ATTACHMENT A

TUKWILA SHORELINE MASTER PROGRAM

December 14, 2009

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with the assistance of ESA Adolfson

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A. Shoreline Inventory and Characterization Report
B. Shoreline Restoration Plan

1. INTRODUCTION

1.1 Purpose and Background

This document presents the Shoreline Master Program (SMP) for the City of Tukwila. It is an update to Tukwila's existing SMP, originally adopted in 1974. The SMP is intended to guide new shoreline development, redevelopment and promote reestablishment of natural shoreline functions, where possible. It was prepared in conformance with the Washington State Shoreline Management Act (Chapter 90.58 RCW) and its implementing regulations (WAC 173-26).

This Shoreline Master Program represents the first substantial amendment to the existing SMP since its adoption in 1974, and reflects changes in local conditions and priorities and the evolving State regulatory environment. An example of changes in local conditions is that Tukwila has annexed significant amounts of shoreline from 42nd Avenue South northward and is evaluating additional annexation of King County shoreline areas upstream of the southern City limits (See **Annexation History and Potential Annexation Area Map, Map 1**). On these portions of the shoreline, since the SMP was not updated concurrently with the annexations, regulators still use the King County SMP and not Tukwila's.

An example of changes in the State's regulatory environment is seen in the series of regulations adopted in 1995 by the Washington State Legislature intended to simplify and streamline the development process. This effort included amendments to RCW 36.70A requiring that goals and policies of local SMPs be integrated into local Growth Management Act (GMA) supportive plans. Consistency between the Shoreline Master Program, the Comprehensive Plan and implementing regulations is required. The GMA also requires that land use planning efforts be coordinated among all involved -- citizens, local, regional and Tribal governments, and businesses. The new Tukwila Master Program complies with these state requirements.

New guidance issued by the Department of Ecology for local governments updating their SMPs adds new requirements to the preparation process, including a Shoreline Restoration Plan and a Cumulative Impacts Analysis.

This Shoreline Master Program presents background information on the Shoreline Management Act, describes shoreline jurisdiction in Tukwila, summarizes the amendment process carried out to date, presents a summary of the Shoreline Inventory and Characterization, presents a summary of the Shoreline Restoration Plan, proposes shoreline environments, and establishes goals, policies and regulations, which apply to all activities on all affected lands and waters within the shoreline jurisdiction. In addition, there is a chapter that establishes design guidelines. Maps are provided to illustrate shoreline jurisdiction and environments. The Shoreline Inventory and Characterization Report is provided in

Appendix A. The Restoration Plan is provided in Appendix B. A Cumulative Impacts Analysis is provided as a stand-alone document.

1.2 Shoreline Jurisdiction

A. Jurisdiction under the Shoreline Management Act

The Shoreline Management Act, or SMA, (RCW 90.58) establishes regulations for the management and protection of the state's shoreline resources and requires planning for reasonable and appropriate uses. The Act calls for a joint planning effort between state and local jurisdictions, requiring local government to develop its own Shoreline Master Program based on state guidelines.

The SMA requires that local governments establish shoreline jurisdiction for those bodies of water and lands that are considered to be "shorelines of the state" or "shorelines of statewide significance." Shorelines of the state include rivers with a mean annual flow of at least 20 cubic feet per second (cfs). Shorelines of statewide significance in western Washington include rivers with a mean annual flow of at least 1,000 cubic feet per second (cfs). The minimum shoreline environment required by the SMA includes all lands 200 feet from the "ordinary high water mark" or floodway of a state shoreline, whichever is greater, and all wetlands associated with these state shorelines and located within the 100-year floodplain. The following graphic illustrates the jurisdiction of the Shoreline Management Act.

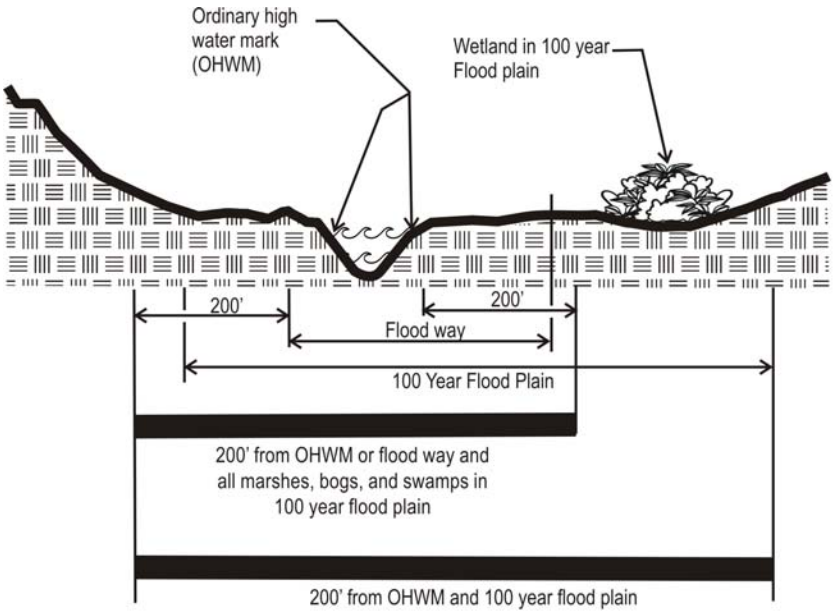


Figure 1.1 Lands and waters under the jurisdiction of the Shoreline Management Act

B. Shoreline Jurisdiction in Tukwila

The Green/Duwamish River is the only "shoreline of statewide significance" in the city (RCW 98.58.030). Throughout the SMP document, the term "Shoreline Jurisdiction" is used to describe the water and land areas subject to shoreline jurisdiction in Tukwila. Based on SMA guidelines for shoreline jurisdiction, Tukwila's Shoreline Jurisdiction is defined as follows:

> *The Tukwila Shoreline Jurisdiction includes the channel of the Green/Duwamish River, its banks, the upland area which extends from the ordinary high water mark landward for 200 feet on each side of the river, floodways and all associated wetlands within its floodplain. For the purpose of determining shoreline jurisdiction only, the floodway shall not include those lands that have historically been protected by flood control devices and, therefore, have not been subject to flooding with reasonable regularity.*

The Tukwila SMP applies to all development activity occurring within the Shoreline Jurisdiction, which corresponds to the Shoreline Overlay District as established by Chapter 18.44 of the Tukwila Municipal Code.

The use of the ordinary high water mark, or OHWM, represents a change from the previous Master Program, which used the mean-high-water mark (MHWM). The MHWM is the elevation of the surface of Green River and Duwamish River waters when the discharge rate at the U.S. Geological survey Stream Gauging Station near Auburn is 9,000 cfs. Locating the MHWM requires the skills of a surveyor. The OHWM is used to define the usual height of water, as evidenced by soil and vegetation conditions. It may be visually located based on the line between flood-tolerant and non-flood-tolerant vegetation along the riverbank. Due to the relative ease of locating the OHWM, this measure is preferred and therefore implemented in this SMP. The Shoreline Management Act also requires the use of the OHWM as the means by which location of the shoreline environment is determined.

All proposed uses and activities under its jurisdiction must be reviewed for compliance with the goals, policies and regulations herein. All proposed uses and development occurring within shoreline jurisdiction must conform to chapter 90.58 RCW, the Shoreline Management Act and this Master Program whether or not a permit is required.

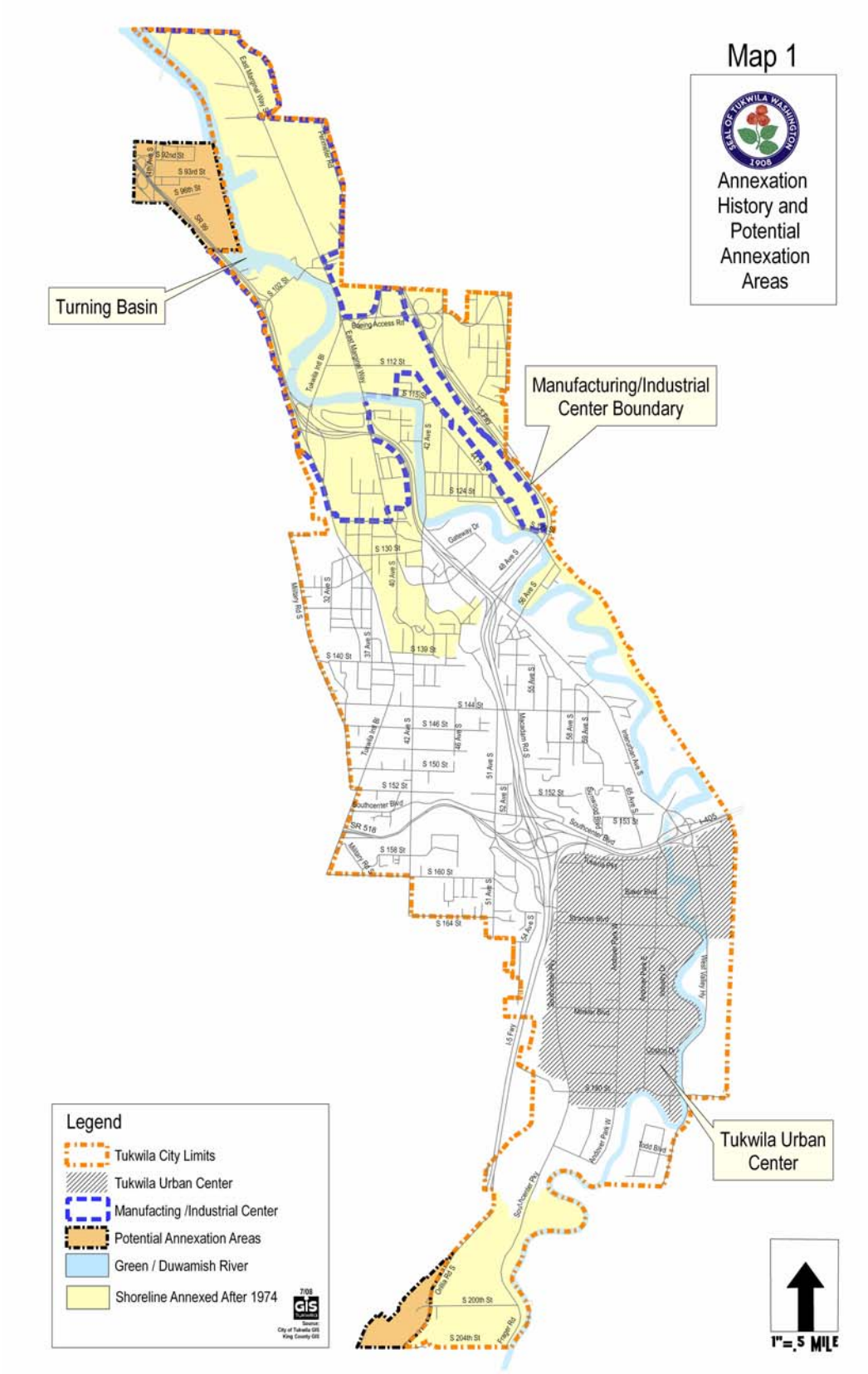
This Master Program includes the two proposed annexation areas indicated in the Comprehensive Plan (Map 1). The north annexation area is located between the Green/Duwamish River on the east, Military Road to the west, and from S. 128th Street north to S. 96th Street. The south annexation area is located between I-5 and the Green River, south of the City limits to S. 204th Street. Adoption of shoreline policies and environment designations for newly annexed areas would require an amendment to the Shoreline Master Program. To avoid having to amend the SMP later, these potential

annexation areas are considered here and the environmental designations and regulations will apply upon annexation.

In response to regional policies of the King County Growth Management Planning Council, Tukwila designated two key areas as its Urban Center and its Manufacturing Industrial Center (MIC). The Southcenter area, from I-405 south to S. 180th Street was designated the "Urban Center," and the Duwamish Corridor, an area where existing industrial-employment is concentrated, was designated as Tukwila's "Manufacturing Industrial Center." Both of these areas have lands adjacent to the river and are identified on **Map 1**.

The Tukwila Urban Center is continuing to expand and intensify - the Westfield Southcenter Mall recently completed the addition of 475,000 sq. ft. of retail space and a new 220,000 square foot shopping center along Southcenter Parkway, Southcenter Plaza recently was completed. This SMP assumes the re-development of Tukwila's Urban Center and the MIC will affect the character of the river, as it has in the past.

The City Council adopted a Strategic Implementation Plan for the MIC on November 2, 1998. The Plan includes an analysis of existing conditions along the shoreline, narratives of various habitats, current regulations, proposed requirements and prototypes for future development along the shoreline in the MIC. The Strategic Plan was prepared in conjunction with a Planned Action Environmental Impact Statement that analyzed development alternatives in the MIC area and streamlined SEPA review for development in that corridor for the past 10 years. These documents are now 9-12 years old. Where changed circumstances dictate, the SMP will provide updated guidance and regulations for the MIC area. The MIC area has significant potential for redevelopment.


Map 1
Annexation History and Potential Annexation Areas
Turning Basin
Manufacturing/Industrial Center Boundary
Tukwila Urban Center
Legend
Tukwila City Limits
Tukwila Urban Center
Manufacting /Industrial Center
Potential Annexation Areas
Green / Duwamish River
Shoreline Annexed After 1974
1"=.5 MILE

2. TUKWILA'S SHORELINE MASTER PROGRAM

2.1 SMP Components

To comply with the SMA, Tukwila has included the following components in development of this draft Shoreline Master Program (SMP):

- Outreach including a citizen participation process, coordination with state agencies, Indian tribes, and other local governments (see Section 2.4 below)
- Inventory, analysis and characterization of shoreline conditions, environmental functions and ecosystem-wide processes
- Analysis of potential shoreline restoration opportunities
- Establishment of shoreline environments
- Development of goals and policies
- Preparation of regulations
- Preparation of Shoreline Design Guidelines
- Evaluation and consideration of cumulative impacts

2.2 SMP Elements

The SMA includes eight main issues, or "elements," to be addressed in each local shoreline master program (RCW 90.58.100). To implement these elements, shoreline policies and regulations are to be developed for each. The policies are found in The Shoreline Goals and Policies Section of this SMP and the regulations in the following sections: Shoreline Use Regulations; Shoreline Development Standards; Environmentally Sensitive Areas within the Shoreline; Public Access to the Shoreline; Shoreline Design Guidelines; and Habitat Restoration. The policies will be incorporated into the City's Comprehensive Plan and the regulations into the Zoning Code. The elements required by the SMA are:

Economic Development
Public Access
Recreation
Circulation
Shoreline Uses
Conservation
Historical, cultural, educational and scientific element
Preventing or minimizing flood damage

Consistent with the Growth Management Act requirement to integrate the SMP and the Comprehensive Plan, the City adopted its updated Comprehensive Plan in 1995 and incorporated the required elements of a SMP noted above into its Plan. Further direction for implementation of the required elements of SMPs is provided through Zoning Code and Design Review requirements.

2.3 History of SMP Planning in Tukwila

Tukwila's Shoreline Master Program (SMP) was first adopted in 1974, in response to the passage of the Shoreline Management Act (RCW 90.58). The SMP was later updated through minor amendments in 1982 and 1987, none of which required the adoption of a new SMP.

In 1992-93, as part of the preparation for a major revision to the City's Comprehensive Plan, the City completed a Shorelines Background Report (1993), with the participation of the Tukwila Tomorrow Citizen's Committee. This report established the basis for the shoreline comprehensive plan goals and policies. The report was reviewed and approved by citizens and officials as part of the entire Comprehensive Plan adoption process. The Comprehensive Plan was adopted in 1995.

While effective in setting the stage for the development of a new Shoreline Master Program (SMP), the policies adopted as part of the 1995 Comprehensive Plan were only the first step. Staff began the process to prepare a new SMP in the spring of 1999, based on the draft shoreline guidelines that were in the process of adoption by the Department of Ecology at the time.

A grant from the Washington State Department of Ecology provided funding for a Shoreline Inventory and Shoreline Design Manual. The City completed an inventory of all parcels within the 200 foot Shoreline jurisdiction in 2000. Based on that inventory and the policies adopted in the Comprehensive Plan, staff prepared a draft Shoreline Master Program, which also incorporated citizen comments from meetings.

As the Planning Commission was nearing completion of its review of the draft SMP, ~~the~~ new shoreline regulations were approved by Ecology in November, 2000. The new regulations were immediately appealed and ultimately invalidated by the Shoreline Hearings Board in August, 2001. As a result, the City opted to defer completing its SMP update process until new guidelines were issued by Ecology, which occurred in 2003.

2.4 Current SMP Update Process

In 2003 the legislature established funding and timelines for all jurisdictions to undertake comprehensive master program amendments. In 2005, Tukwila received a grant (SMA Grant No. 0600234) to complete a comprehensive update, including new technical analyses of shoreline conditions, restoration planning, and the preparation of revised SMP goals, policies, and regulations. The overall update process is described further below.

In order to capitalize on previous citizens' involvement in the planning process, the City decided to start the current SMP update with the work that had been prepared to date.

Therefore, this draft document represents the work begun in 1999, with revisions to address new Ecology regulations and guidance, as well as changed conditions in the City's shoreline area.

The development of any SMP, as required by new shoreline regulations, involves three specific steps

- Shoreline inventory and characterization, preparation of a restoration plan, preparation of a cumulative impacts analysis;
- Citizen involvement in development of policies and regulations; and
- Review by interested parties, including adjacent jurisdictions.

As part of this renewed SMP update process, the City has:

- Continued the previously started citizen involvement program utilizing the Planning Commission, which serves as the City's permanent citizen advisory body for land use issues, holding Open Houses and public hearings
- Coordinated and shared information with neighboring jurisdictions
- Updated and expanded the Shoreline Inventory and mapping (included as Appendix A to this document)
- Prepared a Shoreline Restoration Plan (Appendix B)
- Proposed shoreline environment designations
- Proposed shoreline development policies
- Proposed shoreline development regulations
- Prepared a draft Cumulative Impacts Analysis
- Coordinated with Department of Ecology, submitting a staff draft SMP for review and comment and meeting with Ecology staff

2.5 Citizen Review Processes

The citizen review component of the SMP amendment process began in 1992 in concert with the development of a Revised Comprehensive Plan. Tukwila Tomorrow, a citizen's advisory group, met to determine shoreline issues, develop draft policies for the Comprehensive Plan, and prepare a Shoreline Background Report (2/93) for review by elected and appointed officials, a citizens committee and interested parties. The City Council adopted revised shoreline policies in the 1995 Comprehensive Plan, which in turn have formed the basis for the policies in the updated SMP.

In 1999, a Shoreline Advisory Panel was appointed by the Mayor's Office, comprised of two citizens living within the Shoreline jurisdiction and two representatives of businesses within the shoreline jurisdiction. The Panel reviewed a staff draft SMP and forwarded a Draft SMP to the Planning Commission for its review in March, 2000. The Planning Commission began its review in May, 2000 and continued until October, 2000 when review on the Draft SMP was suspended to allow staff time to review the new Ecology

shoreline regulations. The new regulations were appealed and invalidated by the Shoreline Hearings Board in August, 2001. Revised shoreline regulations, based on a mediated settlement among the appealing parties, were adopted by Ecology in December 2003.

Rather than establish a new Shoreline Advisory Panel, ~~the~~ citizen involvement process continued utilizing the Planning Commission, as the Commission – composed of Tukwila residents and a business representative – serves as the volunteer land use review body for the City. Other outreach activities included: city newsletter articles, establishment of an SMP update page on the City's website, and informational displays at local events and fairs. A series of public meetings were held on the SMP, along with informational mailings sent to shoreline property owners, and finally public hearings held before the City's Planning Commission and City Council prior to SMP adoption.

3. DEFINITIONS

The following definitions shall be used in the administration of the Master Program and will be incorporated into the Definitions Chapter of the Zoning Code, TMC 18.10.

Appurtenance: means a structure that is necessarily connected to the use and enjoyment of a single family residence, including a garage, deck, driveway, utilities, fences, installation of a septic tank and drain field and grading which does not exceed 250 cubic yards and which does not involve placement of fill in any wetland or waterward of the ordinary high water mark (WAC 173-27-040 (2) (g))**.**

Armoring: means the control of shoreline erosion with hardened structures, such as bulkheads, sea walls, and riprap.

Bank: means the rising ground bordering a water body and forming an edge or slope.

Bioengineering: Means integrating living woody and herbaceous materials with organic (plants, wood, jute mats, coir logs, etc) and inorganic materials (rocks, soils) to increase the strength and structure of the soil along a riverbank, accomplished by a dense matrix of roots which hold the soil together. The above-ground vegetation increases the resistance to flow and reduces flow velocities by dissipating energy.

Buffer: means an area separating two different types of uses or environments for the purpose of reducing incompatibilities between them or reducing the potential adverse impacts of one use or environment upon the other.

Bulkhead: means vertical structures erected parallel to and near the ordinary high water mark for the purpose of protecting adjacent uplands from erosion, from the action of waves or currents.

Channel migration zone: means the area along a river within which the channel(s) can be reasonably predicted to migrate over time as a result of natural and normally occurring hydrological and related processes when considered with the characteristics of the river and its surroundings.

Dike: means an embankment or structure built in the river channel to contain or redirect flow within the channel and prevent shoreline destabilization.

Development, shoreline: means a use consisting of the construction or exterior alteration of structures; dredging; drilling; dumping; filling; removal of any sand, gravel, or minerals; construction of bulkheads; driving of piling; placing of obstructions; or any project of a permanent or temporary nature which interferes with the normal public use of the waters overlying lands subject to the Shoreline Management Act at any stage of water level.

Ecological/ecosystem functions (or shoreline functions): means 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. See WAC 173-26-200 (2) (c).

Ecosystem-wide processes: means 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.

Environment designation: means the term used to describe the character of the shoreline in Tukwila based upon the recommended classification system established by WAC 173-26-211 and as further refined by Tukwila's SMP.

Feasible: means, for the purpose of the Shoreline Master Program, that an action, such as a development project, mitigation, or preservation requirement, meets all of the following conditions:

1. 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;
2. The action provides a reasonable likelihood of achieving its intended purpose; and
3. The action does not physically preclude achieving the project's primary intended legal use.

In cases where these guidelines require certain actions unless they are infeasible, the burden of proving infeasibility is on the applicant. 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.

Flood plain: means that land area susceptible to inundation with a one percent chance of being equaled or exceeded in any given year (synonymous with one hundred-year flood plain). The limit of this area shall be based upon flood ordinance regulation maps or a reasonable method which meets the objectives of the Shoreline Management Act...

Flood hazard reduction: means actions taken to reduce flood damage or hazards. Flood hazard reduction measures may consist of nonstructural or indirect measures, such as setbacks, land use controls, wetland restoration, dike removal, use relocation, bioengineering measures, and storm water management programs; and of structural measures such as dikes and levees intended to contain flow within the channel, channel realignment, and elevation of structures consistent with the National Flood Insurance Program.

Floodway: means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively

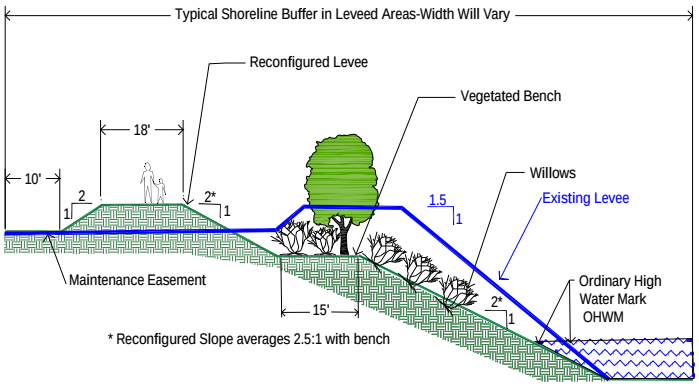
increasing the water surface elevation more than one foot.

Grading: means activity that results in change of the cover or topography of the earth, or any activity that may cause erosion, including clearing, excavation, filling, and stockpiling

Large Woody Debris (LWD): means whole trees with root wads and limbs attached, cut logs at least 4 inches in diameter along most of their length, root wads at least 6.5 feet long and 8 inches in diameter. Large woody debris is installed to address a deficiency of habitat and natural channel forming processes.

Levee: means a broad embankment of earth built parallel with the river channel to contain flow within the channel and prevent flooding from a designated design storm.

Levee, Minimum Profile: means, where there is room, the minimum levee profile for any new or reconstructed levee is the King County "Briscoe Levee" profile – 2.5:1 overall slope with 15 foot mid-slope bench for maintenance access and native vegetation plantings. Where there is insufficient room for a levee backslope due to the presence of legal nonconforming structures existing at the time of the adoption of this SMP, a floodwall may be substituted. The figure below illustrates the minimum levee profile.



Minimum Levee Profile
Not To Scale

Mean Higher High Water (MHHW): means the average of the higher high water height of each tidal day, and used in determining the OHWM for the tidally influenced portions of the river.

Native Vegetation: means vegetation with a genetic origin of Western Washington, Northern Oregon and Southern British Columbia, not including cultivars.

No Net Loss: means a standard intended to ensure that shoreline development or uses, whether permitted or exempt, are located and designed to avoid loss or degradation of shoreline ecological functions that are necessary to sustain shoreline natural resources.

Nonconforming: means a use or development which was lawfully constructed or established prior to the effective date of the Shoreline Management Act or the Shoreline Master Program or amendments thereto, but which does not conform to present regulations or standards of the program.

Non-water-oriented uses: means those uses that are not water-dependent, water-related, or water-enjoyment.

Ordinary high water mark: means that mark that will be found by examining the bed and banks and ascertaining where the presence and action of waters (all lakes, streams, and tidal water) 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 of Ecology. 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.

Overwater Structure: means any device or structure projecting over the OHWM, including, but not limited to bridges, boat lifts, wharves, piers, docks, ramps, floats or buoys.

Non-conforming Structure: means a structure legally established prior to the effective date of the Shoreline Master Program, but which does not conform to present regulations or standards of the program.

Non-conforming Use: means a use legally established prior to the effective date of the Shoreline Master Program, but which does not conform to present regulations or standards of the program.

Public Access: means the ability of the general public to reach, touch or enjoy the water's edge, to travel on the waters of the state, and to view the water and the shoreline from adjacent locations. Public access may be provided by an owner by easement, covenant, or similar legal agreement of substantial walkways, corridors, parks, or other areas serving as a means of view and/or physical approach to public waters. The Director may approve limiting public access as to hours of availability, types of activity permitted, location and area.

Regional Detention Facility: means a stormwater detention and/or retention facility that accepts flow from multiple parcels and/or public ROW. The facility may be public or private.

Revetment: means a sloping structure built to increase bank strength and protect an embankment, or shore against erosion by waves or river currents. A revetment is usually

built of rock rip-rap, wood, or poured concrete. One or more filter layers of smaller rock or filter cloth and “toe” protection are included. A revetment typically slopes and has a rough or jagged face. The slope differentiates it from a bulkhead, which is a vertical structure.

Riparian: means the land along the margins of rivers and streams.

Riverbank analysis and report: means a scientific study or evaluation conducted by qualified experts and the resulting report to evaluate the ground and/or surface hydrology and geology, the geomorphology and hydraulic characteristics of the river, the affected land form and its susceptibility to mass wasting, erosion, scouring and other geologic hazards or fluvial processes. The report shall include conclusions and recommendations regarding the effect of the proposed development on geologic and/or hydraulic 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, hydrological and hydraulic impacts of the proposed development, including the potential adverse impacts to adjacent and down-current properties. Geotechnical/Hydrological/Hydraulic reports shall conform to accepted technical standards and must be prepared by qualified professional engineers or geologists who have professional expertise about the regional and local shoreline geology and processes.

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 watermark; 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 the SMA.

Shoreline areas and **shoreline jurisdiction:** means all "shorelines of the state" and "shorelands" as defined in RCW 90.58.030.

Shoreline functions: see Ecological functions.

Shoreline Jurisdiction: means the channel of the Green/Duwamish River, its banks, the upland area, which extends from the ordinary high water mark landward for 200 feet on each side of the river, floodways and all associated wetlands within its floodplain. For the purpose of determining shoreline jurisdiction only the floodway shall not include those lands that have historically been protected by flood control devices and therefore have not been subject to flooding with reasonable regularity.

Shoreline modifications: means those actions that modify the physical configuration or qualities of the shoreline area, through the construction or alteration 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.

Shoreline restoration or ecological restoration: means the re-establishment or upgrading of impaired ecological shoreline processes functions or habitats, including any project approved by the Federal, State, King County, or City government or the WRIA 9 Steering Committee with the intent of providing habitat restoration and where the future use of the site is restricted through a deed restriction to prohibit non habitat uses.. This may be accomplished through measures including, but not limited to, re-vegetation, 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

Shoreline Significant Tree: means a single-trunked tree that is 4 inches or more in diameter at a height of 4 feet above the ground or a multi-trunked tree with a diameter of 2 inches or more (such as willows or vine maple).

Shoreline Stabilization: means actions taken to protect riverbanks or adjacent uplands from erosion resulting from the action of waves or river currents. "Hard" structural stabilization includes levees, bulkheads and revetments. "Soft" shoreline stabilization includes use of bioengineering measures where vegetation, logs, and/or certain types of rock is used to address erosion control and/or slope stability.

Shorelines: means the line at ordinary high water surrounding any body of water of 20 acres or larger or where the mean annual flow is 20 cubic feet per second or greater**.**

Significant vegetation removal: means the removal or alteration of trees, shrubs, and/or ground cover by clearing, grading, cutting, burning, chemical means, or other activity that causes significant ecological impacts to functions provided by such vegetation. The removal of invasive or noxious weeds does not constitute significant vegetation removal. Tree pruning, not including tree topping, where it does not affect ecological functions, does not constitute significant vegetation removal.

Substantial development: means any development of which the total cost or fair market value exceeds five thousand dollars or as adjusted by the State to account for inflation, or any development which materially interferes with the normal public use of the water or shorelines of the state. The following shall not be considered substantial developments for the purpose of the Shoreline Management Act, but are not exempt from complying with the substantive requirements of this SMP:

1. Normal maintenance or repair of existing structures or developments, including damage by accident, fire, or elements;
2. Emergency construction necessary to protect property from damage by the elements;
3. 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;

4. Construction or modification of navigational aids such as channel markers and anchor buoys;
5. 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 this chapter;
6. 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;
7. 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;
8. 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;
9. 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;
10. 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 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 (Oil and Natural Gas exploration in marine waters);

11. 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 chapter 43.21C RCW.
12. Watershed restoration projects, which means a public or private project authorized by the sponsor of a watershed restoration plan that implements the plan or a part of the plan and consists of one or more of the following activities:
    a. A project that involves less than ten miles of stream reach, in which less than twenty-five cubic yards of sand, gravel, or soil is removed, imported, disturbed or discharged, and in which no existing vegetation is removed except as minimally necessary to facilitate additional plantings;
    b. A project for the restoration of an eroded or unstable stream bank that employs the principles of bioengineering, including limited use of rock as a stabilization only at the toe of the bank, and with primary emphasis on using native vegetation to control the erosive forces of flowing water; or
    c. A project primarily designed to improve fish and wildlife habitat, remove or reduce impediments to migration of fish, or enhance the fishery resource available for use by all of the citizen of the state, provided that any structure, other than a bridge or culvert or instream habitat enhancement structure associated with the project, is less than two hundred square feet in floor area and is located above the ordinary high water mark of the stream.
13. Watershed restoration plan, which means a plan, developed or sponsored by the department of fish and wildlife, the department of ecology, the department of natural resources, the department of transportation, a federally recognized Indian tribe acting within and pursuant to its authority, a city, a county or a conservation district that provides a general program and implementation measures or actions for the preservation, restoration, re-creation, or enhancement of the natural resources, character, and ecology of a stream, stream segment, drainage area or watershed for which agency and public review has been conducted pursuant to the State Environmental Policy Act.
14. A public or private project that is designed to improve fish or wildlife habitat

or fish passage, when all of the following apply:

a. The project has been approved in writing by the department of fish and wildlife;
b. The project has received hydraulic project approval by the department of fish and wildlife pursuant to chapter 77.55 RCW; and
c. The local government has determined that the project is substantially consistent with the local shoreline master program. The local government shall make such determination in a timely manner and provide it by letter to the project proponent.

Additional criteria for determining eligibility of fish habitat projects are found in WAC 173-27-040 2 (p) and apply to this exemption.

Water-dependent: means 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. Examples of water-dependent uses include ship cargo terminal loading areas, marinas, ship building and dry docking, float plane facilities, sewer outfalls, and shoreline ecological restoration projects.

Water-enjoyment: means a recreational use or other use that facilitates public access to the shoreline as a primary characteristic of the 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. Examples of water-enjoyment uses include parks, piers, museums, restaurants, educational/scientific reserves, resorts and mixed use projects.

Water-oriented: means a use that is water-dependent, water-related or water-enjoyment or a combination of such uses.

Water-related: means 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:

1. 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
2. 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.

Examples of water-related uses are warehousing of goods transported by water, seafood processing plants, hydroelectric generating plants, gravel storage when transported by barge, log storage or oil refineries where transport is by tanker.

WRIA: means Water Resource Inventory Area – river basin planning and management areas formalized under Washington Administrative Code (WAC) 173-500-04 and authorized under the Water Resources Act of 1971, Revised Code of Washington (RCW) 90.54. WRIA 9 refers to the Green/Duwamish River Basin within which Tukwila is located.

