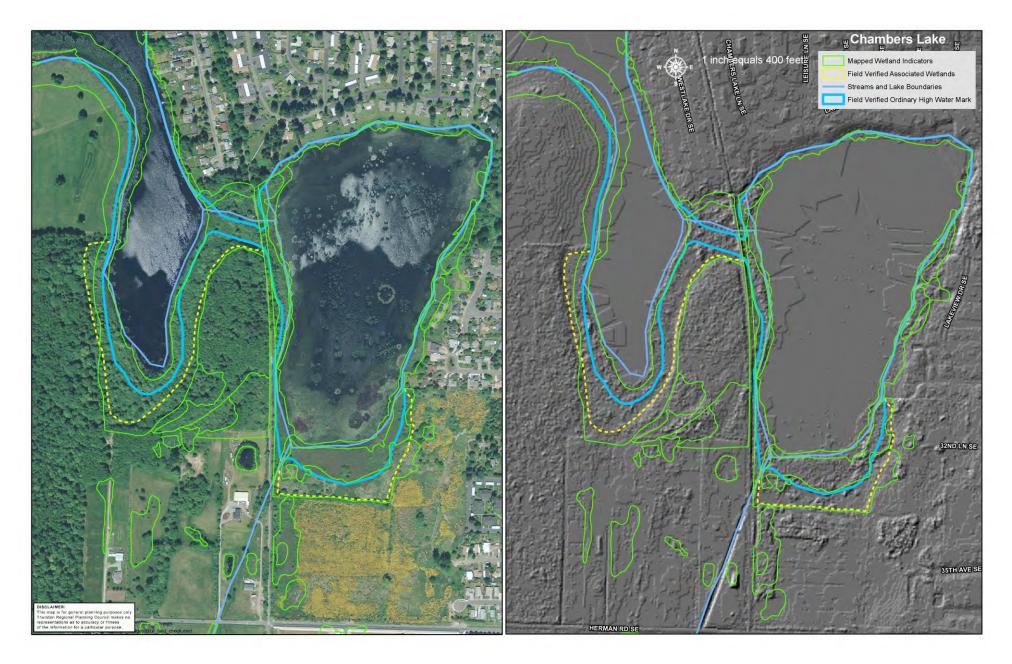
SHORELINE REVIEW FOR THE SHORELINE MASTER PROGRAM

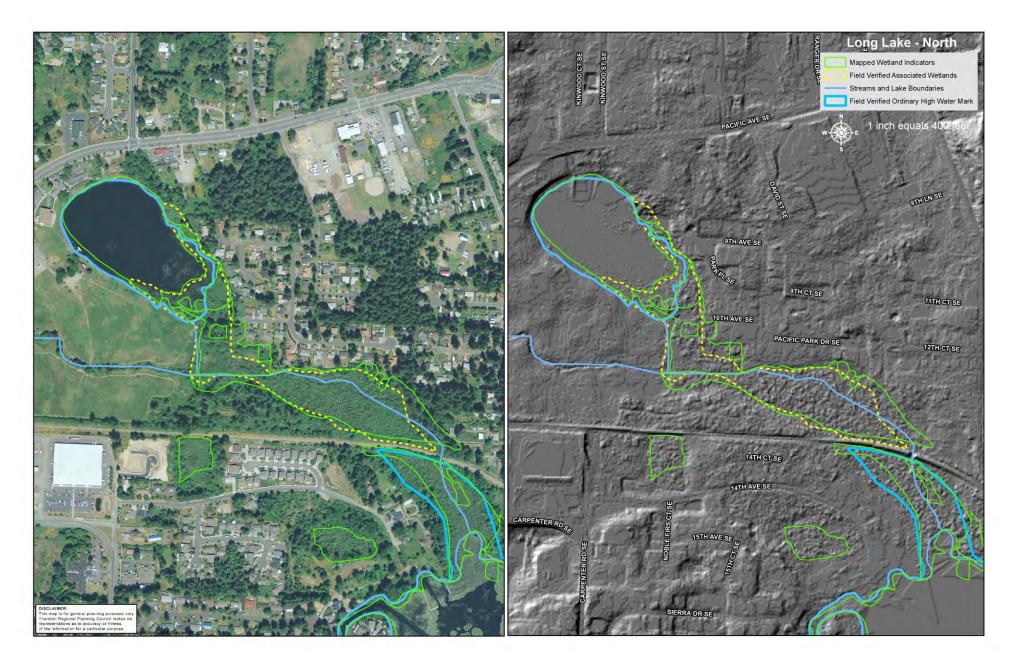
# APPENDIX I: MAPS

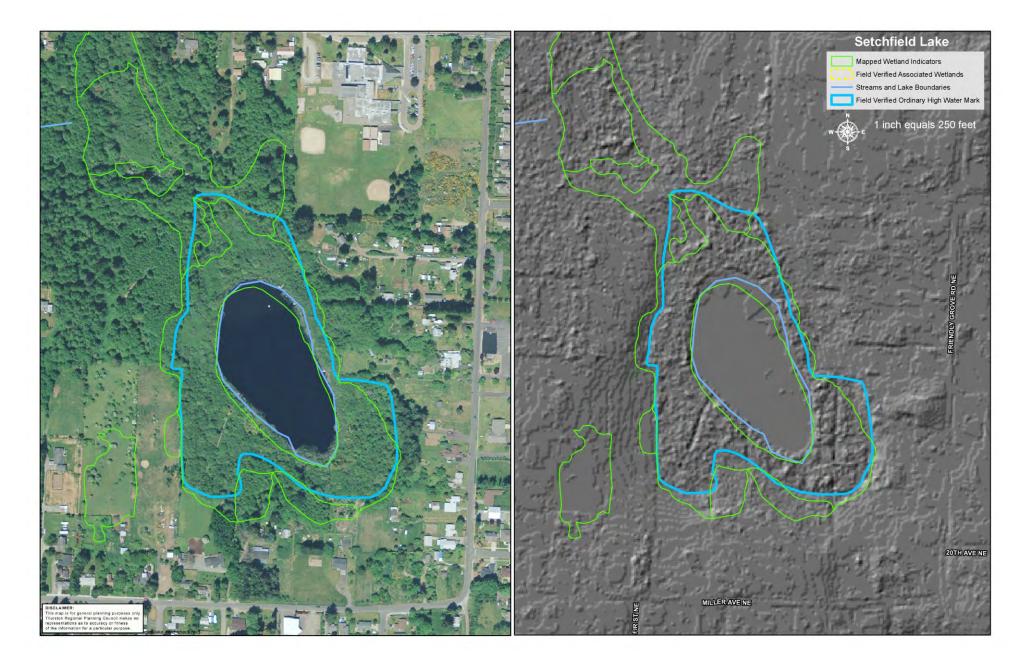
SHORELINE MASTER PROGRAM













City of Lacey Shoreline Master Program September 2011



### THURSTON REGIONAL PLANNING COUNCIL

Steve Friddle

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2404 B HERITAGE COURT SW OLYMPIA, WASHINGTON 98502-6031

#### November 18, 1992

Members:

City of Lacey City of Olympia City of Tenino City of Tumwater City of Yelm Town of Buccoda Town of Rainier Thurston County Intercity Transit Port of Olympia **Griffin School District** North Thurston School District **Olympia School District** Turnwater School District The Evergreen State College State Capitol Committee

> Harold Robertson, AICP Executive Director

> > (206) 786-5480 FAX 754-4413

Tom Youell 110 - 110th Avenue NE, Suite 445 Bellevue, WA 98004

Dear Tom:

In September City and County staff met with you and your representatives to discuss wetlands and shorelands issues that affected your property. We decided to pursue additional meetings between staff and the Department of Ecology (DOE) to try to resolve outstanding questions. Those meetings were held and the results are summarized for you below.

#### SHORELANDS MEETING

Participants:

Harold Robertson, TRPC Linda Donaldson, TRPC Tom Mark, DOE Roger Giebelhaus, TRPC

The topic was whether or not the eastern and northwestern wetlands on your property were actually part of Grass Lake itself or associated wetlands. City staff had surveyed a number of road and culvert elevations and culvert invert elevations<sup>1</sup> that were related to the wetlands on your property (see attached map). These data were presented to Tom Mark. The data suggested that the double culvert under the sewer easement in Grass Lake Park was the highest elevation point in the surveyed system. They also suggested that the eastern wetland drained to the south but that the northwestern wetland lobe was within the lake's ordinary high water mark. Furthermore, the culverts

<sup>1</sup> The elevation of the bottom of the culvert.

Tom Youell Shorelands and Wetlands Meetings Page 2

under Mud Bay Road and the sewer easement road had been cleaned out which would affect water flows in the area. Tom reviewed this information with other DOE staff and responded with the attached letter.

#### WETLANDS BUFFER MEETING

Participants:

Linda Donaldson, TRPC Dave Hanna, Olympia Terry Meyer, Olympia Paula Ehlers, TRPC Doreen Milward, Owens, Day Matt Mathes, RCA Andy McMillan, DOE Peggy Clifford, DOE

Doreen Milward, Owens, Davies, Mackie

Discussion revolved around whether there were other techniques or mechanisms that could be used to protect wetlands other than a 200 foot buffer as required by the Olympia Critical Areas Ordinance. DOE staff pointed out that there was no additional flexibility available for the required wetlands buffers outside of those provided in the ordinance. No additional techniques were known to them at this time. The ordinance conditionally allows up to a 25% reduction in buffer width. DOE suggested the following information would be needed to determine if the buffer size could be reduced:

Confirm the wetlands boundaries;

- Characterize and map the plant communities within 200 feet of the wetland boundaries; and
- Determine the wildlife use of the wetland areas.

These points are detailed in the attached letter from Andy McMillan.

We have since had additional discussions with DOE managers and staff regarding our desire to further explore whether there is a technically sound basis for allowing more flexibility based on performance criteria. DOE agreed to join us in working with you on a "prototype" project along those lines. We will share that further information with you at our Monday meeting.

Sincerely,

Linda M. Donaldson Associate Planner

A4-28

Tom Youell Shorelands and Wetlands Meetings Page 3

#### 49:Ib

cc:

Attachments:

Letter:

Map:

Letter:

October 20, 1992, From Thomas Mark to Linda Donaldson regarding shorelands jurisdiction October 1, 1992, From Andy McMillan to Linda Donaldson regarding wetlands buffers Elevations and Invert Elevations of Culverts

Harold Robertson Pete Swensson Matt Mathes Sandie Mackie Tom Mark Roger Giebelhaus

Dave Hanna Paula Ehlers Cindy Wilson Andy McMillan Peggy Clifford



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FLANINING COUNCIL

#### STATE OF WASHINGTON

#### DEPARTMENT OF ECOLOGY

Mail Stop PV-11 • Olympia, Washington 98504-8711 • (206) 459-6000

October 20, 1992

Ms. Linda Donaldson Thurston County Regional Planning 2000 Lakeridge Drive Southwest Olympia, WA 98502

Dear Ms. Donaldson:

Re: Youell Property on Grass Lake

Based on the new information you have provided concerning the location and elevations of culverts beneath Mud Bay Road and the utility service road that lies just north of the Youell property, we have concluded that as long as these culverts are operational, it is probable that the area labeled wetland area #1 in our letter of September 16 no longer falls within the ordinary high water mark of Grass Lake.

The primary basis for this conclusion is the difference in elevation between the two twelve-inch diameter culverts under the service road and the thirty-six inch diameter culvert beneath Mud Bay Road. The elevation of the service road culverts is higher than that of the one under Mud Bay Road. It is very likely that opening these culverts will lower the water level in area #1 to the point that it can no longer be considered contiguous with the rest of Grass Lake. The area remains an associated wetland of the lake even if it is no longer within the ordinary high water mark.

This conclusion is provisional. Opening the culverts has changed the conditions under which the Department's previous ordinary high water mark determinations were made. We will be gathering new information this winter to determine whether or not field conditions support our analysis. We will let you know when our staff plans to be on site and will provide you with the results of their observations.

If you have any questions, please call me at 459-6764.

Sinderle

Thomas Mark, A.I.C.P. Management Section Supervisor Shorelands and Coastal Zone Management Program

TM:JS:dh

cc: Mary Ann Swain

sel.

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OCT 7 1992

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

. LANNING COUNCIL

Mail Stop PV-11 • Olympia, Washington 98504-8711 • (206) 459-6000

October 1, 1992

Ms. Linda Donaldson Thurston Regional Planning 2404 B Heritage Court SW Olympia, WA 98502

Dear Ms. Donaldson:

I am writing as a follow-up to our meeting of September 24, 1992, regarding buffers around the Grass Lake wetlands. I appreciated the opportunity to provide assistance to the City of Olympia on this matter. In order for the City to make informed decisions on the appropriate buffer widths (i.e. buffer enhancement, reductions and buffer averaging) for the wetland areas on the Youell property, I believe several pieces of information are needed.

1) The wetland boundaries on the Youell property need to be confirmed. I recommend that the wetland boundary be flagged by a qualified wetland consultant, field verified by the Department of Ecology wetlands staff, and surveyed. It would be best to perform all three of these tasks as close together as possible to reduce the potential for flagging being removed.

2) The areas within 200 feet of the wetland edge should be characterized by plant communities and mapped. This should include information on dominant plant species and species densities.

3) The wildlife use of the wetland areas also needs to be determined. I recommend as a first step compiling existing information that has been previously prepared as part of the original Grass Lake Environmental Impact Statement or any other documentation on wildlife use of Grass Lake. The Department of Ecology wetlands staff will be glad to work with Department of Wildlife staff to review this information and make recommendations as to its adequacy and whether any further studies are needed.

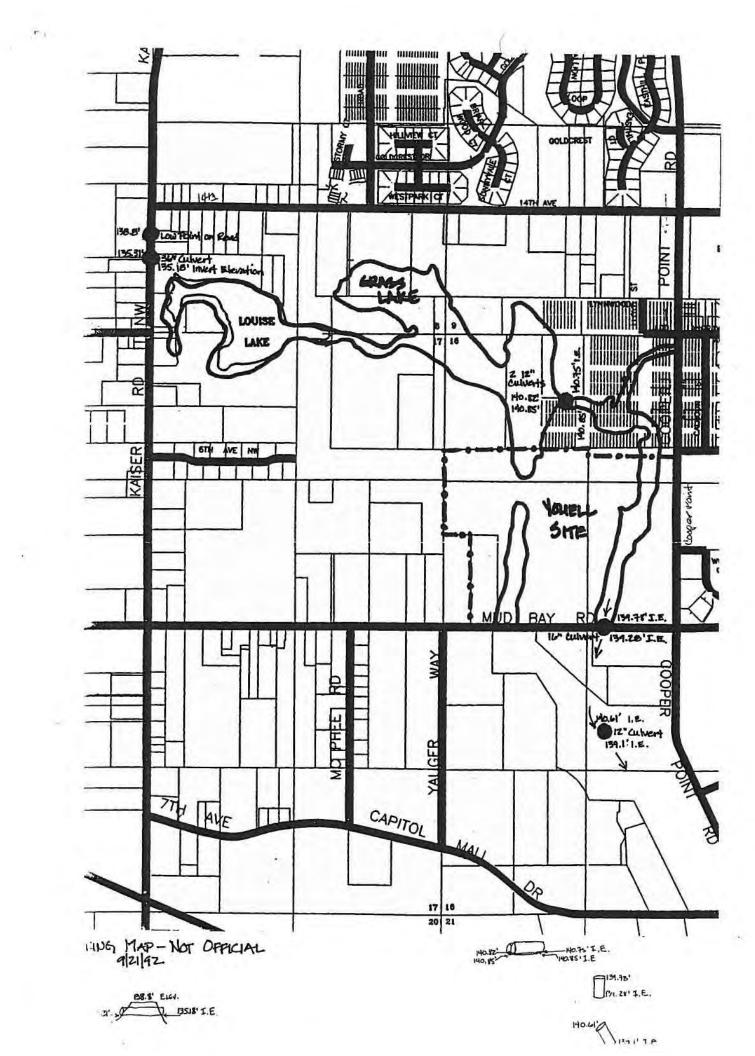
Once these steps have been completed we will be happy to work with city staff to revisit the issue of what constitutes adequate buffers on this site. If you have any questions or comments please call Bill Leonard at (206) 438-7161. Bill will be the lead contact on this project for the Department of Ecology.

Sincerely,

Andy McMillan Technical Unit Supervisor Wetlands Section Shorelands and Coastal Zone Management Program

AM:dg DG-L1-18

cc: Bill Leonard, Department of Ecology Matthew S. Mathes, Richard Carothers Associates



\*



#### STATE OF WASHINGTON

#### DEPARTMENT OF ECOLOGY

P.O. Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

March 19, 1997

Mr. Todd Stamm City of Olympia Community Planning and Development P.O. Box 1967 Olympia, WA 98507-1967

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MAR 2 4 1997 COMMUNITY PLANNING & DEVELOPMENT DEPT.

Dear Mr. Stamm:

This letter is a response to your request of the Department of Ecology (Ecology) to reevaluate a portion of Grass Lake as to its jurisdictional status under the state Shoreline Management Act (SMA). Specifically, you asked Ecology to review an SMA determination made in 1989 and 1992 regarding the ordinary high water mark (OHWM) of Grass Lake and its relation to that portion of the Lake which extends south to Mud Bay Road, along Cooper Point Road.

Ecology staff have made careful observations of Grass Lake regarding the OHWM since 1986. In 1989, Ecology determined that the Grass Lake system was greater than 20 acres and, therefore, a "shoreline of the state." In 1991, further field work was done specifically looking at the area in question. Based on the presence of standing water, changes in the vegetation community, and the mapped hydric soils, it was determined that this wetland area was within the OHWM of Grass Lake. Based on a review of these earlier determinations and an extensive analysis of existing conditions, it is my opinion also that this portion of Grass Lake still falls within its OHWM. The OHWM of Grass Lake extends to the south at least as far as Mud Bay Road.

The OHWM is defined in the SMA as:

"that mark that will be found by examining the bed and banks and ascertaining where <u>the presence and</u> action of waters are so <u>common and usual</u>, and so <u>long continued in all ordinary years</u>, as to mark upon the soil a character <u>distinct from that of the abutting upland</u>, in respect to <u>vegetation</u> 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..." (emphasis added)

I made numerous visits to the site from January through March, 1997 to evaluate the presence, extent, and depth of water. Several other people accompanied me on these visits including yourself; the applicant's representatives, Rich Medved and Andy Castelle; and several other Ecology staff, Kim Van Zwalenburg (Shorelands specialist), Andy McMillan (wetlands ecologist), Bill Leonard (wetlands ecologist), and Al Wald (hydrogeologist). In making this evaluation, I worked closely with Andy McMillan, Al Wald, Bill Leonard, and Mary Burg all of whom have extensive experience with this site.

We monitored the water level closely through the season using staff gauges located at Mud Bay Road and at the culverts under the sewer access road northwest of the site. Based on observations of water levels at the staff gauge at Mud Bay Road, the water depths ranged from a low of a little under two feet on January 14, 1997 to a high of slightly over three feet on January 19 and 21. From January 22 to March 11, the water level had fluctuated around two feet, nine inches. The water level in Grass Lake showed fluctuations as much as 6 inches (up and down) in 48 hours.



Todd Stamm March 19, 1997 Page 2

On every visit I made, there was continuous standing water extending throughout the site. These observations are consistent with those made by Mary Burg and Al Wald from 1986 to 1989 and by Bill Leonard in 1991. They are also similar to records kept by the City of Olympia (Andy Haub) from November, 1995 through March, 1996, also from the staff gauges. While it is true that 1997 has begun as a very wet year, my observations show that the present conditions at Grass Lake are the result of a long-term trend, which includes several drier than normal years since 1980, and not simply the effect of one or two wet seasons.

At the observed water levels (2.2 - 2.9 feet), the area of standing water closely coincided with the observed vegetation communities. In the areas of standing water, the vegetation consisted of an overstory of Oregon ash, willow sp., black cottonwood, and quaking aspen. The shrubs consisted of willow sp., Pacific ninebark, and Douglas spirea. I also noted slough sedge throughout the area; however, most herbaceous vegetation is not observable at the time of year we were out there. On the adjacent uplands, the vegetation is predominately a Douglas-fir/salal community. In many places around the perimeter of the site, the change in vegetation community type from wetland to upland was quite abrupt and, again, was generally associated with the presence or absence of standing water. This dramatic change from one mature vegetation community to another is an indication of the long-term influence of water, and would not be expected to occur without frequent and prolonged inundation.

The soils on the site are mapped as McKenna gravely silt loam, a hydric soil (SCS Soil Survey of Thurston County, Washington, 1990). Surrounding the site, the soils are mapped as Alderwood gravely sandy loam, a nonhydric soil. The soil survey indicates that there may be inclusions of Alderwood and other soils within the McKenna series. This seems consistent with the soil characteristics found on site (e.g., plot #5, Adolfson Delineation, September, 1996). Based on the prolonged period of inundation, these otherwise nonhydric inclusions would be considered hydric based on the Natural Resource Conservation Service (NRCS) criteria.

To summarize, the findings from my recent investigations are consistent with the previous work done on this site and throughout Grass Lake. The area in question falls within the Ordinary High Water Mark of Grass Lake. This determination does create some inconsistencies with the Adolfson delineation, specifically regarding the presence of a upland break in the wetland at the northern end of this site.

Please let me know if you have any questions about this determination or would like additional about this site (407-7260). I would also be willing to assist you in further evaluating the delineation or other site review work which may be necessary.

Sincerely

Perry J. Lund Wetlands/Shorelands Specialist Shorelands and Water Resources Program

PL:cl

cc: Rich Medved, CP Associates Kim Van Zwalenburg, Ecology Mitchell Johnson, Safeway Inc.

> Susan Rauts, P.W. Wally Trace, Video Update Pete Swensson, TRPC, adv. Phig

### **Annotated Bibliography**

Sources were cited in the best manner possible; not all information was available for every document. Many of the documents without URL links are hard copies that are located inhouse at Thurston Regional Planning Council. Any Department of Ecology documents without links can be accessed at their website, www.ecy.wa.gov. Many TRPC documents are available at our website, www.trpc.org.

#### Aaland, N. 1990. Shoreline Master Program for the Thurston Region. Thurston Regional Planning Council, Olympia, WA.

Current Shoreline Master Program for the cities of Lacey, Olympia, Tumwater and unincorporated with Thurston County.

### Aaland, N. 1987. Wetland and Stream Corridors – Phase II. Thurston Regional Planning Council, Olympia, WA.

Continuation of policy document regarding the adoption of stream and wetland regulations for the cities of Lacey, Olympia, Tumwater and unincorporated with Thurston County.Has been replaced by local critical area ordinances.

### Aaland, N. 1986. Wetland and Stream Corridors – Phase I. Thurston Regional Planning Council, Olympia, WA.

Policy document regarding the adoption of stream and wetland regulations for the cities of Lacey, Olympia, Tumwater and unincorporated with Thurston County. Evaluated stream and wetland mapping abilities.

#### Anchors Environmental, LLC. 2008. Final Deschutes River Watershed Recovery Plan: Effects of Watershed Habitat Conditions on Coho Salmon Production.

Model simulations of future Coho runs in the Deschutes River, based on various habitat recovery options.

#### Andrews, S. et al. 2003. Natural Hazards Mitigation Plan for the Thurston Region. Thurston Regional Planning Council for Thurston County Emergency Management Council. Olympia, WA.

Is the adopted Natural Hazard Mitigation Plan for fifteen local and state governmental entities. Includes the cities of Lacey, Olympia, Tumwater and unincorporated with Thurston County. Each entity provides a list of "Mitigation Initiatives" (recommendations) that they will seek to implement by *Hazard* (earthquake, flood, landslide, storm and multiple) and by *Category* (public information, plan coordination and implementation, data collection and mapping, development regulations, hazard preparedness, hazard damage reduction, and critical facilities replacement and retrofit).

#### Bahls, P., C. Kindberg, M. Wait & J. Glasgow. 2006. Error in State Shoreline Designation for Lakes of Washington. Northwest Watershed Institute and Washington Trout, Port Townsend, WA.

Documents possible errors associated with the delineation of ordinary high watermark (OHWM) for lakes under the State Shoreline Management Act.

Suggests ways of reducing errors to OHWM

The report recommends each jurisdiction review its lakes to update those waterbodies that qualify for Shoreline designation.

#### Benson, B., E. Gower, L. Cowan, G. Johnson & J. Lenzi. 1996. Thurston County Barrier Culvert Inventory. WA Department of Fish and Wildlife, Olympia, WA.

- Baseline inventory of publicly owned culverts within Thurston County.
- Provides an evaluation of probable fish passage and priority for those with the highest degree of blockage.
- The report by SPSSEG is now likely more comprehensive.

#### Brennen, J. & H. Culverwell. 2005. Marine Riparian: An Assessment of Riparian Functions in Marine Ecosystems. Washington Sea Grant Program, Seattle, WA.

- Assessment of values and the known riparian functions along Puget Sound.
- Referenced by the Olympia critical area ordinance update in 2006.

#### Bonneville Power Administration, Fort Lewis Military Reservation, Nisqually Indian Tribe, Bureau of Indian Affairs. 2004. Nisqually Transmission Line Relocation Project-Preliminary Environmental Assessment. Web URL: http://www.efw.bpa.gov/environmental\_services/Document\_Library/Nisqually/P EA1485web.pdf. Accessed online 9 January 2008.