4. SHORELINE INVENTORY AND CHARACTERIZATION - SUMMARY

Local jurisdictions updating their Shoreline Master Program (SMP) are required to prepare an inventory and characterization of the shoreline resources within their boundaries. As part of the City's SMP update, a Draft Inventory and Characterization Report and Map Folio was prepared in December 2006, and finalized in the spring of 2007 following technical review by Ecology and King County. The final report and map folio are included as Appendix A to this SMP.

The purpose of the inventory and characterization report was to conduct a baseline inventory of conditions for water bodies regulated as "shorelines of the state" located in the City of Tukwila. The area regulated under Tukwila's SMP is approximately 12.5 linear miles along the banks of the Green/Duwamish River.

For the baseline inventory, the river shoreline was divided into four reaches: 1) Reach G1-PAA (southern Potential Annexation Area); 2) Reach G1 (from the southern City boundary downstream to the Black River/Green River confluence); 3) Reach G2 (from the Black River/Green River confluence downstream to the northern City limits); and 4) Reach G2-PAA (the northern Potential Annexation Area). The reaches are depicted on **Map 3.**

The shoreline characterization identifies existing conditions, identifies current uses and public access, evaluates functions and values of resources in the shoreline jurisdiction, and explores opportunities for conservation and restoration of ecological functions. The findings are intended to provide a framework for updates to the City's shoreline management goals, policies, and development regulations. Key findings of the inventory and characterization are summarized below.

4.1 Watershed Context and Shoreline Modifications

The City of Tukwila includes approximately 12.5 miles of the Green/Duwamish River and is situated in the Puget Sound Lowlands at the transition from the fresh water Green River to the tidally influenced Duwamish estuary ecosystem. The Green River basin is part of the Green/Duwamish Water Resource Inventory Area (WRIA 9).

Historically, the Green/Duwamish River drained a significantly larger area than it does today. The Green/Duwamish River has undergone extensive modifications in the past to reduce channel migration and limit the extent and duration of valley flooding. The modifications include both natural river course changes and major engineering projects in the early part of the 20th century that diverted the White, Black and Cedar Rivers to neighboring basins. As a result, the overall freshwater discharge in the Green/Duwamish

River has been reduced to around a third of the pre-diversion era.

Seven pump stations also modify flows into the Green and Duwamish Rivers. Three of the pump stations, Black River, P-17, and Segale, are operated by the Green River Flood Control District, and four stations, Lift Stations 15, 17, 18, and 19 are operated by the City of Tukwila. The Black River pump station is the largest station discharging flows to the Duwamish River. This station is approximately 1,000 feet upstream of the Green – Black River confluence, and is intended to both block floodwaters from the Green from inundating the Black River and Springbrook Creek in the City of Renton, and also regulates flows from Springbrook Creek into the Duwamish River. The P-17 pump station drains the P-17 Pond that collects surface water from a majority of the Urban Center. The Segale pump station was installed to regulate soil saturation and piping during high river events but does not add new flows to the river. The remaining City pump stations only operate when gravity discharge to the river is prevented by high river events.

Levees and/or revetments were constructed along much of the Green/Duwamish River through the City of Tukwila to increase bank strength and reduce flooding. In addition, flows within the Green/Duwamish River were greatly modified by the construction of the Howard A. Hansen Dam and installation of water diversions. These modifications significantly reduced the severity of floods that historically covered much of the valley bottom. The condition of the current system of levees and revetments is a growing source of concern for King County and the cities involved, as many of the levees are aging and would not meet current standards for either flood conveyance or stability.

4.2 Biological Resources and Shoreline Functions

The Green/Duwamish River within the City of Tukwila provides important habitat for several fish and some wildlife species, such as osprey. The aquatic environment within the channel is an important corridor located at the transition from the freshwater riverine environment to tidal estuarine environment of Elliott Bay. Almost every species of anadromous fish migrates through this transition zone. The entire length of the Green/Duwamish River within the City of Tukwila has been declared “critical habitat” for Chinook salmon and bull trout. Both species are listed as threatened under the Federal Endangered Species Act.

One particularly important feature of Tukwila’s shorelines is the habitat functions provided by the transition zone between fresh and salt water associated with the Duwamish estuary. In Tukwila, this area generally extends from the East Marginal Way bridge to the city’s northern limits. The transition zone between fresh and salt water has effectively been pushed upstream from its historic location due to: (1) a significant reduction (70%) of fresh water flowing into the Duwamish estuary (owing to the diversion of the White and Cedar/Black Rivers), (2) channel dredging, and (3) reduction of flows as a result of the construction of the Howard A. Hanson Dam. The

establishment of heavy industrial uses in the transition zone has replaced wetlands with impervious surfaces, and the stream banks have been replaced by levees and other armoring, eliminating edge habitat which slows flows and creating unrestrained rapid downstream flows. Spatial structure, residence time, and the habitat available for fish refugia and rearing functions in the Duwamish estuary have therefore been reduced and constrained. High densities of fish have been observed utilizing what is left of this specific habitat. At the watershed scale, overall increases in salmonid survival rates are dependent on the availability of sufficient transition zone habitat to accommodate fish while they adjust from fresh to salt water (WRIA 9 Steering Committee, 2005).

Modifications to the river system have resulted over time in reduced levels of ecosystem functioning, including hydrology, water quality, riparian habitat, and in-stream habitat. Changes to hydrology are the result of modified flow regime due to dam construction, diversion, and urban development. River management and levees have reduced the connection between the rivers and their floodplains, changing the spatial extent of habitats, and increasing the potential for negative water quality impacts. Disturbances to the channel banks have resulted in areas that are dominated by non-native invasive species. Wood, in the form of riparian trees and in-channel wood, is generally lacking throughout the system, which negatively impacts riparian and aquatic habitats.

4.3 Land Use

A. A History of the Green/Duwamish River and Tukwila's Shoreline: Origins of Land Development Patterns

The Green River drains 492 square miles extending from the western Cascade Mountains to Elliott Bay. The City of Tukwila lies at the lower ¼ of the overall watershed. As the Green River flows into the southern boundary of the City of Tukwila, it has drained approximately 440 square miles, or about 78 percent of its total drainage basin. Approximately 12.5 river miles of the Green/Duwamish River are included within the City of Tukwila, from about River Mile (RM) 16 to RM 3.7.

The Green/Duwamish River channel has been highly modified during the last 150 years. Modifications range from the installation of levees and revetments to straightening and dredging for navigation purposes. In general, the level of physical modification to the system increases with distance downstream, culminating at the artificial Harbor Island that supports industrial activities at the Port of Seattle. Several turning basins are maintained by periodic dredging throughout the straightened reach. The highly modified portion of the Green/Duwamish has also been the location of significant discharge of pollutants, resulting in portions of the river being designated as Federal Superfund sites. Remediation, source control and disposal activities are ongoing throughout the area.

Prior to European settlement of the Lower Green River Valley, the floodplain likely consisted of a highly interspersed pattern of active and temporarily abandoned meandering

channels, secondary channels, logjams, riparian forest, and scrub-shrub wetlands. The proportion of open channel to forest in the floodplain appears to have varied depending on the severity and timing of floods. High flows resulted in wider channels and the creation of new channels across the floodplain. Accounts of the channel systems indicate that major floods resulted in channel avulsion (abrupt change in the course of a river), rerouting around logjams, and the formation of new logjams. The area presently occupied by the City of Tukwila appeared historically to contain oxbow channels, secondary and backwater channels, and extensive floodplain wetlands.

As part of regional flood control and river management efforts, significant watershed-scale changes occurred to the major river drainages south of Elliott Bay, including changes to the alignments and discharge points of the Cedar, Black, Green and White Rivers. In general, these changes have reduced the amount of water flowing through the Green/Duwamish River to about one third of historic conditions.

Land use changes between European settlement and the current day have occurred in two general phases. From the mid 1800s to World War II, agriculture and timber harvesting dominated the Lower Green River Valley. Population densities in the Lower Green River Valley remained low until the Howard A. Hanson Dam project was completed in 1962, providing flood protection for the valley. Levees have also been constructed along the banks of the Green/Duwamish River, ranging from federally-certified levees to non-engineered agricultural berms. Since the dam and levee systems have significantly decreased the extent of flooding within the Lower Green River Valley, land development and urbanization have occurred. For more discussion on the character of the Green/Duwamish River and an inventory of river conditions, see the Shoreline Inventory and Characterization Report, prepared by ESA/Adolfson, May, 2007 found in Appendix A.

Historically, the Green/Duwamish River valley was known for its farmland. Farming was established in the early 1900's after forested areas were cleared and transportation to the area was improved. In 1906, construction of the Lake Washington ship canal eliminated flows of the Black River into the valley, reducing valley flooding. As a result, the river valley developed into highly productive farmland for the region.

In the early 1950's, the Port of Seattle proposed to convert much of the Green/Duwamish River valley to intensive industrial uses. These plans included converting the river into a shipping canal, possibly reaching as far south as the City of Auburn. Valley landowners countered this proposal by annexing large tracts of land into Tukwila to retain more control over future land use decisions. With the construction of Howard Hanson Dam in 1962 on the upper Green River, flooding in the valley was further reduced. Much of the river is now contained within levees and surrounded by commercial and industrial development.

The Port's actions in the northern part of the River and drastic reduction in river flooding have had a major influence on the development of the river valley. Today, Tukwila's portion of the Green/Duwamish River is known as a center for retail, commercial and industrial uses. The river remains inaccessible to shipping activity south of the Turning

Basin, where it can be accessed primarily by small water craft, kayaks and canoes only. Land uses along the river are mostly commercial and industrial activities, with a few residential areas. With the designation of the Southcenter area as an Urban Center and the Duwamish Corridor as a Manufacturing Industrial Center (MIC), this development pattern is expected to continue, and to intensify as redevelopment occurs.

B. Riverbank Vegetation

The natural environment along the river has been significantly altered from its original riparian corridor by intense urban development and river bank modification due to the construction of levees, revetments or other shoreline armoring. Most native stands of trees are gone, but have been replaced by new trees and plants in some areas. Landscaping with native and non-native plantings have also been completed in conjunction with new development along the corridor. Birds and small mammals are supported in both habitats. While more natural habitat is found up stream, re-development of the shoreline has the potential to provide appropriate landscaping and restoration of habitat that are more attractive to wildlife, people and a more environmentally sensitive form of development

C. Public Access

The regional Green River Trail provides public access to existing shoreline amenities and plans anticipate future linkages to Seattle's system. As redevelopment occurs, there will be opportunities to provide other types of public access, including viewing platforms, boat ramps and fishing areas.

4.4 Restoration Opportunities and Potential Use Conflicts

Past restoration work focused on the Green\Duwamish River (in Water Resource Inventory Area 9) has resulted in good data collection and identification of potential restoration opportunities. Significant restoration activities along the Green\Duwamish River are already underway in the form of the multi-agency Green River Ecosystem Restoration Project. Several opportunities have been identified on the river as part of the recently adopted King County Flood Hazard Management Plan. Restoration opportunities focus on several key elements:

- Removing non-native, invasive plant species and re-vegetating with native riparian forest species;
- Removing artificial debris and walls that harden channel banks;
- Integrating the reconnection of floodplains, levee setbacks, and other ecosystem restoration techniques with future flood and river management efforts; and
- Property acquisition to allow for levee setbacks, side channel reconnection, and channel migration.

Two key issues illustrate constraints to implementing restoration and potential use conflicts in Tukwila: 1) levee maintenance and management; and 2) existing development patterns and anticipated redevelopment.

Discussion of shoreline planning for the Green River in Tukwila must acknowledge the fact that, in light of the existing system of levees (including the federally certified "205" levees) and revetments, the City cannot act alone. There are a variety of regulatory jurisdictions outside of the City with different responsibilities for maintenance and management of the levee system, including the U.S. Army Corps of Engineers (the Corps), the Federal Emergency Management Agency (FEMA), King County River and Floodplain Management Unit (acting as part of the Green River Flood Control Zone District), and private property owners. The City of Tukwila Public Works Department has overall responsibility for maintenance of all levees, including the federally certified levee, which extends from about the I-405 crossing to the south City limits. The actual maintenance work on this levee is contracted by the City to King County.

The restoration of native tree and shrub species along the levees would increase riparian habitat ecological functioning of this reach of the Green/Duwamish River, benefiting salmonids as well as other species. However, the Corps of Engineers (responsible for certifying the federal levee) believes that the root system of these trees could destabilize levees, resulting in water piping (e.g., water infiltrating into and through levees along root pathways at higher rates than it could through root free soil) at high flows, and potential levee failure if trees fall. For the Vegetation Free Zone of the levee, current Corps guidance only allows grass as vegetative cover on the levees (USACOE, Engineering Manual 1110-2-301). Current guidance also specifies a root-free zone where plantings can occur, but roots will generally not penetrate this structural zone. Therefore, under current regulations, to meet the requirements for federal levee certification, some vegetation was recently removed and ongoing vegetation management will be required to maintain the levee certification.

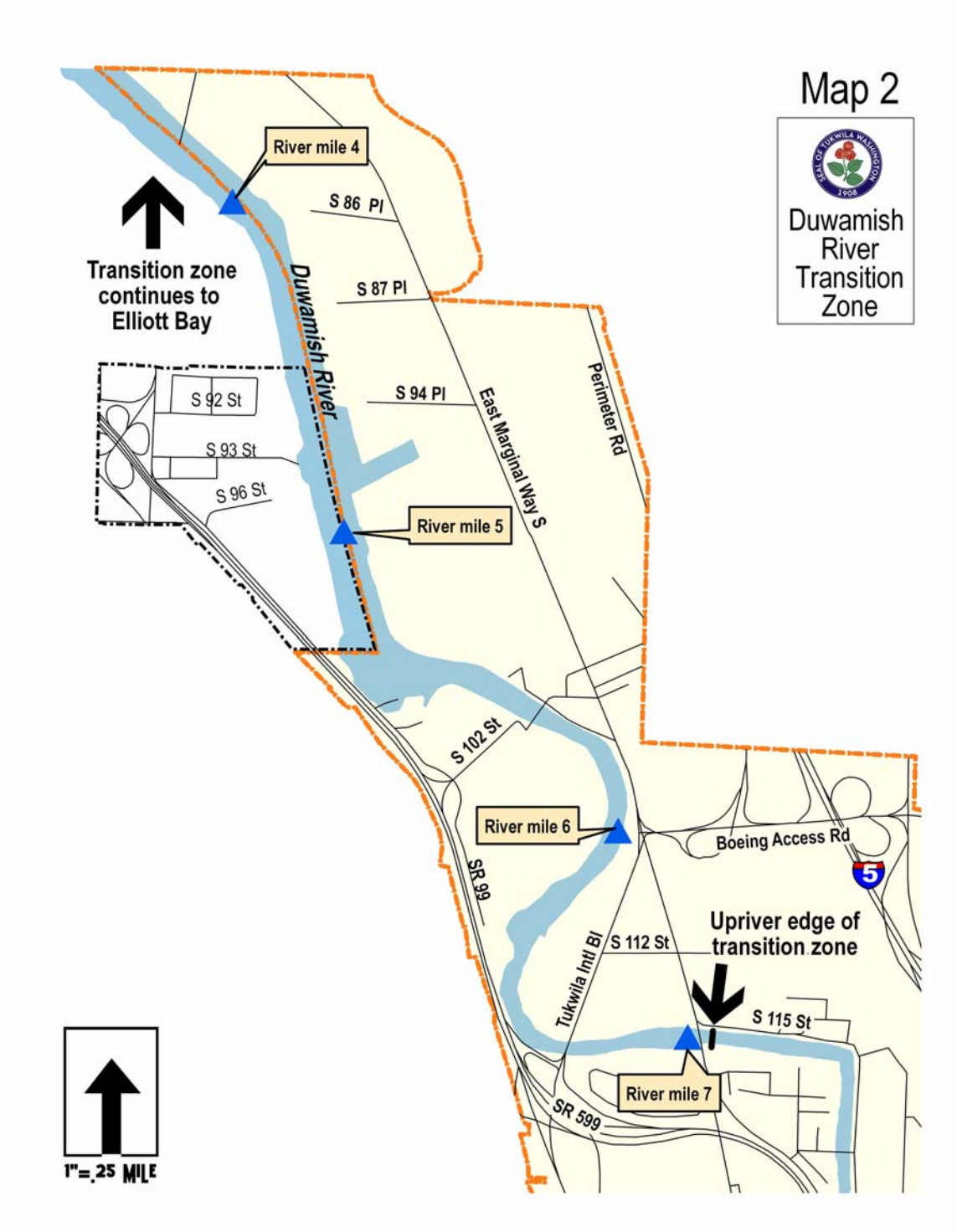
Under the SMA, removing trees and vegetation from the riparian zone of shoreline of the state is in conflict with policies for vegetation conservation and enhancement. A possible solution is to step back and re-slope the levees to create mid-slope benches where vegetation can be planted that will not interfere with the levee prism as the levee system is reconstructed to improve its stability. This would require additional easement area beyond the existing maintenance easements that have been acquired along the length of the system.

The existing development pattern also represents constraints to implementing restoration projects, including levee setbacks, off-channel habitat restoration, wetland and stream restoration, and riparian zone enhancements. Most of Tukwila is fully developed, with portions having a dense, urbanized land use pattern. The City's SMP, in place since 1974, establishes a 40-foot setback from the mean high water line. In many places, there is little more than this 40-foot zone that is not intensely developed. Some places have somewhat more open space and less development and thus have greater flexibility to accommodate potential habitat restoration actions. The City's vision for future land use,

based on its comprehensive plan, includes maintenance and further development of its urban character, particularly its identity as a regionally significant center for manufacturing, industrial, and commercial development. A challenge lies ahead in determining how best to accommodate new and redevelopment near the shoreline in a manner consistent with both the Comprehensive Plan and the Shoreline Master Program in order to achieve "no net loss" of shoreline function.

4.5 Conclusions

Like many rivers in the Puget Sound region, the course and dynamics of the Green/Duwamish River has changed significantly as a result of development and alteration of its watershed over the past century or so. Characteristic of many cities in the region, Tukwila has grown and become highly urbanized. Continued growth is anticipated and the City is planning for that growth. To a significant degree, the City has envisioned and maintained a development pattern that preserved public access to the Green River and assured setbacks of new buildings from the shoreline. Issues of concern today are focused on uncertainties about the ability of existing levees and revetments to protect existing development from flood hazards. There are many opportunities for conservation and restoration actions in the City to restore or replace habitat while managing natural hazard areas.


Map 2
Duwamish River Transition Zone
River mile 4
S 86 Pl
S 87 Pl
Transition zone continues to Elliott Bay
Duwamish River
S 92 St
S 93 St
S 96 St
S 94 Pl
East Marginal Way S
Perimeter Rd
River mile 5
S 102 St
River mile 6
Boeing Access Rd
5
SR 99
Upriver edge of transition zone
S 112 St
Tukwila Intl Bl
S 115 St
River mile 7
SR 599
1"=.25 MILE

5. SHORELINE RESTORATION PLAN - SUMMARY

5.1 Background

The state guidelines require that local governments develop SMP policies that promote "restoration" of impaired shoreline ecological functions and a “real and meaningful” strategy to implement restoration objectives. The City’s shoreline inventory and characterization report identifies which shoreline ecological functions and ecosystem processes have been impaired. Local governments are further encouraged to contribute to restoration by planning for and supporting restoration through the SMP and other regulatory and non-regulatory programs. As part of the SMP update process, the City developed a Draft Shoreline Restoration Plan in February 2007. The draft plan was finalized in May, 2008 following technical review by King County and Ecology and has since been updated to include additional potential projects, address Ecology comments and refocus priorities to projects within the Transition Zone. It is included as Appendix B to the SMP.

The restoration plan builds on the Inventory and Characterization Report and provides a framework to:

- Identify primary goals for ecological restoration of the Green/Duwamish ecosystem;
- Identify how restoration of ecological function can be accomplished;
- Suggest how the SMP update process may accomplish the restoration of impaired shoreline functions associated with the Green/Duwamish ecosystem; and
- Prioritize restoration projects so that the highest value restoration actions may be accomplished first.

5.2 Assessment of Shoreline Functions

As summarized in the previous section, the Inventory and Characterization analysis examined riverine and estuarine ecosystem processes that maintain shoreline ecological functions, and identified impaired ecological functions. The inventory report identified key ecosystem processes, and provided a qualitative assessment of their levels of functioning at both a watershed and city reach scale. Key ecosystem functions identified in the inventory, their level of alteration, and potential restoration actions are summarized in Table 1.

As noted in the Inventory and Characterization Report and summarized in the Shoreline Inventory and Characterization Summary Section, many of the alterations to shoreline functions and ecosystem processes in the Green/Duwamish River are due to watershed

scale issues within the upper watershed which cannot be fully restored or addressed in the lower river section through Tukwila. However, hydrologic, water quality, and habitat restoration measures in the City do have the potential to improve the overall functioning of this important section of the Green/Duwamish River ecosystem that includes the transition zone from fresh to salt water.

Table 1. General Restoration Potential within the Shorelines of Tukwila

Function Category	Function	Alterations to natural functioning	Potential Restoration Action within the City
Hydrologic	Channel -Floodplain Interaction	Presence of flood protection structures (e.g., levees, river bank revetments, flood gates) and significant fill and development along the shoreline limit channel-floodplain interactions in Tukwila.	1. Modify current levees and revetments to increase channel and floodplain interaction; 2. Excavate back or side channels;
Hydrologic	Upland sediment generation	Fine sediment contribution to the river is increased due to build-up and wash-off from surrounding urban land uses.	Implement enhanced stormwater BMPs for fine sediment removal in stormwater runoff.
Water Quality	Retention of particulates and contaminants	Levees and revetments are virtually continuous along the riverbanks, limiting the potential to retain particulates or contaminants contained in stormwater sheet flows in the fluvially dominated reaches. Particulates, including sediment, are retained in the tidally dominated reaches, as evidenced by the need to dredge the estuary turning basin.	1. Modify current levees and revetments to increase channel and floodplain area; 2. Install native riparian species to increase bank roughness.
Water Quality	Nutrient cycling	As channel-floodplain interaction was reduced, the channel became a conduit for nutrients, offering little opportunity for contact time with soils.	1. Increase riverine wetland area; 2. Install native riparian plant species. 3. Set back banks (revetments and levees).
Large Woody Debris (LWD) and Organics	Maintain characteristic plant community	The majority of the shoreline within the City of Tukwila is currently dominated by non-native invasive weed species (Himalayan blackberry, reed canary-grass, and Japanese knotweed). Some higher quality areas of cottonwood, alder, and willow exist in riparian areas bordering open space, parkland, and residential zones.	1. Remove invasive plants and install native riparian species; 2. Incorporate LWD into bank stabilization and restoration projects; 3. Institute programmatic weed control activities along shoreline. 4. Promote bioengineering techniques for shoreline stabilization projects.
LWD and Organics:	Source of LWD	Despite the lack of many sources for LWD, there are some large cottonwoods and big leaf maples occur along the levees and revetment system.	1. Install native riparian species; 2. Incorporate LWD into bank stabilization and restoration projects.

5.3 Plans, Programs, and Completed Projects

The importance of the Green/Duwamish ecosystem within the Puget Sound has resulted in significant focus on this area in terms of restoration potential. With the federal listing of Chinook and bull trout as endangered species, watershed planning in the region (e.g., WRIA 9) has focused on developing a Salmon Habitat Plan (WRIA 9, 2005), to which the City of Tukwila is a party. The plan establishes goals, objectives, and programmatic and site specific actions to address restoration of habitat critical to salmon species in the Green/Duwamish watershed.

Tukwila has already engaged in the greater regional restoration effort for the Green/Duwamish River. The City Council has ratified the WRIA 9 Plan and contributes resources to maintain operating staff. Tukwila has worked within the larger Green/Duwamish River Ecosystem restoration project to acquire or donate properties that are either currently functioning (Cecil B. Moses Park, Codiga Farm), or have the potential for restoration (North Winds Weir, Duwamish Gardens). WRIA 9 and other regional partners are currently working together to monitor baseline conditions. Several projects from the WRIA 9 Plan are included on the City's Capital Improvement Program list; other projects will be added as CIP projects are completed and funds are identified for new projects.

The restoration plan identifies several projects that have already been completed in the Green/Duwamish River. These projects provide an excellent opportunity to learn about what river restoration measures are the most effective. For example, it appears that the back channel that was excavated at Codiga Farm provides important habitat for migrating juvenile fish.

5.4 Restoration Opportunities

Based on the key ecosystem functions that are currently altered, there appear to be five specific types of restoration actions that will most benefit the Green/Duwamish ecosystem in Tukwila. These actions are intended to boost the levels of ecosystem functioning as part of a self-sustaining ecosystem that will limit the need for future manipulation. While these projects are intended to restore many ecosystem functions, the restoration activities will occur in the highly urban valley bottom, and as a result, cannot fully achieve pre-disturbance channel conditions. In addition, some restoration actions must occur at the watershed scale, which will restore ecosystem functions that cannot be addressed solely within Tukwila or as part of the SMP.

- **Enlarging channel cross-sectional area.** This action could include setting back levees and re-sloping banks to reduce steepness. These actions will increase flood storage, allow for more stable levees, restore some floodplain area, provide a larger intertidal zone in this important transitional area, and provide a more natural transition from aquatic to upland habitats. The Transition Zone is identified in **Map 2**.

- **Enhancing existing habitats.** These actions could include the removal of non-native invasive vegetation, installation of native riparian vegetation, and installation of LWD below Ordinary High Water. This action will improve the functioning of the aquatic, riverine wetland, and riparian habitats that currently exist along the Green/Duwamish River.

- **Creating off-channel habitat areas**. This action would create off channel areas through the excavation of historic fill or floodplain materials to create back channels as fish foraging and refugia areas.
- **Reconnecting wetland habitat to the river.** This action would reconnect an old oxbow wetland to the river, allowing for off-channel habitat (Nelson Side Channel).
- **Removing fish barriers where tributary streams discharge to the river.** This action would remove flap gates and install fish-friendly flap gates at the mouths of Tukwila's three major streams (Gilliam, Southgate and Riverton) and possibly restore habitat area at these locations in the shoreline jurisdiction.

5.5 Potential Projects and Priorities

The restoration plan summarizes 26 potential projects as specific restoration projects within the shorelines of Tukwila. Most of the restoration projects are part of ongoing restoration planning through the WRIA 9 watershed planning process. Additionally, opportunities exist to enhance riparian vegetation along the majority of the Green/Duwamish River.

The restoration plan provides a preliminary qualitative (high, medium, low) project ranking system. Within this ranking system, the highest priority location for restoration projects is within the transition zone. The Transition Zone is mapped in **Map 2**.

High priority projects will typically:

- Address both hydrologic and habitat ecosystem functions;
- Have opportunity for multiple funding sources;
- Include freshwater tributary channels; and/or
- Not require additional property acquisition.

Medium priority projects will typically:

- Address limited ecosystem functions; and
- Be eligible for multiple funding sources, and/or require property acquisition.

Low priority projects will typically:

- Only focus on habitat enhancement;
- Will be used as mitigation to offset impacts elsewhere; or
- Not be eligible for multiple funding sources.

6. SHORELINE GOALS AND POLICIES

The goals and policies listed below are taken from the City's 1995 Comprehensive Plan. Strikeout/underlining has been used to indicate proposed revisions to the original 1995 text to reflect changed circumstances or newer requirements. The goals and policies are found in Chapter 5 of the Comprehensive Plan. The Comprehensive Plan will be amended to reflect these changes to goals and policies.

6.1 Shoreline Environment Designations, Comprehensive Plan Goal 5.1

Goal: Shoreline Environment designations that meet Washington State Shoreline Management Act requirements, and reflect local conditions and Tukwila's long-term vision for its shoreline. The shoreline jurisdiction generally extends for 200 feet on either side of the Ordinary High Water mark, consistent with the Washington State Shoreline Management Act. In order to implement this goal, the SMP proposes three Environment Designations: Shoreline Residential, Urban Conservancy, and High Intensity (as detailed in the Shoreline Environment Section) that comply with the Washington State Shoreline Management Act and function well for the City.

Policies:

- Policy 5.1.1: Shoreline Residential Environment. In the Shoreline Residential Environment, priority shall be given to the following:
    - Uses that preserve or restore the natural character of the shoreline or promote preservation of vegetation, open space, flood plain or sensitive area lands; and
    - Development that is compatible with the natural and biological limitations of the land and water and that will not require extensive alteration of the shoreline or new "hard" structural shoreline stabilization. Where possible the removal of bulkheads, revetments, levees or other "hard" structural shoreline stabilization is required. Hard structural shoreline stabilization may be replaced with alternative bioengineered bank stabilization; and
    - On publicly owned property, water-dependent or water-related recreational activities that are compatible with the character of the shoreline residential areas.
    - Maintenance of existing single-family residential development patterns and public open space and recreation uses;
    - Residential and recreational development that promotes vegetation conservation and enhancement, sensitive areas protection, and maintenance of water quality to assure no net loss of shoreline ecological functions;
    - Residential and recreational development that contributes to the restoration of ecological functions over time in areas where ecological degradation has occurred.

- Policy 5.1.2, Urban Conservancy Environment: In the Urban Conservancy Environment priority shall be given to the following:

    - Development that promotes vegetation conservation and enhancement, sensitive areas protection, and preservation of water quality to assure no net loss of shoreline ecological functions.
    - Water enjoyment uses
    - Uses that remove shoreline armoring, unless required for a shoreline dependent use, and uses that prevent and/or minimize flood damage;
    - Uses that preserve or restore shoreline ecological functions provided by vegetation, open space, flood plain or sensitive area lands;
    - Uses that minimize interference with navigation and flood control, consider impacts to public views, and allow for the safe, unobstructed passage of fish and wildlife, particularly those species dependent on migration;
    - Uses that provide public access and public recreation whenever feasible and when ecological impacts can be mitigated;
    - Development that is compatible with the natural and biological limitations of the land and water that do not require extensive alteration of the shoreline or new shoreline stabilization, except for restoration projects.
    - Uses that provide public access and public recreation whenever feasible and ecological impacts can be mitigated;
    - Enhancement and restoration of ecological functions; and
    - Redevelopment of underutilized areas and development of commercial and industrial activities where shoreline impacts are minimized and where there is no net loss of shoreline functions.

- Policy 5.1.3, High Intensity Shoreline Environment: In the High Intensity Environment, priority shall be given to the following:
    - Water dependent commercial and industrial uses;
    - Development that promotes vegetation conservation and enhancement, sensitive areas protection, and preservation of water quality to assure no net loss of shoreline ecological functions.
    - Uses that remove shoreline armoring, unless required for a shoreline dependent use, and uses that prevent and/or minimize flood damage;
    - Uses that preserve or restore shoreline ecological functions provided by vegetation, open space, flood plain or sensitive area lands;
    - Uses that minimize interference with navigation and flood control, consider impacts to public views, and allow for the safe, unobstructed passage of fish and wildlife, particularly those species dependent on migration;
    - Uses that provide public access and public recreation whenever feasible and when ecological impacts can be mitigated;

- Development that is compatible with the natural and biological limitations of the land and water that do not require extensive alteration of the shoreline or new shoreline stabilization, except for restoration projects.
- Uses that provide public access and public recreation whenever feasible and ecological impacts can be mitigated;
- Enhancement and restoration of ecological functions; and
- Redevelopment of underutilized areas and development of intensive commercial and industrial activities where shoreline impacts are minimized and where there is no net loss of shoreline functions.

6.2 Shoreline Planning and Management, Comprehensive Plan Goal 5.2

Goal: Expanded value of the river as a community and regional resource through regional coordination of shoreline management programs and through programs that foster river appreciation and awareness, involving partnerships among businesses, schools, government and community organizations.

Policies:

- Policy 5.2.1: Coordinate shoreline planning and management activities with other local jurisdictions and their plans such as the WRIA 9 Salmon Habitat Plan and the King County Flood Hazard Management Plan to establish region-wide consistency in addressing river issues with regional implications, such as economic development, public access, wildlife habitat, water quality control and flood control.

- Policy 5.2.2: Promote river stewardship and increase river awareness through actions which further shoreline goals, such as educational programs, community activities, and partnerships with Tukwila residents, businesses, schools, government, and community organizations.

- Policy 5.2.3: Promote and participate in the implementation of the Watershed Resource Inventory Area (WRIA) 9 Plan, including supporting the recommended projects located in Tukwila to improve the habitat functions of the Green/Duwamish River, as well as the Plan policies and goals.

C. Implementation Strategies:

- WRIA 9 Salmon Habitat Plan
- Tukwila SMP Restoration Plan
- King County Flood Hazard Management Plan

6.3 Land Development Use and Economic Vitality, Comprehensive Plan Goal 5.3

Goal: Development along the shoreline that fosters the economic vitality of Tukwila while preserving the long-term benefits of the river.

Policies:

- Policy 5.3.1: Implement Shoreline Design Guidelines to:
    - Encourage design that views the river as an amenity;
    - Guide the design of multiple shoreline uses;
    - Establish techniques for increasing multiple shoreline use;
    - Prioritize locations for use;
    - Encourage removal of invasive species with nonchemical methods and maintenance of native planted vegetation to minimize the presence of invasive species.

- Policy 5.3.2: Design and locate all shoreline development to minimize impacts on areas identified as important for other river uses, such as wildlife and aquatic habitat, river vegetation, public access and recreation, historical resource and flood control.

- Policy 5.3.3: When no other feasible alternative exists, allow structures for water dependent uses to be placed in the water, or structural reinforcement of the riverbank, only when this provides a significant, long-term public benefit, does not interfere with navigation or flood management, does not cause a loss of shoreline function or is essential to a water-dependent use.

- Policy 5.3.4: Prohibit the construction of new flood control facilities unless constructed to incorporate habitat restoration features and work to remove existing shoreline armoring – where possible– to restore habitat functions.

- Policy 5.3.5: Recognize and promote the river's contribution to the economic vitality of Tukwila, as a valuable amenity for existing and future businesses which depend on or benefit from a shoreline location.

- Policy 5.3.6: Ensure that shoreline development does not diminish the commercial navigability of the River.

- Policy 5.3.7: Tukwila Urban Center Development Policy: Design and locate shoreline development in the Tukwila Urban Center to encourage water enjoyment uses that:
    - Provide for shoreline multiple uses that are consistent with the underlying zoning;

- Provide additional benefits, such as riverbank restoration, fishing piers, non-motorized boat launches, river views, or interpretive signs;
- Support public access to and along the shoreline;
- Provide water-enjoyment uses as transitions between the river and non-water dependent uses;
- Encourage efficient use of land, through such techniques as clustering, mixed use projects, cooperative parking or parking located under principal structures, and shared utility and access corridors.
- Ensure that new development and re-development in the Urban Center acknowledges the goal of a continuous street façade along Christensen Road and the riverfront and locates parking facilities to the interior of the lot.

Implementation Strategies for Policy 5.3.7:

- Shoreline Design Guidelines
- Development Standards
- Tukwila Urban Center Plan

- MIC Development Policy 5.3.8: Ensure that non-water dependent shoreline development in the MIC provides for shoreline multiple uses to the extent that site security and the success of industrial operations are not jeopardized; ensures no net loss of shoreline function and provides adequate mitigation for the loss of shoreline multiple use opportunities.

- MIC Development Policy 5.3.9: Allow opportunities for commercial and recreational marinas to locate in Tukwila downstream of the turning basin, where compatible with existing and future navigability and existing and future ecological restoration projects.

- Policy 5.3.10: Development outside the Tukwila Urban Center or MIC: Design and locate shoreline development outside of the Tukwila Urban Center and the MIC to:

  - Provide for multiple shoreline uses;
  - Provide water-enjoyment uses as transitions between the river and non-water dependent uses;
  - Encourage efficient use of land through such techniques as clustering, mixed-use projects, cooperative parking or parking located under principal structures, and shared utility and access corridors;
  - Treat the river as an amenity in the design and location of the project.

6.4 Private Property Rights, Comprehensive Plan Goal 5.4

Goal: Protect rights of property owners to reasonable use and enjoyment of private property, through appropriate location, access to, and design of shoreline uses.

Policies

- Policy 5.4.1: Design, locate and manage shoreline uses in a manner which maintains reasonable use and enjoyment of private property.
- Policy5.4.2: Design and locate public access in a way that is appropriate for the site, depending on site conditions and private property concerns.
- Policy 5.4.3: Special sensitivity is required for residential property; therefore, all single-family residential development of four or fewer single-family residential lots is excluded from requirements to provide private or public access. Single family property owners are not exempt from the responsibility to improve the habitat value of the shoreline environment.
- Policy 5.4.4. Maintain flexibility in methods of obtaining public access, to allow for different site conditions and private property concerns that might conflict with public access, such as privacy, safety, and security.
- Policy 5.4.5: Obtain additional easement area to permit the improvement of flood control and river habitat by setting back levees or removing revetments and other hard shoreline armoring and replacing with more habitat-friendly flood control levees or other shoreline treatment.

6.5 Shoreline Design Quality, Comprehensive Plan Goal 5.5

Goal: Enhanced identity of the river as a unique community asset through high quality development and public activities that reflect Tukwila's history and sense of community pride.

Policies:

- Policy 5.5.1: Require that shoreline development outside of the MIC:
    - Ensures no net loss of shoreline function;
    - Is designed to be consistent with Tukwila Shoreline Design Guidelines;
    - Reflects principles of high quality design, in such areas as site planning, architecture and landscaping;
    - Includes setbacks, bulk, height, density, landscape buffers and provisions for open space that enhance the shoreline environment.

Implementation Strategies for Policy 5.5.1:

- Shoreline design guidelines
- Shoreline development standards

- Tukwila Urban Center Plan

- Policy 5.5.2: Require that shoreline development in the MIC:

  - Is designed to be consistent with Tukwila Shoreline Design Guidelines;
  - Maintains or enhances the existing visual quality along the river;
  - Provides trees and other landscaping to buffer industrial uses that are incompatible with other river uses;
  - Provides amenities that enhance enjoyment of the river by employees.

  Implementation Strategies for Policy 5.5.2:
  - Shoreline design guidelines
  - Shoreline development standards

6.6 Access and Recreational Use, Comprehensive Plan Goal 5.6

Goal: Increase the amount and diversity of opportunities for public recreation and access to and along the river, including visual and cultural access, access to the water's edge, opportunities for small boat navigation and access, and connections to other neighborhoods, consistent with the shoreline character.

Policies:

- Policy 5.6.1: Retain and improve areas identified as important in the network of public access to the river, including cross-town connections, former railroad right-of-ways and unimproved street-end right-of-ways, historic sites, unique natural features or other areas valuable for their interpretive potential.

- Policy 5.6.2: Maintain existing parks along the shoreline and acquire additional park land to increase access and recreation opportunities.

- Policy 5.6.3: Incorporate river access requirements to guide the design, location and management of shoreline public access in short plats over 4 lots and all subdivisions as well as multi-family, commercial and industrial development; to identify types of access appropriate and feasible for various site conditions and locations; and to establish strategies, funding sources and priorities for acquisition and enhancement of shoreline public access.

  Implementation Strategies for Policies 5.6.1-5.6.3:

  - Shoreline design guidelines
  - Shoreline access guidelines
  - Shoreline development standards
  - Walk and Roll Plan
  - Parks and Open Space Plan

- Policy 5.6.4: Design, locate and manage public access for diverse types and variable levels of intensity in order to minimize impacts on vulnerable features of the natural environment and to minimize conflicts with private property uses.

- Policy 5.6.5: Where shoreline development provides public access areas, reserve such areas for use by the public through the means most appropriate for the type, scale and impacts of the development, such as dedication, donation or sale of an easement or right-of-way to the City.

- Policy 5.6.6: Support the implementation of the King County Green River Trail, per the existing King County Green River Trail Master Plan as well as pedestrian/bicycle connections with the Trail from properties on the opposite bank and the expansion of this trail where appropriate.

Policies for Development outside MIC:

- Policy 5.6.7: Require subdivisions, multi-family residential uses and commercial and industrial uses along the shoreline to provide a trail for public access along the river in areas identified for trail connections, consistent with the King County Green River Trail Master Plan, Shoreline Master Program or any other approved access plan.

Implementation Strategies for Policy 5.6.7

  - King County Green River Trail Master Plan
  - Shoreline public access standards
  - Walk and Roll Plan
  - Parks and Open Space Plan

- Policy 5.6.8: Where shoreline public access is provided, ensure that it is designed to be safe and convenient and includes access amenities such as benches, drinking fountains, public parking areas, handicapped access, and appropriate lighting, consistent with the shoreline access guidelines.

  Implementation Strategies for Policy 5.6.8
  - King County Green River Trail Master Plan
  - Shoreline public access standards
  - Walk and Roll Plan
  - Parks and Open Space Plan

- Policy 5.6.9: Except for single-family residential development of four or fewer single-family residential lots, shoreline development shall maintain and encourage views of the water from the shoreline and from upland area,

through design of building height, bulk and modulation, and windows, breezeways and outdoor spaces.

Implementation Strategies

- Shoreline design guidelines

- Policy 5.6.10: Public access improvements should be designed and constructed to:
  - Look and "feel" welcoming to the public;
  - Connect to public areas, street ends, and other pedestrian or public throughfares;
  - Enhance the character of Tukwila;
  - Avoid conflicts with water-dependent uses;
  - Provide for public safety and minimize impacts to private property and individual privacy and security;
  - Require a low level of operation and maintenance;
  - Ensure that construction (i.e. structures and access pathways) incorporates environmentally sensitive design and materials (e.g., non-toxic, natural materials)

- Policy 5.6.11: Improve pedestrian connections between the river, Green River Trail and the Urban Center's commercial, office and residential uses.

<u>Policies for Development in MIC</u>

- Policy 5.6.12: For MIC properties included in the King County Green River Trail Master Plan or other approved access plan, require shoreline development to provide a trail for public access along the river.

- Policy 5.6.13: Where shoreline public access is provided, ensure that it is designed to be safe and convenient and includes access amenities such as benches, drinking fountains, public parking areas, handicapped access and appropriate lighting, consistent with the shoreline access guidelines.

- Policy 5.6.14: For MIC properties not included in the King County Green River Trail Plan, require shoreline development to provide public access or a private natural area in lieu of public access, or otherwise mitigate the loss of public access.

  Implementation Strategies for Policies 5.6.12-14
  - Shoreline design guidelines
  - Shoreline access guidelines
  - Walk and Roll Plan
  - Parks and Open Space

6.7 Transportation within the Shoreline Jurisdiction, Comprehensive Plan Goal 5.7

Goal: Safe corridors and amenities for pedestrians, cyclists and users of public transportation, allowing more citizens to access and enjoy the river.

Policies:

- Policy 5.7.1: Design and locate transportation uses within the shoreline jurisdiction to be compatible with shoreline vegetation or other habitat features, turn-outs or parking areas for public access, biofiltration swales to protect water quality, public art or interpretive signs.

- Policy 5.7.2: Ensure the transportation uses within the shoreline jurisdiction and within those corridors identified as river cross-connections provide safe, convenient and attractive pedestrian, bicycle and boater access and facilities for public transportation.

- Policy 5.7.3: Minimize transportation impacts to the natural environment (such as air, noise, odor or water pollution) and enhance the natural environment wherever possible through planting trees and other habitat features.

- Policy 5.7.4: Encourage maintenance of the river's navigability up to the Turning Basin, where this achieves a greater public interest and a balance between costs and benefits to the broader community and impacts to the habitat functions of the river, in recognition of the historical significance of navigation and its importance to the economic vitality of water-dependent uses and the MIC

6.8 Historical Resource Use and Archaeological Protection, Comprehensive Plan Goal 5.8

Goal: Recognition of the river's contribution to Tukwila history and community identity through identification, enhancement, restoration, and protection of sites with historic and cultural value and through development of interpretive and educational programs.

Policies

- Policy 5.8.1: Ensure that shoreline development reflects the river's important role in Tukwila's history and that long-term public use of the river as an historical resource is protected by providing for the identification, protection and interpretation of unique historic and archaeological features.

- Policy 5.8.2: Ensure that public shoreline development reflects the river's natural features and community traditions.

- Policy 5.8.3: Ensure that archaeological artifacts and sites are protected when development takes place in the shoreline jurisdiction.

6.9 Natural Environment and Habitat Use, Comprehensive Plan Goal 5.9

Goal: Restored, enhanced, and protected natural environment resources along the river, including trees, wildlife habitat and features with value for long-term public, scientific and educational uses.

Policies

- Policy 5.9.1:Ensure that shoreline development results in no net loss of shoreline ecological function, minimizes impacts on wildlife and that significant vegetation, sandbars, wetlands, watercourses, and other critical areas identified as important for habitat are maintained through the proper location, design, construction, and management of all shoreline uses and activities.
- Policy 5.9.2: Ensure that shoreline development and activities protect riverbank vegetation and, where feasible, restore degraded riverbanks in accordance with the vegetation management provisions of the Shoreline Master Program, in order to minimize and compensate for impacts to fish and wildlife habitat.
- Policy 5.9.3: Mitigate unavoidable disturbances of significant vegetation or habitat through replacement of habitat and provision of interpretive features consistent with the shoreline access guidelines.
- Policy 5.9.4: Support relief from certain shoreline master program requirements for properties affected by habitat restoration projects that result in the movement of the ordinary high water mark.
- Policy 5.9.5: Support establishing the Transition Zone as the priority area for habitat restoration projects given its importance for subtidal and intertidal habitats to allow salmonids to gradually adjust to the change between fresh and saltwater conditions.

6.10 Water Quality, Surface Water and Flood Control Use, Comprehensive Plan Goal 5.10

Goal: Improved water quality and quantity control programs affecting the Green/Duwamish River that improve the river's water quality, provide habitat for fish and wildlife, protect public health and safety, and enhance public enjoyment of the river.

Policies:

- Policy 5.10.1: Design, locate, and manage shoreline development including streets, flood control projects, surface water drainage and sewer systems, clearing and grading activities, and landscaping in a manner which minimizes opportunities for pollutants to enter the river, provides erosion control and otherwise protects water quality.
- Policy 5.10.2: Design, manage, and mitigate flood control uses to minimize impacts to other shoreline uses such as trees and riverbank vegetation, public access and recreation, and fish habitat; and set them back from the river, where feasible for the project, with land areas between the water and the levee set aside as open space for public recreation or wildlife habitat.
- Policy 5.10.3: Consistent with project feasibility, mitigate unavoidable negative impacts on other shoreline uses owing to flood control uses through such measures as restoration of trees and native riverbank vegetation, provision of public access to the water's edge, interpretive features, or other mitigation of loss of opportunities for shoreline multiple uses.
- Policy 5.10.4: Obtain additional easements, where needed, from property owners to set back levees to improve flood control and shoreline habitat functions. Where possible, as redevelopment occurs, replace bulkheads, revetments or other hard bank stabilization with more natural levees, riverbanks or other shoreline treatments, to improve flood control, ecological functions and habitat.

C. Implementation Strategies

- Increase levee setback to incorporate flatter, more stable slope and vegetated mid-slope benches
- Shoreline access guidelines
- Surface Water Management Plan
- WRIA 9 Plan water quality policies
- Shoreline Restoration Plan

6.11 <u>Public Health, Safety and Welfare, Comprehensive Plan Goal 5.11</u>

Goal: Shoreline uses that do not endanger public health, safety and welfare, or the capacity of the river to provide long-term benefits and resources to the community.

Policies:

- Policy 5.11.1: Design, locate, and manage shoreline uses, such as capital improvement projects and private development, in a manner that does not endanger public health, safety and welfare, and enhances the capacity of the river to provide long-term flood protection, habitat and other benefits and resources to the community and the environment.

7. SHORELINE ENVIRONMENT DESIGNATIONS

The City of Tukwila's Shoreline Master Program (SMP) establishes a system to classify shoreline areas into specific "environment designations." This system of classifying shorelines is established by the Shoreline Management Act (RCW 90.58) and Master Program Guidelines (WAC 173-26-211). The purpose of shoreline environment designations is to provide a uniform basis for applying policies and use regulations within similar shoreline areas. Generally, shoreline designations should be based on existing and planned development patterns, biological and physical capabilities and limitations of the shoreline, and a community's vision or objectives for its future development.

7.1 Existing Regulatory Framework

Tukwila's current SMP, first adopted in 1974, designates all shorelines as "Urban." At the time the 1974 SMP was developed, all of the land in Tukwila's shoreline jurisdiction was either zoned commercial/industrial or was developed with urban uses. The SMP defines the Urban Environment as "areas to be managed in high intensive land uses, including residential, commercial, and industrial development and accessory uses, while providing for restoration and preservation to ensure long-term protection of natural and cultural resources within the shoreline" (Tukwila, 1974). The SMP further states that the management objectives for the shoreline "are directed at minimizing adverse impacts on the river and shoreline ecology, maximizing the aesthetic quality and recreational opportunities of the river shore, and recognizing the rights and privileges of property owners" (Tukwila, 1974). Within the Urban Environment, Tukwila's SMP employs a tiered system of regulations based on the distance from the Green/Duwamish River mean high water mark (MHWM). These tiered management zones are generally described below and illustrated on Figure 1:

- River Environment/Zone: a 40-foot wide zone extending landward from MHWM and having the most environmentally protective regulations;
- Low-Impact Environment/Zone: the area between the River Environment and 100 feet from the MHWM; and
- High-Impact Environment/Zone: the area between 100 and 200 feet from the MHWM.

The City also administers the King County Shoreline Master Program for the areas which have been annexed since the adoption of the City's SMP in 1974. These areas are designated Urban and the setbacks from Ordinary High Water Mark vary from 20 feet to 50 feet depending on whether the use is water dependent, single family or commercial/industrial. See **Annexation History, Map 1** for an identification of the areas where the City administers the County's SMP.

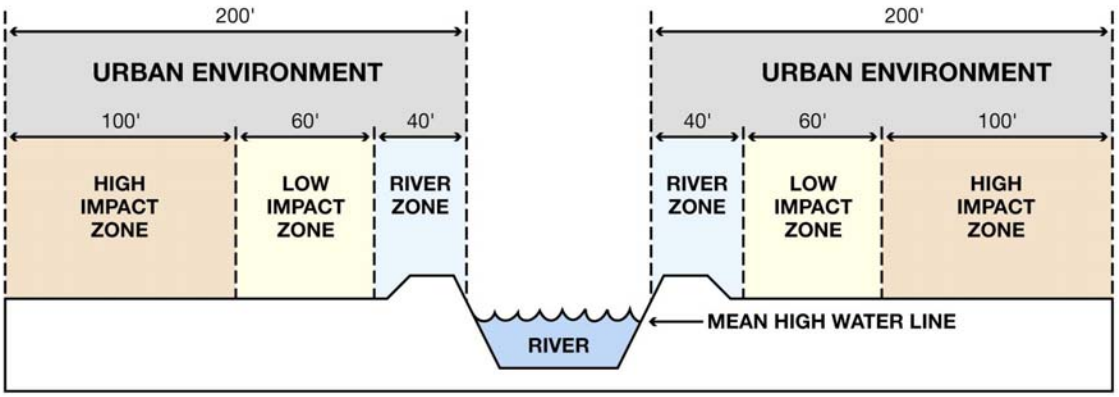


Figure 1. Current Tukwila SMP Shoreline Management Zones (1974 SMP; TMC 18.44)

7.2 Key Findings of the Shoreline Inventory / Characterization Report and Restoration Plan

This section summarizes findings from the Inventory and Characterization Report and Restoration Plan elements of the SMP update (Appendices A and B). These findings inform the goals, policies, regulations, and the development and application of environment designations. In this context, the key findings can be summarized as follows:

- The Green/Duwamish River throughout Tukwila is a critical resource, particularly in the Transition Zone portion of the river that extends from the East Marginal Way South bridge through the north City limits (see **Map 2**), where juvenile salmon adjust from fresh to salt water habitat. The river provides migratory habitat for numerous fish species, as well as riparian habitat for a variety of wildlife.
- The river is a critical resource for Muckleshoot Indian Tribe fishing.
- The river is a critical resource for some water dependent uses north of the Turning Basin.
- The river is an important recreational resource for sport fishing, small water craft and Green River Trail users.
- At an ecosystem scale, the habitat is largely homogenous throughout the city. In addition, many ecosystem processes are largely controlled by up-river characteristics, particularly the Howard Hanson Dam and are little affected by actions in the City, except for such functions as water quality (especially fine sediment capture and filtering of contaminants in stormwater), local surface hydrology (stormwater from increasing amounts of impervious surfaces and contribution to peak flows of the river), riparian habitat, and temperature control (shading from riparian habitat).With the exception of the functions provided by the transitional mixing zone from salt to fresh water, habitat conditions and functions are relatively similar throughout the shoreline. The transition zone

needs greater protection and restoration focus than other sections of the shoreline in the city.

- Restoration opportunities are numerous and spatially distributed throughout Tukwila's shoreline. Activities that provide restoration of both floodplain functions and habitat functions should be prioritized, particularly those projects in the transition zone. Policies should promote and regulations should enable the City to accomplish restoration goals and actions.

7.3 State Environment Designation System

State Master Program Guidelines (WAC 173-26-211) establish the environment designation system for shorelines regulated by the Shoreline Management Act. The guidelines (WAC 173-26-150 and 176-26-160) give local jurisdictions the option to plan for shorelines in designated Urban Growth Areas (UGA) and Potential Annexation Areas (PAA) as well. The City can "pre-designate" shoreline environments in its designated PAA as part of this planning process. However, shorelines in the PAA would continue to be regulated under the provisions of the King County SMP until the City annexes those areas. King County's SMP designates the City's north PAA "Urban" and the south PAA as "Rural." King County is also in the process of updating its SMP, so these designations may change when the County adopts an updated SMP, expected sometime before December 2009. The County's Draft SMP designates the City's North PAA and the South PAA as High Intensity.

The guidelines (WAC 173-26-211 (4) (b)) recommend six basic environment designations: high intensity; shoreline residential; urban conservancy; rural conservancy; natural resource; and aquatic. Local governments may establish a different designation system, retain their current environment designations and/or establish parallel environments provided the designations are consistent with the purposes and policies of the guidelines (WAC 173-26-211 (4)(c)). The guidelines also note that local shoreline environment designations should be consistent with the local comprehensive plan (WAC 173-26-211 (3)).

For each environment designation, jurisdictions must provide a purpose statement, classification criteria, management policies and environment specific regulations. Table 2 describes the purpose for each of the recommended designations in the state guidelines. For each designation, the potential applicability to Tukwila is noted.

Table 2. State Recommended Environment Designation System - WAC 173-26-211 (5)

Environment Designation	Purpose	Applicability to Tukwila
Aquatic	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.	The City does not currently utilize an Aquatic designation. Uses or activities waterward of OHWM are regulated according to the provisions of the associated upland designation. The aquatic designation appears to have limited utility for Tukwila, as the management policies and objectives for aquatic areas can be met through the adjacent upland designation.
Natural	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.	While the Green River shorelines in Tukwila provide some important ecological functions, the river and adjacent uplands throughout Tukwila have been significantly altered by dense urban development and are generally armored or otherwise modified.
Rural Conservancy	The purpose of the "rural conservancy" environment is to protect ecological functions, conserve existing natural resources and valuable historic and cultural areas in order to provide for sustained resource use, achieve natural flood plain processes, and provide recreational opportunities.	Not applicable to Tukwila. All of the City's shorelines are urbanized. Potential annexation areas are either urbanized or proposed for intensive development.
Urban Conservancy	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.	This designation is applicable in that the Green River is an important natural resource. The most significant shoreline function provided in Tukwila is related to fish and wildlife habitat. Open space is limited by the existing development pattern and flood plains are largely disconnected by a series of levees, revetments, and other infrastructure.
Shoreline Residential	The purpose of the "shoreline residential" environment is to accommodate residential development and appurtenant structures that are consistent with this chapter. An additional purpose is to provide appropriate public access and recreational uses.	This designation is most applicable for those portions of Tukwila's shorelines where the existing and planned development pattern is for low density (i.e., predominantly single-family) residential uses or public recreation 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.	This designation is applicable along only part of Tukwila's shorelines, in the Manufacturing and Industrial Center (MIC) north of the Turning Basin. Water-dependent uses are currently limited, as only a small portion of the river in Tukwila is navigable for commercial purposes, and much of the river has levees, thus restricting use immediately adjacent to the river.

7.4 Proposed Environment Designations

The Aquatic, Natural and Rural Conservancy Environments are not well suited to a highly developed, urbanized river that is navigable for only a small portion of the system and is significantly constrained by levees for flood management, such as the Green/Duwamish River in Tukwila. The City's **Shoreline Environments**, which are identified on **Map 3,** are:

- Shoreline Residential Environment
- Urban Conservancy Environment, and
- High Intensity Environment

The City proposes to designate a buffer to replace the current system of parallel shoreline management zones. Instead of the current River Environment a minimum buffer will be established for each shoreline environment and allowed uses will be designated for the buffer area along the river and the remaining shoreline jurisdiction. This system is intended to facilitate the City's long-range objectives for land and shoreline management, including:

- Ensuring no net loss of ecological shoreline functions;
- Providing for habitat protection, enhancement, and restoration to improve degraded shoreline ecological functions over time and protection of already restored areas;
- Allowing continued and increased urban development in recognition of Tukwila's role as a regionally significant industrial and commercial center; and
- Providing for improved flood control in coordination with King County and the Army Corps of Engineers.

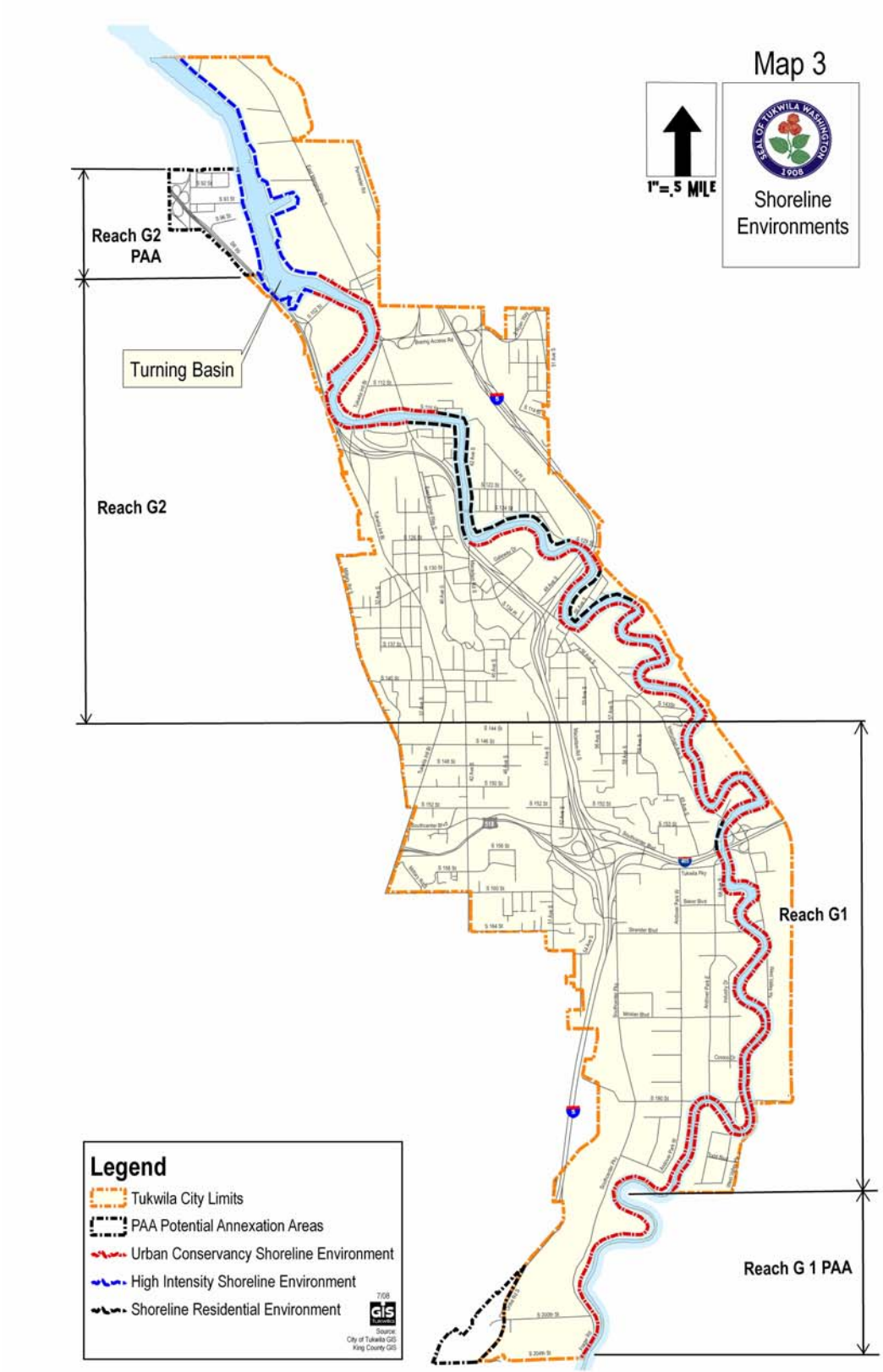
Table 3, on the following page, provides a summary of the characteristics of the river shoreline in Tukwila to set the stage for the discussion in Section 7.5 on the determination of shoreline buffers.

Table 3. Summary of Buffer Widths for Land Use Zones and Shoreline Ecological Conditions

Area	Characteristics	Environment	Buffer	Modification
MIC/H & MIC/L Zoned property from North City Limits to EMWS Bridge, and North Potential Annexation Area	Fresh/Salt water Transition Zone, Lower flooding risk, Less than 20' difference from OHWM to top of bank, tidal influence	High Intensity	100'	The Director may reduce the standard buffer on a case-by-case basis by up to 50% upon construction of the following cross section: - 1. reslope bank from OHWM (not toe) to be no steeper than 3:1, using bioengineering techniques - 2. Minimum 20' buffer landward from top of bank - 3. Bank and remaining buffer to be planted with native species with high habitat value Comment: Maximum slope is reduced due to measurement from OHWM and to recognize location in the Transition Zone where pronounced tidal influence makes work below OHWM difficult. Any buffer reduction proposal must demonstrate to the satisfaction of the Director that it will not result in direct, indirect or long-term adverse impacts to the river. In all cases a buffer enhancement plan must also be approved and implemented as a condition of the reduction. The plan must include using a variety of native vegetation that improves the functional attributes of the buffer and provides additional protection for the shoreline ecological functions.
LDR Zoned property w/o levees from EMWS to I-405	Moderate flooding risk, Less than 25' difference from OHWM to top of bank, tidal influence on northern section	Shoreline Residential	Distance required to set back slope from toe at 2.5:1 plus 20' setback, Min. 50' width	Removal of invasive species and replanting with native species of high habitat value voluntary unless triggered by requirement for a Shoreline Substantial Development permit

LDR Zoned property with levees from EMWS to I-405	Moderate flooding risk, Less than 25' difference from OHWM to top of bank, tidal influence on northern section	Shoreline Residential	125'	Upon reconstruction of levee in accordance with minimum profile, the Director may reduce the buffer to actual width required. Comment: this applies to City-owned property at Fort Dent.
Commercially zoned property from 42nd Ave S. Bridge to I-405	Moderate flooding risk, Less than 25' difference from OHWM to top of bank	Urban Conservancy	100'	The Director may reduce the standard buffer on a case-by-case basis by up to 50% upon-construction of the following cross section: • reslope bank from toe to be no steeper than 2.5:1 using bioengineering techniques • Minimum 20' buffer landward from top of bank • Bank and remaining buffer to be planted with native species with high habitat value Any buffer reduction proposal must demonstrate to the satisfaction of the Director that it will not result in direct, indirect or long-term adverse impacts to shoreline ecological functions. In all cases a buffer enhancement plan must also be approved and implemented as a condition of the reduction. The plan must include using a variety of native vegetation that improves the functional attributes of the buffer and provides additional protection for the shoreline ecological functions.
West River bank from I-405 to South City Limit, Tukwila 205 Levee and South Annexation Area	High flooding risk, Federally certified and County levee, large water level fluctuations	Urban Conservancy	125'	Upon construction or reconstruction of levee in accordance with City minimum profile the Director may reduce the buffer to the actual width required.

East River bank **without levee** from I-405 south to City Limits	Moderate flooding risk, 20 to 25' difference from OHWM to top of bank, Moderate slumping risk, large water level fluctuations	Urban Conservancy	100'	The Director may reduce the standard buffer on a case-by-case basis by up to 50% upon construction of the following cross section: - 1. reslope bank from toe to be no steeper than 2.5:1, using bioengineering techniques - 2. Minimum 20' buffer landward from top of bank - 3. Bank and remaining buffer to be planted with native species with high habitat value Any buffer reduction proposal must demonstrate to the satisfaction of the Director that it will not result in direct, indirect or long-term adverse impacts to shoreline ecological functions. In all cases a buffer enhancement plan must also be approved and implemented as a condition of the reduction. The plan must include using a variety of native vegetation that improves the functional attributes of the buffer and provides additional protection for the shoreline ecological functions.
East River bank **with levee** from I-405 to South City Limit	Moderate flooding risk, 20 to 25' difference from OHWM to top of bank, Moderate slumping risk, large water level fluctuations	Urban Conservancy	125'	Upon reconstruction of levee in accordance with City minimum profile the Director may reduce the buffer to the actual width required for the levee.
Any shoreline environment where street or road runs parallel to the river through the buffer				End buffer on river side of existing improved street or roadway.


Map 3
1"=.5 MILE
Shoreline Environments
Reach G2 PAA
Turning Basin
Reach G2
Reach G1
Reach G 1 PAA
Legend
Tukwila City Limits
PAA Potential Annexation Areas
Urban Conservancy Shoreline Environment
High Intensity Shoreline Environment
Shoreline Residential Environment
7/08
Source:
City of Tukwila GIS
King County GIS

7.5 Determination of Shoreline Buffers

The determination of the buffer distances for each shoreline environment was based on several factors including the analysis of buffer functions needed for protecting and restoring shoreline ecological function (as presented in the Shoreline Inventory and Characterization Report) and the need to allow space for bank stability and for protecting human life and structures from damage from high flows, erosion and bank failures. Safety of residents and people who work in buildings along the shoreline has become even more important in recent years due to the increase in stormwater entering the river from increasing impervious surfaces throughout the watershed and the recent problems with the Howard Hanson Dam, which preclude being able to store as much flood water behind the dam in the winter until the dam is repaired, and increasing the frequency and intensity of flows during high rain events. These higher and more frequent flows will put more stress on over-steepened banks all along the river, increasing the possibility of bank erosion, levee failures, and bank failures. Thus, ensuring that new structures are not built too close to the river's edge is crucial to avoid loss of human life.