• Lists species of concern (both state and federal) that are found in Thurston County.

#### Carrasasquero-Verde, J., T. Abbe, G. Ward, W. Trial Jr., S. Tonkin & D. McCormack. 2005. Marine Shoreline Sediment Survey and Assessment – Thurston County, Washington. Herrera Environmental Consultants, Inc. Seattle, WA.

- Baseline report along the Puget Sound shoreline of Thurston County, which includes the City of Olympia and Lacey marine shorelines.
- Marine bulkheads in Olympia were included into the county GIS data layer
- Filed reconnaissance of 36 pairs of armored and unarmored beach samples
- Contains maps which document forage fish habitat and utilization, the extent of shoreline armoring (as of 2003).
- Maps shoreline reaches as to those which need to be restored or preserved based upon forage fish habitat and geomorphic conditions.

#### Cascade Economics LLC; Northern Economics, Inc., and Spatial Informatics Group LLC. 2007. Deschutes Estuary Feasibility Study: Net Social and Economic Benefit Analysis. Washougal, WA.

- Part of the Deschutes Estuary Feasibility Study CLAMP Management Objective #2.
- Provided an evaluation of social and economic benefits for the estuary study.

- Utilized community values input from the WDFW (2006) Stakeholder Report.
- Describe benefits as qualitative change from the existing lake baseline.
- Applies to Capitol Lake and Budd Inlet.

# Castro, J.M. & P.L. Jackson. 2001. Bankfull discharge recurrence intervals and regional hydraulic geometry relationships: patterns in the Pacific Northwest, USA. *Journal of the American Water Resources Association*. 37(5): 1249-1262.

• Relates regional characteristics of Pacific Northwestern ecoregions to bankfull discharge events in streams.

Cederholm, C. J., D.H. Johnson, R.E. Bilby, L.G. Dominguez, A.M. Garrett, W.H. Graeber, E.L. Greda, M.D. Kunze, B.G. Marcot, J.F. Palmisano, R.W. Plotnikoff, W.G. Pearcy, C.A. Simenstad & P.C. Trotter. 2000. Pacific Salmon and Wildlife-Ecological Contexts, Relationships, and Implications for Management. WA Department of Fish and Wildlife, Olympia, WA.

- Baseline report on the ecological relationship of salmon to other species.
- Contains an annotated bibliography of these ecological relationships..
- Referenced by the Olympia critical area ordinance update (2004 & 2006).

#### City of Bellingham, WA. 2004. Inventory and Characterization Report for Shoreline Master Program Update.

• Like the new Jefferson County Shoreline Master Program (see ESA Adolfson, et al. 2007), the Inventory and Characterization Report for Bellingham's SMP update provides a useful format that could be adopted for use for Thurston County's SMP.

#### City of Olympia, WA. 2007. Chambers Basin Moratorium Evaluation Report. Web URL:

http://www.ci.olympia.wa.us/newsfaqs/newsletters\_and\_reports/chamberslake.ht m#Draft%20Chambers. Accessed online 9 January 2008.

- Study of development options for the Chambers Basin area.
- Includes recommendations for management.
- Gives a background of the area and land use, discusses challenges to development.

#### City of Olympia, WA. 2006. Percival Landing Concept Plan.

- Discusses proposed improvements and alterations to Percival Landing area.
- Includes plans for habitat enhancement and sustainable environmental design.

#### City of Olympia, WA. 2002. Low-Impact Development Strategy for Green Cove Basin: A Case Study in Regulatory Protection of Aquatic Habitat in Urbanizing Watersheds. Web URL:

http://www.psat.wa.gov/Programs/LID/Green\_Cove.pdf. Accessed online 9 January 2008. • Discusses low impact development plans for Green Cove Basin.

#### City of Olympia, WA. 2002. Olympia's Parks, Arts & Recreation Plan.

- Plan for management of Olympia's parks, arts and recreation facilities.
- Has some information about waterfront access in Olympia.

#### City of Olympia, WA. 1999. Olympia Woodland Trail Master Plan.

- Trail master plan
- Western terminus is in the south basin of Capitol Lake

#### City of Olympia, WA. 1997. Grass Lake Refuge Final Master Plan.

- Master plan for Grass Lake Refuge.
- Describes Grass Lake area, including hydrology, habitats, topography, etc.

### City of Olympia, WA, and Thurston County Public Works Departments. 1993.

Indian/Moxlie Creek Comprehensive Drainage Basin Plan. Web URL: http://www.co.thurston.wa.us/wwm/basin%20planning/Indian\_Moxlie/indian\_m oxlie basinplan.htm. Accessed online 16 January 2008.

#### City of Olympia, WA, Public Works Department, City of Tumwater, WA, Thurston County, WA. 1993. Percival Creek Comprehensive Drainage Basin Plan. Web URL:

http://www.co.thurston.wa.us/wwm/basin%20planning/Percival%20Creek/Percival\_Creek\_Plan.htm. Accessed online 16 January 2008.

# City of Tumwater, WA. 2007. Tumwater, Washington Park Recreation & Open Space Plan (Draft).

- Describes choices that are available for managing Tumwater's parks, recreation and open areas.
- Lists attributes of existing recreational facilities (including shoreline uses), contains aerial maps of parks, conservancies, water access, etc.

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http://www.ci.tumwater.wa.us/BLMD/BLMD%20Aquatic%20Veg%20Mgmt%20Plan. pdf. Accessed online 19 February 2008.

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- Baseline report on sediment supply for the Deschutes River.
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- The geography includes Tumwater its urban growth area.

- Coots, R. 2005. Investigation of Petroleum Products in Black Lake Sediment and Surface Water Adjacent to an Underground Storage Tank Site. Washington State Department of Ecology. Publication No. #05-03-030. Olympia, WA. Web URL: http://www.ecy.wa.gov/pubs/0503030.pdf. Accessed online 28 January 2008.
  - Investigation of whether petroleum pollution has reached Black Lake from an adjacent grocery store.
  - Results indicate that at this time, the pollution has not reached Black Lake.
  - PAHs detected, but have other sources (i.e. combustion).
- Craig, D & C. Wells. 1994. Impervious Surface Reduction Study Technical and Policy Analysis Final Report. City of Olympia Pubic Works Department, Olympia, WA.

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- State guidance for construction within or along riparian areas.
- Default standard for riparian areas in the City of Olympia critical area ordinance update 2006.
- Cramer, D.D. 1993. A River Runs Through It: An Analysis of Alternatives for Reducing Flooding and Erosion Hazards for the Cougar Mountain Camp Residential Community. Deschutes River Basin, Thurston County, WA.
- Davis, S., M. Turner & H. Saunders. 1993. Budd Inlet Deschutes River Watershed Characterization: Part I Watershed Characterization. Thurston County Environmental Health Department and Thurston Regional Planning Council. Olympia, WA.
  - Background data report a non-point pollution watershed action plan.
  - Describes watershed conditions within the Deschutes Watershed and Budd Inlet.
  - Includes water quality and land use description of these areas for the late 1980s and early 1990s.
  - Geography includes Thurston County and the cities of Lacey, Olympia, and Tumwater and their urban growth areas.

#### Drost, B.W., G.L. Turney, N.P. Dion, and M.A. Jones. 1998. Hydrology and quality of ground water in northern Thurston County, Washington. U.S. Geological Survey, in cooperation with Thurston County Health Department.

ENTRANCO. 2000. Capitol Lake Adaptive Management Plan – Phase One - Task 11 Sediment Management: Answers to Technical Questions. Bellevue, WA.

• Report to provide more detail on sediment than was provided by the CLAMP EIS.

- Provided pros and cons to a variety of dredging techniques, on-shore handling techniques, and disposal techniques.
- Provided a recommended protocol and a preliminary cost estimate per unit of volume.
- Applies only to Capitol Lake.

#### ENTRANCO. 1998. Draft Environmental Impact Statement - Capitol Lake Adaptive Management Plan. Bellevue, WA.

- Draft EIS of six scenarios for managing Capitol Lake.
- Included four lake alternatives, two estuary alternatives, and a no action alternative.
- Applies only to Capitol Lake.

#### ENTRANCO. 1997. Technical Memorandum – 1991 to 1996 Capitol Lake Survey – Sediment Volume Calculations. Bellevue, WA.

- Technical Memorandum to GA regarding the sediment assumption used in the CLAMP DEIS.
- Applies only to Capitol Lake.

#### ENTRANCO. 1996. Draft Environmental Impact Statement - Capitol Lake Restoration and Recreation Plan: Revised Maintenance Sediment Removal Plan. Bellevue, WA.

- Draft EIS for dredging the Middle Basin of Capitol Lake.
- No Final EIS was prepared.
- Applies only to Capitol Lake.

#### ESA Adolfson, et al. 2007. Final Shoreline Inventory and Characterization Report of the Jefferson County Shoreline Master Program Update Project. Web URL: http://www.co.jefferson.wa.us/commdevelopment/ShorelineInventory.htm#2005 \_Inventory\_Maps.

- Example of Shoreline Inventory and Characterization Report for Jefferson County
- Contains several useful sources and restoration examples that may apply to southern Puget Sound.

## Federal Emergency Management Agency. 1984. Flood Insurance Study – City of Tumwater, Washington - Thurston County. Washington, D.C.

Federal Emergency Management Agency. 1982a. Flood Insurance Study – City of Olympia, Washington - Thurston County. Washington, D.C.

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- Master plan for a fish hatchery at Pioneer Park in Tumwater
- Located along the Deschutes River

#### Garono, R., Thompson, E., Koehler, M. 2006. Deschutes River Estuary Restoration Study Biological Conditions Report. Earth Design Consultants, Inc. Corvallis, OR

- Part of the Deschutes Estuary Feasibility Study CLAMP Management Objective #2.
- Evaluated five estuaries within Southern Puget Sound to determine the range of reference values for Capitol Lake.
- Samples collected from 90 sites within the five reference estuaries.
- Principle Component Analysis found little correlation between sampling sites.
- Utilized the future lake basin bathymetry and salinity values suggested by George, et. al. (2006).
- Suggested what the future estuarine conditions would be like in Capitol Lake.
- Applies to Capitol Lake and Budd Inlet.

#### Garono, R., Thompson, E., Koehler, M. 2007. Addendum to the Deschutes River Estuary Restoration Study Biological Conditions Report. Earth Design Consultants, Inc. Corvallis, OR

- Part of the Deschutes Estuary Feasibility Study CLAMP Management Objective #2.
- Added analysis of reference estuary soil conditions.
- Additional data did not provide any better fit using Principle Component Analysis
- Applies to Capitol Lake and Budd Inlet.

#### Geoengineers, Inc. 2000. Report: Hydrogeologic Assessment: Proposed Smith Lake Village Residential Development, Thurston County, WA.

- Report discusses the impacts of the proposed Smith Lake Village Development.
- No substantial impacts to groundwater were found.
- Gives general site overview.

#### George, D., Gelfenbaum, G., Lesser, G., and Stevens, A. 2006. Deschutes Estuary Feasibility Study - Hydrodynamics and Sediment Transport Modeling. (Open File Report 2006-1318) U.S. Department of the Interior - U.S. Geological Survey. Menlo Park, CA.

- Part of the Deschutes Estuary Feasibility Study CLAMP Management Objective #2.
- Undertook detailed sediment modeling for the Capitol Lake basin.
- Evaluated four estuary scenarios for the basin using the calibrated model.
- Documented what changes has happened to the volume of water and its depth since the construction of the Capitol Lake dam.
- Provided a highly accurate bathymetry of lake and lower Budd Inlet for 2004.

- Provided estimated ranges of sediment mobilization over time and within the lake and in southern Budd Inlet.
- Applies to Capitol Lake and Budd Inlet.

#### Gilbert, H. & V. Tabbutt. 2000. Regional Benchmarks for Thurston County. Thurston Regional Planning Council. Olympia, WA.

#### Granger, T., T. Hruby, A. McMillan, D. Peters, J. Rubey, D. Sheldon, S. Stanley & E. Stockdale. 2005. Wetlands in Washington State – Volume 2: Guidance for Protecting and Managing Wetlands. WA Department of Ecology, Olympia, WA.

- Volume 2 or 2 of state guidance for wetland regulations for Western Washington
- Referenced and utilized by the cities of Lacey, Olympia, and Tumwater when their critical area ordinances were updated

#### Hamann, R. & J. Wade. 1990. Ordinary High Water Line Determination: Legal Issues; Section IV: Procedures for Establishing OHWL. *Florida Law Review*. 42(2): 389-397.

- Discusses various cases where OHWL has been disputed in Florida.
- Provides general guidelines on determining OHWL when litigation is likely.

#### Harrington, D. & J. Knovosky. 1999. Salmon Habitat Limiting Factors Final Report – Water Resource Inventory Area 13. Thurston Conservation District Lead Entity, Olympia, WA.

- Baseline assessment of those factors which would limit salmon habitat within the Deschutes Water Resource Inventory Area (WRIA) #13.
- The geography includes all the streams and lakes within the cities of Lacey, Olympia and Tumwater most of their urban growth area.
- Provides known characteristics of salmonid populations naturally occurring in WRIA 13.
- References section lists several key studies conducted on Shoreline waterbodies by various jurisdictions in Thurston County.

#### Hatch-Winnica, A. 2006. Water Resource Inventory Area 13 Freshwater and Nearshore Implementation Priorities – 2006 to 2009. Thurston Conservation District Lead Entity, Olympia, WA.

- Current three-year salmon recovery strategy for the Deschutes Water Resource Inventory Area (WRIA) #13.
- Contains a range of recovery strategies from culvert replacements to habitat protection though land purchases.
- Include priorities for marine and fresh water systems.
- The geography includes the cities of Lacey, Olympia and Tumwater most of their urban growth area.

#### Hatch-Winnica, A. 2005. Salmon Habitat Protection and Restoration Plan for Water Resource Area 13, Deschutes. Thurston Conservation District Lead Entity, Olympia, WA.

- Baseline summary of the Deschutes Water Resource Inventory Area (WRIA) #13 for salmon habitat.
- Includes data on those lakes, streams and marine shorelines which provide habitat for the various types of salmon.
- Relies on Harrington & Knovosky (1999) to describe the various limiting factors and suggests corrective measures.
- The geography includes the cities of Lacey, Olympia and Tumwater most of their urban growth area.

#### Hatton, Steve of Hatton Godat Pantier, Inc. 2003. Letter to Thurston County Roads and Transportation Department regarding Smith Lake Village Plat.

- Letter lists elevation of groundwater in the area of Smith Lake.
- Describes stormwater management for subdivision.

#### Herrera Environmental Consultants. 2000. Capitol Lake Adaptive Management Plan – Sediment Characterization Report. Seattle, WA.

#### Herrera Environmental Consultants. 2000. Capitol Lake Adaptive Management Plan – Sediment Sampling and Analysis Plan and Quality Assurance Plan. Seattle, WA.

- Reports to provide more detail on sediment quality than was provided by the CLAMP EIS.
- Evaluated two sediment cores taken at the Middle Basin sediment trap (just north of I-5 bridge).
- Found no sediment quality issues which would prohibit dredging at that location.
- Did not test for heavy metals or other exotic toxic or hazardous chemicals.
- Applies only to Capitol Lake.

# Hruby, T. 2004. Washington State Wetland Rating System for Western Washington – Revised. WA State Department of Ecology. Olympia, WA.

- The WDOE guidance for rating wetlands in Western Washington.
- Reference in the adoption of local critical area ordinances for the cities of Lacey, Olympia and Tumwater.

#### IES Associates. 1989. Wetland Delineation, Evaluation, and General Biological Overview: Cooper Point Grove. Olympia, WA.

## Isley, B. 1995. New Market Historic District Master Plan. Hewitt & Isley, Seattle, WA.

- Land Use Master Plan for the Tumwater Historic District (part of Capitol Lake).
- Provides policies for the redevelopment of the Old Brewhouse in Tumwater.

- James, C. 2007. Nisqually River Basin Fecal Coliform Bacteria and Dissolved Oxygen Total Maximum Daily Load: Water Quality Implementation Plan. Washington State Department of Ecology. Publication No. #07-10-016. Olympia, WA. Web URL: http://www.ecy.wa.gov/pubs/0710016.pdf. Accessed online 28 January 2008.
  - Water quality information for Nisqually Reach.
  - Gives information on plans to improve water quality.

#### Keany, J. and S. Rozenbaum. 1992. Thurston Regional Wetland and Stream Corridor Inventory – Final Report. Shapiro and Associates, Seattle, WA.

- Wetland mapping for 260 square miles of Northern Thurston County.
- Mapping delineated from a variety of best available sources, including 1992 color infrared aerial photography at the scale of 1" = 1,000' and 1" = 500' in the urban growth area.
- Included a limited amount of field reconnaissance at between 5 to 10 percent of the aerial coverage.
- GIS wetland data layer and section maps created by Thurston Regional Planning Council.
- The geography includes the cities of Lacey, Olympia and Tumwater all of their urban growth area.

#### Kettman, J. & S. Morrison. 1993. Inventory and Characterization of Shoreline Armoring: Thurston County, WA 1977-1993. Thurston Regional Planning Council, Olympia, WA.

- Baseline study regarding the location of shoreline armoring (e.g. bulkheading, rip rap, etc.) along the marine shoreline of Thurston County.
- Documented permits for armoring from 1984 to 1992.
- Field reconnaissance undertaken by the American Littoral Society.
- GIS data layer created by parcel of shoreline armoring conditions.
- Geography included Thurston County shoreline, not including Budd Inlet within the City of Olympia (that was inventoried by Carrasasquero-Verde et. al., 2005).

#### Kliem, J. 2006. Chinook & Bull Trout Recovery Approach for the South Puget Sound Nearshore. Draft Version II. Prepared by the South Puget Sound Salmon Recovery Group.

#### Kunze, L. 1994. Preliminary Classification of Native, Low Elevation, Freshwater Wetland Vegetation In Western Washington. Natural Heritage Program, WA Department of Natural Resources. Olympia, WA.

- Indicates those wetland of exceptional quality
- Those identified within the region included Gull Harbor on Budd Inlet.

#### Knutson, K.L. & V.L. Naef. 1997. Management Recommendations for Washington's Priority Habitats: Riparian. WA Department of Fish and Wildlife, Olympia, WA.

- Baseline report by WDFW regarding riparian habitats.
- Referenced by the cities of Lacey, Olympia, and Tumwater in their critical area ordinance updates

#### Lichvar, R.W., D.C. Finnegan, M.P. Ericsson & W. Ochs. 2006. Distribution of ordinary high water mark indicators and their reliability in identifying the limits of "waters of the United States" in arid Southwestern channels. Cold Regions Research and Engineering Laboratory.

• Discusses OHWM indicators in the Southwest, concluding that in "flashy" discharge areas, the varying discharge pattern causes random distribution of OHWM indicators.

#### Logan, R.L., T.J. Walsh, H.W. Schasse, and M. Polenz. 2003. Geologic Map of the Lacey 7.5-minute Quadrangle, Thurston County, Washington. Washington State Department of Natural Resources. Web URL: http://www.dnr.wa.gov/geology/pdf/ofr03-9.pdf. Accessed online 5 February 2008.

#### LOTT Alliance. 2007. State of the Utility Report. Web URL: http://www.lottonline.org/pdf/sur07.pdf. Accessed online 9 January 2008.

- Gives a list of efforts made to improve habitat and water quality in the area.
- Also provides an updated overview of LOTT operations.

#### LOTT Alliance. 2000. Budd Inlet Scientific Study: An Overview of Findings.

- Researchers found that additional winter discharge to Budd Inlet will not cause harm.
- LOTT discharges may have little impact on shellfish harvest.
- LOTT is a much smaller contributor of nutrient to Budd Inlet than Puget Sound or Deschutes River/Capitol Lake.

#### Lundgen, J. 2004. WRIA 13: Deschutes Watershed Salmon Passage Inventory. South Sound Salmon Enhancement Group, Olympia, WA.

- Update of the year WDFW culvert inventory within Water Resource Inventory Area (WRIA) #13 Deschutes.
- Also included culverts on private property and along the marine shoreline.
- Geography includes the cities of Lacey, Olympia, and Tumwater and their urban growth areas.

#### MAKERS & Mark, T., P. Skowlund, B. Wenger & N. Jewett. 1990. Shoreline Management Guidebook. MAKERS & WA Department of Ecology, Olympia, WA.

- Manashe, E. 1993. Vegetation Management: A Guide For Puget Sound Bluff Property Owners. WA Department of Ecology, Olympia, WA.
- May, C.W., E.B. Welch, R.R. Horner, J.R. Karr & B.W. Mar. 1997. Quality Indices For Urbanization Effects On Puget Sound Lowland Streams. Civil Engineering Department, University of Washington, Seattle, WA.

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- Delineation of erosion sites along the mainstem of the Deschutes River and Black Lake Drainage Ditch and Percival Creek
- Melvin, D.J. 2007. Washington State Department of Health-Office of Shellfish and Water Protection. Annual Growing Area Review of Eld Inlet. Web URL: http://www.doh.wa.gov/ehp/sf/Pubs/gareports/eld.pdf. Accessed online 9 January 2008.
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  - Shellfish water quality information for Nisqually Reach.
- Melvin, D.J. 2007. Washington State Department of Health-Office of Shellfish and Water Protection. Annual Growing Area Review of Totten Inlet. Web URL: http://www.doh.wa.gov/ehp/sf/Pubs/gareports/totten.pdf. Accessed online 9 January 2008.
  - Shellfish water quality information for Totten Inlet.

## Moffat & Nichol. 2007. Deschutes Estuary Feasibility Study – Engineering Design and Cost Estimates. Seattle, WA.

- Part of the Deschutes Estuary Feasibility Study CLAMP Management Objective #2.
- Provided a preliminary design of for three of the four estuary alternatives.
- Provided a cost estimate for three of the four estuary alternatives.
- Utilized the future lake basin bathymetry suggested by George, et. al. (2006).

- Suggested a pre-dredge mitigation approach to lessen stored sediment impacts to lower Budd Inlet.
- Applies to Capitol Lake and Budd Inlet.

#### Morrison, S. 2004. Wetland Mapping for the Thurston Region. Thurston Regional Planning Council, Olympia, WA. Web URL: http://www.trpc.org/programs/environment/water/thurston+county+wetlands+ mapping.htm.

- Description of the mapping wetlands within Thurston County from 1993 to 2002.
- Summarizes the sources and mapping techniques used to map 615 sq miles.
- Highlight problems and correction for false positives.
- Summarize changes in cost and resources over time.
- Geography includes the cities of Lacey, Olympia, and Tumwater and Thurston County.
- Mapping does not include long-term forestry areas and military reservations.

#### Morrison, S. 1993. Thurston Regional Wetland and Stream Corridor Inventory: Phase 2 Northern Thurston County. Thurston Regional Planning Council, Olympia, WA.

- Overview of wetland conditions found in Northern Thurston County.
- Summarizes the mapping protocol used in Keany and Rozenbaum (1992).
- Include GIS wetland section maps for 260 square miles.
- The geography includes the cities of Lacey, Olympia and Tumwater all of their urban growth area.

#### Morrison, S. 1999. Thurston County Flood Hazard Management Plan. Thurston Regional Planning Council for Thurston County, Olympia, WA.

- Comprehensive Flood Hazard Management Plan for unincorporated Thurston County, and was adopted by WDOE.
- Summarizes the historical flood events and evaluated Thurston County land use policies and land use regulations regarding flooding.
- Summaries Thurston County's proposed Capitol Facilities Plan projects within designated floodplains.
- Summarizes the meander belt mapping done on the Deschutes River.
- Establish flood plan objectives
- Contains a list of recommendations for reducing flood hazards, which was integrated into Andrews, et al. 2003.

#### Morrison, S. 1991. Thurston Regional Wetland Pilot Project. Thurston Regional Planning Council. Olympia, WA.

• Conceptual design and a small scale test of mapping wetlands using color infrared aerial photography.

- Test geography of 21 square miles in three strips, each in part of Lacey, Olympia and Tumwater.
- Established the wetland mapping protocol that was late used to map wetlands in Thurston County (Keany & Rozenbaum 1992).

#### Morrison, S & T. Julius. 2001. Tracking Development on Streams and Wetlands. Thurston Regional Planning Council for Thurston County. Olympia, WA.

- Performance evaluation of 100 constructed development project on streams and wetlands.
- Utilized a series of "Benchmarks" to evaluate land use policy, critical area ordinance permit review, and field verification of required buffers or mitigation measures.
- Report was utilized during the critical areas ordinance update for the cities of Lacey, Olympia, and Tumwater.
- Coverage includes the cities of Lacey, Olympia, and Tumwater and Thurston County.

#### Morrison, S. 1999. Capitol Lake Adaptive Management Plan: 1999 – 2001. Thurston Regional Planning Council for WA Department of General Administration. Olympia, WA.

- Interim management plan for Capitol Lake.
- Recommended for adoption by the Capitol Lake Adaptive Management Plan (CLAMP) Steering Committee.
- The CLAMP Steering Committee represents the State Departments of General Administration, Ecology, Fish and Wildlife, and Natural Resources, Squaxin Island Tribe, Cities of Olympia and Tumwater, Thurston County and the Port of Olympia.
- The geography includes the cities of Olympia and Tumwater.

#### Morrison, S. 1986. Shoreline Master Program for the Thurston Region. Thurston Regional Planning Council. Olympia, WA.

Previous Shoreline Master Program for the cities of Lacey, Olympia, Tumwater and unincorporated with Thurston County.