Staff also reviewed the rationale for the buffer widths established for watercourses under TMC 18.45, the Sensitive Areas Ordinance, as well as buffer widths recommended by resource agencies, such as the State Department of Fish and Wildlife, Department of Natural Resources and the recent Biological Opinion issued by National Marine Fisheries Service in relation to FEMA's National Flood Insurance Program.

The final buffer widths proposed by staff for each shoreline environment attempted to balance shoreline ecological function needs, human life and property protection needs (including future levee repair/reconstruction), existing land use patterns, and state and federal agency policies.

The following information summarizes the analysis carried out and the rationale used for determining buffer widths.

A. Buffer Functions Supporting Shoreline Ecological Resources, Especially Salmonids

Buffers play an important role in the health of any watercourse and an even more important role when considering the health of salmonids in the Green/Duwamish River system. The key buffer functions for the river are summarized below.

The Shoreline Management Act and the Department of Ecology regulations require evaluation of ecological functions and that local SMPs ensure that the policies and regulations do not cause any net loss of shoreline ecological function. In addition, the SMP must identify mechanisms for restoration of lost ecological functions.

The crucial issue for the Green/Duwamish River is the presence of salmonids that are on the Endangered Species list. To protect and restore ecological functions related to these species it is important to provide for the installation of native vegetation along the shoreline. Such vegetation provides shade for improving temperature conditions in the river and habitat for insects on which fish prey. Trees along the shoreline also provide a source of large woody debris (tree trunks, root wads, limbs, etc. that fall into the water), which in turn provides pooling and areas of shelter for fish and other animals. In order to allow for planting of native vegetation, banks need to be set back to allow for less steep and more stable (requiring less armoring) slopes, so that they can be planted. The Corps of Engineers does not allow planting on levees unless they are set back to an average slope of 2.5:1 and constructed with a mid-slope bench. Plantings are allowed on the mid-slope bench and this is crucial for improving shoreline ecological functions that are needed in the river.

The buffer widths needed to achieve a particular buffer function vary widely by function type from as little as 16 feet for large woody debris recruitment (assuming the buffer has large trees) to over 400 feet for sediment removal. The Washington State Department of Fish and Wildlife (WDFW) recommends a riparian buffer width of 250 feet for shorelines of statewide significance (this applies to the Green/Duwamish River). The Washington Department of Natural Resources (WDNR) recommends a riparian buffer of 200 feet for Class 1 Waters (the Green/Duwamish River is a Class 1 Water under the WDNR classification scheme). The National Marine Fisheries Service (responsible at the federal level for overseeing protection of endangered salmonids under the Endangered Species Act) has recommended a buffer of 250 feet in mapped floodplain areas to allow for protection of shoreline functions that support salmonids.[1] Tukwila's Sensitive Areas Ordinance (TMC 18.45) has established a 100 foot buffer for Type 2 watercourses in the city (those that bear salmonid species).

The key buffer functions for the river are summarized below.

1. Maintenance of Water Quality

   Salmonid fish require water that is both colder and has lower nutrient levels than many other types of fish. Vegetated shoreline buffers contribute to improving water quality as described below.

   a. Water Temperature: The general range of temperatures required to support healthy salmonid populations is generally between 39 degrees and 63 degrees. Riparian vegetation, particularly forested areas can affect water temperature by providing shade to reduce exposure to the sun and regulate high ambient air temperatures.

[1] Endangered Species Act – Section 7 Consultation, Final Biological Opinion and Magnuson –Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation, Implementation of the Flood Insurance Program in the State of Washington, Phase One Document, Puget Sound Region, September, 2008.

b. Dissolved Oxygen: dissolved oxygen is one of the most influential water quality parameters for aquatic life, including salmonid fish. The most significant factor affecting dissolved oxygen levels is water temperature – cooler streams maintain higher levels of oxygen than warmer waters.
c. Metals and pollutants*:* Common pollutants found in streams, particularly in urban areas, are excessive nutrients (such as phosphorous and nitrogen), pesticides, bacteria and miscellaneous contaminants such as PCBs and heavy metals. Impervious surfaces collect and concentrate pollutants from different sources and deliver these materials to streams during storm events. The concentration of pollutants increases in direct proportion to the total amount of impervious area. Undisturbed or well vegetated riparian buffer areas can retain sediment, nutrients, pesticides, pathogens and other pollutants, protecting water quality in streams. Elevated nitrogen and phosphorus levels in runoff are a typical problem in urban watersheds and can lead to increased in-stream plant growth, which results in excess decaying plant material that consumes oxygen in streams and reduces aquatic habitat quality.

2. Contributing to in-stream structural diversity

a. Large woody debris (LWD) refers to limbs and tree trunks that naturally fall into the stream bed from a vegetated buffer. LWD serves many functions in watercourses. LWD adds roughness to stream channels, which in turn slows water velocities and traps sediments. Sources of LWD in urban settings are limited where stream corridors have been cleared of vegetation and developed and channel movement limited due to revetments and levees. Under natural conditions, the normal movement of the stream channel, undercutting of banks, wind throw, and flood events are all methods of LWD recruitment to a stream channel.
b. LWD also contributes to the formation of pools in river channels that provide important habitat for salmonids. Adult salmonids require pools with sufficient depth and cover to protect them from predators during spawning migration. Adult salmon often hold to pools during daylight, moving upstream from pool to pool at night.

3. Providing Biotic Input of Insects and Organic Matter

a. Vegetated buffers provide foods for salmonids and other fish, because insects fall into the water from overhanging vegetation.
b. Leaves and other organic matter falling into stream provide food and nutrients for many species of aquatic insects which in turn provide forage for fish.

B. Bank Stability and Protection of Human Lives and Structures

The main period of runoff and major flood events on the Green River is from November through February. The lower Green and Duwamish levees and revetments form a nearly continuous bank protection and flood containment system. Farmers originally constructed many of these levees and revetments as the protection to the agricultural lands of the area and this original material is still in place as the structural core. In particular, these protection facilities typically have over-steepened banks, areas with inadequate rock buttressing at the toe, and lack habitat-enhancing features such as overhanging vegetation or in-water large woody debris. Because of these design and construction shortcomings, the protection to river banks has not always performed as intended. Instead, there have been bank failures that have threatened structures and infrastructure; erosion of banks – making them even steeper; and damage to levees that has required a series of repair projects.

The damage to the levee system in recent storm events lead to discussions among the City, US Army Corps of Engineers and the King County Flood Control District to determine the best levee profile to use to prevent the recurring problem of continued levee repairs. The criteria used to determine the best profile were:

- Public Safety;
- Maintaining levee certification;
- Solutions that eliminate or correct factors that have caused or contributed to the need for the levee repair;
- Levee maintenance needs; and
- Environmental considerations.

To overcome the existing problems and to reduce future maintenance and repair costs, the Corps chose to lessen the overall slope to a stable grade. This selected method is consistent with recommendations set forth in the Corps of Engineers' Manual for Design and Construction of Levees (EM 1110-2-1913) for slope stability. It also is consistent with the levee rehabilitation project constructed on the nearby Briscoe School levee that has proven to be a very effective solution to scour problems – the design slows the river down, provides additional flood storage and allows a vegetated mid-slope bench for habitat improvements. The Corps indicated that this type of profile would become the template for future levee repair and construction projects. King County also plans to use the 2.5:1 overall slope with a mid-slope bench incorporated for planting vegetation for its future levee repairs. This profile was used to repair two areas of the federally-certified levee in Tukwila – the Lily Point project and the Segale project, which were about 2,000 linear feet of repairs. Costs of these repairs were around $7 million dollars, not including any costs of land acquisition for laying back the levees. It is expected that the use of this levee design will reduce the need to continually repair the levee in those areas, thus avoiding such high expenditures in the future and saving money in the long run.

The profile discussed above is the Tukwila minimum profile for levee reconstruction as illustrated in Figure 2 below:

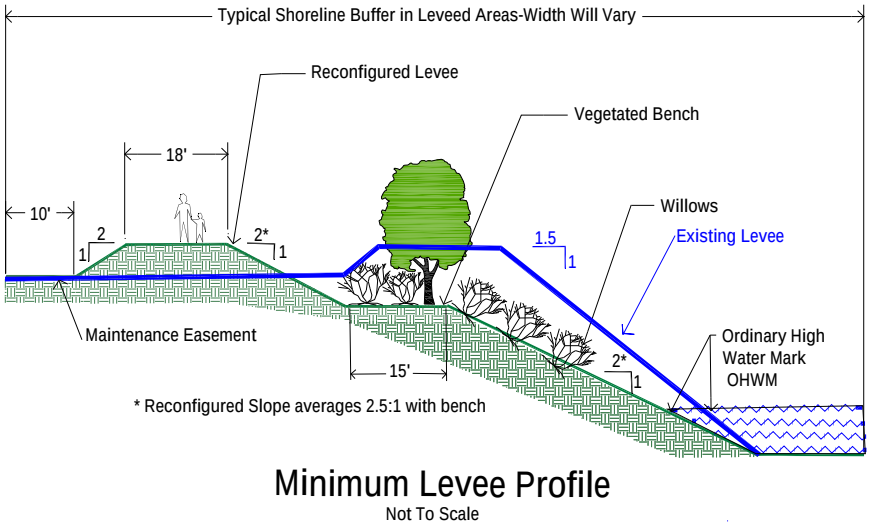


Figure 2. Minimum Levee Profile

Because of the similarities in the soil conditions and taking into consideration the tidal influence, the Green/Duwamish River can be divided into three areas – South of I-405; North of I-405; and areas around residential neighborhoods. Looking at the slope geometry and the difference in height between the ordinary high water mark and the 100-year flood elevation for these three areas, it was found that 125-feet of setback distance (buffer) is needed to accommodate the *"lay back"* of the levee in the area south of I-405 and around Fort Dent Park.[2] During high flow events, the water surface can be as much as 16 feet above the OHWM in these areas. At locations further downriver, the water surface elevation difference is much less pronounced due to the wider channel and proximity to Puget Sound. For areas without levees, north of I-405 and those areas south of I-405 on the east side of the river (right bank), a 100-foot setback distance is required to accommodate the slopes needed for bank stability. Within residential neighborhoods, a minimum 50-foot setback is justified because of the less intense land use associated with single-family home construction and the estimated amount of space needed to achieve the natural angle of repose for a more stable slope.

Even though the above explanation for determining appropriate buffer distance used levee design as the example, the same problems exist where there are no levees. The river makes no distinction between an over-steepened slope associated with a levee or a riverbank. Scouring within the river will cause sloughing and slope stability will be

[2] The 125 foot distance includes a 2.5:1 overall slope with a mid-slope bench incorporated, 20 feet at the top of the levee and 10 feet on the back side of the levee for access and inspection.

weakened, potentially resulting in the loss of structures. In fact, the non-leveed riverbank can be more prone to these problems since they tend to be steeper and consist mainly of sand and silt. This makes them susceptible to erosion. Because the non-leveed riverbanks are for the most part privately owned, they are not actively monitored for damage by the City or County.

C. Conclusions

The determination of buffer widths was based on two important criteria: the need to achieve bank stability and protect structures along the shoreline from damage due to erosion and bank failures and to protect and enhance shoreline ecological function.

Applying the 200 to 250 foot buffer widths recommended by WDFW and WDNR would not be practical given the developed nature of the shoreline. It was also felt that a buffer less than that already established for Type 2 Watercourses under the City's SAO would not be sufficiently protective of shoreline functions, unless those functions were enhanced through various restoration options. Therefore, 100 feet was established as the starting point for considering buffer widths from the standpoint of shoreline ecological function in each of the Shoreline Environments. Between 100 and 125 feet was the starting point for buffer widths from the standpoint of bank stability and property protection.

Thus buffers were established taking into account (as explained in the following sections) the characteristics of each Shoreline Environment, needs for protection/restoration of shoreline ecological functions, and needs for stable banks and human life and property protection.

7.6 <u>Shoreline Residential Environment</u>

A. Designation Criteria: All properties zoned for single-family use from the ordinary high water mark landward two-hundred (200) feet. In addition, those areas zoned for single family use but developed for public recreation or open space within 200 feet of the shoreline shall also be designated Shoreline Residential, except Fort Dent Park.

B. Purpose of Environment and Establishment of River Buffer: The purpose of the Shoreline Residential Environment is to accommodate urban density residential development, appurtenant structures, public access and recreational activities. However, within the 200 foot shoreline jurisdiction in the Shoreline Residential Environment there will be a protective buffer along the river, where development will be limited to protect shoreline function.

The purpose of the river buffer in the shoreline residential environment is to:

- Ensure no net loss to shoreline ecological functions;
- Help protect water quality and habitat function by limiting allowed uses;
- Protect existing and new development from high river flows by ensuring sufficient setback of structures;
- Promote restoration of the natural character of the shoreline environment; and
- Allow room for reconstructing over-steepened river banks to achieve a more stable slope and more natural shoreline bank conditions and avoid the need for shoreline armoring.

C. Analysis of Development Character of Residential Shoreline: An analysis was prepared that looked at the residential properties along the shoreline and identified the number of parcels with structures within 50 feet and 100 feet of the OHWM. This analysis showed the following:

ZONE	Number of parcels within 50 feet of OHWM	Number of vacant parcels within 50 feet	Number of parcels with structures within 50 feet/%	Number of parcels within 100 feet of OHWM	Number of vacant parcels within 100 feet	Number of parcels with structures within 100 feet/%
LDR	135	12	67/49%	201	25	165/82%

As can be seen from the chart above, almost half of the parcels in the residential neighborhoods have a structure within 50 feet of the OHWM – a direct result of the current King County regulations. To apply a buffer width that is consistent with the City's Sensitive Areas Ordinance (SAO) of 100 feet would create a situation where 82% of the properties along the river would have nonconforming structures as they relate to the proposed shoreline buffer.

Expansion of single family nonconforming structures in the proposed SMP buffer would be governed by Section 14.5 of the SMP, which permits an expansion of only 50% of the square footage of the current area that intrudes into the buffer and only along the ground floor of the structure. For example, if 250 square feet of a building extended into the proposed buffer, the ground floor could be expanded a maximum of 125 feet in total area along the existing building line.

A buffer of 100 feet was considered for the shoreline residential properties, with the potential of a property owner applying for a buffer reduction of 50%, however, under the Shoreline Management Act, this would have required an application for a shoreline variance for each requested buffer reduction, a process that requires review and approval both at the local and state level (Ecology must review and approve the variance in addition to the City of Tukwila). This did not seem a reasonable process to require of so many property owners.

The river bank in the Shoreline Residential Environment is typically in a modified and degraded state but generally not stabilized with revetments, dikes or levees. Based on an analysis of the river elevations and existing banks, a 50 foot minimum buffer in the Shoreline Residential Environment would allow room to achieve a 2.5:1 bank slope with an additional 20 foot setback from the top of the slope – a distance that will allow for bank stability and in-turn, protection of new structures from high flows, and bank failures. A schematic of the shoreline jurisdiction showing the buffer is provided in Figure 3.

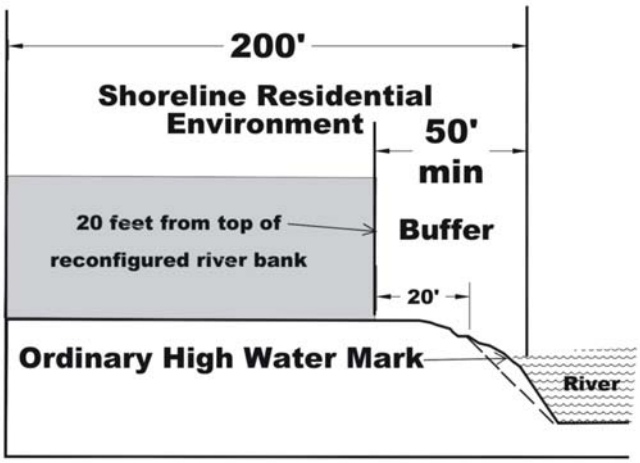


Figure 3. Schematic of Shoreline Residential Environment and Buffer

The proposed buffer area for the Shoreline Residential Environment will allow for removal of invasive plants, planting of native vegetation in the riparian zone and inclusion of other features to improve shoreline habitat. It also will prevent the placement of any structures in an area that could potentially prove unstable. In the event of bank erosion or slope failures, the buffer will provide sufficient space for re-sloping the bank to a more stable 2.5:1 slope, either through bank stabilization projects or through natural bank failures that result in the natural angle of repose (2.5:1 or greater).

7.7 <u>Urban Conservancy Environment</u>

A. Designation Criteria: This environment will be designated in the area between the Ordinary High Water Mark and 200 feet landward as regulated under the Shoreline Management Act and applied to all shorelines of the river except the Shoreline Residential Environment and the High Intensity Environment. The Urban Conservancy Environment areas are currently developed with dense urban multifamily, commercial, industrial and/or transportation uses or are designated for such uses in the proposed south annexation area. This environment begins at the southern end of the Turning Basin and includes portions of the river where levees and revetments generally have been constructed and where the river is not navigable to large water craft. Uses will be

restricted immediately adjacent to the river by establishment of a minimum protective buffer.

B. Purpose of Environment: The purpose of the Urban Conservancy Environment is to protect ecological functions where they exist in urban and developed settings, and restore ecological functions where they have been previously degraded, while allowing a variety of compatible uses.

C. Establishment of River Buffers: The Urban Conservancy environment will have two different buffers, depending on the location along the river and whether or not the shoreline has a flood control levee. The purpose of Urban Conservancy River Buffers is to:

- Protect existing and restore degraded ecological functions of the open space, flood plain and other sensitive lands in the developed urban settings;
- Ensure no net loss of shoreline function when new development or re-development is proposed;
- Provide opportunities for restoration and public access;
- Allow for adequate flood and channel management to ensure protection of property, while accommodating shoreline habitat enhancement and promoting restoration of the natural character of the shoreline environment, wherever possible;
- Avoid the need for new shoreline armoring; and
- Protect existing and new development from high river flows.

<u>Buffer in Non-Levee Areas:</u>

A buffer width of 100 feet is established for the Urban Conservancy Environment for all non-residential areas without levees. This buffer width is consistent with that established by the City's Sensitive Areas Ordinance for Type 2 streams that support salmonid use, which is based on Best Available Science. In addition, as noted above, looking at the slope geometry and the difference in height between the ordinary high water mark and the 100-year flood elevation for these areas, it was found that a 100-foot setback distance is required to accommodate the slopes needed for bank stability.

The buffer width of 100 feet allows enough room to reconfigure the river bank to achieve a slope of 2.5:1, the "angle of repose" or the maximum angle of a stable slope and allow for some restoration and improvement of shoreline function through the installation of native plants and other habitat features. The actual amount of area needed to achieve a 2.5:1 slope may be less than 100 feet, depending on the character of the river bank and can only be determined on a site-by-site basis.

As an alternative to the 100 foot buffer, a property owner may re-slope the river bank to 2.5:1, provide a 20 foot setback from the top of the new slope and vegetate both the river

bank and the 20 foot setback area in accordance with the standards in the Vegetation Protection and Landscaping Section. Any buffer reduction proposal must demonstrate to the satisfaction of the Director that it will not result in direct, indirect or long-term adverse impacts to shoreline ecosystem functions. In all cases a buffer enhancement plan must also be approved and implemented as a condition of the reduction. The plan must include removal of invasive plants, and plantings using a variety of native vegetation that improves the functional attributes of the buffer and provides additional protection for the watercourse functions.

In areas of the river where this condition currently exists or where the property owner has constructed these improvements, the buffer width will be the actual distance as measured from the ordinary high water mark to the top of the bank plus 20 feet.

The shoreline jurisdiction and buffers for the Urban Conservancy Environment are depicted in the schematic in Figures 4 and 5 below.

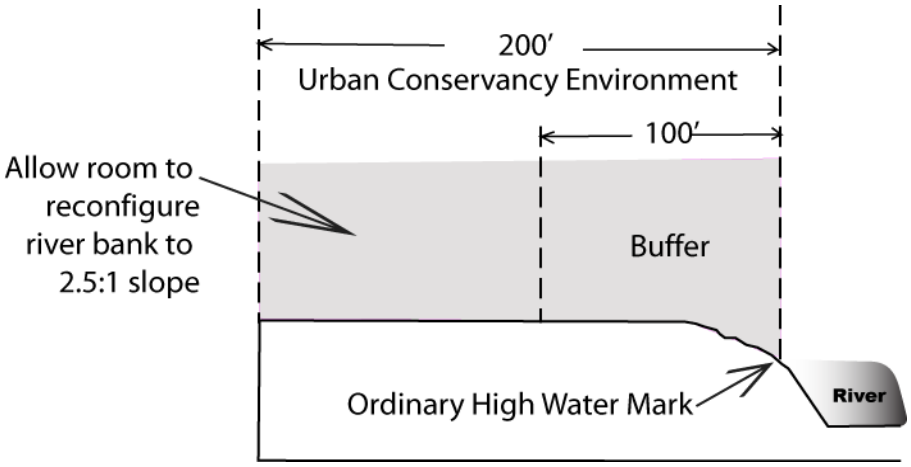


Figure 4. Schematic of Shoreline Jurisdiction and Buffers for the Urban Conservancy Environment in Areas without Levees

<u>Buffer in Levee Areas</u>:

For properties located behind the Army Corps of Engineers (ACOE) Certified 205 levee and County constructed levees, the buffer will extend 125 feet landward from the ordinary high water mark, determined at the time of development or redevelopment of the site or when levee replacement or repair is programmed. This buffer width is the maximum needed to reconfigure the river bank to the minimum levee profile and to achieve an overall slope of 2.5:1, the “angle of repose” or the maximum angle of a stable slope. The establishment of the 2.5:1 slope along the Corps certified 205 levee in the Tukwila Urban Center will allow for incorporating a mid-slope bench that can be planted with vegetation to improve river habitat. The mid-slope bench also will allow access for maintenance equipment, when needed. As the Corps of Engineers does not permit planting on the levee prism, the only way to improve habitat along the 205 levee portion

of the river is to create a bench that can be vegetated that will not create a hazard for the stability of the levee. A ten foot easement necessary to allow access for levee inspection is required on the landward side of the levee at the toe. The ACOE has indicated the 2.5:1 levee profile with the mid-slope bench will be the template for future levee repairs.

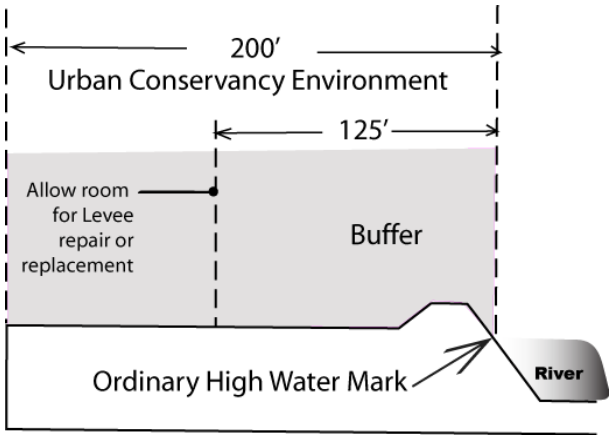


Figure 5. Schematic of Shoreline Jurisdiction and Buffers for the Urban Conservancy Environment in Areas with Levees

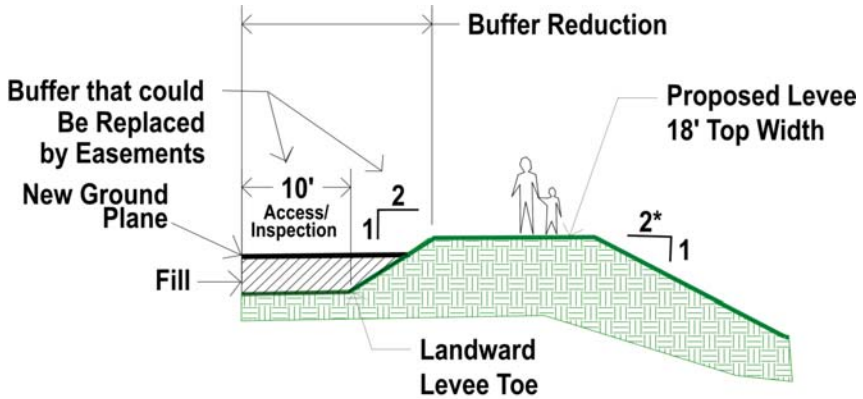
As an alternative to the 125 foot buffer for leveed areas, a property owner may construct levee or riverbank improvements that meet the Army Corps of Engineers, King County Flood Control District, and City of Tukwila minimum levee profile. These standards at a minimum shall include an overall slope of 2.5:1 from the toe of the levee to the riverward edge of the crown, a 15 foot mid slope bench, 18’ access across the top of the levee, a 2:1 back slope, and an additional 10 foot no-build area measured from the landward toe for inspection and repairs. In instances where an existing building that has not lost its nonconforming status prevents the complete construction of the minimum levee profile, achieving an overall slope of 2.5:1 may be difficult – however, the slope should be as close to 2.5:1 as possible.

A floodwall is not the preferred back slope profile for a levee and may be substituted for all or a portion of the back slope only where necessary to avoid encroachment or damage to a structure legally constructed prior to the date of adoption of this Master Program and which has not lost its nonconforming status and to preserve access needed for building functionality. The floodwall shall be designed to be the minimum necessary to provide 10’ (ten foot) clearance between the levee and the building or the minimum necessary to preserve access needed for building functionality while meeting all engineering safety standards. A floodwall may also be used where necessary to avoid encroachment on a railroad easement.

In areas of the river where the minimum levee profile currently exists or where the property owner or a government agency has constructed the minimum profile, the buffer will be reduced to the actual distance as measured from the ordinary high water mark to the landward toe of the levee or face of a floodwall, plus 10 feet. In the event that the owner provides the City and/or applicable agency with a 10-foot levee maintenance

easement measured landward from the landward toe of the levee or levee wall (which easement prohibits the construction of any structures and allows the City and/or applicable agency to access the area to inspect the levee), then the buffer shall be reduced to the landward toe of the levee, or landward edge of the levee floodwall, as the case may be.

In cases where fill is placed along the back slope of the levee, the shoreline buffer may be further reduced to the point where the ground plane intersects the back slope. The area between the landward edge of the buffer and a point ten (10) feet landward of the underground levee toe shall be covered by an easement prohibiting the construction of any structures and allowing the City and/or applicable agency to access the area to inspect the levee and/or floodwall and make any necessary repairs. See Figure 5 below.



Buffer Reduction with Backfill Option

Not To Scale

Figure 6. Schematic of Buffer Reduction Through Placing of Fill on Levee Back Slope

7.8 <u>High Intensity Environment</u>

A. Designation Criteria: The High Intensity Shoreline Environment area is currently developed with high intensity urban commercial, industrial and/or transportation uses or is designated for such uses in the proposed north annexation area. This environment begins at the Ordinary High Water Mark and extends landward 200 feet and is located from the southern edge of the Turning Basin north to the City limits and includes the North PAA. This Environment is generally located along portions of the Duwamish River that are navigable to large watercraft. Uses will be restricted immediately adjacent to the river by establishment of a minimum protective buffer.

The transition zone is located partly in the High Intensity Environment. The transition zone is the location where freshwater from a river and saltwater from the marine salt

wedge mix creating brackish conditions. Often it is also where the river widens, stream velocities decrease and estuarine mudflats begin to appear. Habitat associated with the transition zone is critically important for juvenile Chinook and chum smolts making the transition to salt water. The transition zone moves upstream and downstream in response to the combination of stream flow and tidal elevations and as a result varies over a twenty-four hour period and seasonally. The transition zone is a crucial habitat for salmonids.

B. Purpose of Environment and Establishment of River Buffer: The purpose of the Urban High Intensity Environment is to provide for high intensity, commercial, transportation and industrial uses and to promote water dependent and water oriented uses while protecting existing shoreline ecological functions and restoring ecological functions in areas that have been previously degraded.

The purposes of the High Intensity River Buffer are to:

- Protect existing and restore degraded ecological functions of the open space, flood plain and other sensitive lands in the developed urban settings;
- Ensure no net loss of shoreline function when new development or re-development occurs;
- Provide opportunities for shoreline restoration and public access;
- Allow for adequate flood and channel management to ensure protection of property, while accommodating shoreline habitat enhancement and promoting restoration of the natural character of the shoreline environment, wherever possible;
- Avoid the need for new shoreline armoring; and
- Protect existing and new development from high river flows.

A buffer of 100 feet is established, which allows enough room to reconfigure the river bank to achieve a slope of 3:1, (starting at the OHWM rather than the toe) the “angle of repose” or the maximum angle of a stable slope and allow for some restoration and improvement of shoreline function through the installation of native plants and other habitat features. The actual amount of area needed to achieve a 3:1 slope may be less than 100 feet, depending on the character of the river bank and can only be determined on a site-by-site basis.

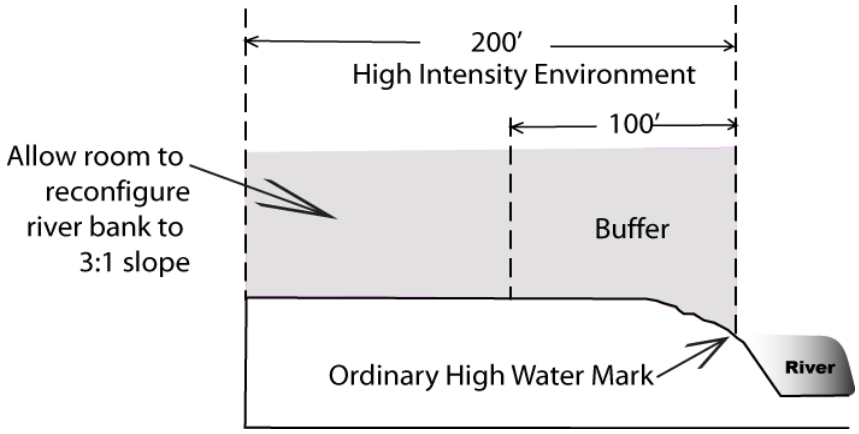


Figure 7. Schematic Showing the Proposed Shoreline Jurisdiction and Buffer for the High Intensity Environment

As an alternative to the 100 foot buffer, a property owner may re-slope the river bank to a maximum-3:1, provide a 20 foot setback from the top of the new slope and vegetate both the river bank and the 20 foot setback area in accordance with the standards in the Vegetation Protection and Landscaping Section. The property owner must also demonstrate that this approach will not result in a loss of ecological functions of the shoreline. In areas of the river where this condition currently exists or where the property owner has constructed these improvements, the buffer width will be the actual distance as measured from the Ordinary High Water Mark to the top of the bank plus 20 feet.

In any shoreline environment where an existing improved street or road runs parallel to the river through the buffer, the buffer would end on the river side of the street or road.

8. SHORELINE USE REGULATIONS

This section specifies the uses that are permitted outright, permitted as a Conditional Use, or prohibited altogether for each Shoreline Environment. Also included are special conditions and general requirements controlling specific uses. These regulations are intended to implement the purpose of each Shoreline Environment designation adopted with this SMP and will be codified in TMC 18.44. Additional regulations and performance standards that apply to all Shoreline Environments are included in Sections 9-14 of this SMP. These will also be codified in TMC 18.44.

8.1 General Use Regulations

A. All shoreline uses shall meet the requirements listed below.

B. The first priority for City-owned property within the shoreline jurisdiction shall be reserved for water-dependent uses including but not limited to habitat restoration, followed by water-enjoyment uses, public access, passive recreation, passive open space uses, or public educational purposes.

C. No hazardous waste handling, processing or storage is allowed within the SMA shoreline jurisdiction, unless incidental to a use allowed in the designated shoreline environment and adequate controls are in place to prevent any releases to the shoreline/river.

D. Overwater structures, shall not cause a net loss of ecological function, interfere with navigation or flood management, or present potential hazards to downstream properties or facilities. They shall comply with the standards in the Overwater Structures Section.

E. Parking as a primary use is not permitted, except for existing Park and Ride lots, where adequate stormwater collection and treatment is in place to protect water quality. Parking is permitted only as an accessory to a permitted, conditional or unclassified use in the shoreline jurisdiction.

F. All development, activities or uses unless it is an approved over water, flood management structure, or shoreline restoration project shall be prohibited waterward of the OHWM.

8.2 Shoreline Residential Environment --Uses

A. Shoreline Residential Buffer – Permitted Uses

The Shoreline Residential River Buffer shall consist of the area identified in the Shoreline Environment Designation Section of the SMP and the uses shall meet the

purposes and criteria established therein.

1. Permitted Uses: No uses or structures are permitted in the Shoreline Residential Buffer except for the following:
    a. Shoreline Restoration Projects;
    b. Over-water structures subject to the standards in the Over-water Structures section associated with water-dependent uses, public access, recreation, flood control or channel management. Private, single residence piers for the sole use of the property owner shall not be considered an outright use on the shoreline. A dock may be allowed when the applicant has demonstrated a need for moorage and that the following alternatives have been investigated and are not available or feasible:
        1). commercial or marina moorage;
        2). floating moorage buoys;
        3). joint use moorage pier/dock.
    c. Public parks, recreation and open space;
    d. Public pedestrian bridges
    e. Public and/or private promenades, footpaths or trails;
    f. Recreation structures such as benches, tables, viewpoints, and picnic shelters, provided no such structure shall exceed 15 feet in height or 25 square feet in area or block views to the shoreline from adjacent properties;
    g. Signs conforming to the Sign Code;
    h. Maintenance or redevelopment of levees for flood control purposes, provided they are designed to meet the applicable levee regulations of this SMP
    i. Vehicle bridges, only if connecting public rights-of-way;
    j. Utility towers and utilities except the provision, distribution, collection, transmission or disposal of refuse;
    k. Fire lanes when co-located with levee maintenance roads;
    l. New shoreline stabilization utilizing the development standards in the Shoreline Stabilization section of this SMP.
    m. Water dependent uses and their structures, as long as there is no net loss of shoreline ecological function;
    n. Fences, provided the maximum height of a fence along the shoreline is four feet and the fence does not extend waterward beyond the top of the bank; chain link fences must by vinyl coated.
    o. Existing essential streets, roads and rights of way may be maintained or improved;
    p. Outdoor storage, only in conjunction with a water dependent use.
    q. Support facilities for above or below ground utilities or pollution control, such as runoff ponds, filter systems, detention ponds and outfall facilities, provided they are located at or below grade and as far from the OHWM as technically feasible;

r. Essential public facilities, both above and below ground; and
s. Landfill as part of an approved remediation plan for the purpose of capping contaminated sediments.
t. Patios, or decks not exceeding 18-inches in height, limited to a maximum 200 square feet and 50% of the width of the river frontage. Decks or patios must be located landward of the top of the bank and be constructed to be pervious and of environmentally friendly materials.

2. Conditional Uses: Only the following may be allowed as a Conditional Use in the Shoreline Residential buffer subject to the requirements, procedures and conditions established by this program:
   a. Dredging activities when in compliance with all federal and state regulations, when necessary for navigation or remediation of contaminated sediments.
   b. Dredging for navigational purposes is permitted where necessary for assuring safe and efficient accommodation of existing navigational uses and then only when significant ecological impacts are minimized and when mitigation is provided. Maintenance dredging of established navigation channels and basins is restricted to maintaining previously dredged and/or existing authorized location, depth and width. Dredging of bottom materials for the purpose of obtaining fill material is prohibited.
   c. New private vehicle bridges.

B. Shoreline Residential Environment -- Uses

The Shoreline Residential Environment shall consist of the remaining area within the 200 foot shoreline jurisdiction that is not within the Shoreline Residential River Buffer. Uses shall meet the purposes and criteria of the Shoreline Residential Development Zone as established in the Shoreline Environment Designation section.

1. Permitted Uses: The Shoreline Residential Environment shall contain residential, recreational and limited commercial uses and accessory uses as allowed in the underlying zoning district. In addition, the Shoreline Residential Environment shall allow the following uses:
   a. All uses permitted in the Shoreline Residential River Buffer;
   b. For non-residential uses, parking/loading and storage facilities located to the most upland portion of the property and adequately screened and/or landscaped in accordance with the Vegetation Protection and Landscaping section;
   c. Railroad tracks; and
   d. Public or private roads.

2. Conditional uses: All uses listed as conditional uses subject to the requirements, procedures and conditions established by this program.

8.3 Urban Conservancy Environment -- Uses

The Urban Conservancy Environment shall consist of the areas identified in the Shoreline Environment Designations sections of this SMP. Uses shall meet the purposes and criteria of the Urban Conservancy Environment established therein.

A. Urban Conservancy Environment Buffer – Uses

1. Permitted uses: The following uses are permitted in the Urban Conservancy River Buffer:
    a. Shoreline Restoration Projects.
    b. Over-water structures subject to the standards established in the Over-water Structures Section that are associated with water-dependent uses, public access, recreation, flood control, channel management or ecological restoration;
    c. Public parks, recreation and open space
    d. Public and/or private promenades, footpaths or trails;
    e. Public pedestrian bridges;
    f. Recreation structures such as benches, tables, viewpoints, and picnic shelters, provided no such structure shall exceed 15 feet in height and 25 square feet in area and views of the shoreline are not blocked from adjacent properties;
    g. Signs conforming to the Sign Code;
    h. Maintenance or redevelopment of levees for flood control purposes, provided that any redevelopment of a levee shall meet the applicable levee regulations of this SMP;
    i. New vehicle bridges: permitted only if connecting public rights-of-way; existing public or private vehicle bridges may be maintained or replaced.
    j. Utility towers and utilities except the provision, distribution, collection, transmission or disposal of refuse;
    k. Levee maintenance roads;
    l. Plaza connectors between buildings and levees, not exceeding the height of the levee, are permitted for the purpose of providing and enhancing pedestrian access along the river and for landscaping purposes.
    m. New shoreline stabilization utilizing the development standards in the Shoreline Stabilization Section.
    n. Existing essential streets, roads and rights of way may be maintained or improved.
    o. Water dependent commercial and industrial development, if permitted by the underlying zoning district;
    p. Regional detention facilities that meet the City's Infrastructure Design and Construction Standards along with their supporting elements such as ponds, piping, filter systems and outfalls.

q. Support facilities for above or below ground utilities or pollution control, such as runoff ponds, filter systems, detention ponds and outfall facilities, provided they are located at or below grade and as far from the OHWM as technically feasible;
r. Outdoor storage, only in conjunction with a water dependent use.
s. Essential public facilities, both above and below ground.
t. Landfill as part of an approved remediation plan for the purpose of capping contaminated sediments.

2. Conditional Uses: Only the following may be allowed as a Conditional Use in the Shoreline Urban Conservancy Environment buffer subject to the requirements, procedures and conditions established by this program:
   a. Dredging activities where necessary for assuring safe and efficient accommodation of existing navigational uses and then only when significant ecological impacts are minimized and when mitigation is provided;
   b. Dredging for remediation of contaminated sediments when mitigation is provided. Dredging of bottom materials for the purpose of obtaining fill material is prohibited. Dredging activities must comply with all federal and state regulations.
   c. New private vehicle bridges.

B. Urban Conservancy Environment -- Uses

1. Permitted Uses: All uses permitted in the Urban Conservancy Environment Buffer and/or the underlying zoning district may be allowed.

2. Conditional Uses: All uses listed as Conditional Uses may be allowed subject to the requirements, procedures and conditions of this program.

8.4 <u>High Intensity Environment -- Uses</u>

The High Intensity Environment Buffer shall consist of the area identified in the Shoreline Environment Designations section. Uses shall meet the purposes and criteria of established therein.

A. High Intensity Environment Buffer -- Uses

1. Permitted uses: The following uses are permitted in the High Intensity River Buffer:
   a. Shoreline Restoration Projects.
   b. Over-water structures subject to the standards established in the Over-water Structures Section that are associated with water-dependent

uses, public access, recreation, flood control, channel management or ecological restoration;

c. Public parks, recreation and open space;
d. Public and/or private promenades, footpaths or trails;
e. Public pedestrian bridges;
f. Recreation structures such as benches, tables, viewpoints, and picnic shelters, provided no such structure shall exceed 15 feet in height and 25 square feet in area and no views of the shoreline are blocked from adjacent properties;
g. Signs conforming to the Sign Code;
h. Maintenance or redevelopment of levees for flood control purposes, provided that any redevelopment of a levee shall meet the applicable levee regulations of this SMP;
i. New vehicle bridges: permitted only if connecting public rights-of-way; existing public or private vehicle bridges may be maintained or replaced.
j. Utility towers and utilities except the provision, distribution, collection, transmission or disposal of refuse;
k. Levee maintenance roads;
l. Plaza connectors between buildings and levees, not exceeding the height of the levee, are permitted for the purpose of providing and enhancing pedestrian access along the river and for landscaping purposes.
m. New shoreline stabilization utilizing the development standards in the Shoreline Stabilization section of this SMP.
n. Existing essential streets, roads and rights of way may be maintained or improved.
o. Water dependent commercial and industrial development, if permitted by the underlying zoning district;
p. Regional detention facilities that meet the City's Infrastructure Design and Construction Standards along with their supporting elements such as ponds, piping, filter systems and outfalls.
q. Support facilities for above or below ground utilities or pollution control, such as runoff ponds, filter systems, detention ponds and outfall facilities, provided they are located at or below grade and as far from the OHWM as technically feasible;
r. Outdoor storage, only in conjunction with a water dependent use.
s. Essential public facilities, both above and below ground.
t. Landfill as part of an approved remediation plan for the purpose of capping contaminated sediments.

2. Conditional Uses: Only the following may be allowed as a Conditional Use in the Shoreline High Intensity Environment buffer subject to the requirements, procedures and conditions of this program.

a. Dredging activities where necessary for assuring safe and efficient accommodation of existing navigational uses and then only when significant ecological impacts are minimized and when mitigation is provided;
b. Dredging for remediation of contaminated sediments when mitigation is provided. Dredging of bottom materials for the purpose of obtaining fill material is prohibited. Dredging activities must comply with all federal and state regulations.
c. New private vehicle bridges.

B. Shoreline High Intensity Environment -- Uses

The Shoreline High Intensity Environment shall consist of the remaining area within the 200 foot shoreline jurisdiction that is not within the Shoreline High Intensity Environment Buffer area. Uses shall meet the purposes and criteria of the Shoreline Environment Designations section.

1. Permitted Uses: All uses permitted in the High Intensity Environment Buffer and/or the underlying zoning district may be allowed.

2. Conditional Uses: All uses listed as Conditional Uses may be allowed subject to the requirements, procedures and conditions established by this program.

9. SHORELINE DEVELOPMENT STANDARDS

9.1 Applicability

The development standards of this chapter apply to work that meets the definition of substantial development except for vegetation removal per section 9.10, which applies to all shoreline development. The term "substantial development" applies to nonconforming, new or re-development.

Nonconforming uses, structures, parking lots and landscape areas, will be governed by the standards in Section 14.5, Nonconforming Development.

9.2 Shoreline Residential Development Standards

A shoreline substantial development permit is not required for construction within the Shoreline Residential Environment by an owner, lessee or contract purchaser of a single family residence for his/her own use or for the use of a family member. Such construction and all normal appurtenant structures must otherwise conform to this Master Program and the Shoreline Management Act. Short subdivisions and subdivisions are not exempt from obtaining a shoreline substantial development permit.

A. Shoreline Residential Environment Standards

Permitted uses and approved Conditional Uses in the Shoreline Residential Environment are subject to the following:

1. New development and uses must be sited so as to allow natural bank inclination of 2.5:1 slope. A river bank analysis may be required as part of any development proposal.

2. Utilities such as pumps, pipes, etc., shall be suitably screened with native vegetation per the standards in the Vegetation Protection and Landscaping section;

3. New shoreline stabilization, repair of existing stabilization, or modifications to the riverbank must comply with the standards in the Shoreline Stabilization section.

4. Short plats of 5-9 lots or formal subdivisions must be designed to provide public access to the river in accordance with the Public Access Section. Signage is required to identify the public access point(s).

5. Parking facilities associated with single family residential development or

public recreational facilities are subject to the specific performance standards set forth in the Off-Street Parking section.

6. Fences, freestanding walls or other structures normally accessory to residences must not block views of the river from adjacent residences or extend waterward beyond the top of the bank. Chain link fencing must be vinyl coated.

7. Recreational structures permitted in the buffer must provide buffer mitigation.

8. The outside edge of surface transportation facilities, such as railroad tracks, streets, or public transit shall be located no closer than 50 feet from the ordinary high water mark, except where the surface transportation facility is bridging the river.

9. Except for bridges, approved above ground utility structures, and water dependent uses and their structures, the maximum height for structures shall be as established by the underlying zone.

B. Design Review

Design review is required for non-residential development in the Shoreline Residential Environment.

9.3 <u>High Intensity and Urban Conservancy Environment Development Standards</u>

A. Standards

The following standards apply in the High Intensity and Urban Conservancy Environment.

1. All new development performed by public agencies, or new multi-family, commercial, or industrial development shall provide public access in accordance with the standards in the Public Access Section.

2. Development or re-development of properties in areas of the shoreline armored with revetments or other hard armoring other than levees, or with non-armored river banks must comply with the Vegetation Protection and Landscaping Section.

3. Any new shoreline stabilization or repairs to existing stabilization must comply with Shoreline Stabilization Section.

4. Over-water structures shall be allowed only for water dependent uses and the size limited to the minimum necessary to support the structure's intended use and shall result in no net loss to shoreline ecological function. Overwater structures must comply with the standards in the Overwater Structures Section.

B. Setbacks and Site Configuration

1. The yard setback adjacent to the river is the buffer width established for the applicable shoreline environment.

2. A fishing pier, viewing platform or other outdoor feature that provides access to the shoreline is not required to meet a setback from the OHWM.

C. Height Restrictions

Except for bridges, approved above ground utility structures, and water dependent uses and their structures, the maximum height for structures shall be as follows to preserve visual access to the shoreline and avoid massing of tall buildings within the shoreline jurisdiction:

1. 15 feet where located within the River Buffer;
2. 45 feet between the outside landward edge of the River Buffer and 200' of the OHWM.

Provided, no permit shall be issued for any new or expanded building or structure of more than 35 feet above average grade level on shorelines of the state that will obstruct the view of a substantial number of residences on areas adjoining such shorelines. The Director may approve a 15% increase in height if the project proponent provides substantial additional restoration and/or enhancement of the shoreline buffer, beyond what may otherwise be required. The enhancement and/or restoration is subject to the standards of Section 9.10, Vegetation Protection and Landscaping. If the required buffer has already been restored, the project proponent may provide a 20% wider buffer which has been restored and/or enhanced in order to obtain the 15% increase in height. These incentives may not be combined to achieve a greater than 15% height increase. The enhancement/restoration is subject to the standards of Section 9.10, Vegetation Protection and Landscaping.

D. Lighting

Lighting for the site or development shall be designed and located so that:

1. The minimum light levels in parking areas and paths between the building and street shall be 1 foot-candle;
2. Lighting shall be designed to prevent light spillover and glare on adjacent

properties and on the river channel, be directed downward so as to illuminate only the immediate area; and be shielded to eliminate direct off-site illumination;

3. The general grounds need not be lighted;
4. The lighting is incorporated into a unified landscape and/or site plan.

9.4 Surface Water and Water Quality

The following standards apply to all shoreline development.

A. New surface water systems may not discharge directly into the river or streams tributary to the river without pre-treatment to reduce pollutants and meet State water quality standards.

B. Such pre-treatment may consist of biofiltration, oil/water separators, or other methods approved by the City of Tukwila Public Works Department.

C. Shoreline development, uses and activities shall not cause any increase in surface runoff, and shall have adequate provisions for storm water detention/infiltration.

D. Stormwater outfalls must be designed so as to cause no net loss of shoreline ecological functions or adverse impacts where functions are impaired. New stormwater outfalls or maintenance of existing outfalls must include shoreline restoration as part of the project.

E. Shoreline development and activities shall have adequate provisions for sanitary sewer.

F. Solid and liquid wastes and untreated effluents shall not be allowed to enter any bodies of water or to be discharged onto shorelands.

G. The use of low impact development techniques is required, unless such techniques conflict with other provisions of the SMP or are shown to not be feasible due to site conditions.

H. Regional detention facilities shall be designed such that a fence is not required, planted with native vegetation, designed to blend with the surrounding environment and provide design features that serve both public and private use, such as an access road that also can serve as a trail. The facility shall also be designed to locate access roads and other impervious surfaces as far from the river as practical.

9.5 Flood Hazard Reduction

The following standards apply to all shoreline development.

A. New structural flood hazard reduction structures shall be allowed only when it can be demonstrated by a Riverbank Analysis that:

1. They are necessary to protect existing development;
2. Non-structural measures are not feasible; and
3. Impacts to ecological functions and priority species and habitats can be successfully mitigated so as to assure no net loss.

Flood hazard structures must incorporate appropriate vegetation restoration and conservation actions consistent with the standards of the Vegetation Protection and Landscaping Section.

B. Levees, berms and similar flood control structures, whether new or redeveloped, shall be designed in such a way as to ensure structural stability while incorporating mid-slope benches planted with native vegetation suitable for wildlife habitat wherever feasible. Where not feasible to incorporate a mid-slope bench with vegetation, other appropriate habitat improvements must be provided.

C. Publicly funded structural measures to reduce flood hazards shall improve public access or dedicate and provide public access unless public access improvements would cause unavoidable health or safety hazards to the public, inherent and unavoidable security problems, or significant ecological impacts that cannot be mitigated.

D. Rehabilitation or replacement of existing flood control structures, such as levees, with a primary purpose of containing the 1-percent annual chance flood event, shall be allowed where it can be demonstrated by an engineering analysis that the existing structure:

1. Does not provide an appropriate level of protection for surrounding lands; or
2. Does not meet appropriate engineering design standards for stability (e.g., over-steepened side slopes for existing soil and/or flow conditions); and
3. Repair of the existing structure will not cause or increase significant adverse ecological impacts to the shoreline.

E. Rehabilitated or replaced flood control structures must achieve a maximum side slope angle of 2.5:1 (H:V) or if that is not possible, achieve an angle as close to 2.5:1 as possible. Rehabilitated or replaced structures shall not extend the toe of slope any further waterward of the OHWM than the existing structure.

F. New structural flood hazard reduction measures, such as levees, berms and similar flood control structures shall be placed landward of the floodway as determined by the best available information.

G. New, redeveloped or replaced structural flood hazard reduction measures shall be placed landward of associated wetlands, and designated fish and wildlife habitat conservation areas.

H. No commercial, industrial, office or residential development shall be located within a floodplain without a Flood Control Zone Permit issued by the City. No development shall be located within a floodway except as otherwise permitted.

9.6 Shoreline Stabilization

The provisions of this section apply to those structures or actions intended to minimize or prevent erosion of adjacent uplands and/or failure of riverbanks resulting from waves, tidal fluctuations or river currents. Shoreline stabilization or armoring involves the placement of erosion resistant materials (e.g., large rocks and boulders, cement, pilings and/or large woody debris) or the use of bioengineering techniques to reduce or eliminate erosion of shorelines and risk to human infrastructure. This form of shoreline stabilization is distinct from flood control structures and flood hazard reduction measures (such as levees). The **Shoreline Armoring Map**, **Map 4,** identifies the location of both types of river bank modifications. The terms shoreline stabilization, shoreline protection and shoreline armoring are used interchangeably

A. Shoreline protection shall not be considered an outright permitted use and shall be permitted only when it has been demonstrated through a Riverbank Analysis and Report that shoreline protection is necessary for the protection of existing legally established structures and public improvements.

B. New development and re-development shall be designed and configured on the lot to avoid the need for new shoreline stabilization. Removal of failing shoreline stabilization shall be incorporated into re-development design proposals wherever feasible.

C. Replacement of lawfully established, existing bulkheads or revetments are subject to the following priority system:

1. The first priority for replacement of bulkheads or revetments shall be landward of the existing bulkhead.
2. The second priority for replacement of existing bulkheads or revetments shall be to replace in place (at the bulkhead's existing location).

D. When evaluating a proposal against the above priority system, at a minimum the following criteria shall be considered:

1. Existing topography;
2. Existing development;
3. Location of abutting bulkheads;
4. Impact to shoreline ecological functions; and,

5. Impact to river hydraulics, potential changes in geomorphology, and to other areas of the shoreline.

E. Proponents of new or replacement hard shoreline stabilization (e.g. bulkheads or revetments) must demonstrate through a documented river bank analysis that bioengineered shoreline protection measures or bioengineering erosion control designs will not provide adequate upland protection of existing structures or would pose a threat or risk to adjacent property. The study must also demonstrate that the proposed hard shoreline stabilization will not adversely affect other infrastructure or adjacent shorelines.

F. Where allowed, shoreline armoring shall be designed, constructed and maintained in a manner that does not result in a net loss of ecological function, including fish habitat, and shall conform to the requirements of the 2004 Washington State Department of Fish and Wildlife[3] (or as amended) criteria and guidelines for integrated streambank protection, U. S. Army Corps of Engineers and other regulatory requirements. The hard shoreline stabilization must be designed and approved by a qualified engineer.

G. Shoreline armoring shall be designed to the minimum size, height, bulk and extent necessary to remedy the identified hazard.

H. An applicant must demonstrate the following in order to qualify for the RCW 90.58.030(30(e)(iii)(ii) exemption from the requirement to obtain a shoreline substantial development permit for a proposed single family bulkhead and to insure that the bulkhead will be consistent with the SMP:

1. Erosion from currents or waves is imminently threatening a legally established single family detached dwelling unit or one or more appurtenant structures; and
2, The proposed bulkhead is more consistent with the City's Master Program in protecting the site and adjoining shorelines and that non-structural alternatives such as slope drainage systems, bioengineering or vegetative growth stabilization, are not feasible or will not adequately protect a legally established residence or appurtenant structure; and
3. The proposed bulkhead is located landward of the OHWM or it connects to adjacent, legally established bulkheads; and
4. The maximum height of the proposed bulkhead is no more than one foot above the elevation of extreme high water on tidal waters as determined by the National Ocean Survey published by the National Oceanic and Atmospheric Administration.

I. Bulkheads or revetments shall be constructed of suitable materials that will serve to accomplish the desired end with maximum preservation of natural characteristics. Materials with the potential for water quality degradation shall not be used. Design and

[3] Washington State Department of Fish and Wildlife, Washington Department of Ecology, and US Fish and Wildlife Service, Olympia, Washington.

construction methods shall consider aesthetics and habitat protection. Automobile bodies, tires or other junk or waste material that may release undesirable chemicals or other material shall not be used for shoreline protection.

J. The builder of any bulkhead or revetment shall be financially responsible for determining the nature and the extent of probable adverse effects on fish and wildlife or on the property of others caused by his/her construction and shall propose and implement solutions approved by the City to minimize such effects.

K. When shoreline stabilization is required at a public access site, provision for safe access to the water shall be incorporated in the design whenever possible.

L. Placement of bank protection material shall occur from the top of the bank and shall be supervised by the property owner or contractor to ensure material is not dumped directly onto the bank face.

M. Bank protection material shall be clean and shall be of a sufficient size to prevent its being washed away by high water flows.

N. When riprap is washed out and presents a hazard to the safety of recreational users of the river, it shall be removed by the owner of such material.

O. Bank protection associated with bridge construction and maintenance may be permitted subject to the provisions of the SMP and shall conform to provisions of the State Hydraulics Code (RCW 77.55) and U.S. Army Corps of Engineer regulations.

Map 4
Shoreline Armoring
Turning Basin
Legend
Tukwila City Limits
Potential Annexation Areas
Green / Duwamish River
Parks
River Miles
Tukwila 205 Levee (Federally Certified)
Levee
Revetment
1" = .5 MILE

9.7 Archaeological, Cultural and Historical Resources

In addition to the requirements of TMC 18.50.110, Archaeological/Paleontological Information Preservation Requirements, the following regulations apply.

A. All land use permits for projects within the shoreline jurisdiction shall be coordinated with affected tribes.
B. If the City determines that a site has significant archaeological, natural scientific or historical value, a substantial development that would pose a threat to the resources of the site shall not be approved.
C. Permits issued in areas documented to contain archaeological resources require a site inspection or evaluation by a professional archaeologist in coordination with affected Indian tribes. The City may require that development be postponed in such areas to allow investigation of public acquisition potential, retrieval and preservation of significant artifacts and/or development of a mitigation plan. Areas of known or suspected archaeological middens shall not be disturbed and shall be fenced and identified during construction projects on the site.
D. Developers and property owners shall immediately stop work and notify the City of Tukwila, the Washington Department of Archaeology and Historic Preservation and affected Indian tribes if archaeological resources are uncovered during excavation.
E. In the event that unforeseen factors constituting an emergency, as defined in RCW 90.58.030, necessitate rapid action to retrieve or preserve artifacts or data identified above, the project may be exempted from any shoreline permit requirements. The City shall notify the Washington State Department of Ecology, the State Attorney General's Office and the State Department of Archaeology and Historic Preservation of such an exemption in a timely manner.
F. Archaeological excavations may be permitted subject to the provision of the Master Program.
G. On sites where historical or archaeological resources have been identified and will be preserved in situ, public access to such areas shall be designed and managed so as to give maximum protection to the resource and surrounding environment.
H. Interpretive signs of historical and archaeological features shall be provided subject to the requirements of the Public Access Section when such signage does not compromise the protection of these features from tampering, damage and/or destruction.

9.8 Environmental Impact Mitigation.

A. All shoreline development and uses shall occur in a manner that results in no net loss of shoreline ecological functions through the careful location and design of all allowed development and uses. In cases where impacts to shoreline ecological functions from allowed development and uses are unavoidable, those impacts shall be mitigated according to the provisions of this section.

B. To the extent Washington's State Environmental Policy Act of 1971 (SEPA), chapter 43.21C RCW, is applicable, the analysis of environmental impacts from proposed shoreline uses or developments shall be conducted consistent with the rules implementing SEPA (TMC 21.04 and WAC 197-11).

C. Where required, mitigation measures shall be applied in the following sequence of steps listed in order of priority.

1. Avoiding the impact altogether by not taking a certain action or parts of an action;
2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation by using appropriate technology or by taking affirmative steps to avoid or reduce impacts;
3. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
4. Reducing or eliminating the impact over time by preservation and maintenance operations;
5. Compensating for the impact by replacing, enhancing, or providing substitute resources or environments; and
6. Monitoring the impact and the compensation projects and taking appropriate corrective measures.

D. In determining appropriate mitigation measures applicable to shoreline development, lower priority measures shall be applied only where higher priority measures are determined by the City to be infeasible or inapplicable.

E. When mitigation measures are appropriate pursuant to the priority of mitigation sequencing above, preferential consideration shall be given to measures that replace the impacted functions directly and in the immediate vicinity of the impact. However, if mitigation in the immediate vicinity is not scientifically feasible due to problems with hydrology, soils, waves or other factors, then off-site mitigation within the shoreline jurisdiction may be allowed if consistent with the Shoreline Restoration Plan. Mitigation for projects in the Transition Zone must take place in the Transition Zone. In the event that a site is not available in the Transition Zone to carry out required mitigation, the project proponent may contribute funds equivalent to the value of the required mitigation to an existing or future restoration project identified in the CIP to be carried out by a public agency in the Transition Zone.

9.9 <u>Off Street Parking and Loading Requirements</u>

A. In addition to the parking requirements in TMC 18.56, the following requirements apply to all development in the shoreline jurisdiction.

B. Any parking, loading, or storage facilities located between the river and any building must incorporate additional landscaping in accordance with the Vegetation Protection and

Landscaping Section, or berming or other site planning or design techniques to reduce visual and/or environmental impacts from the parking areas utilizing the following screening techniques:

1. A solid evergreen screen of trees and shrubs a minimum six-foot in height; or
2. Decorative fence a maximum of six feet high with landscaping. Chain link fence, where allowed, shall be vinyl coated and landscaped with native trailing vine or an approved non-native vine other than ivy, except where a security or safety hazard may exist; or
3. Earth berms at a minimum of four feet high, planted with native plants in accordance with the Vegetation Protection and Landscaping Section.

B. Where a parking area is located in the shoreline jurisdiction and adjacent to a public access feature, the parking area shall be screened by a vegetative screen or a built structure that runs the entire length of the parking area adjacent to the amenity. The landscape screening shall comply with the Vegetation Protection and Landscaping Section.

C. Where public access to or along the shoreline exists or is proposed, parking areas shall provide pedestrian access from the parking area to the shoreline.

D. Parking facilities, loading areas and paved areas shall incorporate low impact development techniques wherever feasible, adequate storm water retention areas, oil/water separators and biofiltration swales, or other treatment techniques and shall comply with the standards and practices formally adopted by the City of Tukwila Public Works Department.

9.10 <u>Vegetation Protection And Landscaping</u>

A. Purpose, Objectives and Applicability

1. The purpose of this section is to:

    a. Regulate the protection of existing trees and native vegetation in the shoreline jurisdiction;
    b. Establish requirements for removal of invasive plants at the time of development or re-development of sites;
    c. Establish requirements for landscaping for new development or re-development;
    d. Establish requirements for the long-term maintenance of native vegetation to prevent establishment of invasive species and promote shoreline ecosystem processes.

2. The City's goal is to preserve as many existing trees as possible and increase the number of native trees, shrubs and other vegetation in the shoreline

because of their importance to shoreline ecosystem functions as listed below:

a. Overhead tree canopy to provide shade for water temperature control;
b. Habitat for birds, insects and small mammals;
c. Vegetation that overhangs the river to provide places for fish to shelter;
d. Source of insects for fish;
e. Filtering of pollutants and slowing of stormwater prior to its entering the river; and
f. A long-term source of woody debris for the river.

In addition, trees and other native vegetation are important for aesthetics – it is the City's goal that unsightly invasive vegetation, such as blackberries, be removed from the shoreline and be replaced with native vegetation to promote greater enjoyment of and access to the river.

The City will provide information and technical assistance to property owners for improving vegetation in the shoreline jurisdiction and will work collaboratively with local citizen groups to assist property owners in the removal of invasive vegetation and planting of native vegetation, particularly for residential areas.

3. With the exception of residential development/re-development of 4 or fewer residential units, all activities and developments within the shoreline environment must comply with the landscaping and maintenance requirements of this section, whether or not a shoreline substantial development permit is required. Single family residential projects are not exempt if implementing a shoreline stabilization or overwater structure project on the shoreline.

4. The tree protection and retention requirements and the vegetation management requirements apply to existing uses as well as new or re-development.

B. Tree Protection, Retention and Replacement

1. As many significant trees and as much native vegetation as possible are to be retained on a site proposed for development or re-development, taking into account the condition and age of the trees. As part of design review, the Director of Community Development or the Board of Architectural Review may require alterations in the arrangement of buildings, parking or other elements of proposed development in order to retain significant non-invasive trees, particularly those that provide shading to the river. Trees located on properties not undergoing development or re-development may not be removed except those that interfere with access and passage on public trails or that present an imminent hazard to existing structures or the public. If the hazard is not readily apparent, the City

may require an evaluation by an International Society of Arborists (ISA)-certified arborist.

2. To protect the ecological functions that trees and native vegetation provide to the shoreline, removal of any significant tree in the shoreline jurisdiction or native vegetation in the buffer requires a Shoreline Tree Removal and Vegetation Clearing Permit and is generally only allowed on sites undergoing development or redevelopment. Only trees that interfere with access and passage on public trails or trees that present an imminent hazard to existing structures or the public may be removed from sites without an issued building permit or Federal approval. Factors that will be considered in approving tree removal include but are not limited to: tree condition and health, age, risks to structures, and potential for root or canopy interference with utilities.

3. Prior to any tree removal or site clearing, a Type 2 Shoreline Tree Removal and Vegetation Clearing Permit application must be submitted to DCD containing the following information:
    a) A vegetation survey that shows the diameter, species and location of all significant trees and all existing native vegetation on a site plan;
    b) A site plan that shows trees and native vegetation to be retained and trees to be removed and provides a table showing the number of significant trees to be removed and the number of replacement trees required;
    c) Tree protection zones and other measures to protect any trees that are to be retained for sites undergoing development or re-development;
    d) Location of the OHWM, river buffer, shoreline jurisdiction boundary and nay sensitive areas with their buffers;
    e) A landscape plan that shows diameter, species name, spacing and planting location for any required replacement trees and other proposed vegetation;
    f) An arborist evaluation justifying the removal of hazardous trees if required by the Department; and
    g) An application fee per the current Land Use Permit Fee resolution.

4. Where permitted, significant trees that are removed from the shoreline shall be replaced pursuant to the replacement ratios in Table 4 up to a density of 100 trees per acre (including existing trees). The Director or Planning Commission may require additional trees or shrubs to be installed to mitigate any potential impact from the loss of this vegetation as a result of new development.

Table 4. Tree Replacement Requirements

Diameter* of Tree Removed	No. of Replacement Trees Required
4-6 inches (single trunk) 2 inches (any trunk of a multi-trunk tree)	3
Over 6 – 8 inches	4
Over 8 – 20 inches	6
Over 20 inches	8

* measured at height of 4 feet from the ground

5. The property owner is required to ensure the viability and long term health of trees planted for replacement through proper care and maintenance for the life of the project. Replaced trees that do not survive must be replanted at the next appropriate season for planting.

6. If all replacement trees cannot be reasonably accommodated on the site, off-site tree replacement within the shoreline jurisdiction may be allowed at a site approved by the City. Priority for off-site tree planting will be at locations within the Transition Zone. If no suitable off-site location is available, the applicant shall pay into a tree replacement fund. The fee shall be based on the value of the replacement trees and their delivery, labor for site preparation and plant installation, soil amendments, mulch, and staking supplies.