Undated by Aaland, 1990 and subsequent special management area plans.

#### Morrison, S. 1985. Percival Creek Corridor Plan – Vol. 1: Canyon and Middle Reaches. Thurston Regional Planning Council. Olympia, WA.

- Special Management Area Plan adopted as an amendment to the *Shoreline Master Program for the Thurston Region* (Morrison, 1986).
- Includes complementary local land use regulations beyond SMA jurisdiction.
- Geography covers Percival Creek in the City of Olympia and Tumwater.

#### Morrison, S. 1986. Percival Creek Corridor Plan – Vol. 2: Upper Reach. Thurston Regional Planning Council. Olympia, WA.

• Special Management Area Plan adopted as an amendment to the *Shoreline Master Program for the Thurston Region* (Morrison, 1986).

- Documentation provided for including the Black Lake Drainage Ditch as shoreline jurisdiction.
- Associated wetland along the Black Lake Drainage Ditch mapped based upon (then available) wetland science.
- Includes complementary local land use regulations beyond SMA jurisdiction.
- Geography covers Percival Creek and the Black Lake Drainage Ditch in Olympia, Tumwater and Thurston County.

#### Morrison, S. 1995. Budd Inlet – Deschutes River Watershed Action Plan. Thurston Regional Planning Council. Olympia, WA.

- Non-point pollution watershed action plan for the Deschutes Watershed and Budd Inlet.
- Contains a series of action recommendations to reduce non-point pollution within the watershed and inlet.
- Geography includes Thurston County and the cities of Lacey, Olympia, and Tumwater and their urban growth areas.

#### Morrison, S. 1996. Thurston County Water Resource Profile. Thurston Regional Planning Council. Olympia, WA.

- Background report on all types of water resources reports within Thurston County.
- Summary of water related reports by river watershed.
- Provides a methodology for rating water quality in fresh and salt water systems.
- Water quality map of Thurston County utilized all available data within the preceding five years.

#### Newton, J.A., S.L. Albertson, K. Van Voorhis, C. Maloy & E. Siegel. 2002. Washington State Marine Water Quality, 1998 through 2000. Washington State Department of Ecology. Publication #02-03-056. Olympia, WA. Web URL: www.ecy.wa.gov/biblio/0703033.html. Accessed online 7 January 2008.

• Contains water quality information for Budd Inlet for the years 1998-2000.

#### Northwest Aquatic Eco-systems. 2007. Barnes Lake Floating Plant Control 2007 Year End Report. Web URL: http://www.ci.tumwater.wa.us/BLMD/Barnes%20LMD%20Year%20End%20R eport%202007-Final.pdf. Accessed online 19 February 2008.

#### O'Neal, R.A., et al. 1975. Shoreline Inventory for Thurston County. Thurston Regional Planning Council. Olympia, WA.

- Original shoreline inventory for all of the Thurston Region.
- Includes description of existing conditions (assumed date 1974-75).
- Shoreline conditions mapped on large scale (1"= 2,000') USGS quad maps.
- Provided the basis for adopting the original *Shoreline Master Program for the Thurston Region* (O'Neal, 1976).

#### O'Neal, R.A., et al. 1976. Shoreline Master Program for the Thurston Region. Thurston Regional Planning Council. Olympia, WA.

- Original Shoreline Master Program for the Thurston Region.
- Geography the cities of Lacey, Olympia, and Tumwater and Thurston County.

#### Philip Williams & Associates, Ltd. 2007. Deschutes Estuary Feasibility Study – Independent Technical Review. San Francisco, CA.

• Part of the Deschutes Estuary Feasibility Study – CLAMP Management Objective #2.

#### Puget Sound Action Team. Web URL: http://www.psat.wa.gov/Publications/ Pub\_Master.htm. Accessed online 19 December 2007.

• Contains reports on Puget Sound topics, including fish/shellfish, shorelines, and pollution.

#### Puget Sound Action Team. 2007. 2007 Puget Sound Update: Ninth Report of the Puget Sound Assessment and Monitoring Program. Puget Sound Action Team. Olympia, WA. 260 pp. Web URL: http://www.psat.wa.gov/Publications/update\_07/2007\_PS\_Update.pdf. Accessed online 7 January 2008.

- Provides water quality information for Budd Inlet and Nisqually Reach.
- Discusses species of concern and nuisance species, including aquatic vegetation.
- General information about the Puget Sound environment.

#### Puget Sound Action Team, Office of the Washington State Governor & Thurston Regional Planning Council. 2006. South Puget Sound Forum—Indicators Report. Web URL:

http://www.trpc.org/resources/southpugetsoundindicatorsreport\_july06.pdf. Accessed online 9 January 2008.

- Discusses environmental indicators and what they are communicating about the current status and recent trends of South Puget Sound.
- Includes information about population, land cover, shoreline armoring, shellfish water quality, freshwater quality and marine water quality.
- Provides future projections for some of these indicators.
- Has some land use and water quality information about Percival and Woodland Creeks.

#### Raines, M. 2007. Deschutes River Mainstem Bank Erosion: 1991 to 2003. Squaxin Island Tribe and Washington State Department of Ecology. Shelton, WA.

- Update of previous work by Collins, 1995 and McNicholas, 1984.
- Used 2002 LiDAR to remap erosion sites along the river.
- Provides an estimate of sedimentation along the Deschutes River
- Cover the timeframe of 1991 to 2003

#### Rapp, C. F. & T.B. Abbe. 2003. A Framework for Delineating Channel Migration Zones. Washington State Department of Ecology and Transportation. Publication #03-06-027. Olympia, WA.

- The WDOE guidance for delineating channel migration zones (CMZs).
- CMZ normally associated with large river systems.

Revised Code of Washington 90.58. 1971. Shoreline Management Act of 1971.

#### Richter, J.E. 1995. East Bay Habitat Enhancement Plan. Water Resources Program, Olympia Public works Department. Olympia, WA.

- Shoreline habitat plan proposed for the east Bay of Budd Inlet.
- Recommendation included habitat enhancements.
- Located within the City of Olympia.

#### Roberts, M. & G. Pelletier. 2007. Interim Results from the Budd Inlet, Capitol Lake, and Deschutes River Dissolved Oxygen and Nutrient Study. Washington State Department of Ecology. Web URL: http://www.ecy.wa.gov/programs/wq/tmdl/ deschutes/technical\_reports/budddeschutes\_nutrstudy2007.pdf. Accessed online 21 December 2007.

- Contains water quality information for the Deschutes River, Capitol Lake and Budd Inlet.
- Reference section lists other water quality studies of the South Puget Sound region.
- Roberts, M., B. Zalewsky, T. Swanson, L. Sullivan, K. Sinclair, and M. LeMoine.
  2004. Quality Assurance Project Plan—Deschutes River, Capitol Lake, and
  Budd Inlet Temperature, Fecal Coliform Bacteria, Dissolved Oxygen, pH, and
  Fine Sediment Total Maximum Daily Load Study. Washington State
  Department of Ecology. Publication #04-03-103. Olympia, WA. Web URL:
  http://www.ecy.wa.gov/biblio/0403103.html. Accessed online 21 December 2007.
  - Describes the technical study that will evaluate pollutants in these impaired waterbodies.
  - Gives overall description of region, including land use, geology, development, etc.
  - Gives some information about watershed processes and anthropogenic influences on waterbodies.
  - Lists point sources of pollution in the Thurston region.

#### Sargeant, D., B. Carey, M. Roberts, and S. Brock. 2006. Henderson Inlet Watershed Fecal Coliform Bacteria, Dissolved Oxygen, pH, and Temperature Total Maximum Daily Load Study. Washington State Department of Ecology. Publication #06-03-012. Olympia, WA. Web URL: http://www.ecy.wa.gov/pubs/0603012.pdf. Accessed online 21 December 2007.

- Contains water quality information on Woodland Creek and Henderson Inlet, also general information about these water bodies.
- Contains geologic and hydrogeologic surveys of the area, Resources section lists other studies that contain similar information.

Sargeant, D., M. Roberts, and B. Carey. 2005. Nisqually River Basin Fecal Coliform and Dissolved Oxygen Total Maximum Daily Load Study. Washington State Department of Ecology. Publication #05-03-002. Olympia, WA. Web URL:

http://www.ecy.wa.gov/pubs/0503002.pdf. Accessed online 21 December 2007.

• Contains general and water quality information for the Nisqually Reach.

#### Schilperoort, D. & S. Morrison. 2002. Capitol Lake Adaptive Management Plan – A Vision for the Next Ten Years: 2003-2013. Thurston Regional Planning Council & WA Department of General Administration. Olympia, WA.

- Current management plan for Capitol Lake.
- Recommended for adoption by the Capitol Lake Adaptive Management Plan (CLAMP) Steering Committee.
- The CLAMP Steering Committee represents the State Departments of General Administration, Ecology, Fish and Wildlife, and Natural Resources, Squaxin Island Tribe, Cities of Olympia and Tumwater, Thurston County and the Port of Olympia.
- Contains 14 management objectives and suggested actions for each over the next ten years.
- Adopted by the State Capitol Committee as a part of the Washington State Capitol Campus.
- The geography includes the cities of Olympia and Tumwater.

#### Science Applications International Corporation. 2007 Sediment Characterization Study Budd Inlet, WA. Washington State Department of Ecology, Olympia, WA.

- Study of dioxins and furan in lower Budd Inlet and Capitol Lake
- Included analysis of sediment cores and biologic indicators

#### Shreffler, D.K., R.M. Thom & K.B. MacDonald. 1994. Shoreline Armoring Effects on Biological Resources and Coastal Ecology in Puget Sound.

# Sheldon, D., T. Hruby, P. Johnson, K. Harper, A. McMillian, T. Granger, S. Stanley & E. Stockdale. 2005. Final Freshwater Wetlands in Washington State – Volume 1: A Synthesis of Science. WA Department of Ecology. Olympia, WA.

- Volume 1 or 2 of state guidance for wetland regulations for Western Washington.
- Summarized the known values and functions of wetland systems.
- Referenced and utilized by the cities of Lacey, Olympia, and Tumwater when their critical area ordinances were updated

- Shipman, H. 2001. Coastal Landsliding on Puget Sound: A review of landslides occurring between 1996 and 1999, Publication #01-06-019, Shorelands and Environmental Assistance Program, Washington Department of Ecology, Olympia. Web URL: http://www.ecy.wa.gov/pubs/0106019.pdf. Accessed online 7 January 2008.
  - Provides information about geologic hazards and historic landslide along Puget Sound

Shoreline Management Act of 1971. 1971. Revised Code of Washington 90.58.

- Shoreline Management Act—Streams and Rivers Constituting Shorelines of the State. Washington Administrative Code 173-18. Web URL: http://apps.leg.wa.gov/WAC/default.aspx?cite=173-18.
- Shoreline Management Act—Lakes Constituting Shorelines of the State. Washington Administrative Code 173-20. Web URL: http://apps.leg.wa.gov/WAC/default.aspx?cite=173-20.
- Simenstad, C. A., K. L. Fresh, and E. O. Salo. 1982. The role of Puget Sound and Washington coastal estuaries in the life history of Pacific salmon: An unappreciated function. Pp. 343-364 in V. S. Kennedy (ed.) Estuarine Comparisons. Academic Press, New York. 709 pp.
- Sinclair, K. & D. Bilhimer. 2007. Assessment of Surface Water/Groundwater Interactions and Associated Nutrient Fluxes in the Deschutes River and Percival Creek Watersheds, Thurston County. Washington State Department of Ecology. Publication #07-03-002. Olympia, WA. Web URL: http://www.ecy.wa.gov/pubs/0703002.pdf. Accessed online 21 December 2007.
  - Describes hydrogeologic study undertaken on Percival Creek and the Deschutes River watersheds.
  - Document crafted to support a TMDL evaluation of these watersheds.
  - Contains water quality information, Reference section includes other studies and information about the region, including geologic history.

#### South Puget Sound Salmon Recovery Group. 2006. Chinook and Bull Trout Recovery Approach for South Puget Sound Nearshore. Squaxin Island Tribe, Shelton, WA.

- Current strategy for recovering Chinook salmon and Bull Trout in southern Puget Sound.
- Plan focuses on the Nisqually River freshwater system and the marine shorelines in southern Puget Sound.
- Contains a list and maps of shoreline stressors and habitat values by marine shoreline segments.

- Provides recommendations for restoration or preservation actions for marine shorelines based upon salmon usage and identified stressors.
- The geography includes the marine shorelines for Olympia, Lacey and Thurston County.
- Referenced by the Olympia critical area ordinance update (2006) and the adoption of "Important Riparian Areas" tied to the report recommendations.

#### South Puget Sound's Best Places for Bird Watching. Web URL: http://blackhillsaudubon.com/bestplaces/index.html. Accessed online March 2008.

- Provides a map of bird watching areas in Thurston County.
- Describes what species are found at each site and lists access points.

#### Spence, B.C., G.A. Lomnicky, R.M. Hughes & R.P. Novitzki. 1996. An Ecosystem Approach to Salmonid Conservation. ManTech Environmental Research Services Corporation.

- Baseline report on the salmon habitat, needs and conservation.
- Referenced by the Olympia critical area ordinance update (2006).

#### SSOE, Inc. 1998. Rite Aid Store No. 5278, Cooper Point & Mud Bay, Olympia, Washington; Preliminary Storm Drainage Report.

- Discusses flooding and erosion control for development project at Cooper Point Road and Harrison Blvd.
- Includes results from simulated flooding events in Appendix B.
- Appended materials give extensive background information on the wetlands adjacent to Grass Lake.
- Conclusions state that Cooper Point Village project should not impact wetlands.

#### Stamm, T. 1992. Deschutes River Special Area Management Plan for the Tumwater Valley. Thurston Regional Planning Council for the City of Tumwater, Olympia, WA.

- Special Management Area Plan adopted as an amendment to the *Shoreline Master Program for the Thurston Region* (Aaland, 1990).
- Covers the Deschutes River floodplain in the City of Tumwater.

### Stanley, S., J. Brown, and S. Grigsby. 2005. Protecting Aquatic Ecosystems: A Guide for Puget Sound Planners to Understand Watershed Processes. Washington State Department of Ecology. Publication #05-06-027. Olympia, WA. Web URL: http://www.ecy.wa.gov/biblio/0506027.html. Accessed online 21 December 2007.

• Provides information on how to better protect aquatic ecosystems by including information about watershed processes in resource management plans and regulatory actions.

- Can help identify areas appropriate for restoration and protection as part of the restoration plan element, and to develop site-level restoration and protection plans.
- Provides detailed information on the following watershed processes: water, sediment, phosphorus and toxins, nitrogen, pathogens, large woody debris.
- Bibliography provides many sources that deal with aquatic and marine habitat restoration.

#### Susskind, M. 1996. A Spatial and Temporal Analysis of Seawall Installation: Thurston County, Washington. Masters Thesis for Western Washington University, Bellingham, WA.

- Analysis of various cultural and shoreline factors which may be effecting the construction of pattern of bulkheads in southern Puget Sound.
- Area of analysis included the Nisqually Reach within unincorporated Thurston County.

# Swan Resource Co. 1998. Wetland Report for the Smith Lake Property: Thurston County, WA.

• Provides wetland delineation for Smith Lake. Discusses various features of the wetland.

# Tabbutt, V. 2001. Land Cover Mapping of Thurston County – Methodology and<br/>Applications. Thurston Regional Planning Council, Olympia, WA.

- Tabbutt, V. 2003. The Relationship of Land Cover to Total and Effective Impervious Area. Web URL: http://www.trpc.org/resources/relationshiplandcovertotalimpreviousarea.pdf
- Tabbutt, V. 2007. Memo. Completion of the Future Impervious Model Update. WebURL: http://www.trpc.org/resources/memojan2007.pdf

#### Talasaea Consultants, LLC. 2003. Detailed Conceptual Wetland Buffer Enhancement Plan: Smith Lake Village, Thurston County, WA.

- Reevaluates and confirms delineation of the Smith Lake wetland system discussed by Swan Resource Co. in 1998.
- Discusses impacts of proposed housing development, Smith Lake Village. Also lays out mitigation plans.

#### Thurston Conservation District. 2004. Salmon Habitat Protection and Restoration Plan for Water Resources Inventory Area 13, Deschutes. Web URL: http://www.rco.wa.gov/documents/srfb/Lead\_Entities/Thurston/Strategy.pdf.

- Has general information about several Shoreline-designated waterbodies.
- Gives behavioral profile and other statistics of locally occurring salmonid species.

#### Thurston Conservation District. 2000. Identification of Salmon Habitat Refugia for

#### **Protection in WRIA 13.**

#### Thurston Conservation District. 2000. Private Land Culverts in WRIA 13.

#### Thurston County. WRIA 13 Watershed Assessment. Web URL: http://www.co.thurston.wa.us/wwm/basin%20planning/wria%2013/wria%2013\_ home.htm. Accessed online 9 January 2008.

- Many data sets end at 2000 or 2001.
- Lists plans for and studies of WRIA 13, including those dealing with stormwater, wastewater and other water quality issues.
- Lists available water resources data.
- Documents which agencies have data for WRIA 13 waterbodies.
- Discusses land cover across WRIA 13, by basin and in principal streams; also gives future projections.
- Discusses basin characteristics, gives flow data.

#### Thurston County, WA and the City of Olympia, WA. 1998. Green Cove Creek Comprehensive Drainage Basin Plan. Web URL: http://www.co.thurston.wa.us/wwm/basin%20planning/Green%20Cove%20Cre ek/green\_cove.htm. Accessed online 16 January 2008.

#### Thurston County Department of Water and Waste Management. 2004. 2003 Aquatic Plant Survey of Selected Lakes in Thurston County. Web URL: http://www.co.thurston.wa.us/wwm/Lakes/General%20Lake/Aquatic%20Plant %20Survey/Final%20TC%20Survey%202003.pdf. Accessed online 9 January 2008.

- Lists non-native plants found in various lakes in Thurston County, including several Shoreline-designated waterbodies.
- Gives general information about waterbodies and their shorelines.

#### Thurston County Department of Water and Waste Management. 2004. Salmon Creek Comprehensive Drainage Basin Plan. Phase II: Alternatives, Analysis and Recommendations.

#### Thurston County Department of Water and Waste Management. Thurston County Streamflow and Temperature Monitoring Data. Web URL: http://www.co. thurston.wa.us/monitoring/index.htm.

• Site contains flow and temperature data for Black Lake Ditch, Percival Creek, Upper Deschutes River and Woodland Creek.

#### Thurston County Department of Water and Waste Management, Storm and Surface Water Program. 1995. Chambers/Ward/Hewitt Comprehensive Drainage Basin Plan. Web URL:

http://www.co.thurston.wa.us/wwm/basin%20planning/Chambers\_Ward\_Hewitt t/Chambers\_Ward\_Hewitt.htm. Accessed online 16 January 2008.

Thurston County Department of Water and Waste Management, Storm and Surface Water Program. 1995. Woodland and Woodard Creek Comprehensive Drainage Basin Plan. Web URL: http://www.co.thurston.wa.us/wwm/basin%20planning/Chambers\_Ward\_Hewit t/Chambers Ward Hewitt.htm. Accessed online 16 January 2008.

- Thurston County Department of Water and Waste Management, Storm and Surface Water Program. 1994. McAllister/Eaton Creek Comprehensive Drainage Basin Plan.
- Thurston County Health Department. 1992. Northern Thurston County Ground Water Management Plan.

Thurston County Public Health and Social Services Department, Environmental Health Division and Thurston County Water and Waste Management Department. 2006. Thurston County Water Resources Monitoring Report— 2003-2004 Water Year, 2004-2005 Water Year. Web URL: http://www.co.thurston.wa.us/health/ehrp/pdf/AR03-05.pdf. Accessed online 21 December 2007.

- Contains water quality data, continuous stream flow records, lake level data, and precipitation records for 2003-2004 and 2004-2005 water years.
- Also contains general information about several water bodies in WRIA 13, including land use, topography, shorelines, etc.

Thurston County Public Health and Social Services Department. Recreational swimming beaches data for Thurston County. Web URL: http://www.co.thurston.wa.us/health/ehadm/swimming/swimming\_index.html#b eaches. Accessed online 06 February 2008.

Thurston County Water and Waste Management Department, Storm and Surface Water Program. 1996. Thurston County Water Resources Profile—1985-1995. Prepared by Thurston County Advance Planning and Historic Preservation. (Hard Copy)

- Contains historic water quality information about WRIA 13.
- Provides general descriptions of the Thurston region, including climate, physiography, surface and ground waters.

### Thurston Regional Planning Council. 2007. The Profile—25<sup>th</sup> Edition.

- Contains general information about Thurston County.
- Provides public access data for various water resources in the major jurisdictions of Thurston County.

#### Thurston Regional Planning Council. 2007. Thurston Regional Trails Plan.

### Thurston Regional Planning Council. 2002. Final Report of the West Bay Habitat Assessment. Conducted by the R.W. Morse Company. Web URL: http://www.trpc.org/resources/westbayhabitatassess061502.pdf. Accessed online 7 January 2008.

- Describes the habits of waterfowl in the West Bay area of Budd Inlet before and during the construction of the Fourth Avenue Bridge.
- Also lists species found in the area during the time of study.

### Thurston Regional Planning Council. 1999. Final Environmental Impact Statement – Capitol Lake Adaptive Management Plan. Olympia WA.

- Final EIS of six scenarios for managing Capitol Lake.
- Includes public an agency comments on the DEIS.
- Applies only to Capitol Lake.

### Thurston Regional Planning Council. 1991. Shoreline Public Access Inventory.

### Tumwater Planning and Facilities Department. Deschutes River Riparian Habitat Plan. Tumwater, WA. 1993.

- A riparian planting plan adopted as a part of *Deschutes River Special Area Management Plan for the Tumwater Valley* (Stamm, 1992).
- Adopted as an amendment to the *Shoreline Master Program for the Thurston Region* (Aaland, 1990).

### United States Department of Agriculture. 1990. Soil Survey of Thurston County, Washington. USDA Soil Conservation Service in cooperation with Washington State Department of Natural Resources and Washington State University, Agriculture Research Center.

- Describes in detail the soil types found in Thurston County.
- Soil types are superimposed on aerial photographs, allowing for analyses of which soil type(s) are associated with a given water body, property, city block, etc.
- Also describes vegetation found throughout the county, and shows its distribution.

### United States Fish & Wildlife Service. YEAR? USFWS Threatened and Endangered Species System. Web URL: http://ecos.fws.gov/tess\_public/StateListing.do?status=listed&state=WA. Accessed online 19 December 2007.

• Lists federally recognized threatened and endangered species that are found in Washington State.

### University of Washington. Key to the Fishes of Puget Sound. Web URL: http://artedi.fish.washington.edu/FishKey/. Accessed online March 2008.

• Lists the 71 families of fishes that have been recorded in Puget Sound.

### URS & Dewberry. 2003. Capitol Lake Floodplain Analysis. Federal Emergency Management Agency – Region X, Bothell, WA.

- Analysis of the risk of flooding for Capitol Lake, WA.
- Resulted in a new Federal Emergency Management Agency (FEMA) one hundred year floodplain elevation for the lake.
- Integrated into the CLAMP 10 Year Plan (Skilperoort and Morrison, 2002)
- The geography includes the cities of Olympia and Tumwater.
- Walsh, T.J., and R.L. Logan. 2005. Geologic Map of the East Olympia 7.5-minute Quadrangle, Thurston County, Washington. Washington State Department of Natural Resources. Web URL: http://www.dnr.wa.gov/geology/pdf/gm56.pdf. Accessed online 5 February 2008.

Walsh, T.J., R.L. Logan, H.W. Schasse, and M. Polenz. 2003. Geologic Map of the Tumwater 7.5-minute Quadrangle, Thurston County, Washington. Washington State Department of Natural Resources. Web URL: http://www.dnr.wa.gov/geology/pdf/ofr03-25.pdf. Accessed online 5 February 2008.

### Walton, J. 1993. Olympia Urban Waterfront Plan. Thurston Regional Planning Council for the City of Olympia, Olympia, WA.

- Special Management Area Plan adopted as an amendment to the Thurston Regional Shoreline Master Program Aaland (1990).
- Title is somewhat misleading, and only applies to the over-the-water portion of the City of Olympia marine shoreline.
- Plan recommends preparation of a "Comprehensive Habitat Plan for Budd Inlet". This should be prepared by a habitat task force.
- Plan recommends the creation of a Habitat Advisory Committee to review habitat and mitigation and enhancement plans.

### Washington Lakes. 2007. Featured Lake Index. Web URL: http://www.washingtonlakes.com/FeaturedLakes.aspx. Accessed online 11 February 2008.

- Describes fish found in select Thurston County lakes.
- Lists public access points.
- Includes photos and schematic drawings of each featured water body.

### Washington Sea Grant Program. 2005. Marine Riparian Areas: These Important Nearshore Environments Offer a Wealth of Functions and Benefits. Washington Sea Grant Program. Seattle, WA.

- Summary flyer of the known values and functions of marine riparian areas along Puget Sound.
- Referenced by the Olympia critical area ordinance update in 2006.

Washington State Department of Ecology. 2008. Surface Water Quality Standards page. Web URL: http://www.ecy.wa.gov/programs/wq/swqs/index.html. Accessed online February 2008.

• Gives a general overview of Washington's surface water quality standards, including a link to the WACs.