7. When a tree suitable for large woody debris is permitted to be removed from the shoreline buffer, the tree trunk and root ball (where possible) will be saved for use in a restoration project elsewhere in the shoreline jurisdiction. The applicant will be responsible for the cost of moving the removed trees to a location designated by the City. If no restoration project or storage location is available at the time, the Director may waive this requirement. . Trees removed in the shoreline jurisdiction outside the buffer shall be placed as large woody debris in the buffer (not on the bank), if feasible. Priority for LWD placement projects will be in the Transition Zone.

8. Dead or dying trees located within the buffer or undeveloped upland portion of the shoreline jurisdiction shall be left in place as wildlife snags, unless they present a hazard to structures, facilities or the public.

9. Topping of trees is prohibited unless absolutely necessary to protect overhead utility lines. Topping of trees will be regulated as removal and tree replacement will be required.

10. For new development or redevelopment where trees are proposed for retention, tree protection zones shall be indicated on site plans and shall be established in the field prior to commencement of any construction or site clearing activity. A

minimum 4 ft high construction barrier shall be installed around significant trees and stands of native trees or vegetation to be retained. Minimum distances from the trunk for the construction barriers shall be based on the approximate age of the tree (height and canopy) as follows[4]:

a. Young trees (have reached less than 20% of life expectancy): 0.75 feet per inch of trunk diameter
b. Mature trees (have reached 20 – 80% of life expectancy): 1 foot per inch of trunk diameter. .
c. Over mature trees (have reached greater than 80% of life expectancy): 1.5 feet per inch of trunk diameter.

C. Landscaping

This section presents landscaping standards for the Shoreline Jurisdiction and is divided into a general section and separate sections for the River Buffer and for the remaining part of the Shoreline Jurisdiction for each Environment Designation.

1. General Requirements

a. The landscaping requirements of this subsection apply for any new development or redevelopment in the Shoreline Jurisdiction, except: single family residential development of 4 or fewer lots. The extent of landscaping required will depend on the size of the proposed project. New development or full redevelopment of a site will require landscaping of the entire site. For smaller projects, the Director will review the intent of this section and the scope of the project to determine a reasonable amount of landscaping to be carried out.
b. Invasive vegetation must be removed as part of site preparation and native vegetation planted, including the river bank, to improve the ecological functions of the shoreline.
c. On properties located behind publicly maintained levees, property owners will not be responsible for removal of invasive vegetation, or planting of native vegetation within the buffer.
d. Removal of invasive species shall be done by hand or with hand-held power tools. Where not feasible and mechanized equipment is needed, the applicant must obtain a Shoreline Tree Removal and Vegetation Clearing Permit and show how the slope stability of the bank will be maintained and a plan must be submitted indicating how the work will be done and what erosion control and tree protection features will be utilized. Federal and State permits may be required for vegetation removal with mechanized equipment.
e. Trees and other vegetation shading the river shall be retained or

[4] Modified from: Trees and Development, A Technical Guide to Preservation of Trees During Land Development, Nelda Metheny and James R. Clark, 1998.

replanted when riprap is placed per the approved tree permit, if required.

f. Removal of invasive vegetation may be phased over several years prior to planting if part of an approved plan to allow for alternative approaches, such as sheet mulching and goat grazing. The method selected shall not destabilize the bank or cause erosion.

g. A combination of native trees, shrubs and groundcovers (including grasses, sedges, rushes and vines) shall be planted. The plants listed in the Riparian Restoration and Management Table of the 2004 Washington Stream Habitat Restoration Guidelines[5] (as amended) shall provide the basis for plant selection. Site conditions, such as topography, exposure, and hydrology shall be taken into account for plant selection. Other species may be approved if there is adequate justification.

h. Non-native trees may be used as street trees in cases where conditions are not appropriate for native trees (for example where there are space or height limitations or conflicts with utilities).

i. Plants shall meet the current American Standard for Nursery Stock (American Nursery and Landscape Association – ANLA).

j. Plant sizes in the non-buffer areas of all Shoreline Environments shall meet the following minimum size standards:

Deciduous trees:	2" caliper
Conifers:	6-8' height.
Shrubs:	24" height
Groundcover/grasses:	4-inch or 1 gallon container

Smaller plant sizes (generally one gallon, bareroot, plugs, or stakes, depending on plant species) are preferred for buffer plantings. Willow stakes must be at least ½-inch in diameter.

k. Site preparation and planting of vegetation shall be in accordance with best management practices for ensuring the vegetation's long-term health and survival.

l. Plants may be selected and placed to allow for public and private view corridors and/or access to the water's edge.

m. Native vegetation in the shoreline installed in accordance with the preceding standards shall be maintained by the property owner to promote healthy growth and prevent establishment of invasive species for the life of the project. Invasive plants (such as blackberry, ivy, knotweed, bindweed) shall be removed according to the approved maintenance plan.

n. Areas disturbed by removal of invasive plants shall be replanted with

[5] Washington Department of Fish and Wildlife, Washington Department of Ecology, and US Fish and Wildlife Service, Olympia, Washington

native vegetation where necessary to maintain the density shown in Table 4 and must be replanted in a timely manner, except where a long term removal and re-vegetation plan, as approved by the City, is being implemented.

o. The following standards apply to utilities and loading docks located in the shoreline jurisdiction.

1) Utilities such as pumps, pipes, etc. shall be suitably screened with native vegetation;
2) Utility easements shall be landscaped with native, groundcover, grasses or other low-growing plants as appropriate to the shoreline environment and site conditions;
3) Allowed loading docks and service areas located waterward of the development shall have landscaping that provides extensive visual separation from the river.

2. River Buffer Landscaping Requirements in all Shoreline Environments

The River Buffer in all shoreline environments shall function, in part, as a vegetation management area to filter sediment, capture contaminants in surface water run off, reduce the velocity of water run off, and provide fish and wildlife habitat.

a. A planting plan prepared by a licensed landscape architect or an approved biologist shall be submitted to the City for approval that shows plant species, size, number and spacing. The requirement for a landscape architect or biologist may be waived by the Director for single family property owners (when planting is being required as mitigation for construction of overwater structures or shoreline stabilization), if the property owner accepts technical assistance from City staff.
b. Plants shall be installed from the OHWM to the upland edge of the River Buffer (unless site conditions would make planting unsafe).
c. Plantings close to and on the bank shall include native willows, red osier dogwood and other native vegetation that will extend out over the water, to provide shade and habitat functions when mature. Species selected must be able to withstand seasonal water level fluctuations.
d. Minimum plant spacing in the buffer shall follow Table 5. Existing non-invasive plants may be included in the density calculations.
e. Irrigation for buffer plantings is required for at least two dry seasons or until plants are established. An irrigation plan is to be included as part of the planting plan.
f. In the event that a development project allows for setback and benching of the shoreline along an existing levee or revetment, the newly created mid-slope bench area shall be planted and maintained with a variety of native vegetation appropriate for site conditions.

Table 5. River Buffer Vegetation Planting Densities

Plant Material Type	Planting Density
Stakes/cuttings along river bank (willows, red osier dogwood)	1-2 ft on center or per bioengineering method
Shrubs	3-5 ft on center, depending on species
Trees	15 – 20 ft on center, depending on species
Groundcovers, grasses, sedges, rushes, other herbaceous plants	1 – 1.5 ft on center, depending on species
Native seed mixes	5-25 lbs per acre, depending on species

3. Landscaping Requirements for the Urban Conservancy and High Intensity Environments - Outside of the River Buffer

   For the portions of property within the Shoreline Jurisdiction landward of the River Buffer the landscape requirements in the General section of this SMP and the requirements for the underlying zoning as established in TMC Chapter 18.52 shall apply except as indicated below.

   a. Parking Lot Landscape Perimeters: One native tree for each 20 lineal feet of required perimeter landscaping, one shrub for each 4 lineal feet of required perimeter landscaping, and native groundcovers to cover 90% of the landscape area within 3 years, planted at a minimum spacing of 18 inches on-center.
   b. Interior Parking Lot Landscaping: Every 300 square feet of paved surface requires 10 square feet of interior landscaping within landscape islands separated by no more than 150 feet between islands.
   c. Landscaping shall be provided at yards not adjacent to the river, with the same width as required in the underlying zoning district. This standard may be reduced as follows:
      1) Where development provides public access corridor between off-site public area(s) and public shoreline areas, side yard landscaping may be reduced by 25 percent to no less than 3 feet; or
      2) Where development provides additional public access area(s) (as allowed by the High Intensity and Urban Conservancy Environment Development Standards) equal in area to at least 2.5% of total building area, front yard landscaping may be reduced by 25 percent.

D. Vegetation Management in the Shoreline Jurisdiction

The requirements of this section apply to all existing and new development within the shoreline jurisdiction.

1. Trees and shrubs may only be pruned for safety, to maintain view or access corridors and trails by pruning up or on the sides of trees, to maintain

clearance for utility lines, and/or for improving shoreline ecological function. This type of pruning is exempt from any permit requirements. Topping of trees is prohibited except where absolutely necessary to avoid interference with existing utilities.

2. Plant debris from removal of invasive plants or pruning shall be removed from the site and disposed of properly.

3. Use of pesticides
    a. Pesticides (including herbicides, insecticides, and fungicides) shall not be used in the shoreline jurisdiction except where:
        1) Alternatives such as manual removal, biological control, and cultural control are not feasible given the size of the infestation, site characteristics, or the characteristics of the invasive plant species ;
        2) The use of pesticides has been approved through a comprehensive vegetation or pest management and monitoring plan;
        3) The pesticide is applied in accordance with state regulations;
        4) The proposed herbicide is approved for aquatic use by the U.S. Environmental Protection Agency and
        5) The use of pesticides in the shoreline jurisdiction is approved in writing by the City and the applicant presents a copy of the Aquatic Pesticide Permit issued by the Department of Ecology or Washington Department of Agriculture.
    b. Self-contained rodent bait boxes designed to prevent access by other animals are allowed.
    c. Sports fields, parks, golf courses and other outdoor recreational uses that involve maintenance of extensive areas of turf shall provide and implement an integrated turf management program or integrated pest management plan designed to ensure that water quality in the river is not adversely impacted.

9.11 <u>Land Altering Activities</u>

All land altering activities in the shoreline jurisdiction shall be in conjunction with an underlying land development permit, except for shoreline restoration projects. All activities shall meet the following standards:

A. Clearing, Grading and Landfill

1. Land altering shall be permitted only where it meets the following criteria:
    a. The work is the minimum necessary to accomplish an allowed shoreline use;

b. Impacts to the natural environment are minimized and mitigated;
c. Water quality, river flows and/or fish habitat are not adversely affected;
d. Public access and river navigation are not diminished;
e. The project complies with all federal and state requirements;
f. The project complies with the vegetation protection criteria of the Vegetation Protection and Landscaping Section; and
g. Documentation is provided to demonstrate that the fill comes from a clean source.

2. Clearing, grading and landfill activities, where allowed, shall include erosion control mechanisms, and any reasonable restriction on equipment, methods or timing necessary to minimize the introduction of suspended solids or leaching of contaminants into the river, or the disturbance of wildlife or fish habitats in accordance with the standards in the Grading Chapter, TMC 16.54,.

B. Dredging

1. Dredging activities must comply with all federal and state regulations. Maintenance dredging of established navigation channels and basins must be restricted to maintaining previously dredged and/or existing authorized location, depth, and width.

2. Where allowed, dredging operations must be designed and scheduled so as to ensure no net loss to shoreline ecological functions or processes.

9.12 <u>Marinas, Boat Yards, Dry Docks, Boat Launches, Piers, Docks and Other Over-water Structures</u>

A. General Requirements

1. Prior to issuance of a shoreline substantial development permit for construction of piers, docks, wharves or other over-water structures the applicant shall present approvals from State or Federal agencies, as applicable.

2. Structures must be designed by a qualified engineer and must demonstrate the project will result in no net loss of shoreline ecological function and will be stable against the forces of flowing water, wave action and the wakes of passing vessels.

3. In-water structures shall be designed and located to minimize shading of native aquatic vegetation and fish passage areas. Removal of shoreline, riparian and aquatic vegetation shall be limited to the minimum extent necessary to construct the project. All areas disturbed by construction shall be replanted with native vegetation as part of the project.

4. New or replacement in-water structures shall be designed and located such that natural hydraulic and geologic processes, such as erosion, wave action or floods will not necessitate the following:
    a. reinforcement of the shoreline or stream bank with new bulkheads or similar artificial structures to protect the in-water structure; or
    b. dredging.

5. No structures are allowed on top of over-water structures except for properties located north of the Turning Basin.

6. Pilings or other associated structures in direct contact with water shall not be treated with preservatives unless the applicant can demonstrate that no feasible alternative to protect the materials exists and that non-wood alternatives are not economically feasible. In that case, only compounds approved for marine use may be used and must be applied by the manufacturer per current best management practices of the Western Wood Preservers Institute. The applicant must present verification that the best management practices were followed. The preservatives must also be approved by the Washington Department of Fish and Wildlife.

7. All over-water structures shall be constructed and maintained in a safe and sound condition. Abandoned or unsafe over-water structures shall be removed or repaired promptly by the owner. Accumulated debris shall be regularly removed and disposed of properly so as not to jeopardize the integrity of the structure. Replacement of in-water structures shall include proper removal of abandoned or other manmade structures and debris.

8. Boat owners who store motorized boats on-site are encouraged to use best management practices to avoid fuel and other fluid spills.

B. Marinas, Boat yards and Dry Docks

1. All uses under this category shall be designed to achieve no net loss of shoreline ecological functions.

2. Commercial/Industrial marinas and dry docks shall be located no further upriver than Turning Basin #3.

3. Marinas shall be located, designed, constructed and operated to avoid or minimize adverse impacts on fish, wildlife, water quality, native shoreline vegetation, navigation, public access, existing in-water recreational activities and adjacent water uses.

4. Marinas shall submit a fuel spill prevention and contingency plan to the City for approval. Haul-out and boat maintenance facilities must meet the City's stormwater management requirements and not allow the release of chemicals, petroleum or suspended solids to the river.

5. Marinas, boat yards and dry docks must be located a minimum of 100 feet from Fish and Wildlife Habitat Areas (see **Sensitive Areas in the Shoreline Map**, **Map 5**).

6. New marinas, launch ramps and accessory uses must be located where water depths are adequate to avoid the need for dredging.

C. Boat Launches and Boat Lifts

1. Boat launch ramps and vehicle access to the ramps shall be designed to not cause erosion; the use of pervious paving materials, such as grasscrete, are encouraged.

2. Boat launch ramps shall be designed to minimize areas of landfill or the need for shoreline protective structures.

3. Access to the boat ramp and parking for the ramp shall be located a sufficient distance from any frontage road to provide safe maneuvering of boats and trailers.

4. Launching rails shall be adequately anchored to the ground.

5. Launch ramps and boat lifts shall extend waterward past the OHWM only as far as necessary to achieve their purpose.

6. Boat lifts and canopies must meet the standards of the U.S. Army Corps of Engineers Regional General Permit Number 1 for Watercraft Lifts in Fresh and Marine/Estuarine Waters within the State of Washington.

D. Over-water Structures

Where allowed, over-water structures such as piers, wharves and docks shall meet the following standards:

1. The size of new over-water structures shall be limited to the minimum necessary to support the structure's intended use and to provide stability in the case of floating docks. Structures must be compatible with any existing channel control or flood management structures.
2. Over-water structures shall not extend waterward of the OHWM any more than necessary to permit launching of watercraft, while also ensuring that watercraft do

not rest on tidal substrate at any time.

3. Adverse impacts of over-water structures on water quality, river flows, fish habitat, shoreline vegetation, and public access shall be minimized and mitigated. Mitigation measures may include joint use of existing structures, open decking or piers, replacement of non-native vegetation, installation of in-water habitat features or restoration of shallow water habitat.

4. Any proposals for in-water or over-water structures shall provide a pre-construction habitat evaluation, including an evaluation of salmonid and bull trout habitat and shoreline ecological functions and demonstrate how the project achieves no net loss of shoreline ecological functions.

5. Over-water structures shall obtain all necessary state and federal permits prior to construction or repair.

6. All over-water structures must be designed by a qualified engineer to ensure that they are adequately anchored to the bank in a manner so as not to cause future downstream hazards or significant modifications to the river geomorphology and are able to withstand high flows.

7. Over-water structures shall not obstruct normal public use of the river for navigation or recreational purposes.

8. Shading impacts to fish shall be minimized by using grating on at least 30% of the surface area of the over-water structure on residential areas and at least 50% of the over-water structure on all other properties. The use of skirting is not permitted.

9. If floats are used, the flotation shall be fully enclosed and contained in a shell (such as polystyrene) that prevents breakup or loss of the flotation material into the water, damage from ultraviolet radiation, and damage from rubbing against pilings or waterborne debris.

10. Floats may not rest on the tidal substrate at any time and stoppers on the piling anchoring the floats must be installed to ensure at least 1 foot of clearance above the substrate. Anchor lines may not rest on the substrate at any time.

11. The number of pilings to support over-water structures, including floats shall be limited to the minimum necessary. Pilings shall conform to the pilings standards contained in the US Army Corps of Engineers Regional General Permit No. 6.

12. No over-water structure shall be located closer than five (5) feet from the side property line extended, except that such structures may abut property lines for the common use of adjacent property owners when mutually agreed upon by the

property owners in an easement recorded with the King County. A copy of this agreement shall be submitted to the Department of Community Development and accompany an application for a development permit and/or Shoreline Permit.

10. ENVIRONMENTALLY SENSITIVE AREAS WITHIN THE SHORELINE JURISDICTION.

10.1 Purpose

A. The Growth Management Act (RCW 36.70A) requires protection of critical areas (sensitive areas), defined as wetlands, watercourses, frequently flooded areas, geologically hazardous areas, critical aquifer recharge areas, fish and wildlife conservation areas, and abandoned mine areas.

B. The purpose of protecting environmentally sensitive areas within the shoreline jurisdiction is to:

1. Minimize developmental impacts on the natural functions and values of these areas.
2. Protect quantity and quality of water resources.
3. Minimize turbidity and pollution of wetlands and fish-bearing waters and maintain wildlife habitat.
4. Prevent erosion and the loss of slope and soil stability caused by the removal of trees, shrubs, and root systems of vegetative cover.
5. Protect the public against avoidable losses, public emergency rescue and relief operations cost, and subsidy cost of public mitigation from landslide, subsidence, erosion and flooding.
6. Protect the community's aesthetic resources and distinctive features of natural lands and wooded hillsides.
7. Balance the private rights of individual property owners with the preservation of environmentally sensitive areas.
8. Prevent the loss of wetland and watercourse function and acreage, and strive for a gain over present conditions.
9. Give special consideration to conservation or protection measures necessary to protect or enhance anadromous fisheries.
10. Incorporate the use of best available science in the regulation and protection of sensitive areas as required by the state Growth Management Act, according to WAC 365-195-900 through 365-195-925 and WAC 365-190-080.

C. The goal of these sensitive area regulations is to achieve no net loss of wetland, watercourse, or fish and wildlife conservation area or their functions.

10.2 Applicability, Maps and Inventories

A. Sensitive areas located in the shoreline jurisdiction will be governed by the Shoreline Management Program and not the City's Sensitive Areas Ordinance. However, the level of protection for the critical areas shall be equal to that provided in the Sensitive Areas section of the Zoning Code (TMC18.45).

B. Sensitive areas currently identified in the shoreline jurisdiction are discussed in the Shoreline Inventory and Characterization Report, which forms part of this Shoreline Management Program. The locations are mapped on the **Sensitive Areas in the Shoreline Jurisdiction Map – Map 5**. This map is based on assessment of current conditions and review of the best available information. However, additional sensitive areas may exist within the shoreline jurisdiction and the boundaries of the sensitive areas shown are not exact. It is the responsibility of the property owner to determine the presence of sensitive areas on the property and to verify the boundaries in the field. Sensitive area provisions for abandoned mine areas do not apply as none of these areas is located in the shoreline jurisdiction.

C. Frequently flooded areas and areas of seismic instability will be governed by the Flood Zone Management Code (TMC 16.52) and the Washington State Building Code.

10.3 Best Available Science

Policies, regulations and decisions concerning sensitive areas shall rely on Best Available Science to protect their functions and values. Special consideration must be given to the conservation or protection measures necessary to preserve or enhance anadromous fish and their habitats. Nonscientific information may supplement scientific information, but is not an adequate substitution for valid and available scientific information.

10.4 Sensitive Area Studies

An applicant for a development proposal that may include a sensitive area and/or its buffer shall submit those studies as required by the City and specified below to adequately identify and evaluate the sensitive area and its buffers.

A. General Requirements

1. A required sensitive areas study shall be prepared by a person with experience and training in the scientific discipline appropriate for the relevant sensitive area. A qualified professional must have obtained a B.S. or B.A. or equivalent degree in ecology or related science, engineering, environmental studies, fisheries, geotechnical or related field, and at least two years of related work experience.

2. The sensitive areas study shall use scientifically valid methods and studies in the analysis of sensitive area data and shall use field reconnaissance and reference the source of science used. The sensitive area study shall evaluate the proposal and all probable impacts to sensitive areas.

3. It is intended that sensitive areas studies and information be utilized by

applicants in preparation of their proposals and therefore shall be undertaken early in the design stages of a project.

B. Wetland, Watercourse and Fish and Wildlife Conservation Area - Sensitive Area Studies

At a minimum, the sensitive area study shall contain the following information, as applicable:

1. The name and contact information of the applicant, a description of the proposal, and identification of the permit requested;
2. A copy of the site plan for the development proposal showing: sensitive areas and buffers and the development proposal with dimensions; clearing limits; proposed storm water management plan; and mitigation plan for impacts due to drainage alterations;
3. The dates, names and qualifications of the persons preparing the study and documentation of any fieldwork performed on the site;
4. Identification and characterization of all sensitive areas, water bodies, and buffers adjacent to the proposed project area or potentially impacted by the proposed project;
5. A statement specifying the accuracy of the study and assumptions used in the study;
6. Determination of the degree of impact and risk from the proposal both on the site and on adjacent properties;
7. An assessment of the probable cumulative impacts to sensitive areas, their buffers and other properties resulting from the proposal;
8. A description of reasonable efforts made to apply mitigation sequencing to avoid, minimize and mitigate impacts to sensitive areas;
9. Plans for adequate mitigation to offset any impacts;
10. Recommendations for maintenance, short-term and long-term monitoring, contingency plans and bonding measures; and
11. Any technical information required by the director to assist in determining compliance.

C. Geotechnical Studies

1. A geotechnical study appropriate both to the site conditions and the proposed development shall be required for development in Class 2, Class 3, and Class 4 Areas.

2. All studies shall include at a minimum a site evaluation, review of available information regarding the site and a surface reconnaissance of the site and adjacent areas. For Class 2 areas, subsurface exploration of site conditions is at the discretion of the geotechnical consultant. In addition, for Class 3 and Class 4 Areas, the study shall include a feasibility analysis for the use of infiltration on-site and a subsurface exploration of soils and hydrology

conditions. Detailed slope stability analysis shall be done if the geotechnical engineer recommends it in Class 3 areas, and must be done in Class 4 areas.

3. Applicants shall retain a geotechnical engineer to prepare the reports and evaluations required in this subsection. The geotechnical report and completed site evaluation checklist shall be prepared in accordance with generally accepted geotechnical practices, under the supervision of and signed and stamped by the geotechnical engineer. The report shall be prepared in consultation with the appropriate City department. Where appropriate, a geologist must be included as part of the geotechnical consulting team. The report shall make specific recommendations concerning development of the site.

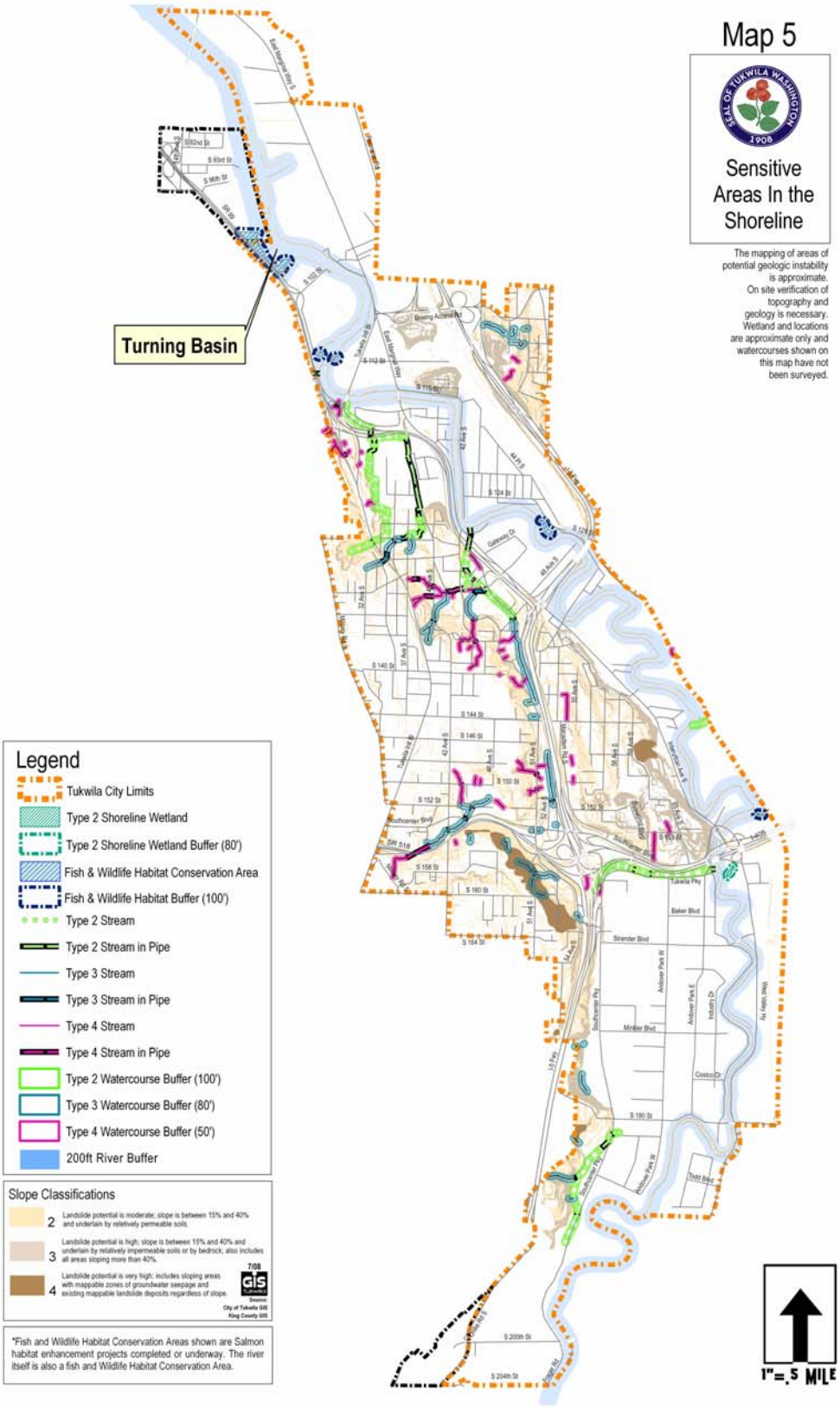
4. The opinions and recommendations contained in the report shall be supported by field observations and, where appropriate or applicable, by literature review conducted by the geotechnical engineer which shall include appropriate explorations, such as borings or test pits, and an analysis of soil characteristics conducted by or under the supervision of the engineer in accordance with standards of the American Society of Testing and Materials or other applicable standards. If the evaluation involves geologic evaluations or interpretations, the report shall be reviewed and approved by a geotechnical engineer.

D. Modifications or Waivers to Sensitive Area Study Requirements

1. The Director may limit the required geographic area of the sensitive area study as appropriate if:
    a. The applicant, with assistance from the city, cannot obtain permission to access properties adjacent to the project area; or
    b. The proposed activity will affect only a limited part of the site.

2. The Director may allow modifications to the required contents of the study where, in the judgment of a qualified professional, more or less information is required to adequately address the potential sensitive area impacts and required mitigation.

3. If there is written agreement between the Director and the applicant concerning the sensitive area classification and type, the Director may waive the requirement for sensitive area studies provided that no adverse impacts to sensitive areas or buffers will result. There must be substantial evidence that the sensitive areas delineation and classification are correct, that there will be no detrimental impact to the sensitive areas or buffers, and that the goals, purposes, objectives and requirements of the Shoreline Management Program will be followed.


Map 5
Sensitive Areas In the Shoreline
The mapping of areas of potential geologic instability is approximate. On site verification of topography and geology is necessary. Wetland and locations are approximate only and watercourses shown on this map have not been surveyed.
Turning Basin
Legend
Tukwila City Limits
Type 2 Shoreline Wetland
Type 2 Shoreline Wetland Buffer (80')
Fish & Wildlife Habitat Conservation Area
Fish & Wildlife Habitat Buffer (100')
Type 2 Stream
Type 2 Stream in Pipe
Type 3 Stream
Type 3 Stream in Pipe
Type 4 Stream
Type 4 Stream in Pipe
Type 2 Watercourse Buffer (100')
Type 3 Watercourse Buffer (80')
Type 4 Watercourse Buffer (50')
200ft River Buffer
Slope Classifications
2 Landslide potential is moderate; slope is between 15% and 40% and underlain by relatively permeable soils.
3 Landslide potential is high; slope is between 15% and 40% and underlain by relatively impermeable soils or by bedrock; also includes all areas sloping more than 40%.
4 Landslide potential is very high; includes sloping areas with mappable zones of groundwater seepage and existing mappable landslide deposits regardless of slope.
7/08
Sources: City of Tukwila GIS King County GIS
*Fish and Wildlife Habitat Conservation Areas shown are Salmon habitat enhancement projects completed or underway. The river itself is also a fish and Wildlife Habitat Conservation Area.
1"=.5 MILE

10.5 Procedures

When an applicant submits an application for any building permit, subdivision, short subdivision or any other land use review that approves a use, development or future construction, the location and dimensions of all sensitive areas and buffers on the site shall be indicated on the plans submitted. When a sensitive area is identified, the following procedures apply.

A. The applicant shall submit the relevant sensitive area study as required by this chapter.

B. The Department of Community Development will review the information submitted in the sensitive area studies to verify the information, confirm the nature and type of the sensitive area, and ensure the study is consistent with the Shoreline Master Program. At the discretion of the Director, sensitive area studies may undergo peer review, at the expense of the applicant.

C. Denial of use or development: A use or development will be denied if the Director determines that the applicant cannot ensure that potential dangers and costs to future inhabitants of the development, adjacent properties, and Tukwila are minimized and mitigated to an acceptable level.

D. Preconstruction meeting: The applicant, specialist(s) of record, contractor, and department representatives will be required to attend pre-construction meetings prior to any work on the site.

E. Construction monitoring: The specialist(s) of record shall be retained to monitor the site during construction.

F. On-site Identification*:* The Director may require the boundary between a sensitive area and its buffer or between the buffer and the development and any development or use to be permanently identified with fencing, or with a wood or metal sign with treated wood, concrete or metal posts. Size will be determined at the time of permitting, and wording shall be as follows: *"Protection of this natural area is in your care. Do not alter or disturb. Please call the City of Tukwila (206-431-3670) for more information."*

10.6 Wetland Determinations and Classifications

A. Wetlands and their boundaries are established by using the Washington State Wetland and Delineation Manual, as required by RCW 36.70A.175 (Ecology Publication #96-94) and consistent with the 1987 Corps of Engineers Wetland Delineation Manual.

B. Wetland determinations shall be made by a qualified professional (certified Wetland Scientist or non-certified with at least 2 years of full-time work experience as a wetland professional).

C. Wetland areas within the City of Tukwila have certain characteristics, functions and values and have been influenced by urbanization and related disturbances. Wetland functions include, but are not limited to the following: improving water quality; maintaining hydrologic functions (reducing peak flows, decreasing erosion, groundwater); and providing habitat for plants, mammals, fish, birds, and amphibians. Wetland functions shall be evaluated using Washington State Functional Assessment Method.

D. Wetlands shall be designated in accordance with the Washington State Wetlands Rating System (Washington Department of Ecology, August 2004, Publication #93-74) as Category I, II, III, or IV as listed below:

1. Category I wetlands are those that a) represent a unique or rare wetland type; or b) are more sensitive to disturbance than most wetlands; or c) are relatively undisturbed and contain ecological attributes that are impossible to replace within a human lifetime; or d) provide a high level of functions. The following types of wetlands listed by Washington Department of Ecology and potentially found in Tukwila's Shoreline Jurisdiction are Category I:

    a. Estuarine wetlands (Estuarine wetlands are deepwater tidal habitats with a range of fresh-brackish-marine water chemistry and daily tidal cycles, salt and brackish marshes, intertidal mudflats, mangrove swamps, bays, sounds, and coastal rivers.
    b. Wetlands that perform many functions well and score at least 70 points in the Western Washington Wetlands Rating System.
2. Category II wetlands are difficult, though not impossible, to replace, and provide high levels of some functions. These wetlands occur more commonly than Category I wetlands, but still need a relatively high level of protection. Category II wetlands potentially in Tukwila's Shoreline Jurisdiction include:

    a. Estuarine Wetlands - Any estuarine wetland smaller than an acre, or those that are disturbed and larger than 1 acre are category II wetlands.
    b. Wetlands That Perform Functions Well - Wetlands scoring between 51-69 points (out of 100) on the questions related to the functions present are Category II wetlands.

3. Category III wetlands have a moderate level of functions (scores between 30 - 50 points). Wetlands scoring between 30 -50 points generally have been disturbed in some ways, and are often less diverse or more isolated from other natural resources in the landscape than Category II wetlands.

4. Category IV wetlands have the lowest levels of functions (scores less than 30 points) and are often heavily disturbed. While these are wetlands that should be able to be replaced or improved, they still need protection because they may provide some important functions. Any disturbance of these wetlands must be considered on a case by case basis.

10.7 Watercourse Designation and Ratings

A. Watercourse ratings are based on the existing habitat functions and are rated as follows:

1. Type 1 Watercourse*:* Watercourses inventoried as Shorelines of the State, under RCW 90.58 (Green/Duwamish River).
2. Type 2 Watercourse*:* Those watercourses that have either perennial (year-round) or intermittent flows and support salmonid fish use.
3. Type 3 Watercourse*:* Those watercourses that have perennial flows and are not used by salmonid fish.
4. Type 4 Watercourse*:* Those watercourses that have intermittent flows and are not used by salmonid fish.

B. Watercourse sensitive area studies shall be performed by a qualified professional (hydrologist, geologist, engineer or other scientist with experience in preparing watercourse assessments).

10.8 Fish and Wildlife Habitat Conservation Areas

A. Fish and wildlife habitat conservation areas within the shoreline jurisdiction include the habitats listed below:

1. Areas with which endangered, threatened, and sensitive species have a primary association;
2. Habitats and species of local importance, including but not limited to bald eagle habitat, heron rookeries, osprey nesting areas;
3. Waters of the State (i.e., the Green-Duwamish River itself);
4. State natural area preserves and natural resource conservation areas; and
5. Areas critical for habitat connectivity.

B. The approximate location and extent of known fish and wildlife habitat conservation areas are identified in the Shoreline Inventory and Characterization Report and are shown on the Sensitive Areas in the Shoreline Jurisdiction map[6]. Fish and wildlife habitat conservation areas correlate closely with the areas identified as regulated

[6] Note that only the salmon habitat enhancement project sites completed or underway are shown as Fish and Wildlife Conservation Areas on the Sensitive Areas in the Shoreline Jurisdiction Map. Streams are shown as watercourses. The river is not shown as a Fish and Wildlife Habitat Conservation Area for the sake of simplicity.

watercourses and wetlands and their buffers, as well as off-channel habitat areas created to improve salmon habitat (shown on the Sensitive Areas Map) in the Shoreline jurisdiction. The Green/Duwamish River is recognized as the most significant fish and wildlife habitat corridor. In addition Gilliam Creek, Riverton Creek, Southgate Creek, Hamm Creek (in the north PAA), and Johnson Creek (South PAA) all provide salmonid habitat.

10.9 Wetland Watercourse, and Fish and Wildlife Habitat Conservation Area Buffers

A. Purpose and Intent of Buffer Establishment

1. A buffer area shall be established adjacent to designated sensitive areas. The purpose of the buffer area shall be to protect the integrity, functions and values of the sensitive areas. Any land alteration must be located out of the buffer areas as required by this section.

2. Buffers are intended in general to:
    a. Minimize long-term impacts of development on properties containing sensitive areas;
    b. Protect sensitive areas from adverse impacts during development;
    c. Preserve the edges of wetlands and the banks of watercourses and fish and wildlife habitat conservation areas for their critical habitat value;
    d. Provide an area to stabilize banks, to absorb overflow during high water events and to allow for slight variation of aquatic system boundaries over time due to hydrologic or climatic effects;
    e. Provide shading to watercourses and fish and wildlife habitat conservation areas to maintain stable water temperatures and provide vegetative cover for additional wildlife habitat;
    f. Provide input of organic debris and nutrient transport in watercourses;
    g. Reduce erosion and increased surface water runoff;
    h. Reduce loss of or damage to property;
    i. Intercept fine sediments from surface water runoff and serve to minimize water quality impacts; and
    j. Protect the sensitive area from human and domestic animal disturbances.

C. Establishment of Buffer Widths

The following standard buffers shall be established:

1. Wetland buffers (measured from the wetland edge):
    a. Categories I and II Wetlands; 100 foot buffer.
    b. Category III Wetland; 80-foot buffer.
    c. Category IV Wetland; 50-foot buffer.

2. Watercourse buffers (measured from the Ordinary High Water Mark):
    a. Type 1 Watercourse: The buffer width for the Green/Duwamish River is established in the Shoreline Environment Designations of this SMP for the three designated shoreline environments.
    b. Type 2 Watercourse: 100-foot-wide buffer.
    c. Type 3 Watercourse: 80-foot-wide buffer.
    d. Type 4 Watercourse: 50-foot-wide buffer.

3. Fish and Wildlife Habitat Conservation Areas: the buffer will be the same as the river buffer established for each Shoreline Environment measured from the OHWM, unless an alternate buffer is established and approved at the time a Fish and Wildlife Habitat restoration project is undertaken.

D. Sensitive Area Buffer Setbacks

All commercial and industrial buildings shall be set back 15 feet and all other development shall be set back ten feet from the sensitive area buffer's edge. The building setbacks shall be measured from the foundation to the buffer's edge. Building plans shall also identify a 20-foot area beyond the buffer setback within which the impacts of development will be reviewed. The Director may waive setback requirements when a site plan demonstrates there will be no adverse impacts to the buffer from construction or occasional maintenance activities.

E. Reduction of Standard Buffer Width

Except for the Green/Duwamish River (Type 1 watercourse for which any variation in the buffer shall be regulated under the shoreline provisions of this Program), the buffer width may reduced on a case-by-case basis, provided the reduced buffer area does not contain slopes 15% or greater. In no case shall the approved buffer width result in greater than a 50% reduction in width. Buffer reduction with enhancement may be allowed as part of a Substantial Development permit if:

1. Additional protection to wetlands or watercourses will be provided through the implementation of a buffer enhancement plan;
2. The existing condition of the buffer is degraded;
3. Buffer enhancement includes, but is not limited to the following:
    a. Planting vegetation that would increase value for fish and wildlife habitat or improve water quality;
    b. Enhancement of wildlife habitat by incorporating structures that are likely to be used by wildlife, including wood duck boxes, bat boxes, snags, root wads/stumps, birdhouses and heron nesting areas; or
    c. Removing non-native plant species and noxious weeds from the buffer area and replanting the area.

F. Increase in Standard Buffer Width

Buffers for sensitive areas will be increased when they are determined to be particularly sensitive to disturbance or the proposed development will create unusually adverse impacts. Any increase in the width of the buffer shall be required only after completion of a sensitive areas study by a qualified biologist that documents the basis for such increased width. An increase in buffer width may be appropriate when:

1. The development proposal has the demonstrated potential for significant adverse impacts upon the sensitive area that can be mitigated by an increased buffer width; or
2. The area serves as habitat for endangered, threatened, sensitive or monitor species listed by the federal government or the State.

G. Maintenance of Vegetation in Buffers

Every reasonable effort shall be made to maintain any existing viable native plant life in the buffers. Vegetation may be removed from the buffer as part of an enhancement plan approved by the Director. Enhancements will ensure that slope stability and wetland or watercourse quality will be maintained or improved. Any disturbance of the buffers shall be replanted with a diverse plant community of native northwest species that are appropriate for the specific site as determined by the Director. If the vegetation must be removed, or because of the alterations of the landscape the vegetation becomes damaged or dies, then the applicant for a permit must replace existing vegetation with comparable specimens, approved by the Director, which will restore buffer functions within five years.

10.10 <u>Areas of Potential Geologic Instability</u>

A. Classification

Areas of potential geologic instability are classified as follows:

1. Class 1 area, where landslide potential is low, and which slope is less than 15%;
2. Class 2 areas, where landslide potential is moderate, which slope is between 15% and 40%, and which are underlain by relatively permeable soils;
3. Class 3 areas, where landslide potential is high, which include areas sloping between 15% and 40%, and which are underlain by relatively impermeable soils or by bedrock, and which also include all areas sloping more steeply than 40%;
4. Class 4 areas, where landslide potential is very high, which include sloping areas with mappable zones of groundwater seepage, and which also include existing mappable landslide deposits regardless of slope.

B. Exemptions

The following areas are exempt from regulation as geologically hazardous areas:

1. Temporary stockpiles of topsoil, gravel, beauty bark or other similar landscaping or construction materials;
2. Slopes related to materials used as an engineered pre-load for a building pad;
3. Any temporary slope that has been created through legal grading activities under an approved permit may be re-graded.
4. Roadway embankments within right-of-way or road easements; and
5. Slopes retained by approved engineered structures, except riverbank structures and armoring.

C. Geotechnical Study Required

1. Development or alterations to areas of potential geologic instability that form the river banks shall be governed by the policies and requirements of the Shoreline Stabilization section of this SMP. Development proposals on all other lands containing or threatened by an area of potential geologic instability Class 2 or higher shall be subject to a geotechnical study. The geotechnical report shall analyze and make recommendations on the need for and width of any setbacks or buffers necessary to insure slope stability Development proposals shall then include the buffer distances as defined within the geotechnical report. The geotechnical study shall be performed by a qualified professional geotechnical engineer, licensed in the State of Washington.

2. Prior to permitting alteration of an area of potential geologic instability, the applicant must demonstrate one of the following:
    a. There is no evidence of past instability or earth movement in the vicinity of the proposed development, and where appropriate, quantitative analysis of slope stability indicates no significant risk to the proposed development or surrounding properties; or
    b. The area of potential geologic instability can be modified or the project can be designed so that any potential impact to the project and surrounding properties is eliminated, slope stability is not decreased, and the increase in surface water discharge or sedimentation shall not decrease slope stability.

D. Buffers for Areas of Potential Geologic Instability

1. Buffers are intended to:
    a. Minimize long-term impacts of development on properties containing sensitive areas;
    b. Protect sensitive areas from adverse impacts during development;
    c. Prevent loading of potentially unstable slope formations;

d. Protect slope stability;
e. Provide erosion control and attenuation of precipitation, surface water and storm water runoff;
f. Reduce loss of or damage to property; and
g. Prevent the need for future shoreline armoring.

2. Buffers may be increased by the Director when an area is determined to be particularly sensitive to the disturbance created by a development. Such a decision will be based on a City review of the report as prepared by a qualified geotechnical engineer and by a site visit.

E. Additional Requirements

1. Where any portion of an area of potential geologic instability is cleared for development, a landscaping plan for the site shall include tree replanting in accordance with the Vegetation Protection and Landscaping chapter of this SMP. Vegetation shall be sufficient to provide erosion and stabilization protection.

2. It shall be the responsibility of the applicant to submit, consistent with the findings of the geotechnical report, structural plans which were prepared and stamped by a structural engineer. The plans and specifications shall be accompanied by a letter from the geotechnical engineer who prepared the geotechnical report stating that in his/her judgment, the plans and specifications conform to the recommendations in the geotechnical report; the risk of damage to the proposed development site from soil instability will be minimal subject to the conditions set forth in the report; and the proposed development will not increase the potential for soil movement.

3. Further recommendations signed and sealed by the geotechnical engineer shall be provided should there be additions or exceptions to the original recommendations based on the plans, site conditions or other supporting data. If the geotechnical engineer who reviews the plans and specifications is not the same engineer who prepared the geotechnical report, the new engineer shall, in a letter to the City accompanying the plans and specifications, express his or her agreement or disagreement with the recommendations in the geotechnical report and state that the plans and specifications conform to his or her recommendations.

4. The architect or structural engineer shall submit to the City, with the plans and specifications, a letter or notation on the design drawings at the time of permit application stating that he or she has reviewed the geotechnical report, understands its recommendations, has explained or has had explained to the owner the risks of loss due to slides on the site, and has incorporated into the design the recommendations of the report and established measures to reduce

the potential risk of injury or damage that might be caused by any earth movement predicted in the report.

5. The owner shall execute a Sensitive Areas Covenant and Hold Harmless Agreement running with the land, on a form provided by the City. The City will file the completed covenant with the King County Department of Records and Elections at the expense of the applicant or owner. A copy of the recorded covenant will be forwarded to the owner.

6. Whenever the City determines that the public interest would not be served by the issuance of a permit in an area of potential geologic instability without assurance of a means of providing for restoration of areas disturbed by, and repair of property damage caused by, slides arising out of or occurring during construction, the Director may require assurance devices.

7. Where recommended by the geotechnical report, the applicant shall retain a geotechnical engineer (preferably retain the geotechnical engineer who prepared the final geotechnical recommendations and reviewed the plans and specifications) to monitor the site during construction... If a different geotechnical engineer is retained, the new geotechnical engineer shall submit a letter to the City stating whether or not he/she agrees with the opinions and recommendations of the original study. Further recommendations, signed and sealed by the geotechnical engineer, and supporting data shall be provided should there be exceptions to the original recommendations.

8. During construction the geotechnical engineer shall monitor compliance with the recommendations in the geotechnical report, particularly site excavation, shoring, soil support for foundations including piles, subdrainage installations, soil compaction and any other geotechnical aspects of the construction. Unless otherwise approved by the City, the specific recommendations contained in the soils report must be implemented. The geotechnical engineer shall provide to the City written, dated monitoring reports on the progress of the construction at such timely intervals as shall be specified. Omissions or deviations from the approved plans and specifications shall be immediately reported to the City. The final construction monitoring report shall contain a statement from the geotechnical engineer that, based upon his or her professional opinion, site observations and testing during the monitoring of the construction, the completed development substantially complies with the recommendations in the geotechnical report and with all geotechnical-related permit requirements. Occupancy of the project will not be approved until the report has been reviewed and accepted by the Director.

9. Substantial weight shall be given to ensuring continued slope stability and the resulting public health, safety and welfare in determining whether a development should be allowed.

10. The City may impose conditions that address site-work problems which could include, but are not limited to, limiting all excavation and drainage installation to the dry season, or sequencing activities such as installing erosion control and drainage systems well in advance of construction. A permit will be denied if it is determined by the Director that the development will increase the potential of soil movement that results in an unacceptable risk of damage to the proposed development, its site or adjacent properties.

10.11 <u>Sensitive Areas Permitted Uses and Alterations</u>.

A. General Sensitive Areas Permitted Uses

1. All uses permitted in the Shoreline Jurisdiction Buffers are allowed in sensitive area buffers within the jurisdiction except:
    a. Promenades
    b. Recreational structures
    c. Public pedestrian bridges
    d. Vehicle bridges
    e. New utilities
    f. Plaza connectors
    g. Water dependent uses and their structures
    h. Essential streets, roads and rights of way
    i. Essential public facilities
    j. Outdoor storage

2. In addition, the following uses are allowed:
    a. Maintenance activities of existing landscaping and gardens in a sensitive area buffer including but not limited to mowing lawns, weeding, harvesting and replanting of garden crops and pruning and planting of vegetation. The removal of established native trees and shrubs is not permitted. Herbicide use in sensitive areas or their buffers is not allowed without written permission of the City.
    b. Vegetation maintenance as part of sensitive area enhancement, creation or restoration. Herbicide use in sensitive areas or their buffers is not allowed without written permission of the City.

B. Uses Requiring a Type II permit

1. Maintenance and repair of existing uses and facilities where alteration or additional fill materials will be placed or heavy construction equipment used.
2. Construction of new essential streets and roads, rights-of-way and utilities.
3. New surface water discharges to sensitive areas or their buffers from detention facilities, pre-settlement ponds or other surface water management structures may be allowed provided that the discharge meets the clean water standards of

RCW 90.48 and WAC 173.200 and 173.201 as amended, and does not adversely affect water level fluctuations in the wetland or adversely affect watercourse habitat and watercourse flow conditions relative to the existing rate.

4. Plaza connectors
5. Essential public facilities
6. Overwater structures
7. Recreation structures

C. Conditional Uses

Dredging, where necessary to remediate contaminated sediments, if adverse impacts are mitigated.

D. Wetland Alterations.

Alterations to wetlands are discouraged, are limited to the minimum necessary for project feasibility, and must have an approved mitigation plan developed in accordance with the standards in this chapter.

1. Mitigation for wetlands shall follow the mitigation sequencing steps in this chapter and may include the following types of actions:
    a. Creation - the manipulation of the physical, chemical or biological characteristics to develop a wetland on an upland or deepwater site, where a biological wetland did not previously exist;
    b. Re-establishment - the manipulation of the physical, chemical or biological characteristics of a site with the goal of restoring wetland functions to a former wetland, resulting in a net increase in wetland acres and functions;
    c. Rehabilitation - the manipulation of the physical, chemical, or biological characteristics with the goal of repairing historic functions and processes of a degraded wetland, resulting in a gain in wetland function but not acreage;
    d. Enhancement - the manipulation of the physical, chemical or biological characteristics to heighten, intensify, or improve specific functions (such as vegetation) or to change the growth stage or composition of the vegetation present, resulting in a change in wetland functions but not in a gain in wetland acreage; or
    e. A combination of the three types.

2. Allowed alterations per wetland type and mitigation ratios are as follows:
    a. Alterations are not permitted to Category I or II wetlands unless specifically exempted under the provisions of this Program. Mitigation will still be required at a rate of 3:1 for creation or re-establishment, 4:1 for rehabilitation, and 6:1 for enhancement.

b. Alterations to Category III wetlands are prohibited except where the location or configuration of the wetland provides practical difficulties that can be resolved by modifying up to .10 (one-tenth) of an acre of wetland. Mitigation for any alteration to a Category III wetland must be located contiguous to the altered wetland. Mitigation for any alteration to a Category III wetland must be provided at a ratio of 2:1 for creation or re-establishment, 4:1 for rehabilitation and 8:1 for enhancement alone.

c... Alterations to Category IV wetlands are allowed, where unavoidable and adequate mitigation is carried out in accordance with the standards of this section. Mitigation for alteration to a Category IV wetland will be 1.5:1 for creation or re-establishment and 3:1 for rehabilitation or enhancement.

d. Isolated wetlands formed on fill material in highly disturbed environmental conditions and assessed as having low overall wetland functions (scoring below 20 points) may be altered and/or relocated with the permission of the Director. These wetlands may include artificial hydrology or wetlands unintentionally created as the result of construction activities. The determination that a wetland is isolated is made by the US Army Corps of Engineers.

E. Watercourse Alterations

All impacts to a watercourse that degrade the functions and values of the watercourse shall be avoided. If alternation to the watercourse is unavoidable, all adverse impacts shall be mitigated in accordance with the approved mitigation plan as described in this chapter. Mitigation shall take place on-site or as close as possible to the impact location, and compensation shall be at a minimum1:1 ratio. Any mitigation shall result in improved watercourse functions over existing conditions.

1. Diverting or rerouting may only occur with the permission of the Director and an approved mitigation plan. Any watercourse that has critical wildlife habitat or is necessary for the life cycle or spawning of salmonids, shall not be rerouted, unless it can be shown that the habitat will be improved for the benefit of the species. A watercourse may be rerouted or day-lighted as a mitigation measure to improve watercourse function.
2. Piping of any watercourse should be avoided. Relocation of a watercourse is preferred to piping; if piping occurs in a watercourse sensitive area, it shall be limited and shall require approval of the Director. Piping of Type 1 watercourses shall not be permitted. Piping may be allowed in Type 2, 3 or 4 watercourses if it is necessary for access purposes. Piping may be allowed in Type 4 watercourses if the watercourse has a degraded buffer, is located in a highly developed area and does not provide shade, temperature control etc. for habitat. The applicant must comply with the conditions of this section, including: providing excess capacity to meet needs of the system during a

100-year flood event; and providing flow restrictors, and complying with water quality and existing habitat enhancement procedures.

3. No process that requires maintenance on a regular basis will be acceptable unless this maintenance process is part of the regular and normal facilities maintenance process or unless the applicant can show funding for this maintenance is ensured for as long as the use remains.
4. Piping projects shall be performed pursuant to the following applicable standards:
    a. The conveyance system shall be designed to comply with the standards in current use and recommended by the Department of Public Works.
    b. Where allowed, piping shall be limited to the shortest length possible as determined by the Director to allow access onto a property.
    c. Where water is piped for an access point, those driveways or entrances shall be consolidated to serve multiple properties where possible, and to minimize the length of piping.
    d. When required by the Director, watercourses under drivable surfaces shall be contained in an arch culvert using oversize or super span culverts for rebuilding of a streambed. These shall be provided with check dams to reduce flows, and shall be replanted and enhanced according to a plan approved by the Director.
    e. All watercourse crossing shall be designed to accommodate fish passage. Watercourse crossings shall not block fish passage where the streams are fish bearing.
    f. Storm water runoff shall be detained and infiltrated to preserve the watercourse channel's dominant discharge.
    g. All construction shall be designed to have the least adverse impact on the watercourse, buffer and surrounding environment.
    h. Piping shall be constructed during periods of low flow, or as allowed by the State Department of Fish and Wildlife.
    i. Water quality must be as good or better for any water exiting the pipe as for the water entering the pipe, and flow must be comparable.

F. Fish and Wildlife Conservation Area Alterations

Alterations to the Green/Duwamish River are regulated by the shoreline provisions of this SMP. Alterations to Fish and Wildlife Conservation Areas that have been created as restoration or habitat enhancement sites and that are shown on the Sensitive Areas in the Shoreline Jurisdiction Map are prohibited and may only be authorized through a shoreline variance procedure.

10.12 <u>Sensitive Areas Mitigation</u>

Mitigation shall be required for any proposals for dredging, filling, piping, diverting, relocation or other alterations of sensitive areas in as allowed in this chapter and in

accordance with mitigation sequencing and the established mitigation ratios. The mitigation plan shall be developed as part of a sensitive area study by a qualified specialist.

A. Mitigation Sequencing.

Applicants shall demonstrate that reasonable efforts have been examined with the intent to avoid and minimize impacts to sensitive areas and buffers. When an alteration to a sensitive area or its required buffer is proposed, such alteration shall be avoided, minimized or compensated for in the following order of preference:

1. Avoidance of sensitive area and buffer impacts, whether by finding another site or changing the location of the proposed activity on-site;
2. Minimizing sensitive area and buffer impacts by limiting the degree of impact on site;
3. Mitigation actions that require compensation by replacing, enhancing, or substitution.

B. Criteria for Approval of Alterations and Mitigation

Alterations and mitigation plans are subject to Director approval, and may be approved only if the following findings are made:

1. The alteration will not adversely affect water quality;
2. The alteration will not adversely affect fish, wildlife, or their habitat;
3. The alteration will not have an adverse effect on drainage and/or stormwater detention capabilities;
4. The alteration will not lead to unstable earth conditions or create an erosion hazard or contribute to scouring actions;
5. The alteration will not be materially detrimental to any other property; and
6. The alteration will not have adverse effects on any other sensitive areas or the shoreline.
7. The mitigation will result in improved functions such as water quality, erosion control, wildlife and fish habitat.

C. Mitigation Location

1. On-site mitigation shall be provided, except where it can be demonstrated that:
    a. On-site mitigation is not scientifically feasible due to problems with hydrology, soils, , or other factors; or
    b. Mitigation is not practical due to potentially adverse impacts from surrounding land uses; or
    c. Existing functional values created at the site of the proposed restoration are significantly greater than lost sensitive area functions; or
    d. Established regional goals for flood storage, flood conveyance, habitat or other sensitive area functions have been established and strongly

justify location of mitigation at another site.

2. Off-site mitigation shall occur within the shoreline jurisdiction in a location where the sensitive area functions can be restored. Buffer impacts must be mitigated at or as close as possible to the location of the impact.
3. Wetland creation, relocation of a watercourse, or creation of a new fish and wildlife habitat shall not result in the new sensitive area or buffer extending beyond the development site and onto adjacent property without the agreement of the affected property owners, unless otherwise exempted by this Shoreline Master Program.

D. Mitigation Plan Content and Standards

The scope and content of a mitigation plan shall be decided on a case-by-case basis. As the impacts to the sensitive area increase, the mitigation measures to offset these impacts will increase in number and complexity. The minimum components of a complete mitigation plan are listed below. For wetland mitigation plans, the format should follow that established in Wetland Mitigation in Washington State, Part 2 - Developing Mitigation Plans (Washington Department of Ecology, Corps of Engineers, EPA, March 2006, as amended).

1. Baseline information of quantitative data collection or a review and synthesis of existing data for both the project impact zone and the proposed mitigation site.
2. Environmental goals and objectives that describe the purposes of the mitigation measures. This should include a description of site-selection criteria, identification of target evaluation species, and resource functions.
3. Performance standards for the specific criteria for fulfilling environmental goals, and for beginning remedial action or contingency measures. They may include water quality standards, species richness and diversity targets, habitat diversity indices, or other ecological, geological or hydrological criteria. The following shall be considered the minimum performance standards for approved sensitive area alterations:
    a. Sensitive area functions and improved habitat for fish and wildlife are improved over those of the original conditions.
    b. Hydrologic conditions, hydroperiods and watercourse channels are improved over existing conditions and the specific performance standards specified in the approved mitigation plan are achieved.
    e. Acreage requirements for enhancement or creation are met.
    f. Vegetation native to the Pacific Northwest is installed and vegetation survival and coverage standards over time are met and maintained.
    g. Buffer and bank conditions and functions exceed the original state.
    h. Stream channel habitat and dimensions are maintained or improved such that the fisheries habitat functions of the compensatory stream reach meet or exceed that of the original stream.
4. A detailed construction plan of the written specifications and descriptions of mitigation techniques. This plan should include the proposed construction

sequence and construction management, and be accompanied by detailed site diagrams and blueprints that are an integral requirement of any development proposal.

5. Monitoring and/or evaluation program that outlines the approach and frequency for assessing progress of the completed project. An outline shall be included that spells out how the monitoring data will be evaluated and reported.
6. Maintenance plan that outlines the activities and frequency of maintenance to ensure compliance with performance standards.
7. Contingency plan identifying potential courses of action and any corrective measures to be taken when monitoring or evaluation indicates project performance standards have not been met.
8. Performance security or other assurance devices.

E. Mitigation Timing

1. Mitigation projects shall be completed prior to activities that will permanently disturb sensitive areas or their buffers and either prior to or immediately after activities that will temporarily disturb sensitive areas.

2. Construction of mitigation projects shall be timed to reduce impacts to existing wildlife, flora and water quality, and shall be completed prior to use or occupancy of the activity or development. The Director may allow activities that permanently disturb wetlands or watercourses prior to implementation of the mitigation plan under the following circumstances:
    a. To allow planting or re-vegetation to occur during optimal weather conditions;
    b. To avoid disturbance during critical wildlife periods; or
    c. To account for unique site constraints that dictate construction timing or phasing.

3. Monitoring of buffer alterations shall be required for three to five years. All other alterations shall be monitored for minimum of five years.

F. Corrective Actions and Monitoring

The Director shall require subsequent corrective actions and long-term monitoring of the project if adverse impacts to regulated sensitive areas or their buffers are identified.

G. Recording

The property owner receiving approval of a use or development pursuant to the Shoreline Master Program shall record the City-approved site plan clearly delineating the sensitive area and its buffer with the King County Division of Records and Elections. The face of the site plan must include a statement that the provisions of this Chapter, as of the

effective date of the ordinance from which the Shoreline Management Program derives or thereafter amended, control use and development of the subject property, and provide for any responsibility of the latent defects or deficiencies.

H. Assurance Device

1. The Director may require a letter of credit or other security device acceptable to the City, to guarantee performance and maintenance requirements. All assurances shall be on a form approved by the City Attorney.

2. When alteration of a sensitive area is approved, the Director may require an assurance device, on a form approved by the City Attorney, to cover the monitoring costs and correction of possible deficiencies for the term of the approved monitoring and maintenance program. 3. The assurance device shall be released by the Director upon receipt of written confirmation submitted to the Department from the applicant's qualified professional that the mitigation or restoration has met its performance standards and is successfully established. Should the mitigation or restoration meet performance standards and be successfully established in the third or fourth year of monitoring, the City may release the assurance device early. The assurance device may be held for a longer period, if at the end of the monitoring period, the performance standards have not been met or the mitigation has not been successfully established.

3. Release of the security does not absolve the property owner of responsibility for maintenance or correcting latent defects or deficiencies or other duties under law.

11. PUBLIC ACCESS TO THE SHORELINE

Public access to the shorelines of the state is one of the key goals of the Shoreline Management Act – of the seven uses identified in RCW 90.58.020 as having preference in the shoreline, two relate to public access and recreational opportunities along the shoreline.

The City of Tukwila is fortunate to have a number of public access sites already along the Green/Duwamish River in addition to the Green River Trail, which runs along almost the entire length of the river through the City. Other public access points are available at the North Winds Wier, the Tukwila Community Center, Codiga Park, Bicentennial Park at Strander Boulevard and parking available on Christianson Road and at S. 180th Street. A future habitat restoration project is planned at Duwamish Riverbend Hill, on South 115th Street, which will also include public access to the river. The Public Access Map (**Map 6**) identifies several street ends that could be improved or to which amenities could be added that would offer opportunities for neighborhood access to the river and/or the Green River Trail.

The Shoreline Public Access Map identifies several potential trail sites on the river to supplement the existing Green River trail system. The largest stretch of potential trail runs from S. 180th on the left bank to the end of south annexation area. A pedestrian bridge to link the area south of S. 180th Street to the existing trail on the right bank is being discussed as well. A second area where improvement is needed in public access relates to boat launches for small hand launched boats. Several potential sites have been identified in the Tukwila Parks Department Capital Improvement Program to address this need at City-owned sites.

11.1 Applicability

A. Public access to or along the shoreline as described in Section 11 shall be provided on all property that abuts the Green/Duwamish River shoreline in accordance with this section as further discussed below where any of the following conditions are present.

1. Where a development or use will create increased demand for public access to the shoreline, the development or use shall provide public access to mitigate this impact.

2. Where a development or use will interfere with an existing public access way, the development or use shall provide public access to mitigate this impact. Impacts to public access may include blocking access or discouraging use of existing on-site or nearby accesses.

3. Where a use or development will interfere with a public use of lands or waters subject to the public trust doctrine, the development shall provide public access to mitigate this impact.

4. Where the development is proposed by a public entity or on public lands.

5. Where identified on the Shoreline Public Access Map.

For the purposes of this section, an "increase in demand for public access" is determined by evaluating whether the development reflects an increase in the land use intensity, for example converting a warehouse to office or retail use, or a significant increase in the square footage of an existing building**.** A significant increase is defined as an increase of 3,000 square feet. The extent of public access required will be proportional to the amount of increase in the demand for public access. For smaller projects, the Director will review the intent of this section and the scope of the project to determine a reasonable amount of public access to be carried out. Depending on the amount of increase, the project may utilize the alternative provisions for meeting public access in Section 11.6.C.

The terms and conditions of Section 11.1 and 11.2 shall be deemed satisfied if the applicant and the City agree upon a master trail plan providing for public paths and trails within a parcel or group of parcels.

B. The provisions of this section do not apply to the following:

1. Short plats of four or fewer lots;
2. Where providing such access would cause unavoidable health or safety hazards;
3. Where providing such access would create inherent and unavoidable security problems; or

4. Where providing such access would cause significant ecological impacts that cannot be mitigated.

For items 2-4 above, to qualify for an exemption, the procedures in 11.6 must be met.

11.2 General Standards

A. To improve public access to the Green/Duwamish River, sites shall be designed to provide:

1. Safe, visible and accessible pedestrian and non-motorized vehicle connections between proposed development and the river's edge particularly when the site is adjacent to the Green River Trail or other approved trail system; and
2. Public pathway entrances that are clearly visible from the street edge; and
3. Clearly identified pathways that are separate from vehicular circulation areas. This may be accomplished through the use of special paving materials such as precast pavers, bomonite, changes in color or distinct and detailed scoring patterns and textures.
4. Site elements that are organized to clearly distinguish between public and private access and circulation systems.

B. Required public access shall be fully developed and available for public use at the time of occupancy in accordance with development permit conditions except where the decision maker determines an appropriate mechanism for delayed public access implementation is necessary for practical reasons. Where appropriate, a bond or cash assignment may be approved, on review and approval by the Director of Community Development, to extend this requirement for 90 days from the date the Certificate of Occupancy is issued.

C. Public access easements and related permit conditions shall be recorded on the deed of title or the face of the plat, short plat or approved site plan as a condition tied to the use of the land. Recording with the County shall occur prior to the issuance of an Occupancy Permit or final plat approval. Upon redevelopment of such a site, the easement may be relocated to facilitate the continued public access to the shoreline.

D. Approved signs indicating the public's right of access and hours of access, if restricted, shall be constructed, installed and maintained by the applicant in conspicuous locations at public access sites. Signs should be designed to distinguish between public and private areas. Signs controlling or restricting public access may be approved as a condition of permit approval.

E. Required access must be maintained throughout the life of the project.

F. Public access features shall be separated from residential uses through the use of

setbacks, low walls, berms, landscaping, or other device of a scale and materials appropriate to the site.

G Shared public access between developments is encouraged. Where access is to be shared between adjacent developments, the minimum width for the individual access easement may be reduced; provided that the total width of easements contributed by each adjacent development equals a width that complies with Fire Department requirements and/or exceeds the minimum for an individual access.

H. Public access sites shall be connected directly to the nearest public area (e.g., street, public park, or adjoining public access easement). Where connections are not currently possible, the site shall be designed to accommodate logical future connections.