Washington State Department of Ecology. ISIS Report for Thurston County. Provided by Jean Rakestraw & Carol Dorn February 2008.

- Washington State Department of Ecology. 2008. Leaking Underground Storage Tanks List for Thurston County. Integrated Site Information System (Web Reporting). Web URL: https://fortress.wa.gov/ecy/tcpwebreporting/reports.aspx. Accessed online 4 March 2008.
- Washington State Department of Ecology. 2008. Confirmed and Suspected Contaminated Sites. Integrated Site Information System (Web Reporting). Web URL: https://fortress.wa.gov/ecy/tcpwebreporting/reports.aspx. Accessed online 4 March 2008.

Washington State Department of Ecology. 2007. Determining an Ordinary High Water Mark on Shorelines of the State. PowerPoint Presentation 16-17 May 2007.

- Describes how to locate OHWMs in the field, in various marine and freshwater environments.
- Also reviews office methods.
- Includes guide to riparian plants in western Washington.

Washington State Department of Ecology. 2005a. 2004 Integrated Water Quality Assessment—2004 Water Quality Listings by Category. Web URL: http://www.ecy.wa.gov/programs/wq/303d/2002/2004\_documents/2004\_wq\_asses sment\_cats.html. Accessed online 19 December 2007.

• Lists impaired waterbodies by category, including parameters and media.

### Washington State Department of Ecology. 2005b. 2004 Integrated Water Quality Assessment—2004 Contaminated Sediment Listings by Category. Web URL: http://www.ecy.wa.gov/programs/wq/303d/2002/2004\_documents/seds\_listingscat.html. Accessed online 19 December 2007.

• Lists impaired sediments by category, including parameters.

### Washington State Department of Ecology. 1980. Coastal Zone Atlas of Washington; Volume 8, Thurston County.

- Baseline conditions of the Thurston County marine shoreline printed in a large, color map folio.
- Contains a variety of data collected from the late 1970s including: geology, fisheries habitat, shoreline armoring, land use, and shellfish aquaculture use.

Washington State Department of Fish and Wildlife. 2007. Fishing in Washington— Sport Fishing Rules. 2007/2008 pamphlet edition. Web URL: http://wdfw.wa.gov/fish/regs/2007/2007sportregs.pdf. Accessed online February 2008.

• Provides sport fishing regulations for Washington State for fish and shellfish, effective from 5/1/2007-4/30/2008.

### Washington State Department of Fish and Wildlife. 2006. Deschutes Estuary Feasibility Study: Net Benefit Analysis – Stakeholder Involvement. Olympia, WA.

- Part of the Deschutes Estuary Feasibility Study CLAMP Management Objective #2.
- Summarized the community values about the Capitol Lake basin.
- Applies to Capitol Lake and Budd Inlet.

# Washington State Department of Fish and Wildlife. 2006. Geographic Information System Digital Data Documentation.

- Describes digital fish, wildlife and habitat data available from WDFW.
- General background information on data compilation methods, organization, structure, details on using digital data.

### Washington State Department of Fish and Wildlife. 1997. Salmonid Screening, Habitat Enhancement and Restoration Division-Lands and Restoration Services Program. Web URL: http://wdfw.wa.gov/hab/tapps/reports/1997sshear.pdf. Accessed online 8 January 2008.

• Provides limited information on fish barriers in Thurston County.

### Washington State Department of Health—Office of Shellfish and Water Protection. 2007a. 2006 Annual Inventory of Commercial and Recreational Shellfish Areas in Washington State. Web URL: http://www.doh.wa.gov/ehp/sf/Pubs/annualinventory.pdf. Accessed online 9 January 2008.

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  - Wetland mapping of approximately 100 square miles within the Deschutes River watershed.
  - Delineates the data sources, protocol, and results of the project.
  - Included a limited amount of field reconnaissance.
  - GIS wetland data layer and section maps created by Thurston Regional Planning Council.
  - The geography included unincorporated Thurston County.
- Zalewsky, B. 2002. Quality Assurance Project Plan: Woodland Creek Temperature TMDL. Washington State Department of Ecology. Publication No. #02-03-077. Olympia, WA. Web URL: http://www.ecy.wa.gov/pubs/0203077.pdf. Accessed online 28 January 2008.
  - Discusses sources of thermal pollution in Woodland Creek

City of Lacey Shoreline Master Program September 2011

# CITY OF LACEY SHORELINE MASTER PROGRAM



# DRAFT HULANNYE INPACTS ANALYSIS June 2010

### Photo on front: Flooding of 32nd Avenue in unincorporated Thurston County, in Lacey's UGA.

The flooding in this picture was caused by a failure of a culvert under 32nd Avenue to handle the volume of water from the head waters of eagle Creek during a severe storm event. The cumulative impacts of urbanization upland of 32nd Avenue has created this problem by creating impervious surfaces covering area that historically served as storage during storm events (typically low grade wetland areas). The flooding is not only a concern for functioning of road infrastructure, as the road closure sign demonstrates, but also for less obvious environmental impacts. Eagle Creek is a tributary to Woodland Creek (that supports salmon) and uncontrolled runoff will carry pollutants and sediment that can have serious impacts to salmon rearing stream beds.

Photograph taken by Doug Christenson, a Water Resources Engineer for the City of Lacey.

### LACEY CITY COUNCIL

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> Steve Morrison, Senior Planner and Project Manager Veena Tabbutt, Senior Planner Andrew Deffobis, Assistant Planner Sarah Morley, Administrative Assistant Toni Tringolo, Office Specialist II

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Photographs taken by David R. Burns, AICP, Principal Planner, unless noted otherwise.

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# I. Introduction

# A. Background

This report is the final proposed cumulative impacts analysis for the City of Lacey and its urban growth area (UGA). The report has been created as part of the Shoreline Master Program for the City and added to the Lacey Master Program as Appendix 5.

Local master programs are required to evaluate and consider cumulative impacts of reasonably foreseeable future development on shoreline ecological functions. While some impacts are immediate and can be directly addressed through avoidance and mitigation, other impacts are cumulative in nature. Individually, the action may not result in a significant impact, but the composite of many similar actions over time may lead to a significant cumulative impact to the ecosystem. Examples of this may be shoreline bulkheads or docks.

Under the SMP Guidelines, the evaluation of cumulative impacts should consider (WAC 173-26-186(8)(d)):

- Current circumstances affecting the shorelines and relevant natural processes
- Reasonably foreseeable future development and use of the shoreline
- Beneficial effects of any established regulatory programs under other local, state, and federal laws

A cumulative impacts analysis is required to assess the effects of actions allowed under the proposed policies and regulations. The guidelines state that: *"To comply with the general obligation to assure no net loss of shoreline ecological function, the process of developing the policies and regulations of a shoreline master program requires assessment of how proposed policies and regulations cause and avoid such cumulative impacts."* 

# B. Timeline

A timeline for the complete Shoreline Master Program update (a multi-year program) is below:

Phase	Update Schedule	Timeline
1	<ul><li>A. Determine what shorelines are regulated under the act</li><li>B. Conduct an inventory of all existing and available data for shorelines</li><li>C. Public Open Houses</li></ul>	<b>Timeline</b> Winter 2008. Accomplished under Regional contract with DOE
2	A. Analyze and characterize shoreline conditions	Spring 2008. Accomplished under Regional contract with DOE
3	<ul><li>A. Categorize each shoreline segment into a designation such as urban, suburban, or rural. Each will have a different set of rules.</li><li>B. Develop draft rules and policies</li><li>C. Public meetings</li></ul>	Fall 2008 Winter-Spring 2009. Draft accomplished under Regional contract with DOE
4	<ul><li>A. Analyze the cumulative impacts of expected shoreline development or redevelopment</li><li>B. Develop a restoration (and preservation) plan, including public access</li></ul>	Winter-Spring 2009. Accomplished under Regional contract with DOE and refined by Lacey early 2010
5	<ul><li>A. Public hearings</li><li>B. Planning Commission recommendations</li><li>C. City Council approval</li><li>D. State approval</li></ul>	In process. Expected completion date is July 2010

TABLE 1:	TIMELINE FOR THE SHORELINE MASTER PROGRAM UPDATE FOR THE CITY OF LACEY
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### C. Methods and Sources of Information

This cumulative impacts analysis is built upon the assessment of current circumstances affecting the shorelines and relevant natural processes as identified in the Shoreline Inventory and Analysis (Phase 1).

In Lacey, the assessment of reasonably foreseeable future development and use of the shoreline can be described as a comprehensive process involving both a focus on micro (site or project specific type issues) as well as macro or bigger picture concerns. Micro focus issues include things such as impacts from a typical development project and details of how the mechanics would work with administration of permits and customer service at the counter. Basically, where the rubber meets the road and where you have to figure out how your strategies for environmental protection, restoration, etc. will actually work on the ground.

Macro (bigger picture) considerations will involve concepts that are harder to define and predict, but are nevertheless important because they will have an impact on the context the community will find itself in at some future point. These considerations include such things as expected community demographics, market conditions, and the expected likely development scenarios and land use expectations and the requirements of GMA.

The process for development of this plan and its results is summarized in the following bulleted discussion points:

- This review necessarily requires a project level analysis, not only of known projects but a consideration of "typical" site specific projects and impacts that have historically occurred and could be expected to occur given market conditions, demographics and different regulatory scenarios under GMA. It includes consideration of real projects listed in Lacey's Capital Facilities Plan and plans and projects that could occur.
- After Regional Planning's original development of the first cumulative impacts draft, this analysis was coordinated by Lacey staff as a regular part of agenda discussions during the Planning Commission's update of the SMP.
- Major conclusions of the cumulative impacts assessment and strategy to deal with the issues it presents were largely identified, developed and refined through extensive discussion and examination of issues, problems, solutions and expectations during the nine months the Planning Commission spent on the SMP update effort.
- Planning Commission agendas included participation and the specialized knowledge base and values brought to the table by state resource agencies, interested citizens, land owners and members of the development community.
- As a result of this project level review, specific projects with known impact and situations considered "typical" and "most likely to occur" based upon historical application and counter experience were emphasized and given priority for development of protection and restoration strategies.
- To craft strategies for protection and restoration of shoreline resources, staff and the Planning Commission discussed identified issues and ideas with resource agencies and utilized material provided by resource agencies. This discussion and analysis

resulted in development of goals, policies and standards for sections of the SMP dealing with the respective topic areas.

- This effort took place in the context of the bigger picture the Planning Commission and staff are always required to work within: considering a big picture assessment of past development activity and trends, expectations for the City's future and the overall vision for the Lacey community that gets articulated in the Comprehensive Land Use Plan and its many specialized elements.
- The SMP update and consideration of expected outcomes (cumulative impacts) is folded within this scope of work as the specialized element that requires the protection, wise management and utilization of Lacey's shoreline resources to meet the needs of state law as well as its local citizens. All of this is part of the visioning process that will guide the City as it develops and evolves under GMA.
- As part of the bigger picture assessment and cumulative impacts, consideration is given to environmental legislation Lacey currently has on the books to implement GMA concepts and requirements as well as new policies and standards for regulating shoreline development.
- To assess likely long term impacts to shoreline resources, this level of analysis necessarily includes the beneficial results from implementation of new strategies identified at the project level considering the emphasis and expectation of no net loss of function and value.
- Beneficial effects of any established regulatory programs under other local, state, and federal laws is also derived from an evaluation of the proposed regulations and policies to ensure *no net loss of ecological function*.

# D. Regulatory Framework

As discussed above considering the context of the "bigger picture," the Shoreline Master Program is one element under the City's GMA Comprehensive Land Use Plan. Development activity in Lacey and the unincorporated urban growth area in Thurston County is regulated under a joint Comprehensive Land Use Plan and Zoning Code and separate critical area regulations. The SMP is the element that regulates activity within shorelines jurisdiction.

There are other state and federal regulations that also may apply to shoreline development activities.

# E. Shorelines

Table 2 lists the shorelines identified in the Shoreline Inventory for Lacey and its Urban Growth Area (UGA), classified into functional systems.

**TABLE 2:** SMA Shorelines and Functional Systems for Lacey, Olympia, Tumwater and UGAs.

Туре	Area	System			
Marine Waters					
Nisqually Reach	Lacey & UGA	Nearshore/Marine			
Rivers/Streams	Rivers/Streams				
Woodland Creek	Lacey & UGA	Woodland Creek System			
Lakes					
Chambers Lake	Lacey & Olympia	Freshwater Lake			
Hicks Lake	Lacey	Woodland Creek System			
Long Lake	Lacey & UGA	Woodland Creek System			
Pattison Lake	Lacey & UGA	Woodland Creek System			
Southwick Lake	Lacey & UGA	Freshwater Lake			

# II. Current Circumstances and Ecological Functions

Current shoreline circumstances and relevant natural processes were documented in Phase 1 of the Shoreline Master Program update in the Shoreline Inventory for the Cities of Lacey, Olympia, and Tumwater and their Urban Growth Areas and the Lacey, Olympia, and Tumwater Shoreline Analysis and Characterization Report.

These evaluations led to the development of draft Shoreline Environment Designations (SEDs) for each shoreline reach. This evaluation was continued as part of Lacey's review during the Planning Commission's consideration of specific projects and specific sites considered priority for environmental protection. At this point, reach conditions, restoration issues and potential opportunities associated with various scenarios were discussed to determine the best strategies and techniques for protection and achieving the objective of no net loss.

For Lacey, ecological functions expected to be at risk from increased urbanization were initially evaluated by consultants during the analysis and characterization phase and later by the Lacey staff and Planning Commission during Lacey's SMP update process. The Planning Commission's involvement focused on development activity expected under the City's Comprehensive Land Use Plan and expectations of the Growth Management Act (GMA) and the best land use strategies to achieve no net loss of the functions and values of Lacey's shoreline resources. Scenarios, land use strategies and likely outcomes were considered and discussed and specific land use goals, policies and standards were developed for the SMP dealing with the following shoreline systems:

- Nearshore/Marine Environment Nisqually Reach
- Woodland Creek System Woodland Creek, Long Lake, Pattison Lake, and Hicks Lake
- Other Freshwater Lakes Southwick and Chambers Lake

Lacey's shorelines and their current level of alteration are summarized in Tables 3-5 below. These tables also include discussions of the potential for risk to ecological function from foreseeable future development and an assessment of ability of the policies and regulations in this SMP to offset or mitigate for impacts from such development. This assessment covers shorelines both within the City and shorelines in the urban growth area (UGA) in unincorporated Thurston County. Discussion of areas in the County is considered important, particularly where designations and anticipated development could impact areas within Lacey. However, it should be noted that area within Lacey's UGA, in unincorporated Thurston County, is not under the regulatory purview of this SMP. Discussion of restoration activity, and to assess how the City's SMP would achieve no net loss if these areas were annexed and regulated under the City's SMP.

**TABLE 3:** PROCESSES, FUNCTIONS, AND LEVEL OF ALTERATION FOR THE NEARSHORE/MARINE ENVIRONMENT.

Process: Function	Level of Existing Alteration	Potential Future Impacts and Potential Risk	Proposed Restoration/Protection Measures; Draft SMP Policies/Regulations and other Environmental Codes	Non-Regulatory Measures
Habitat: Pocket estuarine habitat; subtidal and intertidal provide transition habitat between fresh and salt water environments.	Nisqually 1 – Extremely Low The Butterball Cove area and the marine shoreline within Lacey to the east of Butterball Cove are substantially unaltered. The only alteration is a historical pier (Atlas Powder Wharf) that exists east of Butterball Cove. The pier was associated with DuPont dynamite operations in the 1940s. However, it is nonfunctional today. An existing access to this area is provided by the Hawks Prairie Planned Community. It includes an outlook overlooking the beach and a pedestrian beach access trail. The access has had little impact to the overall shoreline structure or processes.	Nisqually 1 – Extremely Low The majority of this area is currently designated as open space in the Hawks Prairie Planned Community. No impacts are predicted. The existing access to the beach is at the site of the historical pier. Thought has been given to opportunity for public access and use of the pier for fishing or other recreation opportunities. Establishing this type of public use would be expected to have the potential for impact. However, the pier would require significant repair or replacement for safety. If modification ever were proposed, mitigation and no net loss standards would be applied to any such project. It is also noted that access is owned by the HPPC HOA and while access is not restricted to HOA members it is not formally open to the general public. As such, any project for access and use of the pier is speculative and not planned at this time.	<ul> <li>Nisqually 1 – the following provisions are applicable:</li> <li>1. Designation as Natural: The proposed SMA designation of Natural and its associated restrictions on the types of use and development is expected to preserve functions within this reach; shoreline map designation and Tables 3, 4 and 5.</li> <li>2. Marine Riparian Habitat Requirements: Criteria for development are designed to protect the Natural designation; SMP Sections 17.35.030-17.35.036. Any repair of the existing pier or new modifications would be subject to no net loss standards and criteria cited above.</li> <li>3. Master Plan and Plat Requirements: Designation of the area as open space in the Hawks Prairie Master Planned Community restricts use to activity appropriate to this reach; Master Plan Approval HPPC and subdivision requirements of LMC 15.</li> </ul>	Nisqually 1 Work with Hawks Prairie Planned Community HOAs to help maintain existing access and provide environmentally friendly improvements. Discuss potential Lacey ownership with HOA for maintenance issues.

Process: Function	Level of Existing Alteration	Potential Future Impacts and Potential Risk	Proposed Restoration/Protection Measures; Draft SMP Policies/Regulations and other Environmental Codes	Non-Regulatory Measures
	Nisqually 2A and 2B - Moderate The Beachcrest marina in reach 2A and access road in reach Nisqually 2B has had an impact. The shoreline is armored and the pocket estuary had already been altered by installation of a standpipe that eliminated tidal influence and restricted access by salmon.	Nisqually 2A and B – Low Shoreline modifications in this area are expected to persist over the long term to provide for established access and recreational use. Maintenance activities will continue and need to be properly designed. Opportunities may come available for restoration as maintenance takes place.	<ul> <li>Nisqually 2A and B – SMP policies and incentives focused on restoration are expected to incrementally move improvements in a positive direction to achieve restoration objectives Specific provisions that apply are as follows:</li> <li>Policies Section 17.49.010, policies 1 and 2.</li> <li>Standards Section 17.49.020, Beachcrest marina standard 2.</li> </ul>	Nisqually 2A and B Work with the Beachcrest HOA to craft incentives for restoration and improvements to vegetation management through education. The South Sound Salmon Enhancement Group (SSSEG) recently completed a salmon recovery project along this reach, which will improve habitat and reverse a trend existing for the proceeding 50+ year period.
<b>Hydrology:</b> Attenuation of wave energy.	Nisqually 1 – Extremely Low No modifications have been made to this area of shoreline under Lacey jurisdiction. See discussion above dealing with existing conditions.	Nisqually 1 – Extremely Low The proposed designation of Natural and restrictions on development are expected to protect this reach. New modifications would be subject to marine riparian habitat and no net loss provisions. There are no structures on this shoreline that would justify a modification. Improvement of the one historical modification (pier) would require City ownership and compliance with no net loss policy.	<ol> <li>Nisqually 1 – The following provisions are applicable:</li> <li>Designation as Natural: The proposed SMA designation of Natural and its associated restrictions on the types of use and development would not permit new modifications; shoreline map designation, Tables 3, 4 and 5.</li> <li>Marine Riparian Habitat Requirements: Associated criteria for development are designed to protect the Natural designation;</li> </ol>	Nisqually 1 Work with Hawks Prairie Planned Community HOAs to help maintain existing access and provide environmentally friendly improvements. Discuss potential Lacey ownership with HOA, for maintenance issues. Nisqually 2A and B Work with the Beachcrest HOA and County in joint planning to craft incentives for restoration.

Nearshore/Marine	Nearshore/Marine Environment –Nisqually Reach					
Process: Function	Level of Existing Alteration	Potential Future Impacts and Potential Risk	Proposed Restoration/Protection Measures; Draft SMP Policies/Regulations and other Environmental Codes	Non-Regulatory Measures		
	Nisqually 2A and B – Moderate to High Armoring of marina area and access road has changed tidal and wave energy dynamics in this area.	Nisqually 2A and B – Moderate to Low Maintenance activities associated with existing modifications will continue over the long term, however little new development is anticipated. Opportunity may exist for additional restoration as maintenance activities take place.	<ul> <li>Sections 17.35.030-17.35.036.</li> <li>3. Master Plan and Plat Requirements: Designation of the area as open space in the Hawks Prairie Master Planned Community restricts use to activity appropriate to this reach; Master Plan Approval HPPC and subdivision requirements of LMC 15.</li> <li>4. Armoring provisions in Section 17.45.000015 allow new hard shoreline stabilization structures only where necessary.</li> <li>Nisqually 2A and B Policy and incentives focused on restoration are expected to incrementally achieve restoration objectives. Policies applicable to maintenance of modifications are expected to achieve objectives over time; Section 17.49.020 relating to Beachcrest, standard 2.</li> </ul>			
Sediment Generation and Transport: Sediment delivery from coastal bluffs	Nisqually 1 – Extremely Low Natural processes have been maintained in this area. The current open space designation and plat limitation have	Nisqually 1 – Extremely Low No new activities in shorelines jurisdiction expected. New upland development is limited to areas outside critical area buffers and likely	<ul> <li>Nisqually 1 – The following provisions are applicable:</li> <li>1. Designation as Natural: The proposed SMA designation of Natural and its associated</li> </ul>			

Process: Function	Level of Existing Alteration	Potential Future Impacts and Potential Risk	Proposed Restoration/Protection Measures; Draft SMP Policies/Regulations and other Environmental Codes	Non-Regulatory Measures
and streams.	protected this area. The City's Critical Area Ordinances have protected the streams feeding pocket estuaries.	even outside shoreline jurisdiction, requires tree protection and must meet new drainage manual requirements.	<ul> <li>restrictions on the types of use and development would protect this area; shoreline map designation, Tables 3, 4 and 5.</li> <li>Marine Riparian Habitat Requirements: Associated criteria for development are designed to protect the Natural designation; Sections 17.35.030- 17.35.035.</li> <li>Master Plan and Plat Requirements: Designation of the area as open space in the Hawks Prairie Master Planned Community restricts use to activity appropriate to this reach. Upland development is restricted to areas outside critical area and buffers and outside area designated as open space in the planned community (which includes the bluff areas); Master Plan Approval HPPC and subdivision requirements of LMC 15.</li> <li>Armoring provisions in Section 17.45.000015 allow new hard shoreline stabilization structures</li> </ul>	

Nearshore/Marine	Nearshore/Marine Environment –Nisqually Reach						
Process: Function	Level of Existing Alteration	Potential Future Impacts and Potential Risk	Proposed Restoration/Protection Measures; Draft SMP Policies/Regulations and other Environmental Codes	Non-Regulatory Measures			
			Section 17.35.020, will continue to protect the sediment sources and delivery routes in these streams and bluffs.				
	Nisqually 2A and B – Moderate Armoring of shoreline for the marina and access road would be expected to have changed longshore drift dynamics. The standpipe may have affected sediment delivery to the drift cell.	Nisqually 2A and B – Low Maintenance of existing modifications will continue. New development is not anticipated. No net loss standards will be required for any maintenance and repair. Incentives will be offered to the HOA to further restoration objectives.	Nisqually 2A and B Policy and incentives focused on restoration are expected to incrementally move improvements in a positive direction to achieve restoration. Improvements will likely be incremental and will take time. See discussion above regarding references to SMP criteria and standards and other applicable environmental legislation.	<b>Nisqually 2A and B</b> See discussion of recent restoration above. In addition, work with the HOA will be ongoing.			
Water Quality: Wetland removal of pollutants through sedimentation and adsorption.	Nisqually 1 – Extremely Low Lacey's wetland protection regulations and tree protection regulations that predated GMA requirements have effectively preserved and protected associated upland wetlands and estuarine wetlands.	Nisqually 1 – Extremely Low Wetlands primarily associated with the marine shoreline have not experienced pressure for urbanization until recently. Upland property in the HPPC was "reserved" for future development in the early Master Planned Community and was never developed. After Lacey annexed the area and became responsible for regulation of development, wetland regulations have been applied in planning undeveloped portions of the	<b>Nisqually 1</b> The proposed designation of Natural and restrictions on upland development and preservation of wetland areas and buffers are expected to protect this function; see SMP sections cited above and requirements of LMC Chapter 14.28 Wetland Protection and 14.32 Tree Protection as incorporated into this SMP.				

Process: Function	Level of Existing Alteration	Potential Future Impacts and Potential Risk	Proposed Restoration/Protection Measures; Draft SMP Policies/Regulations and other Environmental Codes	Non-Regulatory Measures
	Nisqually 2A and B – Moderate Wetland areas would not have had protection when the majority of upland area development took place in this area and natural functions that existed are lost. Upland development dating back from the late 1940s throughout 1990s has had impact to this area. Streams running to pocket estuaries and Mallard Cove have likely resulted in nutrient loading from Beachcrest septic tank drainfield systems and residential activities and drainage. Estuarine wetlands may have been lost due to installation of the standpipe.	<ul> <li>Planned Community. Regulations essentially prohibit development in these critical areas.</li> <li>This situation will continue into the future resulting in protection of wetland functions.</li> <li>Nisqually 2A and B – Low Upland wetland restoration opportunities are not available. No improvement to water quality is expected from restoration of wetlands lost during original development.</li> <li>Use and maintenance of existing uses will continue to have an impact.</li> <li>However, new development, replacement and maintenance of septic systems will improve existing conditions considering nutrient load.</li> </ul>	Nisqually 2A and B Upland wetland restoration in this area is not available as an option. Uses contributing to the source of pollution are expected to continue over the long term. Major public investment would be needed to provide sewer services to this area. Major work would be required to mitigate drainage impacts from existing homes. While the situation is not expected to be allowed to get worse, restoration and mitigation for lost upland wetland and stream function is expected to be problematic.	Nisqually 2A and B Potential to work with HOAs to improve vegetation management through education and to reduce pollutant loads from non-septic sources. The SSSEG restoration project may help estuarine wetlands reestablish.

Nearshore/Marine Environment –Nisqually Reach					
Process: Function	Level of Existing Alteration	Potential Future Impacts and Potential Risk	Proposed Restoration/Protection Measures; Draft SMP Policies/Regulations and other Environmental Codes	Non-Regulatory Measures	
Water Quality: Delivery, movement, and loss or removal of nutrients, pathogens, and toxicants; storage of phosphorus and removal of nitrogen and toxins through sedimentation and adsorption.	Nisqually 1 – Extremely Low See description above under water quality. There are no sources, with the possible exception of treated pilings at the Atlas Powder Pier. Pathways for movement and removal have not been altered.	Nisqually 1 – Extremely Low See description above under water quality. No increase in sources or change to delivery/loss/movement processes is anticipated, because no development is anticipated.	Nisqually 1 See discussion above under water quality. Water quality standards in Section 17.70.000010 will also ensure introduction and movement of these types of toxins is minimized. Vegetation management standards in Section 17.41.015020 will protect existing vegetation in this reach and the water quality functions it provides in this context.		
	Nisqually 2A and B – Moderate Impacts from existing upland development have occurred; see discussion under water quality above.	Nisqually 2A and B – Moderate Impacts are expected to continue from existing upland development. No opportunity is expected for restoration of developed upland areas in terms of recovery of streams or upland wetlands. See discussion above. Maintenance and replacement of drainage facilities and septic systems may present opportunity for new mitigation in water quality. This would be expected to result in an incremental improvement in water quality over the long term.	Nisqually 2A and B New upland development is expected to be minimal; repair and improvement of existing septic systems should incrementally move this area is a positive direction for water quality. See discussion above and discussion and provisions in Section 17.70 (Water Quality) of the SMP. Vegetation management standards in Section 17.41.015020 will protect existing vegetation in this reach and the water quality functions it provides in this context.	Work with the HOA to reduce pollutant loads from non-septic sources.	

Process: Function	Level of Existing Alteration	Potential Future Impacts and Potential Risk	Proposed Restoration/Protection Measures; Draft SMP Policies/Regulations and other Environmental Codes	Non-Regulatory Measures
Habitat: Shoreline habitat for wildlife; vegetation provides structure for invertebrates, birds, amphibians, reptiles, and mammals.	Nisqually 1 – Extremely Low See descriptions of existing conditions above. Overall both the shoreline area and immediately adjacent upland area is substantially unaltered.	Nisqually 1 – Extremely Low See description of expectations above.	<ul> <li>Nisqually 1</li> <li>See descriptions of protection requirements and existing level of function above. The following sections are applicable: <ol> <li>Natural Designation: SMP map and criteria and standards of Sections 17.35.030-17.35.035.</li> <li>Planned Community Restrictions: Designation of open space and Master Planned Community conditions; LMC Chapter 15 (Plat requirements for open space).</li> <li>Wetland Protection: LMC Chapter 14.28 as incorporated into this SMP.</li> </ol> </li> <li>Tree Protection Regulations: LMC Chapter 14.32, as incorporated into this SMP.</li> <li>Vegetation management standards in Section 17.41.015020 will protect existing vegetation in this reach.</li> </ul>	
	<b>Nisqually 2A – Moderate</b> There has been some reduction in vegetation with development	Nisqually 2A – Low Existing levels of impacts from existing upland development are expected to continue. No new	Nisqually 2A Policy and incentives focused on restoration are expected to incrementally move improvements in a positive direction to achieve	

Process: Function	Level of Existing Alteration	Potential Future Impacts and Potential Risk	Proposed Restoration/Protection Measures; Draft SMP Policies/Regulations and other Environmental Codes	Non-Regulatory Measures
	of the marina and upland development to the southeast.	development or expansion of the marina facility is expected.	restoration objectives in that area subject to Lacey jurisdiction. Vegetative restoration is expected to occur under Section 17.49.010020 (boating facilities) with normal repair and maintenance at the marina. Vegetation will be protected under Section 17.41.015-020.	
	Nisqually 2B – High Shoreline habitat was modified by placement of the access road to the marina and a culvert system that restricted tidal exchange and salmon access to a pocket estuary. Upland tree removal for residential development.	Nisqually 2B – Low No new development is anticipated. Maintenance and repair of existing structures and modifications may occur.	Nisqually 2B Policy and incentives focused on restoration are expected to incrementally move improvements in a positive direction to achieve restoration objectives in that area subject to Lacey jurisdiction. Vegetation will be protected and maintained, and possibly obtained, under Section 17.41.015020.	Recently a salmon restoration project occurred at this site, which was supported and permitted by the Beachcrest HOA. The HOA has demonstrated a willingness to pursue restoration actions. Lacey is proposing incentives to encourage the continuation of this trend.
Habitat: Source and delivery of LWD.	Nisqually 1 – Extremely Low Lacey has had an Urban Forest Management Plan and tree protection regulations for over four decades that have controlled the cutting of trees and prohibited cutting within sensitive areas and their buffers. Regulations have been applied to the Planned Community which has	Nisqually 1 – Extremely Low No new impacts are expected.	Nisqually 1No change expected in Lacey.Regulations for the SMP Naturaldesignation, plat restrictions, wetlandprotection and tree protection willcontinue to protect ecological functionin this reach. This should continue tohave positive impacts on habitat andLWD delivery.The following provisions areapplicable:	

Process: Function	Level of Existing Alteration	Potential Future Impacts and Potential Risk	Proposed Restoration/Protection Measures; Draft SMP Policies/Regulations and other Environmental Codes	Non-Regulatory Measures
	preserved critical forested habitat. Nisqually 2A and B – Moderate Upland residential development in Beachcrest has impacted natural LWD processes (there are fewer sources).	Nisqually 2A and B – Low Upland development is established and this use is expected to continue over the long term. Continued removal of riparian trees associated with existing development makes restoration of LWD processes problematic.	<ol> <li>Natural Designation: SMP map and criteria and standards of Sections 17.35.030-17.35.036.</li> <li>Marine riparian habitat will be protected in Section 17.35.031- .032</li> <li>Vegetation management areas have been established in Section 17.41.020.</li> <li>Tree Protection:         <ul> <li>Goals and policies of Lacey Urban Forest Management Plan (Chapter 1, Section 2 of the Environmental Protection and Resource Conservation Plan).</li> <li>Tree protection requirements in LMC 14.32, as incorporated into this SMP.</li> </ul> </li> <li>Nisqually 2A and B The following provisions are applicable to areas in Lacey:         <ul> <li>Marine Riparian Habitat will be protected in Section 17.35.031- .032.</li> <li>Vegetation management areas have been established Section 17.41.020.</li> </ul> </li> </ol>	<b>Nisqually 2A and B</b> Work with the HOA on tree protection.

Process: Function	Level of Existing Alteration	Potential Future Impacts and Potential Risk	Proposed Restoration/Protection Measures; Draft SMP Policies/Regulations and other Environmental Codes	Non-Regulatory Measures
			<ul> <li>Tree Protection:</li> <li>Goals and policies of Lacey Urban Forest Management Plan (Chapter 1, Section 2 of the Environmental Protection and Resource Conservation Plan).</li> </ul>	
			• Tree protection requirements in LMC 14.32, as incorporated into this SMP.	

 Table 4: Processes, functions, and level of alteration for the Woodland Creek System.

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Process: Function	Level of Existing Alteration	Potential Future Impacts and Potential Risk	Proposed Restoration/Protection Measures; Draft SMP Policies/Regulations and other Environmental Codes	Non-Regulatory Measures
Hydrology: Channel and floodplain connection.	Moderate Infrastructure such as railroad crossings and roads over the last century has impacted the historical Woodland Creek channel. However, the channel is naturally well defined and there is no significant meandering or floodplain associated with this creek. Associated wetlands in this system for flood absorption have been well protected and preserved.	Very Low New roads, road extensions for connections or widening could have impacts if not properly planned and mitigated. However, transportation policies require consideration of ecological functions and mitigation of identified impacts. No development will be allowed in Woodland Creek's floodway and the creek has sensitive area buffers of 200 feet prohibiting development within protected areas. Wetland regulations and the Natural designation will prohibit development in the large wetland complex associated with this system and ensure these areas continue to be protected.	<ol> <li>The following provisions are applicable:</li> <li>SMP Transportation Section 17.68: Requires consideration of ecological function, mitigation sequencing, and design for least impact to shoreline resources.</li> <li>SMP Minimum Setbacks Section 17.24.015 Table 4: Requires minimum setbacks and location of infrastructure outside shoreline jurisdiction where feasible.</li> <li>Flood Hazard Ordinance LMC 14.34, as incorporated into this SMP : Prohibits development in a designated floodway.</li> <li>Woodland Creek Sensitive Area Buffers: 200 foot buffer requirement for all development LMC 14.33.117, as incorporated into this SMP.</li> <li>Wetland Ordinance LMC 14.28, as incorporated into this SMP:</li> <li>Wetland Ordinance LMC 14.28, as incorporated into this SMP.</li> <li>Wetland Ordinance LMC 14.28, as incorporated into this SMP: Prohibits development in wetlands.</li> <li>Armoring provisions in Section 17.45.000015 prohibit armoring unless these connections are maintained. In addition, hydrologic connections in these systems have been given a protective Natural designation.</li> </ol>	

Woodland Creek System - Woodland Creek, Long Lake, Pattison Lake, and Hicks Lake				
Process: Function	Level of Existing Alteration	Potential Future Impacts and Potential Risk	Proposed Restoration/Protection Measures; Draft SMP Policies/Regulations and other Environmental Codes	Non-Regulatory Measures
			<ul> <li>in Section 17.35.039 prohibit structures, uses and modifications that are not water dependent from location in these areas.</li> <li>8. Policies, development standards and setbacks for trails in Table 4 and sections 17.62.000030 will ensure water oriented trails do not negatively affect this function.</li> </ul>	
<b>Hydrology:</b> Summer low flows.	High Generally, upstream land uses and development in urbanized areas have resulted in less water flowing in urban streams. Woodland Creek is no exception during the summer low-flow periods. Impervious surfaces have replaced native soils whereby water could infiltrate and was held to support summer base flows. Runoff rates are also increased by impervious surfaces, which results in water moving more quickly through the hydrologic cycle. Because this is a relatively small drainage system, retention time is already low.	Low Preservation of wetlands and headwater lakes will help maintain base flows to Woodland Creek. New development in the basin will primarily be located outside of shoreline jurisdiction. Impacts will not be allowed to increase and mitigation is expected to result in no net loss for this function. Use of stormwater management practices with new development or redevelopment that encourage low impact development may minimize or reduce impervious surfaces in the basin over the long term. It should be noted, that established uses that have contributed to the existing impacts are expected to be there over the long term and retrofitting developments will be problematic and incremental under the	<ul> <li>New development or residential densification within shoreline jurisdiction is not anticipated. There are very few vacant, developable lots on shorelines in this system. Residential redevelopment in the form of additions or remodels may occur.</li> <li>The following provisions are applicable: <ol> <li>Stormwater Manual: Promotes low impact development techniques.</li> <li>Vegetation Management Requirements SMP 17.41.020 and 17.41.021: New impervious surface or the addition of square footage may trigger requirements for vegetation along lakefront lots if such is lacking. Vegetation management areas will also be established to protect existing vegetation, soils, and recharge functions.</li> </ol> </li> <li>Wetland Protection Requirements of LMC 14.28, as incorporated into this SMP: Prohibit development in</li> </ul>	<ul> <li>The following provisions are applicable:</li> <li>1. Drainage Manual Design: Incentives built into the new drainage manual that encourage and enable the development community to use low impact development techniques.</li> <li>2. Public Education, SMP new goals and policies Section 17.41.015 goal 2 and 3 and associated policies: Use of public education to inform lakefront lot owners of proper</li> </ul>

Woodland Creek System - Woodland Creek, Long Lake, Pattison Lake, and Hicks Lake				
Process: Function	Level of Existing Alteration	Potential Future Impacts and Potential Risk	Proposed Restoration/Protection Measures; Draft SMP Policies/Regulations and other Environmental Codes	Non-Regulatory Measures
		best of conditions	<ul> <li>wetlands to maintaining the hydrologic (recharge) functions of these areas.</li> <li>4. The water quality section of the SMP (17.70) establishes a preference for LID, which will help maintain groundwater recharge and the maintenance of base flows.</li> <li>5. Section 17.54 (fill and grading) limits grading/fill and resulting compaction to the minimum necessary. This will help avoid disturving native soils where not necessary for the authorized use. Section 17.41 requires revegetation of disturbed areas, which will help maintia the hydrologic cycle and retention time in the Woodland Creek system.</li> </ul>	vegetation management techniques.
<b>Hydrology:</b> Flood flow retention.	Extremely Low As noted above, wetland systems have been preserved providing natural storage capacity. Tree protection city wide has promoted drainage control functions as a product of Lacey's urban forest management. Some areas of high groundwater and the potential for groundwater flooding naturally exist in Lacey.	Extremely Low Wetland systems have been preserved providing natural storage capacity. This will continue to provide a level of natural function. New drainage manual requirements will promote the concept of low impact development and will result in design of new systems expected to maintain functions that exist today. There is minimal risk of overland flooding in this system because there are no rain on snow areas and it is a low gradient system.	<ol> <li>The following provisions are applicable:</li> <li>Stormwater Manual: Promotes low impact development techniques.</li> <li>Vegetation Management Requirements SMP 17.41.020 and .021: New impervious surface or the addition of square footage may trigger requirements for vegetation along lakefront lots if such is lacking.</li> <li>Wetland Protection Requirements of LMC 14.28 as incorporated into this SMP: Prohibit development in wetlands, maintaining the hydrologic functions of these areas.</li> <li>Tree Protection Ordinance LMC 14.32</li> </ol>	

Woodland Creek S	Woodland Creek System - Woodland Creek, Long Lake, Pattison Lake, and Hicks Lake				
Process: Function	Level of Existing Alteration	Potential Future Impacts and Potential Risk	Proposed Restoration/Protection Measures; Draft SMP Policies/Regulations and other Environmental Codes	Non-Regulatory Measures	
			<ul> <li>as incorporated into this SMP: Tree retention and minimum tree requirements for each developed lot promotes retention of drainage on site throughout the City.</li> <li>5. LMC 14.34 as incorporated into this SMP requires compensatory flood storage mitigation if structures are permitted in the floodplain.</li> <li>6. The water quality section of the SMP (17.70) establishes a preference for LID, which will help maintain the natural hydrologic cycle and retain any overland flows within the system.</li> <li>7. The SMP contains provisions for structural setbacks in Table 4, which ensure that flood storage capacity of lakes in particular where there is high groundwater, is not diminished by encroaching structures.</li> </ul>		
Sediment Generation and Transport: Upland sediment generation.	<b>Moderate</b> Fine sediment loading has increased due to build-up and wash-off from urban land uses.	Low As outlined above, new development or redevelopment that increases the intensity of existing uses is not anticipated. When new development or redevelopment does occur, drainage manual requirements will promote the concept of low impact development and will result in design of new systems expected to maintain functions that exist today. This will	<ol> <li>The following provisions are applicable:</li> <li>Stormwater Manual: Promotes low impact development techniques.</li> <li>Vegetation Management Requirements SMP 17.40.020and .021: New impervious surface or the addition of square footage may trigger requirements for vegetation along lakefront lots if such is lacking.</li> <li>Wetland Protection Requirements of LMC 14.28 as incorporated into this</li> </ol>	Best Management Practice (BMP) Applied to Retrofits for Existing Drainage Systems: Implementation and retrofit of water quality BMPs to the existing stormwater systems can reduce fine sediment loading.	

Woodland Creek System - Woodland Creek, Long Lake, Pattison Lake, and Hicks Lake				
Process: Function	Level of Existing Alteration	Potential Future Impacts and Potential Risk	Proposed Restoration/Protection Measures; Draft SMP Policies/Regulations and other Environmental Codes	Non-Regulatory Measures
		eliminate the potential for new uses contributing additional flow or sediment generation from development. Intact buffers along Woodland Creek eliminate the potential for runoff impacts and provide area for cleansing of stormwater. Existing City stormwater systems are being retrofitting utilizing Best Management Practice (BMP) as part of normal maintenance and repair.	<ul> <li>SMP: Prohibit development in wetlands and buffers maintaining the hydrologic functions of these areas.</li> <li>4. Tree Protection Ordinance LMC 14.32 as incorporated into this SMP: Tree retention and minimum tree requirements for each developed lot promotes retention of drainage on site throughout the City.</li> </ul>	
Water Quality: Wetland removal of pollutants through sedimentation and adsorption.	Low Protection of the large complex of wetland area under Lacey's sensitive area ordinances has maintained this function in Lacey. Some lake fringe wetlands may have been impacted in the past as development occurred, affecting this removal function at a smaller scale.	Low Protection of large wetland complexes under Lacey's sensitive area ordinances has maintained this function in Lacey. This situation is expected to protect wetland functions over the long term. New development will be expected to protect and possibly enhance this function.	<ol> <li>The following provisions are applicable:         <ol> <li>Wetland Protection Requirements of LMC 14.28 as incorporated into this SMP: Prohibit development in wetlands maintaining wetland functions.</li> </ol> </li> <li>Chapter 17.41 of the SMP incentivizes a reduced dependency on fertilizers when Vegetation Management Plans are required. The Water Quality section of the SMP (17.70) requires minimization of fertilizer use and may even restrict it in the case of new developments requiring Codes, Covenants, and Restrictions (CC and R's) or Homeowners Associations.</li> <li>Protection of the large wetland system with the natural designation.</li> <li>Vegetation Management Requirements</li> </ol>	Resident Education, Wetland Protection Ordinance LMC 14.28: Protective covenants applied to HOAs informing residents adjacent to wetlands of proper vegetation and fertilization practices to protect wetland functions. Resident Education, SMP 17.41.015 (2) and (3): Educational programs and information for residents within shoreline jurisdiction regarding vegetation requirements that will promote the

Process: Function	Level of Existing Alteration	Potential Future Impacts and Potential Risk	Proposed Restoration/Protection Measures; Draft SMP Policies/Regulations and other Environmental Codes	Non-Regulatory Measures
			SMP 17.40.020: Vegetation management areas and landscaping along lakefront lots will promote cleansing of stormwater before it enters the lakes.	health of shoreline areas and promote natural functions.
Water Quality: Delivery, movement, and loss or removal of nutrients, pathogens and toxicants; storage of phosphorus and removal of nitrogen and toxins through sedimentation and adsorption.	High to Moderate The delivery, transport, and disposition of nutrients, pathogens and toxins have been significantly altered from the pre-disturbance condition. Upland sources of these pollutants have increased significantly as a result of urban land uses within and near the shoreline. Contaminants from adjacent residential uses, septic tanks, fertilization, etc. have contributed to water quality issues. Delivery and storage have been altered through installation of impervious surfaces.	<ul> <li>Moderate to Low</li> <li>The development of the TDML for</li> <li>Woodland Creek has highlighted</li> <li>potential sources of point-source</li> <li>pollution and flow reduction.</li> <li>Significant source control and</li> <li>remediation efforts are currently</li> <li>underway to remove and avoid</li> <li>pollutant discharge to the riverine</li> <li>environment.</li> <li>Little new development is</li> <li>anticipated; that which does occur</li> <li>will be addressed under the</li> <li>provisions outlined in the column to the right.</li> </ul>	<ol> <li>The following provisions are applicable:</li> <li>Stormwater Manual: Promotes low impact development techniques.</li> <li>Vegetation Management Requirements SMP 17.40.020: Vegetation management areas and landscaping along lakefront lots will promote cleansing of stormwater before it enters the lakes.</li> <li>SMP Water Quality Standards Section 17.70.010: Includes sewering of shoreline areas to reduce impact from septic tanks, BMPs for stormwater management, establishment of buffers and vegetation requirements.</li> <li>Wetland Protection Requirements of LMC 14.28 as incorporated into this SMP: Prohibit development in wetlands maintaining the functions of these areas including natural cleansing action through absorption and nutrient uptake.</li> <li>Tree Protection Ordinance LMC 14.32 as incorporated into this SMP: Tree retention and minimum tree requirements for each developed lot</li> </ol>	Significant opportunity exists to reduce septic tank drainfield contamination by sewer or corrective actions for failing septic tank systems.

Woodland Creek System - Woodland Creek, Long Lake, Pattison Lake, and Hicks Lake				
Process: Function	Level of Existing Alteration	Potential Future Impacts and Potential Risk	Proposed Restoration/Protection Measures; Draft SMP Policies/Regulations and other Environmental Codes	Non-Regulatory Measures
			<ul> <li>stormwater on site throughout the City.</li> <li>6. Chapter 17.41 of the SMP incentivizes a reduced dependency on fertilizers when Vegetation Management Plans are required. The water quality section of the SMP (17.70) requires minimization of fertilizer use and may even restrict it in the case of new developments requiring Codes, Covenants and Restrictions (CC and Rs) or Homeowners Associations.</li> <li>7. Table 5 limits the amount of impervious surfaces on lots within shoreline jurisdiction.</li> </ul>	
Habitat: Shoreline habitat for wildlife; vegetation provides structure for invertebrates, birds, amphibians, reptiles and mammals.	Woodland Creek – Low Native riparian vegetation has been protected under Lacey's sensitive area requirements. The portion of the Woodland Creek corridor in Lacey retains natural riparian vegetation. Lake Areas – Moderate Area surrounding lakes that have sensitive areas have been well protected under Lacey's sensitive areas ordinances and the tree and vegetation protection ordinance. However, area not associated with wetlands or habitat has	<ul> <li>Woodland Creek – Low</li> <li>Buffers and critical area legislation is expected to continue protection of this Woodland Creek corridor.</li> <li>Lake Areas – Low</li> <li>Very little new development is anticipated, as Lacey's lake shorelines are predominantly built out.</li> <li>Requirements for the protection and installation of vegetation, particularly trees, with new development and redevelopment may improve the baseline.</li> </ul>	<ol> <li>The following provisions are applicable:         <ol> <li>Wetland Protection Requirements of LMC 14.28 as incorporated into this SMP: Prohibits development in wetlands and regulates protection of buffers, maintaining wetland habitat functions.</li> <li>Tree Protection Ordinance LMC 14.32 as incorporated into this SMP: Tree protection within wetland buffer areas, along lakefronts and within designated stream corridor buffers protects and promotes the natural functions of these shoreline resources.</li> </ol> </li> <li>Habitat Protection Ordinance LMC 14.33 as incorporated into this SMP: Protection of Woodland Creek riparian</li> </ol>	

Woodland Creek System - Woodland Creek, Long Lake, Pattison Lake, and Hicks Lake					
Process: Function	Level of Existing Alteration	Potential Future Impacts and Potential Risk	Proposed Restoration/Protection Measures; Draft SMP Policies/Regulations and other Environmental Codes	Non-Regulatory Measures	
	generally developed with impacts typical of residential development.		<ul> <li>habitat by application of 200 foot buffer that prohibits development within that area.</li> <li>4. Vegetation management policies and standards in Section 17.41 will protect existing shoreline vegetation and habitat, and may in some cases represent an improvement in the baseline.</li> <li>5. Critical freshwater habitat regulations in Section 17.35.039 prohibit structures, uses and modifications that are not water dependent from location in these areas.</li> <li>6. Section 17.30.047 of this SMP incentivizes the removal of bulkheads when repairs or maintenance that equate to 50% of the value of such structure is necessary.</li> </ul>		
Habitat: Source and delivery of LWD.	<ul> <li>Woodland Creek – Low</li> <li>Tree protection regulations in Lacey along with prohibition on tree removal within a 200 foot buffer of the creek have maintained this function.</li> <li>Lake Areas – Moderate</li> <li>Tree protection regulations in Lacey along with prohibition on tree removal in designated sensitive areas along portions</li> </ul>	Low Very little new development is anticipated; Lacey's lake shorelines are predominantly built out. The Woodland Creek corridor is protected with a 200 foot buffer. Requirements for the protection and installation of vegetation, particularly trees, with new development and redevelopment may improve the baseline.	<ol> <li>The following provisions are applicable:         <ol> <li>Tree Protection Ordinance LMC 14.32 as incorporated into this SMP: Tree protection within wetland buffer areas, along lakefronts and within designated stream corridor buffers protects and promotes the natural functions of these shoreline resources and the introduction and delivery of LMD.</li> </ol> </li> <li>Habitat Protection Ordinance LMC 14.33 as incorporated into this SMP: Protection of Woodland Creek riparian</li> </ol>		

Woodland Creek System - Woodland Creek, Long Lake, Pattison Lake, and Hicks Lake					
Process: Function	Level of Existing Alteration	Potential Future Impacts and Potential Risk	Proposed Restoration/Protection Measures; Draft SMP Policies/Regulations and other Environmental Codes	Non-Regulatory Measures	
	of the lakes has maintained this function; note is made of the example in the picture on the front cover of the SMP. However, many developed areas in shoreline jurisdiction along the lakes consist of manicured lawn and non-native landscaping.		habitat by application of 200 foot buffer. The buffer prohibits development and preserves natural vegetation. This will continue to promote introduction and delivery of LWD.		

**TABLE 5: PROCESSES, FUNCTIONS, AND LEVEL OF ALTERATION FOR OTHER FRESHWATER LAKES.**

Other Freshwater Lakes					
Process: Function	Level of Existing Alteration	Potential Future Alteration Impacts and Potential Risk	Proposed Restoration/Protection Measures; Draft SMP Policies/Regulations and other Environmental Codes	Non-Regulatory Measures	
<b>Hydrology:</b> Groundwater recharge.	Moderate The basins around Lacey's freshwater lakes are developed at urban densities and are characterized by moderate percentages of impervious surface. In addition, water levels in Chambers Lake are managed, which may reduce groundwater recharge through reducing retention time in the lake basin.	Low See discussion above under Woodland Creek and Lacey's main lakes; little development is anticipated within shoreline jurisdiction on these lakes because they are built out. Any development would represent a very small scale change in the basin. Development outside of shoreline jurisdiction will also affect groundwater recharge in the lake basins.	<ol> <li>The following provisions are applicable:</li> <li>Stormwater Manual: Promotes low impact development techniques providing groundwater recharge.</li> <li>Vegetation Management Area Requirements SMP 17.40.020 and 021: Protection and installation of native species along lakefront lots may facilitate groundwater recharge by slowing runoff.</li> <li>Wetland Protection Requirements of LMC 14.28 as incorporated into this SMP: Prohibit development in wetlands and buffers maintaining the hydrologic functions of these areas.</li> <li>Tree Protection Ordinance LMC 14.32 as incorporated into this SMP: Tree retention and minimum tree requirements for each developed lot promotes retention of drainage on site throughout the City.</li> <li>Table 5 limits the amount of impervious surface on lots within shoreline jurisdiction.</li> </ol>	<ul> <li>The following provisions are applicable:</li> <li>1. Drainage Manual Design: Incentives built into the new drainage manual that encourage and enable the development community to use low impact development techniques. This will promote year round onsite infiltration for more natural ground water recharge.</li> <li>2. Public Education, SMP New Goals and Policies Section 17.41.015 Goal 2 and 3 and Associated Policies: Use of public education to inform lakefront lot owners of proper vegetation management techniques. This will encourage onsite retention and infiltration leading to more natural recharge.</li> </ul>	
<b>Hydrology:</b> Flood flow retention.	Moderate Chambers Lake and Southwick Lake do not have inlets, so function less to provide	Low See discussion above regarding lack of anticipated development, and fact that	<ul><li>The following provisions are applicable:</li><li>1. Stormwater Manual: Promotes low impact development</li></ul>		

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Other Freshwater	Other Freshwater Lakes					
Process: Function	Level of Existing Alteration	Potential Future Alteration Impacts and Potential Risk	Proposed Restoration/Protection Measures; Draft SMP Policies/Regulations and other Environmental Codes	Non-Regulatory Measures		
	overland flood flow retention although they do capture surface water runoff. Water levels in Chambers Lake are actively managed for flood control.	without inlets, the primary risk of flooding in these lakes will be from expressions of high groundwater.	<ul> <li>techniques.</li> <li>2. Vegetation Management Requirements SMP 17.40.020 .021: New impervious surface or the addition of square footage may trigger requirements for vegetation along lakefront lots if such is lacking.</li> </ul>			
			3. Wetland Protection Requirements of LMC 14.28 as incorporated into this SMP: Prohibit development in wetlands and buffers maintaining the hydrologic functions of these areas.			
			<b>4.</b> Tree Protection Ordinance LMC 14.32 as incorporated into this SMP: Tree retention and minimum tree requirements for each developed lot promotes retention of drainage on site throughout the City.			
			5. LMC 14.3 as incorporated into this SMP requires compensatory flood storage mitigation if structures are permitted in the floodplain.			
			6. The water quality section of the SMP (17.70) establishes a preference for LID, which will help maintain the natural hydrologic cycle and retain any overland flows within the system.			
			7. The SMP contains provisions for structural setbacks in Table 4, which will ensure that flood storage capacity of lakes and streams, and lakes in particular where there is high groundwater, is not			

Other Freshwater Lakes					
Process: Function	Level of Existing Alteration	Potential Future Alteration Impacts and Potential Risk	Proposed Restoration/Protection Measures; Draft SMP Policies/Regulations and other Environmental Codes	Non-Regulatory Measures	
			diminished by encroaching structures.		
Sediment Generation and Transport: Upland sediment generation.	Moderate to High Anthropogenic fine sediment loading to the lakes has increased as a result of build-up and wash off of sediments from impervious surfaces.	Low Implementation and retrofit of water quality BMPs to the existing stormwater systems can reduce fine sediment loading. Little if any development is anticipated within these shoreline reaches. If new development or redevelopment does occur, the standards in the column to the right will apply.	<ol> <li>The following provisions are applicable:         <ol> <li>Stormwater Manual: Promotes low impact development techniques.</li> <li>Vegetation Management Area Requirements in the SMP, 17.40.020 and .021: Vegetation management areas and landscaping along lakefront lots will help trap sediment that is generated on uplands.</li> <li>Wetland Protection Requirements of LMC 14.28 as incorporated into this SMP: Prohibits development in wetlands maintaining the hydrologic functions of these areas.</li> <li>Tree Protection Ordinance LMC 14.32 as incorporated into this SMP: Tree retention and minimum tree requirements for each developed lot promotes retention of drainage on site throughout the City.</li> <li>Sections 17.54.020 and 17.70.010 of the SMP require that material movement and erosion/sedimentation be prevented, minimized and controlled during and after construction.</li> <li>Various sections of the SMP and LMC require that any disturbed areas not subsequently built upon be replanted with native vegetation.</li> </ol> </li> </ol>	Best Management Practice (BMP) Applied to Retrofits for Existing Drainage Systems: Implementation and retrofit of water quality BMPs to the existing stormwater systems can reduce fine sediment loading.	

Process: Function	Level of Existing Alteration	Potential Future Alteration Impacts and Potential Risk	Proposed Restoration/Protection Measures; Draft SMP Policies/Regulations and other Environmental Codes	Non-Regulatory Measures
Water Quality: Lake trophic status/overall water quality.	High The delivery, transport, and deposition of nutrients, pathogens, and toxins have been significantly altered from the pre-disturbance condition. Upland sources of these pollutants have increased significantly as a result of urban land uses within and near the shoreline. Contaminants from adjacent residential uses, septic tanks, fertilization, etc. have contributed to water quality issues. Potential storage has decreased through installation of impervious surfaces. The presence of relatively high permeability surficial geology deposits can increase the potential for upland land uses to influence lake water quality.	Low Little if any development is anticipated within these shoreline reaches. If new development or redevelopment does occur, the standards in the column to the right will apply.	<ol> <li>The following provisions are applicable:         <ol> <li>Stormwater Manual: Promotes low impact development techniques.</li> <li>Vegetation Management Area Requirements in the SMP, 17.40.020 and .021: Vegetation management areas and landscaping along lakefront lots will help keep pollutants generated on uplands from entering water bodies.</li> <li>Wetland Protection Requirements of LMC 14.28 as incorporated into this SMP: Prohibit development in wetlands maintaining the hydrologic functions of these areas.</li> </ol> </li> <li>Tree Protection Ordinance LMC 14.32 as incorporated into this SMP: Tree retention and minimum tree requirements for each developed lot promotes retention of drainage on site throughout the City.</li> <li>SMP Water Quality Standards 17.70.010: Includes sewering of shoreline areas to reduce impact from septic tanks and BMPs for stormwater management.</li> <li>Chapter 17.41 of the SMP incentivizes a reduced dependency on fertilizers when Vegetation Management Plans are required. The water quality section of the SMP (17.70) requires minimization</li> </ol>	Resident Education Wetland Protection Ordinance LMC 14.28 Protective covenants applied to HOAs informing residents adjacent to wetlands of proper vegetation and fertilization practices to protect wetland functions. Resident Education SMP 17.41.015 (2) and (3): Educational programs and information for residents within shoreline jurisdiction regarding vegetation requirements that will promote the health of shoreline areas and promote natural functions.

Other Freshwater Lakes					
Process: Function	Level of Existing Alteration	Potential Future Alteration Impacts and Potential Risk	Proposed Restoration/Protection Measures; Draft SMP Policies/Regulations and other Environmental Codes	Non-Regulatory Measures	
			of fertilizer use and may even restrict it in the case of new developments requiring Codes, Covenants and Restrictions (CC and Rs) or Homeowners Associations.		

# III. Proposed Regulations

An evaluation of the proposed policies and regulations in the Shoreline Master Program above shows that it will maintain ecological function at existing levels and may have beneficial effects on the level of shoreline ecological function. The following are some of the major elements:

#### A. Environmental Designations

Environmental designations in the Shoreline Master Program are based upon the inventory and characterization report and identified ecological functions and values. With implementation of this SMP all of Lacey's reaches will have designations as a strategy to achieve no net loss of function or value for these important resources. Designations are highlighted below.

#### Natural:

The Natural designation is being applied to those areas with wetlands that are currently designated Open Space Institutional (OSI) in Lacey's zoning code. It should be noted that the OSI zone has rigorous standards prohibiting development within designated sensitive areas. It has been used by Lacey for nearly two decades to protect and preserve sensitive areas like wetlands.

The designation of OSI zoned areas as Natural compliments the emphasis on protection and preservation Lacey's GMA Plan and zoning code has required for these areas. This designation is a long overdue improvement to the SMP that will finally bring its environmental protection requirements for sensitive areas into consistency with Lacey's existing GMA Plans and implementing environmental legislation.

The Natural designation is also being applied to all of Lacey's marine shoreline, with the exception of portions of Mallard Cove that have been developed and used for a private marina since the late 1940s. The Planning Commission determined that portion of Mallard Cove used for a marina does not meet the classification criteria for a Natural designation given its existing development and long term use as a marina.

Of note here is that the environmentally sensitive estuary with significant ecological function and value that wraps around the Beachcrest marina in Mallard Cove has remained untouched and retains its same form it had before establishment of the marina nearly 60 years ago. This area was included in the Natural designation.

#### **Urban Conservancy:**

The Urban Conservancy designation has been applied to areas within the City and in the UGA where development can be compatible with maintaining or restoring ecological function. This designation is intended to protect and allow for the restoration of open spaces, floodplains and other sensitive lands where they exist in urban and developed settings.

The Urban Conservancy designation has been applied at the north end of Long Lake. This designation has been applied to portions of Woodland Creek without extensive wetlands but where development has occurred, and along the south end of Chambers Lake where there are

extensive wetland resources. It has also been applied around Southwick Lake, which is relatively undeveloped compared to the other lakes in the vicinity and has extensive areas of wetland, as well as to the west shoreline of Hicks Lake where densities are low and wetlands exist. This designation will provide protection for ecological function where some development has occurred and will continue to occur but where sensitive resources exist and require protection.

#### **Shoreline Residential:**

Shoreline areas designated under the Shoreline Residential classification meet the criteria outlined for this designation and can generally be described as urbanized with typical impacts to ecological function resulting from human disturbance. Impacts have typically included removal of a portion of the native vegetation, construction of residential structures, impervious surfacing, installation of septic tank drain field systems for areas without sewer with associated impacts to water quality, and modifications such as bulkheads, docks and floats.

While much of the lakeshore areas are urbanized and have experienced impacts to the shoreline's natural function and values, it should be noted that urbanization of Lacey's lake areas has generally been less intense than that experienced by adjacent jurisdictions with similar lake shoreline resources. However, there are few critical or sensitive areas and the shorelines are predominantly built out. The Shoreline Residential designation will serve to protect functions that may occur in these shoreline areas, while providing flexibility to accommodate residential development where development has traditionally occurred and where services and infrastructure or plans for infrastructure (sewer) can support residential development.

#### B. Residential Setbacks

Setbacks are used in association with complementary vegetation management areas and residential design standards that are expected to achieve objectives described in the SMP. Setbacks are proportionate to the need identified by the environment designation. They provide area to accommodate buffers where necessary to protect habitat functions, help mitigation pollution from stormwater runoff and provide area for vegetation management that supports these functions. In addition, design requirements will be applied to development that requires layout of land divisions to design with nature to make protective modifications unnecessary. In Lacey, residential remodels and additions will be by far the most common development occurring in shoreline jurisdiction. The vast majority of lakefront lots are developed, and there are no commercial or industrial uses on Lacey's shorelines.

In summary, these changes are expected to have the following effects:

• New homes will be placed further back from the shoreline and "designed with nature." Although there are very few undeveloped lots in Lacey's shoreline areas, this may apply if smaller waterfront homes are town down to be replaced with new,

larger structures. Design must show respect and protect identified natural processes and functions. This negates the need for protective structures like bulkheads to prevent erosion. Instead design allows the natural processes to occur.

- Existing structures within the setback will be labeled "conforming, expansion limited". While they can still be altered an increase in the degree of nonconformity will not be allowed and the mitigation sequence will ensure that additions or expansions result in no net loss of ecological function.
- The setback will provide an area to practice protective vegetation management, with the benefits discussed below.

## C. Shoreline Vegetation Landscaping and Restoration

This SMP includes requirements for vegetation conservation. Existing vegetation must be retained and maintained and planting will be required if there are direct impacts from development to vegetation or where needed to mitigate indirect impacts. The hope is to incrementally restore shorelines with native vegetation as shoreline properties develop or redevelop.

Vegetation management standards apply to all uses and development in shoreline jurisdiction. New vegetation may be required on parcels with waterfront access when:

- A new structure is constructed.
- Impervious surfaces increase.
- An existing structure is remodeled and square footage is added.
- An accessory structure (such as a garage, deck, or patio) is added.

The SMP includes a sliding scale for how much vegetation/mitigation is required proportionate to the impact of the project triggering the permit.

Please see Table 1 of Section 17.41.021.

## D. Other Shoreline Development Actions

Other development actions that require review under the SMP will require meeting shoreline vegetation standards. In order to encourage removal of hard armored bulkheads and replacement with soft shorelines, development that boosts shoreline ecological function by removing hard structures can qualify for reduced vegetative mitigation requirements. In addition, lots where an existing buffer or qualified vegetation exists can be considered exempt from additional vegetative requirements.

All uses and developments within shoreline jurisdiction are required to adhere to the mitigation sequence in Section 17.40.000 of this SMP.

#### E. Docks and Piers

Docks and piers have been permitted on all lakes, and these shorelines are currently altered. Under the proposed regulations, altered shorelines are assigned an environmental designation of Shoreline Residential and in some cases Urban Conservancy, depending on the nature of the upland alteration.

In the Shoreline Residential designation, docks and piers that are shared between two or more adjacent land owners will require a less stringent permitting process than docks that only support one home. This is to encourage fewer docks on the shorelines for ecological, navigational, and aesthetic reasons. Docks and piers will be limited to the size necessary and will be grated as they are replaced to allow for light penetration.

## F. Bulkheads, Shoreline Stabilization and Other Modifications

Bulkheads to protect single family residences from damage from erosion are still allowed.

The intent is to encourage shoreline bank stabilization with non-structural alternatives where it is feasible.

Normal maintenance and repair to shoreline modifications has traditionally been allowed under a shoreline exemption. However, to incentivize incremental improvements in shoreline function over the long term modifications will still be authorized under an exemption for normal repair and maintenance if the value of the maintenance or repair is less than 50% of the value of replacement new structure. If the 50% threshold is exceeded, the repair is defined as replacement and requires a conditional use permit. The CUP process will necessarily require an analysis of the need and environmentally sensitive alternatives that may meet the same protection objectives.

This process is expected to improve the overall functions of the lake ecology over the long term by a continual evaluation of existing modifications as they require major repair efforts and the requirement for moving to acceptable more naturalized concepts for beach stabilization.

As a general requirement, mitigation sequencing is required for all modifications to ensure it is needed, there are no other alternatives to achieve the intended objective and mitigation is applied to ensure no net loss.

The CUP process is also used as a process of review for unidentified uses that might be proposed. This process gives Lacey the flexibility to review unforeseen uses and activities and apply appropriate conditions to ensure no net loss or deny the use if necessary.

## G. Other Goals for Shoreline Use

The SMP includes sections or provisions that address the full range of public use and interest of shoreline resources. This includes such topics as recreation, access, navigation, historical and archeological, scientific and educational. Each of these uses has particular needs related to design and location for functionality. Each also has particular demands on shoreline areas.

At the same time, each reach of shoreline has specific functions and values with particular needs for protection. Generally a reach is not compatible with every use and careful attention is needed to successfully match a reach with a category of uses it can successfully accommodate without impact to its natural processes and functions.

The SMP addresses the status, function and values associated with each shoreline reach and the types of use that are appropriate considering its specific needs for protection. The protection needs of a reach will generally be reflected by the reaches' environmental designation.

In addition, the SMP identifies the public use and interest needs associated with shoreline resources such as recreation and navigation and specific conditions necessary for each use to be successfully integrated into the shoreline without a net loss of the shoreline functions and value.

Of particular note is public access. A whole new public access plan has been developed as Appendix 1 of the SMP. This plan identifies public interest and need for shoreline areas, identifies existing public access opportunities and provides an analysis of unmet need. The plan also identifies specific sites likely to develop and specific strategies for providing public access to the benefit of developing properties and future residents as well as the public at large. The plan outlines specific steps and processes Lacey will implement to achieve these objectives. These include both regulatory and incentive tools.

Finally, specific standards related to the functionality of the use and protection of the shoreline natural processes and functions are provided. The plan is expected to be a guidepost for Lacey's public access efforts that will balance public need for access with shoreline protection strategies. The plan will help Lacey define and achieve public access goals with no net loss of shoreline resources, functions or values over the long term.

Similar methodology was used for other uses by creating separate sections in the SMP dealing with specific topic areas. These sections provide a goal and policy basis for the use/activity and a set of standards to ensure functionality of the use and no net loss of ecological function or value for the shoreline resources; see Part 3 of the SMP.

## **IV.** Foreseeable Development in Shoreline Environments

Foreseeable types of development listed in Tables 7-9 (Foreseeable Development of Shorelines) below have been derived from the following sources:

- Anticipated population forecasts developed as a function of work required under the state Growth Management Act (GMA).
- Buildable land studies accomplished as a requirement of GMA analyzing the probable distribution of population forecasts, given vacant land resources available to the City.
- Goals and policies of the Comprehensive Land Use Plan prepared under GMA.
- Local Capital Facilities Plan.
- Comprehensive Plan for Outdoor Recreation.
- Thurston Regional Trails Plan.
- Known development plans for shoreline parcels.
- Past trends in development.
- Planning Commission discussion, including real estate, Master Builders and other members of the development community related to trends, development expectations and market issues.

Marine Reach	Proposed Designation	Existing Designation	Foreseeable Development			
NISQUALLY RE	NISQUALLY REACH					
NIS-1 Butterball Cove & Jubilee Beach	Natural	Rural	None anticipated. The only improvements we might expect in this area would be City improvement of the existing historic pier in association with public access. Any project associated with this structure would require compliance with goals of the City Comprehensive Plan for Outdoor Recreation, the City Restoration Plan and requirements for no net loss.			
NIS-2A Mallard Cove, mini-marina	Natural for estuary south of marina; Urban Conservancy for shoreline in marina	Conservancy	Bulkhead repairs and replacement at the marina. Lacey will apply mitigation to ensure no net loss conditions to any replacement of a modification in this area. In addition, incentives are being offered for efforts to upgrade existing modifications with improved naturalized concepts or preferred options. Residential repairs and remodels are also expected in the			
NIS-2B Beachcrest	Urban Conservancy		upland Beachcrest development. This area is under jurisdiction of Thurston County.			

**TABLE 7:** FORESEEABLE DEVELOPMENT FOR SHORELINES – MARINE REACHES.

River/Stream Reach	Proposed Designation	Existing Designation	Foreseeable Development		
WOODLAND C	WOODLAND CREEK				
WOOD-1A	Natural	Conservancy	Interstate 5 widening project (State)		
WOOD-1B	Urban Conservancy	Conservancy	Interstate 5 widening project (State) Draham Road widening and improvement project (Thurston County) Residential repairs and remodels		
WOOD-2	Natural	Conservancy	None anticipated Pleasant Glade Park is located along Woodland Creek in this reach; however, plans for the park are not final and the Action Program in the Parks Plan indicates that development of the park(s) would not occur until the land is annexed into the City.		

**TABLE 8:** FORESEEABLE DEVELOPMENT FOR SHORELINES – RIVERS AND STREAMS.

ES.
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Lake Reach	Proposed Designation	Existing Designation	Foreseeable Development
CHAMBERS L	AKE		
CHAM-1A NE Basin (Lcy)	Shoreline Residential	Urban	Residential repairs and remodels
<b>CHAM-1B</b> SE Basin (Lcy)	Urban Conservancy	Conservancy	None anticipated
CHAM-2 South (Oly/Lacey)	Urban Conservancy	Conservancy	Recreation/park development including trails, trailheads, parking
CHAM-3 W Basin (Lcy)	Shoreline Residential	Urban	Residential repairs and remodels Possibly some residential vacant buildable lots
HICKS LAKE			1
HICKS-1	Natural	Conservancy	Potential water line connection around 37 <sup>th</sup> to 33 <sup>rd</sup> Avenues
HICKS-2A	Urban Conservancy	Urban	Residential repairs and remodels Recreation/park activities
HICKS-2B	Shoreline Residential	Urban	Residential repairs and remodels
LONG LAKE		·	
LONG-3A	Natural	Conservancy	None anticipated
LONG-3C	Natural	Conservancy	None anticipated
LONG-4	Shoreline Residential	Rural	Residential repairs and remodels
LONG-5	Shoreline Residential	Rural	Residential repairs and remodels
LONG-6	Urban Conservancy	Conservancy	14 <sup>th</sup> Avenue extension/connection to Union Mills Road (City of Lacey and Thurston County)
			In 2005, the Long Lake Retirement Cottages project was approved in this reach consisting of 45 residential lots and associated improvements. A 50' shoreline setback was applied to the residential structures and portions of the access road, community clubhouse and parking area would be located within the shoreline setback. A dock with a pergola is proposed along the shoreline, and 30' of the 50' buffer along the shoreline is proposed for enhancement where such would not conflict with proposed improvements. Due to the time that has passed since this project was approved (permit expirations) and current economic conditions, it does not appear likely

Lake Reach	Proposed Designation	Existing Designation	Foreseeable Development		
			that this project will be built.		
			According to the Action Program in the Parks Plan, at the time the rail line in this reach is abandoned (currently used by BNSF) the City will seek to extend Woodland Trail east through this reach. Woodland Creek Community Park may also expand or add facilities such as trail connections, parking, etc. Residents have requested the City review the suitability of the site for an off-leash dog park.		
PATTISON LAP	PATTISON LAKE				
PAT-1	Shoreline Residential	Rural	Mullen Road widening project (Thurston County) Residential repairs and remodels A landowner along this reach has discussed remodeling his multi-family apartment building with the City; however, no concrete plans are known and no official application has been received.		
SOUTHWICK I	AKE		·		
SOUTH-1	Urban	Urban	Residential repairs and remodels		
	Conservancy	Conservancy	A property owner at the SE corner of the lake has requested annexation into the City. It is anticipated that if annexation is approved, an application for residential development will be submitted. The site is encumbered by wetlands and development potential is limited.		

# V. Summary Assessment of Cumulative Impacts

#### A. Marine Reaches

#### 1. Nisqually Reach

Along Nisqually Reach and within the urban growth area, little development or redevelopment is expected. In general, ecological functions will improve through:

- Designation of properties meeting qualifying criteria as Natural under the environment designation for shoreline areas.
- Application of buffers and vegetation management standards supporting each environmental designation's specific needs and when sensitive areas are present.
- Requiring soft armoring as opposed to bulkheads where it can achieve the same objectives and only where it can be demonstrated that it is necessary to protect an existing structure.
- Stormwater management in uplands.
- Continuation of tree protection strategies of Lacey's Urban Forest Management Plan in upland areas.

#### **B.** Rivers and Streams

#### 1. Woodland Creek

Very little development is anticipated along this shoreline. It is expected that there will be general improvement of ecological function through the following:

- Prohibiting development in riparian buffer areas.
- Avoidance, minimization, and revegetation of shoreline if development occurs and/or results in impacts.
- Prohibiting new development on septic tanks .

#### C. Lakes

It is anticipated that there will be general improvement in the ecological function of the lakes for the following reasons:

- Critical wetland systems linking lakes in the Woodland Creek system will have increased protected by application of the Natural designation in addition to the wetland protection ordinance.
- There are very few undeveloped single-family residential lake shoreline lots in Lacey. If any lots do develop, new development or redevelopment will be designed, located and constructed to avoid impacts to vegetation, and avoid the

need for bulkheads or other modifications for protection. Shoreline vegetation will be conserved and replanting may be required.

- New standards for vegetation management areas are expected to slowly improve the existing situation.
- New residential land divisions with five or more new lots may include a wide range of design and form to best integrate with the shoreline environment and meet development objectives. This is expected to include specific conditions for each individual land division necessary to best meet the concept of no net loss and achieve other community objectives.
- Stormwater management according to new drainage manual requirements is expected to improve stormwater runoff impacts from upland areas through encouraging low impact development. This should continue to improve water quality issues associated with stormwater runoff.
- Prohibiting new development on septic tanks.

# VI. Summary

When considering current conditions, the regulatory framework, and the foreseeable development along shorelines, it is anticipated that there will be no net loss of ecological function under the proposed Shoreline Master Program for Lacey. Shoreline ecological functions and conditions are expected to make a general improvement, as a result of both the proposed regulations, and other regulations such as those pertaining to stormwater management, wetland protection and tree protection in the upland areas. Other policies, such as extending sewer service to urbanized areas on septic tank drainfields should also have a positive effect on shoreline functions and conditions.

## VII. Resources

City of Lacey, 2008. Lacey Comprehensive Plan, (including Capital Facilities Chapter).

- City of Lacey, 2004. Lacey Comprehensive Plan for Outdoor Recreation.
- Thurston Regional Planning Council, 2008. Draft Shoreline Inventory for the Cities of Lacey, Olympia, and Tumwater and their UGAs.
- ESA Adolfson, 2009. Lacey, Olympia, and Tumwater Shoreline Analysis & Characterization Report, prepared for Thurston Regional Planning Council.
- Haring, D. and Konovsky, J., 1999. Washington State Conservation Commission: Salmon Habitat Limiting Factors Final Report, Water Resource Inventory Area 13. 118 pp.
- Thurston County, 2008. *Thurston County Comprehensive Plan (including Capital Facilities Chapter)*.

Thurston Regional Planning Council, 2007. Thurston Regional Trails Plan.

City of Lacey Shoreline Master Program September 2011

January 2010 Shoreline Master Program Update - Appendix 6 Environmental Designations

Shoreline Environmental Designations for the Cities of Lacey, Olympia, and Tumwater and their Urban Growth Areas



Thurston Regional Planning Council 2424 Heritage Ct. S.W. Suite A Olympia, WA 98502 www.trpc.org

TRPC Thurston Regional Planning Council City of Lacey Shoreline Master Program September 2011

Photos on cover:

Top – Chambers Lake, Olympia. Bottom – Long Lake, Lacey.

REGIONAL PLANNING COUNCIL THURSTON (TRPC) is a 22-member intergovernmental board made up of local governmental jurisdictions within Thurston County, plus the Confederated Tribes of the Chehalis Reservation and the Nisqually Indian Tribe. The Council was established in 1967 under RCW 36.70.060, which authorized creation of regional planning councils.

TRPC's mission is to "Provide Visionary Leadership on Regional Plans, Policies, and Issues." The primary functions of TRPC are to develop regional plans and policies for transportation [as the federally recognized Metropolitan Planning Organization (MPO) and state recognized Regional Transportation Planning Organization (RTPO)], growth management, environmental quality, and other topics determined by the Council; provide data and analysis to support local and regional decision making; act as a "convener" to build community consensus on regional issues through information and citizen involvement; build intergovernmental consensus on regional plans, policies, and issues, and advocate local implementation; and provide planning, historic preservation, and technical services on a contractual basis.

#### 2009 MEMBERSHIP OF THURSTON REGIONAL PLANNING COUNCIL

Governmental Jurisdiction

Name of 2009 Representative

City of Lacey	
City of Olympia	į
City of Rainier	]
City of Tenino	]
City of Tumwater	]
City of Yelm	]
Town of Bucoda	]
Thurston County	
Intercity Transit	
LOTT Alliance	
Thurston PUD	]
North Thurston Public Schools	
Olympia School District	]
Confederated Tribes of the	
Chehalis Reservation	]
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City of Lacey Shoreline Master Program September 2011

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## **About This Report**

Consistent with Governor Gregoire's Plain Talk Executive Order 05-03 (2005), this report is written in a manner that is brief and to-the-point, uses non-bureaucratic language and features a clean design that promotes fast scanning and reading.

Scientific and legal references are kept to a minimum, replaced by a full list of sources in the report appendix.

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### I. Introduction

#### A. Background

After completion of the Shoreline Inventory and Analysis, shorelines were classified into preliminary Shoreline Environment Designations (SEDs) based on their physical, biological and development characteristics.

After public review, formal boundaries are established for each environment designation and policies and regulations prepared specific to that environment. These policies and regulations will apply to all uses allowed with the environment.

The classification of shorelines into SEDs is part of Phase 3 of the Shoreline Master Program Update.

#### B. Timeline

A timeline for the complete Shoreline Master Program update (a multi-year program) is below:

**TABLE 1**: TIMELINE FOR THE SHORELINE MASTER PROGRAM UPDATE FOR THE CITIES OF LACEY, OLYMPIA, AND

 TUMWATER

Phase	Update Schedule	Timeline
1	<ul> <li>Determine what shorelines are regulated under the act</li> <li>Conduct an inventory of all existing and available data for shorelines</li> <li>Public Open Houses</li> </ul>	Winter 2008
2	Analyze and characterize shoreline conditions	Spring 2008
3	<ul> <li>Categorize each shoreline segment into a designation such as urban, suburban, or rural. Each will have a different set of rules.</li> <li>Develop draft rules and policies</li> <li>Public meetings</li> </ul>	Fall 2008 Winter-Spring 2009
4	<ul> <li>Analyze the cumulative impacts of expected shoreline development or redevelopment</li> <li>Develop a restoration (and preservation) plan, including public access</li> </ul>	Winter-Spring 2009
5	<ul> <li>Public hearings</li> <li>Planning Commission recommendations</li> <li>City Council approval</li> <li>State approval</li> </ul>	Late 2009-2011

### **II.** Shoreline Environmental Designations

Shoreline Environmental Designations (SEDs) are similar to zoning districts for areas under shoreline jurisdiction. The purpose of the environmental designations is to encourage uses that protect or enhance the current or desired character of shoreline.

In the cities of Lacey, Olympia, and Tumwater and their associated urban growth areas the current Shoreline Master Program uses five designations: Aquatic, Natural, Conservancy, Rural and Urban, and has identified two special management areas – Percival and Deschutes. The State Department of Ecology's 2003 guidelines recommend that the updated Master Program consider using six designations: Aquatic, Natural, Urban Conservancy, Rural, Conservancy, Shoreline Residential, and High Intensity. The policies and regulations for each designation should reflect the purpose and intent of each environment.

Future development locating within shoreline jurisdiction needs to be consistent with the rules and policies within the environment designation, as well as local government zoning and critical area regulations. Ecology guidelines require critical area protection within shoreline jurisdiction to be - at a minimum - equal to that under local critical area regulations.

The cities of Lacey, Olympia, and Tumwater are considering adopting five of the six recommended SEDs – with the Rural Conservancy designation not being applicable to the urban areas. The purpose of each of the five designations is as follows:

Aquatic: The purpose of the aquatic environment is to protect, restore, and manage the unique characteristics of the areas waterward of the ordinary high water mark.

Natural: The purpose of the natural environment is to protect those shoreline areas relatively free of human influence or that include intact or minimally degraded shoreline functions intolerant of human use. These systems require that only very low intensity uses be allowed in order to maintain the ecological function and ecosystem-wide processes. Consistent with the policies of the designation, local government should include planning for restoration of degraded environment within this environment.

Urban Conservancy: The purpose of the urban conservancy environment is to protect and restore ecological functions of open space, flood plain, and other sensitive land where they exist in urban and developed settings, while allowing a variety of compatible uses.

Shoreline Residential: The purpose of the shoreline residential environment is to accommodate residential development and appurtenant structures and to provide for public access and recreational uses.

High Intensity: The purpose of the high intensity environment is to provide for high intensity water-oriented commercial, transportation, and industrial uses while protecting existing ecological functions and restoring ecological functions in areas that have been previously degraded.

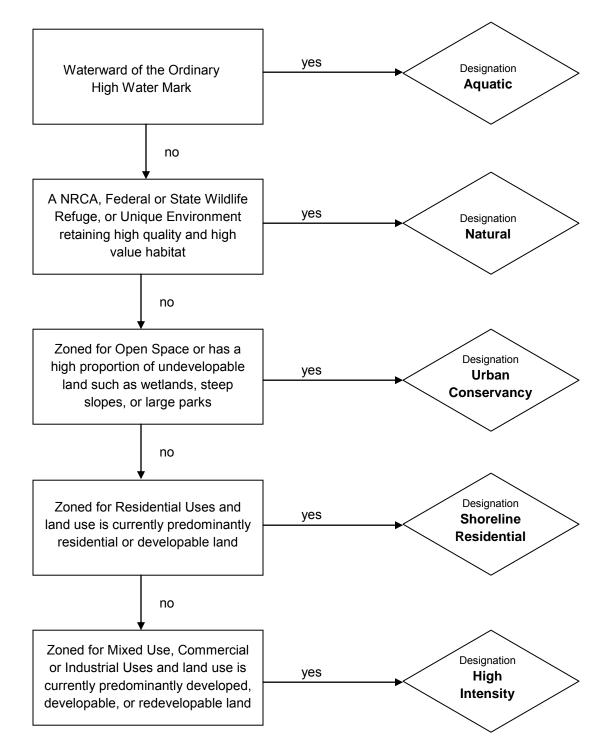
# III. Designation Criteria

The flow chart below shows the criteria used to determine the SEDs for individual reaches.

#### Criteria

Designation

Is the reach:



# IV. Residential Setbacks

The following table shows proposed setbacks for the Shoreline Residential environment designation. With the exception of Munn Lake and the LONG-3B reach, setbacks have either increased or stayed the same for water bodies that were previously included in the Shoreline Master Program (1990).

This table identifies the wide range of existing setback distances, and illustrates why a "one size fits all" setback would not be feasible. So to reduce the potential number of non-conforming structures, three setbacks were established within the Shoreline Residential designation. The setbacks are twenty-five (25), fifty (50), and seventy-five (75) feet. Also, the setback is used to modify the SED designation, such as: SR 25', SR 50', and SR 75'.

		_			sidential n Shoreli					Homes Currently		Non- conforming
Water Body Reach		0-25	25-50	50-75	75-100	100+	Total	Current Desig.	Current Setback	Non- conforming	Proposed Setback	Under Proposal
Barnes Lake	· · · · · ·					100		1000				
BAR-1A	Num. %	1 2%	2 4%	7 14%	16 32%	24 48%	50 100%	Not in SMP	None	n/a n/a	75'	10 20%
Black Lake	/0	6.70	470	14/0	52.70	40 /8	10078	Civii		100		2070
BLK-2	Num.	0	18	16	11	65	110	Rural	50'	18	50'	18
	%	0%	16%	15%	10%	59%	100%			16%		16%
Chambers Lak	e											
CHAM-1A	Num,	D	0	1	10	16	27	Urban	10'	σ	75'	1
CHAM-3	% Num.	0% 0	0% 1	4% 6	37% 8	59% 49	100% 64	Urban	10'	0% 0	75'	4% 7
CHAM-3	Num. %	0%	2%	9%	13%	49	100%	Urban	10	0%	15	11%
Hewitt Lake												
HEWITT-1	Num.	o	0	3	3	33	39	Rural	50'	0	75'	3
ACCESSION OF A DESCRIPTION	%	0%	0%	8%	8%	85%	100%	Versee.		0%	10	8%
Hicks Lake												
HICKS-2B	Num	5	22	30	27	17	101	Urban	10'	0	50'	27
	%	5%	22%	30%	27%	17%	100%	_		0%		27%
Ken Lake									- 7			
KEN-1	Num.		19	22	4	13	65	Urban	10'	0	25'	7
	%	11%	29%	34%	6%	20%	100%		_	0%		17%
Long Lake LONG-1	hlum	2	6		5	3	27	Dural	50	8	50'	8
LONG	Num. %	2	22%	11 41%	19%	11%	100%	Rural	50'	29%	50.	29%
LONG-2	Num	2	13	22	7	14	58	Rural	50'	15	50'	15
	%	3%	22%	38%	12%	24%	100%			25%		25%
LONG-3B	Num	1	13	12	2	4	32	Conser	100'	28	50'	14
LONG-4	% Num.	3%	41%	38% 16	6% 9	13% 10	100% 46	Rural	50'	88% 11	50'	44%
	%	0%	24%	35%	20%	22%	100%	ind a	~~	24%		24%
LONG-5	Num.	8	43	57	17	25	150	Rural	50'	51	50'	51
	%	5%	29%	38%	11%	17%	100%	_	_	34%	-	34%
Munn Lake												
MUNN-1	Num.	0	0	1	2	3	6	Res.	100'	3	75'	1
	%	0%	0%	17%	33%	50%	100%			50%		17%
MUNN-2	Num.	0	0	1	2	5	8	Res.	100'	5	75'	1
	%	0%	0%	12%	25%	63%	100%			63%		12%
MUNN-3	Num.	2	6	6	2	14	30	Res.	100'	14	50'	8
	%	7%	20%	20%	7%	46%	100%			46%		27%
Pattison Lake	100	_	2.5					1.20				
PAT-1	Num.	ø	19	28	16	16	79	Rural	50'	19	50'	19
	%	0%	24%	35%	20%	20%	100%			24%		24%
PAT-2	Num.	0	1	14	16	28	59	Rural	50'	1	75'	15
PAT-3B	% Num.	0% 0	2% 0	24% 4	27% 2	47% 5	100%	Rural	50'	2% 0	75'	26%
CALL SE	%	0%	0%	36%	18%	45%	100%	- Auran		0%	64	36%
PAT-4A	Num	0	1	3	6	3	13	Rural	50'	1	75'	4
DATIO	%	0%	8%	23%	46%	23%	100%	(Dural)	CO.	8%		31%
PAT-4C	Num. %	6 18%	12 36%	8 24%	0%	7 21%	33 100%	Rural	50'	18 54%	50'	18 54%
Mard Lake	/0	1070	0070	24/0	0.70	2110	100.70			0.170		5470
Ward Lake WARD-1	Num.	o	2	6	7	36	51	Rural	50'	2	75'	8
A ACRESSIC L	%	0%	4%	12%	14%	71%	100%	(all of	50	4%	14	16%
Budd Inlet						-						
BUDD-6B U. 7	Num.	12	23	6	6	1	48	Urban	10'	O	25'	12
	%	25%	48%	13%	13%	2%	100%			0%		25%

**TABLE 2**: EXISTING AND PROPOSED RESIDENTIAL SETBACKS, AND NUMBER OF NON-CONFORMING STRUCTURESANTICIPATED.

# V. Reach Level Shoreline Environmental Designations

Applying the criteria, the following Shoreline Environmental Designations are recommended for specific reaches:

**TABLE 3**: SHORELINE ENVIRONMENTAL DESIGNATIONS FOR AREAS WATERWARD OF ORDINARY HIGH WATER MARK.

Waterbody	Reach	Ecosystem Analysis (Condition and Importance)	Land Use and Zoning encourage high-intensity commercial, mixed-use or industrial uses	A NRCA, Federal or State Wildlife Refuge or Unique Environment retaining high quality and high value habitat	Currently residential in character, or zoned for future residential development	Open space, flood plains, wetlands, steep slopes and other sensitive lands that are found within the urban areas	Rationale for Designation	Current Designation	Draft Designations
Waterward of the Ordinary High Water Mark	Various	n/a	n/a	n/a	n/a	n/a	Waterward of the Ordinary High Water Mark		Aquatic

**TABLE 4**: SHORELINE ENVIRONMENTAL DESIGNATIONS FOR MARINE REACHES.

Marine Waterbody	Reach	Ecosystem Analysis (Condition and Importance)	Land Use and Zoning encourage high- intensity commercial, mixed-use or industrial uses	A NRCA, Federal or State Wildlife Refuge or Unique Environment retaining high quality and high value habitat	Currently residential in character, or zoned for future residential development	Open space, flood plains, wetlands, steep slopes and other sensitive lands that are found within the urban areas	Rationale for Designation	Current Designation	Draft Designations
Budd Inlet	BUDD-1	Medium – alterations low, few sediments or habitat important areas	No	-	Yes	Some Steep slopes Important Riparian Area ( <i>Oly UGA</i> )	This shoreline is predominately residential Some riparian features are still intact	Rural	Urban Conservancy
	BUDD-2	Medium – alterations low, few sediments or habitat important areas	No	-	Yes	Some Steep Slopes Important Riparian Area ( <i>Oly &amp; UGA</i> )	This shoreline is predominately residential Some riparian features are still intact.	Rural	Urban Conservancy
	BUDD-3A Marina, BMT	Low – high level of alteration due to fill and marina	Yes	-	No (Mixed-use)	No	This shoreline is highly modified This shoreline is predominately commercial, industrial, and high density residential and contains some water dependant uses	Urban	High Intensity
	BUDD-3B West Bay Park, Lagoon	Low – high level of alteration due to fill and marina; key habitat: Port Lagoon	Yes	-	No (Mixed-use) but purchased for a park	Port Lagoon: Important Riparian Area ( <i>Oly)</i>	This portion of the shoreline will be restored and is now a city park	Urban	Urban Conservancy
	BUDD-3C	Low – high level of alteration due to fill	Yes	-	No (Mixed-use)	No	This shoreline is highly modified	Urban	High Intensity
	<b>BUDD-4</b> 5 <sup>th</sup> Ave & Cap Lake Dam	Low – high level of alteration due to Capitol Lake dam; no key habitats	Yes	-	No	No	This shoreline is highly modified This shoreline is predominately commercial	Urban	High Intensity
	BUDD-5 Marinas, Port of Olympia & Cascade Pole	Low – high level of alteration due to fill and industrial use; no key habitats	Yes	-	No	No	This shoreline is highly modified with many water dependent uses This shoreline is predominately commercial, industrial, and high density residential	Urban	High Intensity
	BUDD-6A	Low – high level of alteration due to fill and industrial use; no key habitats	Yes	-	No	No	This shoreline is highly modified.	Urban	High Intensity

Marine Waterbody	Reach	Ecosystem Analysis (Condition and Importance)	Land Use and Zoning encourage high- intensity commercial, mixed-use or industrial uses	A NRCA, Federal or State Wildlife Refuge or Unique Environment retaining high quality and high value habitat	Currently residential in character, or zoned for future residential development	Open space, flood plains, wetlands, steep slopes and other sensitive lands that are found within the urban areas	Rationale for Designation	Current Designation	Draft Designations
	BUDD-6B U (upland) <sup>3</sup>	Low – high level of alteration due to fill, no key habitats	No	-	Yes	No	This upland portion of this shoreline is residential	Urban	Shoreline Residential (SR-25')
	BUDD-6B S (shoreline) <sup>1</sup>	Low – high level of alteration due to fill; restoration of shoreline is underway	No	-	Yes but west of East Bay Drive is open space	Yes – west of East bay drive	This shoreline is open space and is being restored	Urban	Urban conservancy
	BUDD-7	Low – high level of alteration due to residential development; only forage fish spawning habitat	No	-	Yes	No	This shoreline is predominately residential	Urban	Shoreline Residential (SR-25')
	<b>BUDD-8A</b> Priest Point Park – park area	High – Low level of alteration (part of Priest Point Park)	No – however passive park activities are in this section including trails and a parking lot	High value marine environment	No	Yes High value marine environment Intact riparian area Important Riparian Area ( <i>Oly</i> )	Intact riparian area and pocket estuary High quality marine environment Park uses in this section of the reach including trails and parking lot	Conservancy	Urban Conservancy
	<b>BUDD-8B</b> Priest Point Park – natural area	High – Low level of alteration (part of Priest Point Park)	No	High value marine environment	No	Yes High value marine environment Intact riparian area Important Riparian Area ( <i>Oly</i> )	Intact riparian area and pocket estuary High quality marine environment	Conservancy	Natural (may require modification of DNR's harbor zones)
Nisqually Reach	NIS-1 Butterball Cove & Jubilee Beach	High – low level of alteration; several key habitats	No	Shoreline of state wide significance	No Upland area will be developed for residential subdivision	Yes Open Space, Steep Slopes with project specific CAO setbacks	Intact riparian area and pocket estuary	Rural	Natural

<sup>&</sup>lt;sup>3</sup> The centerline of East Bay Drive shall be used to denote Budd 6B U (upland) from Budd 6B S (shoreline).

Marine Waterbody	Reach	Ecosystem Analysis (Condition and Importance)	Land Use and Zoning encourage high- intensity commercial, mixed-use or industrial uses	A NRCA, Federal or State Wildlife Refuge or Unique Environment retaining high quality and high value habitat	Currently residential in character, or zoned for future residential development	Open space, flood plains, wetlands, steep slopes and other sensitive lands that are found within the urban areas	Rationale for Designation	Current Designation	Draft Designations
	NIS-2 Mallard Cove, mini-marina & Beachcrest	Medium – medium level of alteration; several key sediment and habitats	No	Shoreline of state wide significance	Yes	Some Steep slopes & stream	Altered shoreline at base of steep slope and across stream Partially modified pocket estuary This shoreline is predominately residential	Rural	Urban Conservancy

**TABLE 5**: SHORELINE ENVIRONMENTAL DESIGNATIONS FOR RIVERS AND STREAMS.

River Waterbody	Reach	Ecosystem Analysis (Condition and Importance)	Land Use and Zoning encourage high-intensity commercial, mixed-use or industrial uses	A NRCA, Federal or State Wildlife Refuge or Unique Environment retaining high quality and high value habitat	Currently residential in character, or zoned for future residential development	Open space, flood plains, wetlands, steep slopes and other sensitive lands that are found within the urban areas	Rationale for Designation	Current Designation	Draft Designations
Black Lake Drainage Ditch	BLDD-1 Black Lake Meadows SW Facility	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	No In adjacent uplands	-	No	Yes Extensive Wetlands	Predominantly critical areas – wetlands, floodplain & stream Proposes future arterial crossing at approximately 34 <sup>th</sup> Avenue	Percival SMA	Urban Conservancy
	<b>BLDD-2</b> <i>Mottman Rd</i> <i>to I-5</i>	Importance: Medium 2 - High Alteration: Medium 2 - High Combination: Restoration	Yes Outside of Canyon but within shoreline jurisdiction	-	No	Yes Within the canyon	Predominantly critical areas – stream in the canyon Relatively intact riparian vegetation within canyon	Percival SMA	High Intensity
Chambers Creek	CHAMCRK-1	Importance: Medium 2 - High Alteration: Medium 1/2 Combination: Restoration – Protection/Restoration	Limited in upland areas	-	Some	Yes Some wetlands & riparian areas	Predominantly critical areas – wetlands, & stream with Deschutes River floodplain Relatively intact riparian vegetation	Not in the SMP	Urban Conservancy
Deschutes River	DES-1 Left Bank	Importance: High Alteration: Medium 2 Combination: Restoration	No	-	No In adjacent uplands	Yes Floodplain & channel migration zone	Relatively intact riparian vegetation Predominantly open space or critical areas - floodplain & CMZ	Conservancy	Natural
	<b>DES-2</b> Left Bank	Importance: High Alteration: Medium 2 Combination: Restoration	No In adjacent uplands	-	Limited	Yes Floodplain & channel migration zone Largely undeveloped valley floor	Relatively intact riparian shoreline Predominantly open space or critical areas – floodplain, CMZ and stream	Conservancy	Natural
	<b>DES-3</b> Left Bank	Importance: High Alteration: Medium 1 Combination: Protection/Restoration	No	-	Limited	Yes Floodplain & channel migration zone Largely undeveloped valley floor	Relatively intact riparian shoreline Predominantly open space or critical areas – floodplain, CMZ and stream	Conservancy	Natural

River Waterbody	Reach	Ecosystem Analysis (Condition and Importance)	Land Use and Zoning encourage high-intensity commercial, mixed-use or industrial uses	A NRCA, Federal or State Wildlife Refuge or Unique Environment retaining high quality and high value habitat	Currently residential in character, or zoned for future residential development	Open space, flood plains, wetlands, steep slopes and other sensitive lands that are found within the urban areas	Rationale for Designation	Current Designation	Draft Designations
	DES-3 Right Bank Part within the UGA boundary	Importance: High Alteration: Medium 1 Combination: Protection/Restoration	No	-	Limited	Yes Floodplain & channel migration zone Largely undeveloped valley floor	Relatively intact riparian shoreline Predominantly open space or critical areas – floodplain, CMZ and stream	Conservancy	Natural
	<b>DES-4</b> Left Bank	Importance: High Alteration: Medium 1/2 Combination: Restoration – Protection/Restoration	No	-	Some In upland areas	Yes Floodplain & CMZ	Predominantly critical areas – floodplain, CMZ and stream	Rural & Conservancy	Urban Conservancy
	<b>DES-4</b> Right Bank Pioneer Park	Importance: High Alteration: Medium 1/2 Combination: Restoration – Protection/Restoration	No	-	No	Yes Floodplain & channel migration zone	Predominantly open space or critical areas – floodplain, CMZ and stream Public park with passive and active areas	Deschutes SMA & Conservancy	Urban Conservancy
	DES-5 Left Bank Tumwater Valley Golf Course	Importance: High Alteration: High Combination: Restoration	No	-	No	Yes Tumwater Valley Golf Course	Highly modified shoreline with high intensity recreation Predominantly open space or critical areas – floodplain, CMZ and stream	Deschutes SMA	Urban Conservancy
	DES-5 Right Bank Tumwater Valley Golf Course	Importance: High Alteration: Medium 2 Combination: Restoration	No	-	No	Yes Tumwater Valley Golf Course	Highly modified shoreline with high intensity recreation Predominantly open space or critical areas – floodplain, CMZ and stream	Deschutes SMA	Urban Conservancy
	DES-6 Left Bank Small part of Tumwater Falls Park	Importance: High Alteration: High Combination: Restoration	Yes	-	No	Fringe	Highly modified shoreline with high intensity land use and zoning Predominantly critical areas – floodplain, CMZ and stream	Deschutes SMA	Urban Conservancy
	<b>DES-6</b> <i>Right</i> <i>Bank</i> <i>Former</i> <i>Brewery</i>	Importance: High Alteration: Medium 2 Combination: Restoration	Yes	-	No	No	Highly modified shoreline with industrial land use and zoning Predominantly critical areas – floodplain, CMZ and strea	Deschutes SMA	High Intensity

River Waterbody	Reach	Ecosystem Analysis (Condition and Importance)	Land Use and Zoning encourage high-intensity commercial, mixed-use or industrial uses	A NRCA, Federal or State Wildlife Refuge or Unique Environment retaining high quality and high value habitat	Currently residential in character, or zoned for future residential development	Open space, flood plains, wetlands, steep slopes and other sensitive lands that are found within the urban areas	Rationale for Designation	Current Designation	Draft Designations
	DES-7 Left Bank Tumwater Falls Park;Deschute s Way/ Falls Terrace	Importance: High – Medium 2 Alteration: High - Medium 2 Combination: Restoration	Limited (Historical Commercial)	-	No	No Tumwater Falls Canyon	Area of high historical significance. Private park with trails, dam, fish ladder & hatchery.	Deschutes SMA	Urban Conservancy
	<b>DES-7</b> <i>Right</i> <i>Bank</i> <i>Tumwater Falls</i> <i>Park; Former</i> <i>Brewery</i>	Importance: High – Medium 2 Alteration: High - Medium 2 Combination: Restoration	Limited (Historical Commercial)		No	No Tumwater Falls Canyon	Area of high historical significance. Private park with trails.	Deschutes SMA	High Intensity
Percival Creek	PERC-1A	Importance: Medium 2 - High Alteration: Medium 2 - High Combination: Restoration	Some In adjacent uplands	-	No In adjacent uplands	Yes <i>(Tum)</i> Percival Creek Canyon	Predominantly critical areas – steep slopes & riparian in Canyon, with industrial park in uplands, plus interstate crossing.	Percival SMA	High Intensity
	PERC-1B	Importance: Medium 2 - High Alteration: Medium 2 - High Combination: Restoration	No	-	No In adjacent uplands	Yes <i>(Tum)</i> Percival Creek Canyon	Predominantly critical areas – steep slopes & riparian Wide stream canyon	Percival SMA	Urban Conservancy
Woodland Creek	WOOD-1A		No In adjacent uplands	Wetland system in open space protection	No	Yes Wetland system south of I-5 and riparian areas	Predominantly critical areas - floodplain & riparian	Conservancy	Natural
	WOOD-1B		No In adjacent uplands	-	Some	Yes Wetland system south of I-5 and riparian areas	Predominantly critical areas - floodplain & riparian Some residential development	Conservancy	Urban Conservancy
	WOOD-2		No	Intact Riparian Corridor	No In adjacent uplands	Riparian areas	Predominantly critical areas - floodplain & riparian	Conservancy	Natural

**TABLE 6**: SHORELINE ENVIRONMENTAL DESIGNATIONS FOR LAKE WATERBODIES.

Lake Waterbody	Reach	Ecosystem Analysis (Condition and Importance)	Land Use and Zoning encourage high-intensity commercial, mixed-use or industrial uses	A NRCA, Federal or State Wildlife Refuge or Unique Environment retaining high quality and high value habitat	Currently residential in character, or zoned for future residential development	Open space, flood plains, wetlands, steep slopes and other sensitive lands that are found within the urban areas	Rationale for Designation	Current Designation	Draft Designations
Barnes Lake	BAR-1A	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	No	-	Yes	Yes	This shoreline is predominately residential	Not in the SMP	Shoreline Residential (SR-75')
	BAR-1B	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	Yes – commercial site	-	No	No	Commercial at south end of lake	Not in the SMP	High Intensity
Bigelow Lake	BIG-1	Importance: High Alteration: Medium 2 Combination: Restoration	No	-	Some but limited	Extensive high quality wetlands surround the lake	Largely intact riparian vegetation High quality wetland surrounds most of the lake Some residential development has occurred along the eastern shore	Not in the SMP	Urban Conservancy
Black Lake	BLK-1A	Importance: High Alteration: Medium 1 Combination: Protection/Restoration	No	Yes Wetlands to south, part of proposed Black River National Wildlife Refuge.	Some	Yes Extensive high quality wetlands at south end of lake	High quality wetlands part of a national wildlife refuge	Natural	Natural
	BLK-1B	Importance: High Alteration: Medium 1 Combination: Protection/Restoration	No	-	Some	Yes Some other wetlands present	Mix of wetlands with limited residential development	Conservancy	Urban Conservancy
	BLK-2	Importance: High Alteration: Medium 1 Combination: Protection/Restoration	No	-	Yes	No	This shoreline is predominately residential	Rural	Shoreline Residential (SR-50')
Capitol Lake	<b>CAP-1</b> (So Basin) Oly & Tum Old Brewhouse	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	Limited (Tum) (Historical Commercial)	-	Yes	High quality intact riparian shoreline with steep slopes and floodplain Important Riparian Area ( <i>Oly</i> )	Intact wetland and riparian vegetation with steep slopes Limited future development due to CAO regulations <i>(Oly)</i> Area of high historical significance	Deschutes SMA & Conservancy	Urban Conservancy

Lake Waterbody	Reach	Ecosystem Analysis (Condition and Importance)	Land Use and Zoning encourage high-intensity commercial, mixed-use or industrial uses	A NRCA, Federal or State Wildlife Refuge or Unique Environment retaining high quality and high value habitat	Currently residential in character, or zoned for future residential development	Open space, flood plains, wetlands, steep slopes and other sensitive lands that are found within the urban areas	Rationale for Designation	Current Designation	Draft Designations
	<b>CAP-2</b> (So Basin) Tumwater Tumwater Historical Park	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	Limited (Tum) (Historical Commercial)	-	No	Some wetlands, floodplain and riparian areas Altered shoreline has Tumwater Historical Park	Some intact wetland and shoreline vegetation Public park with active and passive areas, and a boat launch	Deschutes SMA	Urban Conservancy
	CAP-3A Middle Basin (Oly) South Capitol Neighborhood	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	No	-	Yes In upland areas	High quality intact riparian shoreline with steep slopes Important Riparian Area ( <i>Oly</i> )	Largely intact riparian area with steep slopes Limited future development due to CAO regulations (Oly)	Conservancy	Urban Conservancy
	CAP-3B Middle Basin (Oly) Part of State Capitol Campus – Steam plant	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	Yes On Capitol Campus	-	No	High quality intact riparian shoreline with steep slopes Important Riparian Area ( <i>Oly</i> )	Steam plant is an urban use	Conservancy	High Intensity
	CAP-4 Middle Basin (Oly & Tum) State Capitol Campus with the Interpretative Site & Mitigation Ponds	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	Yes In upland areas	-	No	Yes <i>(Tum)</i> Highly altered shoreline has Capitol Lake Interpretative Site & Deschutes Parkway Wetland mitigation ponds, park-like vegetation, and upland steep slopes	Highly modified shoreline, mitigation ponds, park–like vegetation, roadway, and riparian fringe	Conservancy	Urban Conservancy
	<b>CAP-5</b> Percival Cove State Capitol Campus	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	No	-	Yes In upland areas	Hi quality intact riparian shoreline with steep slopes Important Riparian Area ( <i>Oly</i> ) Highly altered eastern shoreline has Deschutes Parkway	Intact wetland and riparian vegetation with steep slopes Highly modified shoreline, park– like vegetation, roadway, and riparian fringe	Conservancy	Urban Conservancy

Lake Waterbody	Reach	Ecosystem Analysis (Condition and Importance)	Land Use and Zoning encourage high-intensity commercial, mixed-use or industrial uses	A NRCA, Federal or State Wildlife Refuge or Unique Environment retaining high quality and high value habitat	Currently residential in character, or zoned for future residential development	Open space, flood plains, wetlands, steep slopes and other sensitive lands that are found within the urban areas	Rationale for Designation	Current Designation	Draft Designations
	CAP-6 North Basin State Capitol Campus with Capitol Lake dam & Heritage Park	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	Yes On Capitol Campus	-	No	No Highly altered eastern shoreline has Heritage Park	Highly modified shoreline, park– like vegetation, roadway and a concrete bulkhead	Urban & Conservancy	High Intensity
	<b>CAP-7</b> North Basin State Capitol Campus with Marathon Park	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	No	-	Some	No Highly altered shoreline has Marathon Park	Highly modified shoreline, park– like vegetation, roadway and riparian fringe	Conservancy	Urban Conservancy
Chambers Lake	CHAM-1A NE Basin (Lcy)	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	No	-	Yes North section	No	Residential in nature	Urban	Shoreline Residential (SR-75')
	CHAM-1B SE Basin (Lcy)	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	No	-	No	Yes On wetlands at south end of lake	Mix of wetlands along one portion	Conservancy	Urban Conservancy
	CHAM-2 South (Oly/Lacey)	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	No	-	Some	Some wetlands & high ground water flooding	High ground water flooding concerns in the upland area	Conservancy	Urban Conservancy
	CHAM-3 W Basin (Lcy)	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	No	-	Yes	Fringe	This shoreline is predominately single-family and multi-family residential	Urban	Shoreline Residential (SR-75')
Grass Lake	GRASS-1	Importance: Medium 2 Alteration: Medium 1 Combination: Protection/Restoration	No On adjacent lands	Parts are within the Grass Lake Refuge - <i>Olympia</i>	Some On adjacent lands	Extensive high quality wetlands around lake Part of the Green Cove Creek Basin	High quality wetlands & city refuge Low intensity development watershed designation	Rural	Urban Conservancy

Lake Waterbody	Reach	Ecosystem Analysis (Condition and Importance)	Land Use and Zoning encourage high-intensity commercial, mixed-use or industrial uses	A NRCA, Federal or State Wildlife Refuge or Unique Environment retaining high quality and high value habitat	Currently residential in character, or zoned for future residential development	Open space, flood plains, wetlands, steep slopes and other sensitive lands that are found within the urban areas	Rationale for Designation	Current Designation	Draft Designations
Hewitt Lake	HEWITT-1	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	No	-	Yes	No	This shoreline is predominately residential	Rural	Shoreline Residential (SR-75')
Hicks Lake	HICKS-1	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	No	City has zoned high quality wetlands as open space for protection	No	Yes Extensive high quality wetlands	This shoreline is characterized by wetlands	Conservancy	Natural
	HICKS-2A	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	No	-	Yes	Yes City park and Church camp	This shoreline is predominately undeveloped	Urban	Urban Conservancy
	HICKS-2B	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	No	-	Yes	No	This shoreline is predominately residential	Urban	Shoreline Residential (SR-50')
Ken Lake	KEN-1	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	No	-	Yes	No	This shoreline is predominately residential	Urban	Shoreline Residential (SR-25')
Lake Susan/ Munn Lake	MUNN-1	Importance: Medium 2 Alteration: Medium 1 Combination: Protection/Restoration	No	-	Yes	Lake edge somewhat undeveloped Wetlands to south	Shoreline is residential with larger setbacks	Conservancy	Shoreline Residential (SR-75')
	MUNN-2	Importance: Medium 2 Alteration: Medium 1 Combination: Protection/Restoration	No	-	Yes	Some wetlands	Shoreline is residential with larger setbacks	Conservancy	Shoreline Residential (SR-75')
	MUNN-3	Importance: Medium 2 Alteration: Medium 1 Combination: Protection/Restoration	No	-	Yes	Some wetlands	Shoreline is residential with larger setbacks	Conservancy	Shoreline Residential (SR-50')
Long Lake	LONG-1	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	No	-	Yes	No	This shoreline is predominately residential	Rural	Shoreline Residential (SR-50')

Lake Waterbody	Reach	Ecosystem Analysis (Condition and Importance)	Land Use and Zoning encourage high-intensity commercial, mixed-use or industrial uses	A NRCA, Federal or State Wildlife Refuge or Unique Environment retaining high quality and high value habitat	Currently residential in character, or zoned for future residential development	Open space, flood plains, wetlands, steep slopes and other sensitive lands that are found within the urban areas	Rationale for Designation	Current Designation	Draft Designations
	LONG-2	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	No	-	Yes	No	This shoreline is predominately residential	Rural	Shoreline Residential (SR-50')
	LONG-3A	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	No	High quality wetlands protected as open space	No	Yes Extensive high quality wetlands	This shoreline is characterized by wetlands	Conservancy	Natural
	LONG-3B	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	No	-	Yes		This shoreline is predominately residential	Conservancy	Shoreline Residential (SR-50')
	LONG-3C	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	No	High quality wetlands protected as open space	No	Yes Extensive high quality wetlands	This shoreline is characterized by wetlands	Conservancy	Natural
	LONG-4	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	No	-	Yes	No	This shoreline is predominately residential	Rural	Shoreline Residential (SR-50')
	LONG-5	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	No	-	Yes	No	This shoreline is predominately residential	Rural	Shoreline Residential (SR-50')
	LONG-6	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	No	-	Some	Yes Extensive high quality wetlands	This shoreline is characterized by wetlands	Conservancy	Urban Conservancy
Pattison Lake	PAT-1	Importance: Medium 2 Alteration: Medium 1 Combination: Protection/Restoration	No	-	Yes	No	This shoreline is predominately residential	Rural	Shoreline Residential (SR-50')
	PAT-2	Importance: Medium 2 Alteration: Medium 1 Combination: Protection/Restoration	No	-	Yes	No	This shoreline is predominately residential	Rural	Shoreline Residential (SR-75')

Lake Waterbody	Reach	Ecosystem Analysis (Condition and Importance)	Land Use and Zoning encourage high-intensity commercial, mixed-use or industrial uses	A NRCA, Federal or State Wildlife Refuge or Unique Environment retaining high quality and high value habitat	Currently residential in character, or zoned for future residential development	Open space, flood plains, wetlands, steep slopes and other sensitive lands that are found within the urban areas	Rationale for Designation	Current Designation	Draft Designations
	PAT-3A	Importance: Medium 2 Alteration: Medium 1 Combination: Protection/Restoration	No	High quality wetlands protected as open space	No	Extensive high quality wetlands	Extensive high quality wetlands	Conservancy	Natural
	PAT-3B	Importance: Medium 2 Alteration: Medium 1 Combination: Protection/Restoration	No	-	No	No	This shoreline is predominately residential	Rural	Shoreline Residential (SR-75')
	PAT-4A	Importance: Medium 2 Alteration: Medium 1 Combination: Protection/Restoration	No	-	Yes	No	This shoreline is predominately residential	Rural	Shoreline Residential (SR-75')
	PAT-4B	Importance: Medium 2 Alteration: Medium 1 Combination: Protection/Restoration	No	High quality wetlands protected as open space	No	Extensive high quality wetlands	Extensive high quality wetlands	Conservancy	Natural
	PAT-4C	Importance: Medium 2 Alteration: Medium 1 Combination: Protection/Restoration	No	-	Yes	No	This shoreline is predominately residential	Rural	Shoreline Residential (SR-50')
Southwick Lake	SOUTH-1	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	No	-	Some	Fringe Relatively intact shoreline	Relatively intact shoreline vegetation This shoreline is characterized by some wetlands with residential	Conservancy	Urban Conservancy
Trosper Lake	TROS-1	Importance: HIgh Alteration: Medium 2 Combination: Restoration	No	-	No On adjacent lands	Yes Wetlands surround the lake	This shoreline is characterized by wetlands	Conservancy	Urban Conservancy
Ward Lake	WARD-1	Importance: Medium 2 Alteration: Medium 2 Combination: Restoration	No	-	Yes	Some wetlands	This shoreline is characterized by residential with a large setbacks, some intact riparian vegetation, and some wetlands	Rural	Shoreline Residential (SR-75')

## VI. Shoreline Reach Endpoints

Below are GPS endpoint descriptions for the applicable shoreline reaches. The coordinates are in NAD83 HARN, Lambert Conic Conformal, WA State Plane – South, Feet.

Note – Those water bodies which contain a single shoreline environment designation are not included.

**TABLE 7**: SHORELINE REACH ENDPOINTS

Marine Waterbody	Reach	Starting Point X Coordinate	Starting Point Y Coordinate	Ending Point X Coordinate	Ending Point Y Coordinate
Budd Inlet	BUDD-1	1036138.48	644816.6938	1033288.621	646314.2285
	BUDD-2	1037789.412	641611.2948	1036138.48	644816.6938
	BUDD-3A Marina, BMT	1039141.685	637128.7866	1037789.412	641611.2948
	BUDD-3B West Bay Park, Lagoon	1039286.668	634753.517	1039141.685	637128.7866
	BUDD-3C	1039577.072	633306.3998	1039286.668	634753.517
	<b>BUDD-4</b> 5 <sup>th</sup> Ave & Cap Lake Dam	1040221.758	633498.331	1039577.072	633306.3998
	<b>BUDD-5</b> <i>Marinas, Port of Olympia &amp;</i> <i>Cascade Pole</i>	1043250.491	635540.1731	1040221.758	633498.331
	BUDD-6A	1043803.104	634074.949	1043250.491	635540.1731
	BUDD-6B (upland) <sup>1</sup>	1043823.018	636906.1223	1043803.104	634074.949
	BUDD-6B (shoreline) <sup>1</sup>	1043899.404	636955.5148	1043921.211	634074.9493
	BUDD-7	1043114.021	641374.322	1043823.018	636906.1223
	<b>BUDD-8A</b> Priest Point Park – park area	1043091.583	642810.6673	1043114.021	641374.322
	BUDD-8B Priest Point Park – natural area	1041438.789	644483.9302	1043091.583	642810.6673

Marine Waterbody	Reach	Starting Point X Coordinate	Starting Point Y Coordinate	Ending Point X Coordinate	Ending Point Y Coordinate
Nisqually Reach	NIS-1 Butterball Cove & Jubilee Beach	1079088.907	656755.8287	1077277.079	659222.5152
	NIS-2 Mallard Cove, mini-marina & Beachcrest	1080768.951	655787.8924	1079088.907	656755.8287

Final Proposed SMP Shoreline Environmental Designations for Lacey, Olympia, Tumwater

<sup>&</sup>lt;sup>1</sup> The centerline of East Bay Drive shall be used to denote Budd 6B (upland) from Budd 6B (shoreline).

River Waterbody	Reach	Starting Point X Coordinate	Starting Point Y Coordinate	Ending Point X Coordinate	Ending Point Y Coordinate	
Black Lake Drainage	BLDD-1 Black Lake Meadows SW Facility	1025587.323	620982.064	1032160.44	627153.511	
Ditch	<b>BLDD-2</b> <i>Mottman Rd</i> <i>to I-5</i>	1032160.44	627153.511	1033751.571	627023.581	
Chambers Creek	CHAMCRK-1	1053988.778	612139.6547	1048466.977	615498.4743	
Deschutes River	DES-1 Left Bank	1051093.718	599292.9597	1049393.47	600679.6091	
	DES-2 Left Bank	1049393.47	600679.6091	1049929.943	608842.0652	
	<b>DES-3</b> Left Bank and Portion of Right Bank that is within the UGA boundary	1049619.792	612662.9075	1047366.192	615236.098	
	DES-4 Pioneer Park	1047243.463	615187.8404	1043904.199	615540.6725	
	<b>DES-5</b> <i>Tumwater Valley Golf Course</i>	1043904.199	615540.6725	1041198.186	619459.3805	
	<b>DES-6</b> Small part of Tumwater Falls Park; Former Brewery	1041198.186	619459.3805	1040805.9	622428.4001	
	<b>DES-7</b> <i>Tumwater Falls</i> <i>Park; Deschutes Way/ Falls</i> <i>Terrace; Former Brewery</i>	1040805.9	622428.4001	1040916.712	623604.7237	
Percival	PERC-1A	1033751.571	627023.581	1034553.351	627143.1179	
Creek	PERC-1B	1034553.351	627143.1179	1038594.294	630039.2632	
Woodland Creek	WOOD-1A	Associated Wetland				
UICEN	WOOD-1B	1066734.323	637053.6615	1065543.307	641163.1619	
	WOOD-2	1065543.307	641163.1619	1062931.21	642801.6149	

Lake Waterbody	Reach	Starting Point X Coordinate	Starting Point Y Coordinate	Ending Point X Coordinate	Ending Point Y Coordinate	Lake Waterbody	Reach	Starting Point X Coordinate	Starting Point Y Coordinate	Ending Point X Coordinate	Ending Point Y Coordinate
Barnes Lake	BAR-1A	1037683.639	617848.8858 617973.5397	1038489.342	617973.5397 617848.8858		North Basin State Capitol Campus with				
	BAR-1B	1036469.342	01/9/3.539/	1037683.639	017040.0000		Marathon Park				
Black Lake	BLK-1A	1021039.171	608460.6322	1021823.934	609265.1242	Chambers Lake	CHAM-1A NE Basin (Lcy)	1058295.74	624341.7594	1059277.815	623222.5785
	BLK-1B	1021823.934	609265.1242	1022999.477	612514.8727		CHAM-1B	1059277.815	623222.5785	1058315.82	624207.4245
	BLK-2	1022999.477	612514.8727	1025587.323	620982.064		SE Basin (Lcy)	4050045.00	0040074045	4057000 700	000000 5704
Capitol Lake	CAP-1	1041308.459	625538.9121	1040916.712	623604.7237	Hicks Lake	CHAM-2 South (Oly/Lacey)	1058315.82	624207.4245	1057236.788	628329.5784
	(So Basin) Oly & Tum						CHAM-3 W Basin (Lcy)	1057236.788	628329.5784	1058295.74	624341.7594
	Old Brewhouse	1040879.661	623618.6151	1041153.499	625470.4155		HICKS-1	1067971.831	622425.3677	1066498.433	622896.5968
	CAP-2 (So Basin)	1040879.001	023018.0131	1041133.499	020470.4155		HICKS-2A	1066498.433	622896.5968	1066315.826	624781.2053
	Tumwater Tumwater Historical Park						HICKS-2B	1066315.826	624781.2053	1067971.831	622425.3677
	CAP-3A Middle Basin (Oly)	1040020.249	630041.2661	1041308.459	625538.9121	Lake Susan/ Munn Lake	MUNN-1	1046776.494	612401.0615	1046286.625	610237.6296
	South Capitol Neighborhood						MUNN-2	1046286.625	610237.6296	1046776.494	612401.0615
	CAP-3B Middle Basin (Oly)	1039873.741	630635.2984	1040020.249	630041.2661	Long Lake	LONG-1	1072155.408	626455.54	1073686.871	622580.178
	Part of State Capitol Campus –						LONG-2	1073686.871	622580.178	1075831.506	618895.7379
	Steam plant CAP-4	1041153.499	625470.4155	1039126.441	629995.8329		LONG-3A	1075831.506	618895.7379	1075250.393	618778.0223
	Middle Basin (Oly & Tum)	1041100.400	020470.4100	1000120.441	020000.0020		LONG-3B	1075250.393	618778.0223	1074022.246	618593.3193
	State Capitol Campus with the Interpretative Site						LONG-3C	1074022.246	618593.3193	1073288.877	619453.2279
	& Mitigation Ponds						LONG-4	1073288.877	619453.2279	1073476.068	622399.0506
	CAP-5 Percival Cove	1039398.615	628541.8404	1038703.865	630547.3073		LONG-5	1073476.068	622399.0506	1070995.681	627885.7387
	State Capitol Campus						LONG-6	1070995.681	627885.7387	1072155.408	626455.54
	CAP-6 North Basin	1039856.396	632821.2829	1039873.741	630635.2984	Pattison Lake	PAT-1	1070755.575	614759.2944	1070788.432	614788.4139
	State Capitol Campus with Capitol Lake dam & Heritage Park						PAT-2	1074608.962	611961.8648	1070755.575	614759.2944
	CAP-7	1039064.629	630264.148	1039856.396	632821.2829		PAT-3A	1074905.118	612900.2809	1074608.962	611961.8648

Lake Waterbody	Reach	Starting Point X Coordinate	Starting Point Y Coordinate	Ending Point X Coordinate	Ending Point Y Coordinate
	PAT-3B	1074303.911	614117.0059	1074905.118	612900.2809
	PAT-4A	1073565.532	615242.9048	1074303.911	614117.0059
	PAT-4B	1073227.368	614497.0324	1073565.532	615242.9048
	PAT-4C	1070788.432	614788.4139	1073227.368	614497.0324

## VII. Maps

City of Lacey Shoreline Master Program September 2011

## References

- City of Lacey Comprehensive Plan (including Capital Facilities Chapter)
- City of Lacey Comprehensive Plan for Outdoor Recreation (2004)
- City of Olympia Comprehensive Plan (including Capital Facilities Chapter)
- City of Olympia Parks, Arts, and Recreation Plan (2002)
- City of Tumwater Comprehensive Plan (including Capital Facilities Chapter)
- City of Tumwater Parks, Recreation and Open Space Plan, Draft, November 2007
- Draft Shoreline Inventory and Analysis for the Cities of Lacey, Olympia, and Tumwater and their UGAs
- Port of Olympia website http://www.portolympia.com/
- Thurston County Comprehensive Plan (including Capital Facilities Chapter)
- Thurston Regional Trails Plan, Thurston Regional Planning Council 2007