11.3 Requirements for Shoreline Trails

A. Development on Properties Abutting Existing Green River Trail

Development on properties abutting the existing trail shall upgrade the trail along the property frontage to meet the standards of a 14 foot wide trail with 2 foot shoulders on each side.

B. Development on Properties Where New Trails are Planned

An 18-foot wide trail easement dedicated to the City for public access along the river shall be provided in areas identified for new shoreline trail segments (**Shoreline Public Access Map, Map 6).**

11.4 Publicly-Owned Shorelines

A. Shoreline development by any public entities, including but not limited to the City of Tukwila, King County, port districts, state agencies, or public utility districts, shall include public access measures as part of each development project, unless such access is shown to be incompatible due to reasons of safety, security, impact to the shoreline environment or other provisions listed in this section.

B. The following requirements apply to street ends and City-owned property adjacent to the River, as shown in **Public Access Map**, **Map 6**.

1. Public right-of-way and "road-ends," or portions thereof, shall not be vacated and shall be maintained for future public access.

2. Unimproved right-of-ways and portions of right-of-ways, such as street ends and turn-outs, shall be dedicated to public access uses until such time as the

portion becomes improved right-of-way. Uses shall be limited to passive outdoor recreation, car top boat launching, fishing, interpretive/educational uses, and/or parking, which accommodates these uses, and shall be designed so as to not interfere with the privacy of adjacent residential uses.

3. City-owned facilities within the Shoreline Jurisdiction shall provide new trails and trail connections to the Green River Trail in accordance with approved plans and this SMP.

4. All City-owned recreational facilities within the shoreline jurisdiction, unless qualifying for an exemption as specified in this Chapter, shall make adequate provisions for
   a. Non-motorized and pedestrian access;
   b. The prevention of trespass onto adjacent properties through landscaping, fencing or other appropriate measures;
   c. Signage indicating the public right-of-way to shoreline areas; and
   d. Mechanisms to prevent environmental degradation of the shoreline from public use.

11.5 Public Access Incentives

A. The minimum yard setback for buildings, uses, utilities or development from non-riverfront lot lines may be reduced as follows:

1. Where development provides a public access corridor between off-site areas, or public shoreline areas to public shoreline areas, one side yard may be reduced to a zero lot line placement; or
2. Where development provides additional public access area(s) equal in area to at least 2.5% of total building area, the front yard (the landward side of the development) may be reduced by 50 percent.

B. The maximum height for structures may be increased by 15% when:

1. Development devotes at least 5% of its building or land area to public shoreline access; or
2. Development devotes at least 10% of its land area to employee shoreline access.

C. The maximum height for structures may be increased by a maximum of 25% when:

1. One of the criteria under 11.5 B. is met; and
2. The applicant restores or enhances the entire shoreline buffer, including but not limited to paved areas no longer in use on the property to offset the impact of the increase in height. Buffer restoration/enhancement projects undertaken to meet the requirements at 11.6 C. are not eligible for this incentive.
3. No combination of incentives from 11.5 B, 11.5 C or 9.3 C may be used to gain more than a 25% height increase.

D. The maximum height for structures may be increased to the height permitted in the underlying zoning district for properties that construct a 14' wide paved trail with a two-foot wide shoulder on each side for public access along the river in areas identified for new shoreline trail segments, or where, in the case of properties containing or abutting existing public access trails, the existing trail either meets the standard of a 14 foot wide trail with two foot shoulders on either side or the property owner provides any necessary easements and improvements to upgrade the existing trail to that standard along the property frontage.

11.6 Exemptions from Provision of On-Site Public Access

A. Requirements for providing on-site general public access, as distinguished from employee access, will not apply if the applicant can demonstrate one or more of the following:

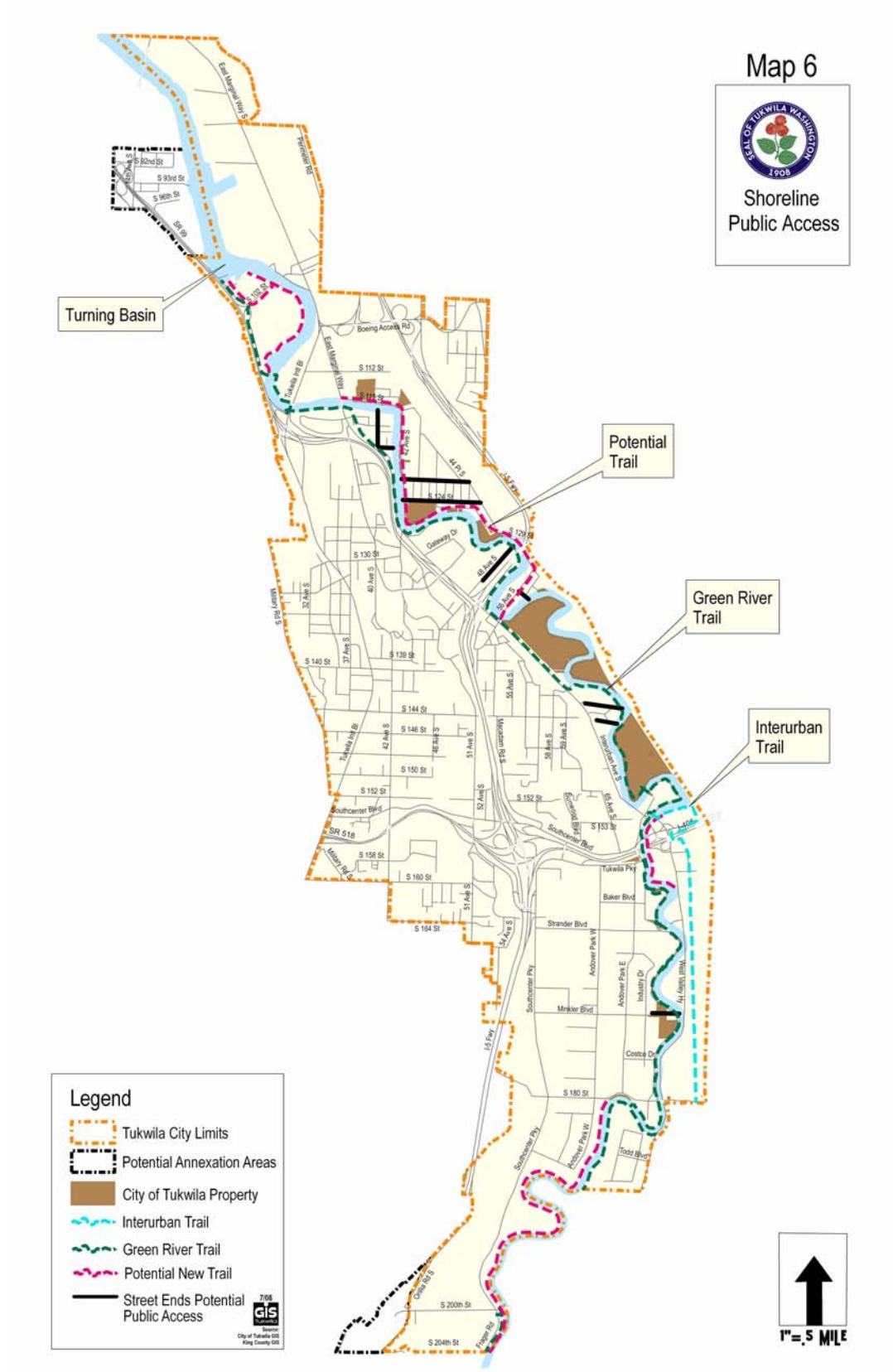
1. Unavoidable health or safety hazards to the public exist related to the primary use that cannot be prevented by any practical means;
2. Inherent security requirements of the use cannot be satisfied through the application of alternative design features or other solutions;
3. The cost of providing the access, easement or other public amenity on or off the development site is unreasonably disproportionate to the total long-term cost of the proposed development.
4. Unavoidable environmental harm or net loss of shoreline ecological functions that cannot be adequately mitigated will result from the public access.
5. Access is not feasible due to the configuration of existing parcels and structures, such that access areas are blocked in a way that cannot be remedied reasonably by the proposed development.
6. Significant undue and unavoidable conflict between the proposed access and adjacent uses would occur and cannot be mitigated.
7. Space is needed for water dependent uses or navigation.

B. In order to meet any of the above referenced conditions, the applicant must first demonstrate, and the City determine in its findings that all reasonable alternatives have been exhausted, including but not limited to:

1. Regulating access by such means as maintaining a gate and/or limiting hours of use;
2. Designing separation of uses and activities through fencing, terracing, hedges or other design features; or
3. Providing access on a site geographically separate from the proposal such as a street end cannot be accomplished.

C. If the above conditions are demonstrated, and the proposed development is not subject to the Parks Impact Fee, alternative provisions for meeting public access are required and include:

1. Development of public access at an adjacent street end;
2. Protection through easement or setbacks of landmarks, unique natural features or other areas valuable for their interpretive potential
3. Contribution of materials and/or labor, toward shoreline projects identified in the Parks and Recreation Master Plan, the Shoreline Restoration Plan, or other City adopted plan; or
4. At the Director's discretion, the applicant may provide restoration/enhancement of the shoreline jurisdiction to a scale commensurate with the foregone public access in lieu of public access.


Map 6
Shoreline Public Access
Turning Basin
Potential Trail
Green River Trail
Interurban Trail
Legend
Tukwila City Limits
Potential Annexation Areas
City of Tukwila Property
Interurban Trail
Green River Trail
Potential New Trail
Street Ends Potential Public Access
1"=.5 MILE

12. SHORELINE DESIGN GUIDELINES

The Green/Duwamish River is an amenity that should be valued and celebrated when designing projects that will be located along its length. If any portion of a project falls within the shoreline jurisdiction, then the entire project will be reviewed under these guidelines as well as the relevant sections of the Design Review Chapter of the Zoning Code (TMC 18.60). The standards of TMC Chapter 18.60 shall guide the type of review, whether administrative or by the Board of Architectural Review.

The following standards apply to development, uses and activities in the Urban Conservancy and High Intensity Environments and non-residential development in the Shoreline Residential Environment.

12.1 Relationship of Structure to Site

Development within the shoreline jurisdiction shall demonstrate compliance with the following:

A. Respect and reflect the shape of the shoreline;

B. Orient building elements to site such that public river access, both visual and physical is enhanced;

C. Orient buildings to allow for casual observation of pedestrian and trail activity from interior spaces;

D. Site and orient buildings to provide maximum views from building interiors toward the river and the shoreline;

E. Orient public use areas and private amenities to the river;

F. Clearly allocate spaces, accommodating parking, vehicular circulation and buildings to preserve existing stands of vegetation or trees so that natural areas can be set aside, improved, or integrated into site organization and planning;

G. Clearly define and separate public from non-public spaces with the use of paving, signage, and landscaping.

12.2 Building Design

Development within the shoreline jurisdiction shall demonstrate compliance with the following:

A. To prevent building mass and shape from overwhelming the desired human scale along the river, development shall avoid blank walls on the public and river sides of buildings.
B. Buildings should be designed to follow the curve of the river and respond to changes in topography; buildings must not "turn their back" to the river.

C. Design common areas in buildings to take advantage of shoreline views and access; incorporate outdoor seating areas that are compatible with shoreline access.

D. Consider the height and scale of each building in relation to the site.

E. Extend site features such as plazas that allow pedestrian access and enjoyment of the river to the landward side of the buffer's edge.

F. Locate lunchrooms and other common areas to open out onto the water-ward side of the site to maximize enjoyment of the River.

G. Design structures to take advantage of the river frontage location by incorporating features such as:
    1. plazas and landscaped open space that connect with a shoreline trail system;
    2. windows that offer views of the river; or
    3. pedestrian entrances that face the river.

H. View obscuring fencing is permitted only when necessary for documentable use requirements and must be designed with landscaping per the Vegetation Protection and Landscaping Section. Other fencing, when allowed, must be designed to complement the proposed and/or existing development materials and design; and

I. Where there are public trails, locate any fencing between the site and the landward side of the shoreline trail.

12.3 <u>Design of Public Access</u>

Development within the shoreline jurisdiction shall demonstrate compliance with the following:

A. Public access shall be barrier free, where feasible, and designed consistent with the Americans with Disabilities Act.

B. Public access landscape design shall use native vegetation, in accordance with the standards in the Vegetation Protection and Landscaping Section. Additional landscape features may be required where desirable to provide public/private space separation and screening of utility, service and parking areas.

C. Furniture used in public access areas shall be appropriate for the proposed level of development, and the character of the surrounding area. For example, large urban projects should provide formal benches; for smaller projects in less-developed areas, simpler, less formal benches or suitable alternatives are appropriate.

D. Materials used in public access furniture, structures or sites shall be:

1. Durable and capable of withstanding exposure to the elements;
2. Environmentally friendly and take advantage of technology in building materials, lighting, paved surfaces, porous pavement, etc, wherever practical; and
3. Consistent with the character of the shoreline and the anticipated use.

E. Public-Private Separation

1. Public access facilities shall look and feel welcoming to the public, and not appear as an intrusion into private property.
2. Natural elements such as logs, grass, shrubs, and elevation separations are encouraged as means to define the separation between public and private space.

13. SHORELINE RESTORATION

The Shoreline Restoration Plan, found in Appendix B, identifies the sites that have been identified to-date as possible locations for habitat restoration along the Green/Duwamish River. The City will continue to add sites to the Restoration Plan as they are identified and will include them in the City's Capital Improvement Program for acquisition and improvement. Project sites in the Transition Zone have the highest priority for acquisition. Amendments or revisions to the Restoration Plan do not require an amendment to the Shoreline Master Program.

13.1 Shoreline Substantial Development Permit Not Required

Shoreline restoration projects shall be allowed without a Shoreline Substantial Development Permit when these projects meet the criteria established by WAC 173-27-040(o) and (p) and H.B. 2199.

13.2 Changes in Shoreline Jurisdiction due to Restoration

Relief may be granted from shoreline master program standards and use regulations in cases where shoreline restoration projects result in a change in the location of the OHWM and associated shoreline jurisdiction on the subject property and/or adjacent properties and where application of shoreline master program regulations would preclude or interfere with the uses permitted by the underlying zoning, thus presenting a hardship to the project proponent.

A. Applications for relief, as specified on subsection B below must meet the following criteria:
   1. The proposed relief is the minimum necessary to relieve the hardship;
   2. After granting the proposed relief, there is net environmental benefit from the restoration project; and
   3. Granting the proposed relief is consistent with the objectives of the shoreline restoration project and with the shoreline master program.

   Where a shoreline restoration project is created as mitigation to obtain a development permit, the project proponent required to perform the mitigation is not eligible for relief under the provisions of this section.

B. The portion of property that moves from outside shoreline jurisdiction to inside shoreline jurisdiction as a result of the shoreline restoration project:
   1. may be developed for the full range of uses of the underlying zoning consistent with the zoning code, including uses that are not water-oriented;
   2. is not required to obtain a shoreline substantial development permit;
   3. is not subject to the SMP provisions for public access;
   4. may be developed for the full range of uses of the underlying zoning is not subject to shoreline design review; and
   5. is not subject to the development standards set forth in this Program, except as set forth in Section 13.2 C.

The intent of the exemptions identified in A 1-4 is to implement the restoration projects of the Shoreline Master Program Restoration Plan, which reflect the projects identified in the Water Resource Inventory (WRIA) 9 Plan pursuant to Policy 5.2 of this Master Program. Projects will continue to be added to the Restoration Plan as they are identified.

C. Consistent with the provisions of subsection A. above, the Shoreline Residential Environment Buffer, High Intensity or Urban Conservancy Environment Buffer width may be reduced to no less than 25 feet measured from the new location of the OHWM for the portion of the property that moves from outside the shoreline jurisdiction to inside shoreline jurisdiction as a result of the shoreline restoration project, subject to the following standards:

   1. The 25 foot buffer area must be vegetated according to the requirements of the Vegetation Protection and Landscaping Section or as otherwise approved by the City; and
   2. The proponents of the restoration project are responsible for the installation and maintenance of the vegetation.

D. The habitat restoration project proponents must record with King County a survey

that identifies the location of the OHWM location prior to implementation of the shoreline restoration project, any properties and structures that fall within the shoreline jurisdiction and the new location of the OHWM once construction of the shoreline restoration project is completed and any properties that are brought under shoreline jurisdiction due to the restoration project. As the location of the OHWM is not static, it may be necessary for future projects to re-survey the location of the OHWM.

D. Shoreline restoration projects must obtain all U.S. Army Corps of Engineers and Washington State Department of Fish and Wildlife approvals as well as written approval from the City.

14. ADMINISTRATION

The Administrative procedures below are designed to:

- Assign responsibilities for implementation of the Master Program and Shoreline Permit
- Establish an orderly process by which to review proposals and permit applications
- Ensure that all persons affected by this Master Program are treated in a fair and equitable manner.

14.1 Applicability of Shoreline Master Program and Substantial Development Permit

A. Development in the Shoreline Jurisdiction

Based on guidelines in the Shoreline Management Act for a minimum shoreline jurisdiction, Tukwila's Shoreline Jurisdiction is defined as follows:

> *The Tukwila Shoreline Jurisdiction includes the channel of the Green/Duwamish River, its banks, the upland area which extends from the ordinary high water mark landward for 200 feet on each side of the river, floodways and all associated wetlands within its floodplain. The floodway shall not include those lands that have historically been protected by flood control devices and therefore have not been subject to flooding with reasonable regularity.*

B. Applicability

The Tukwila Shoreline Master Program applies to uses, change of uses, activities or development that occurs within the above-defined Shoreline jurisdiction. All proposed uses and development occurring within the shoreline jurisdiction must conform to chapter 90.58 RCW, the Shoreline Management Act and this master program whether or not a permit is required.

14.2 Substantial Development Permit Requirements

A. Permit Application Procedures

Applicants for a Shoreline Substantial Development Permit shall comply with permit application procedures.

B. Exemptions

1. To qualify for an exemption, the proposed use, activity or development must meet the requirements for an exemption as described in WAC 173-27-040, except for properties that meet the requirements of the Shoreline Restoration Section. The purpose of a shoreline exemption is to provide a process for uses and activities which do not trigger the need for a substantial development permit, but require compliance with all provisions of the City's SMP.

2. The Director may impose conditions to the approval of exempted developments and / or uses as necessary to assure compliance of the project with the SMA and the Tukwila SMP, per WAC 173-27-040(e). For example, in the case of development subject to a building permit, but exempt from the shoreline permit process, the Building Official or other permit authorizing official, through consultation with the Director, may attach shoreline management terms and conditions to Building Permits and other permit approvals pursuant to RCW 90.58.140.

14.3 <u>Shoreline Conditional Use Permit</u>

A. Purpose

As stated in WAC 173-27-160, the purpose of a Conditional Use Permit (CUP) is to allow greater flexibility in the application of use regulations of the Shoreline Master Program in a manner consistent with the policies of RCW 90.58.020. In authorizing a conditional use, special conditions may be attached to the permit by the City or the Department of Ecology to prevent undesirable effects of the proposed use and/or assure consistency of the project with the SMA and the City's SMP. Uses which are specifically prohibited by the Shoreline Master Program may not be authorized with approval of a CUP.

B. Application

Applicants for a Shoreline Conditional Use Permit shall comply with all current permit application procedures.

D. Approval Criteria

1. Uses classified as conditional uses may be authorized, provided that the applicant can demonstrate **all** of the following:
    a. That the proposed use will be consistent with the policies of RCW 90.58.020 and the policies of the Tukwila Shoreline 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 will be compatible with other permitted uses within the area and with uses planned for the area under the comprehensive plan and SMP;
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 to 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 and all local ordinances and shall not produce substantial adverse effects to the shoreline environment.

14.4 Shoreline Variance Permits

A. Purpose

The purpose of a Shoreline Variance Permit is strictly limited to granting relief from specific bulk, dimensional, or performance standards set forth in this Master Program where there are extraordinary or unique 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 Shoreline Management Act policies as stated in RCW 90.58.020. Reasonable Use requests that are located in the shoreline must be processed as a Variance, until such time as the Shoreline Management Act is amended to establish a process for reasonable uses.

B. Application requirements

Applicants for a Shoreline Variance shall comply with all current permit application procedures.

C. **Shoreline 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 exist and the public interest will suffer no substantial detrimental effect.

D. Approval Criteria

A Shoreline Variance Permit for a use, activity or development that will be located landward of the ordinary high water mark and/or landward of any wetland may be

authorized provided the applicant can demonstrate **all** of the following:

1. That the strict application of the bulk, dimensional, or performance standards set forth in the Master Program preclude or significantly interfere with a reasonable use of the property not otherwise prohibited by the Master Program;
2. That the hardship described above 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 from the owner's own actions or deed restrictions; and that the variance is necessary because of these conditions in order to provide the owner with use rights and privileges permitted to other properties in the vicinity and zone in which the property is situated;
3. That the design of the project will be compatible with other authorized uses within the area and with uses planned for the area under the comprehensive plan and SMP and will not cause adverse impacts to adjacent properties or the shoreline environment;
4. That the variance will not constitute a grant of special privilege not enjoyed by other properties in the area;
5. That the variance is the minimum necessary to afford relief; and
6. That the public interest will suffer no substantial detrimental effect.

E. Shoreline Variance Permits Waterward of OHWM

1. Shoreline Variance permits for development and/or uses that will be located either waterward of the ordinary high water mark or within any sensitive area may be authorized only if the applicant can demonstrate all of the following:

    a. That the strict application of the bulk, dimensional or performance standards set forth in this Master Program preclude all reasonable permitted use of the property; and
    b. That the proposal is consistent with the criteria established under D above; and
    c. The public rights of navigation and use of the shorelines will not be adversely affected by the granting of the variance.

2. In the granting of all variance permits, consideration shall be given to the cumulative impact of additional requests for like actions in the area such that the total of the variances would remain consistent with RCW 90.58.020 and not cause substantial adverse effects to the shoreline environment.

3. Variances from the use regulations of the master program are prohibited.

14.5 Non-conforming Development

A. Non-conforming Uses

Any preexisting lawful use of land that would not be allowed under the terms of this SMP may be continued as an allowed, legal non-conforming use, so long as that use remains lawful, subject to the following:

1. No such non-conforming use shall be enlarged, intensified, increased or extended to occupy a greater use of the land, structure or combination of the two, than was occupied at the effective date of adoption of this SMP;
2. No non-conforming use shall be moved or extended in whole or in part to any other portion of the lot or parcel occupied by such use at the effective date of adoption or amendment of this SMP;
3. If any such non-conforming use ceases for any reason for a period of more than 24 consecutive months, any subsequent use shall conform to the regulations specified by this SMP for the shoreline environment in which such use is located. Upon request of the owner, prior to the end of the 24 consecutive months and upon reasonable cause shown, the City Council may grant an extension of time beyond the 24 consecutive months, per 14.5 C. **;**
4. If a change of use is proposed to a use determined to be non-conforming by application of provisions in this SMP, the proposed new use must be a permitted use in the SMP or a use approved under a Conditional Use Permit process. For purposes of implementing this section, a change of use constitutes a change from one Permitted, Conditional Use category to another such use category as listed within the zoning code.

5. A structure that is being or has been used for a nonconforming use may be used for a different nonconforming use after demonstrating the following criteria have been met:

   a. No reasonable alternative conforming use is practical;
   b. The proposed use will be at least as consistent with the policies and provisions of the SMP and as compatible with the uses in the area as the preexisting use;
   c. The use or activity is enlarged, intensified, increased or altered only to the minimum amount necessary to achieve the intended functional purpose;
   d. The structure(s) associated with the non-conforming use shall not be expanded in a manner that increases the extent of the nonconformity;
   e. The change in use will not create adverse impacts to shoreline ecological functions and/or processes;
   f. The applicant restores and or/enhances the entire shoreline buffer, including but not limited to paved areas no longer in use on the property, to offset the impact of the change of use per the vegetation management standards of this program. This may include the restoration of paved areas to vegetated area if no longer in use.

The preference is to reduce exterior uses in the buffer to the maximum extent possible.

B. Non-conforming Structures

Where a lawful structure exists at the effective date of adoption of the SMP that could not be built under the terms of the SMP by reason of restrictions on height, buffers or other characteristics of the structure, it may be continued as an allowed, legal structure so long as the structure remains otherwise lawful subject to the following provisions:

1. Such structures may be repaired, maintained, upgraded and altered provided that (1) the structure may not be enlarged or altered in such a way that increases its degree of nonconformity or increases its impacts to the functions and values of the shoreline environment except as authorized in TMC Section 18.66.120; and (2) the cost of the alterations may not exceed an aggregate cost of fifty percent (50%) of the value of the building or structure in any three (3) year period based upon its most recent assessment, unless the amount over fifty percent (50%) is used to make the building or structure more conforming, or is used to restore to a safe condition any portion of a building or structure declared unsafe by a proper authority.

2. Should such structure be destroyed by any accidental means the structure may be reconstructed to its original dimensions and location on the lot provided application is made for permits within twelve (12) months of the date the damage occurred and all reconstruction is completed within two years of permit issuance. In the event that the property is redeveloped, such redevelopment must be in conformity with the provisions of this SMP.

3. Should such structure be moved for any reason or any distance whatsoever, it shall thereafter conform to the regulations of this SMP after it is moved.

4. When a non-conforming structure, or structure and premises in combination, is vacated or abandoned for 24 consecutive months, the structure, or structure and premises in combination, shall thereafter be required to be in conformance with the regulations of the SMP. Upon request of the owner, prior to the end of the 24 consecutive months, and upon reasonable cause shown, the City Council may grant an extension of time beyond the 24 consecutive months per 14.5 C.

5. Residential structures and uses located in any single-family or multiple-family residential zoning district and in existence at the time of adoption of this SMP shall not be deemed nonconforming in terms of height, use, or location provisions of this title. Such buildings may be rebuilt after a fire or other natural disaster to their original dimensions, location and height, but may not be changed except as provided in the non-conforming uses section of this chapter.

6. Single-family structures in single- or multiple family residential zone districts, which have legally non-conforming setbacks from the OHWM per the SMP buffer, shall be allowed to expand the ground floor only along the existing building line(s), so long as the existing distance from the nearest point of the structure to the OHWM is not reduced, and the square footage of new intrusion into the buffer does not exceed 50% of the square footage of the current intrusion. As a condition of building permit approval a landscape plan showing removal of invasive plant species within the entire shoreline buffer and replanting with appropriate native species must be submitted to the City. Maintenance of these plantings through the establishment period is recommended.
7. For the purposes of this section, altered or partially reconstructed is defined as work that does not exceed 50% of the assessed valuation of the building over a three year period.
8. A non-conforming–use, within a non-conforming structure, shall not be allowed to expand into any other portion of the structure.

C. Requests for Time Extension – Nonconforming Uses and Structures

A property owner may request, prior to the end of the 24 consecutive months, an extension of time beyond the 24 consecutive months. Such a request may be approved only when:

1. For a nonconforming use, a finding is made that no reasonable alternative conforming use is practical;
2. For a nonconforming structure, special economic circumstances prevent the lease or sale of said structure within 24 months; and
3. The applicant restores and/or enhances the shoreline buffer on the property to offset the impact of the continuation of the pre-existing use. For nonconforming uses, the amount of buffer to be restored and/or enhanced will be determined based on the percentage of the existing building used by the nonconforming use for which a time extension is being requested. Depending on the size of the area to be restored and/or enhanced, the Director may require targeted plantings rather than a linear planting arrangement. The vegetation management standards of this Program shall be used for guidance on any restoration/enhancement. For nonconforming structures, for each six month extension of time requested, 15% of the available buffer must be restored/enhanced.

Conditions may be attached to the permit that are deemed necessary to assure compliance with the above findings, the requirements of the master program and the Shoreline Management Act and to assure that the use will not become a nuisance or a hazard.

D. Building Safety

Nothing in this SMP shall be deemed to prevent the strengthening or restoring to a safe condition of any non-conforming building or part thereof declared to be unsafe by order of any City official charged with protecting the public safety.

1. Alterations or expansion of a non-conforming structure, that are required by law or a public agency in order to comply with public health or safety regulations are the only alterations or expansions allowed.
2. Alterations or expansions permitted under this section shall be the minimum necessary to meet the public safety concerns.

E. Non-conforming Parking Lots

1. Nothing contained in this SMP shall be construed to require a change in any aspect of a structure or facility covered thereunder including, without limitation, parking lot layout, loading space requirements and curb-cuts, for any structure or facility which existed on the date of adoption of this SMP.
2. If a change of use takes place, or an addition is proposed, which requires an increase in the parking area by an increment less than 100%, the requirements of the SMP shall be complied with for the additional parking area.
3. If a change of use takes place, or an addition is proposed, which requires an increase in the parking area by an increment greater than 100%, the requirements of the SMP shall be complied with for the entire parking area.

F. Non-conforming Landscape Areas

1. Adoption of the vegetation protection and landscaping regulations contained in this SMP shall not be construed to require a change in the landscape improvements for any legal landscape area which existed on the date of adoption of this SMP, unless and until the property is redeveloped or alteration of the existing structure beyond the thresholds provided herein.
2. At such time as the property is redeveloped or the existing structure is altered beyond the thresholds provided herein and the associated premises does not comply with the vegetation protection and landscaping requirements of this SMP, a landscape plan which conforms to the requirements of this SMP shall be submitted to the Director for approval.

15. APPEALS

Any appeal of a decision by the City on a Shoreline Substantial Development Permit, Shoreline Conditional Use, Unclassified Use or Shoreline Variance must be appealed to the Shoreline Hearing Board.

16. ENFORCEMENT AND PENALTIES

16.1 Violations

The following actions shall be considered violations of the Master Program:

A. To use, construct or demolish any structure, or to conduct clearing, earth-moving, construction or other development not authorized under a Substantial Development Permit, Conditional Use Permit or Variance Permit, where such permit is required by the Master Program.

B. Any work which is not conducted in accordance with the plans, conditions, or other requirements in a permit approved pursuant to the Master Program, provided that the terms or conditions are stated in the permit or the approved plans.

C. To remove or deface any sign, notice, complaint or order required by or posted in accordance with the Master Program.

D. To misrepresent any material fact in any application, plans or other information submitted to obtain any shoreline use or development authorization.

E. To fail to comply with the requirements of the Master Program.

16.2 Enforcement

It shall be the duty of the Director to enforce the Master Program subject to the terms and conditions of TMC Chapter 8.45.

16.3 Inspection Access

A. For the purpose of inspection for compliance with the provisions of a permit or the Master Program, authorized representatives of the Director may enter all sites for which a Permit has been issued.

B. Upon completion of all requirements of a Permit, the applicant shall request a final inspection by contacting the planner of record. The permit process is complete upon final approval by the planner.

16.4 Penalties

A. Any violation of any provision of the SMP, or failure to comply with any of the requirements of the SMP shall be subject to the penalties prescribed in Chapter 8.45 of the Tukwila Municipal Code ("Enforcement") and shall be imposed pursuant to the procedures and conditions set forth in that chapter.

B. Penalties assessed for violations of the SMP shall be determined by TMC Chapter 8.45.100, Penalties.

C. It shall not be a defense to the prosecution for failure to obtain a Permit required by the Master Program, that a contractor, subcontractor, person with responsibility on the site, or person authorizing or directing the work, erroneously believed a permit had been issued to the property owner or any other person.

16.5 Remedial Measures Required

In addition to penalties provided in TMC Chapter 8.45, the Director may require any person conducting work in violation of the Master Program to mitigate the impacts of unauthorized work by carrying out remedial measures.

A. Remedial measures must conform to the policies and guidelines of the Master Program and the Shoreline Management Act.

B. The cost of any remedial measures necessary to correct violation(s) of the Master Program shall be borne by the property owner and/or applicant.

16.6 Injunctive Relief

A. Whenever the City has reasonable cause to believe that any person is violating or threatening to violate the Master Program or any rule or other provisions adopted or issued pursuant to the Master Program, it may either before or after the institution of any other action or proceeding authorized by this Ordinance, institute a civil action in the name of the City for injunctive relief to restrain the violation or threatened violation. Such action shall be brought in King County Superior Court.

B. The institution of an action for injunctive relief under this section shall not relieve any party to such proceedings from any civil or criminal penalty prescribed for violations of

the Master Program.

16.7 Abatement

Any use, structure, development or work that occurs in violation of the Master Program, or in violation of any lawful order or requirement of the Director pursuant to this Section, shall be deemed to be a public nuisance and may be abated in the manner provided by the Tukwila Municipal Code 8.45.105.

17. MASTER PROGRAM REVIEW AND AMENDMENTS

17.1. This Master Program shall be periodically reviewed and adjustments shall be made as are necessary to reflect changing local circumstances, new information or improved data, and changes in State statutes and regulations. This review process shall be consistent with WAC 173-26 and shall include a local citizen involvement effort and public hearing to obtain the views and comments of the public.

17.2 Any provision of this Master Program may be amended as provided for in RCW 90.58 and WAC 173-26 Amendments or revisions to the Master Program, as provided by law, do not become effective until approved by the Washington State Department of Ecology.

17.3 Proposals for shoreline environment re-designations (i.e. amendments to the shoreline maps and descriptions) must demonstrate consistency with the criteria set forth in WAC 173- 26-040 and this program.

18. LIABILITY

18.1. Liability for any adverse impacts or damages resulting from work performed in accordance with a Permit issued on behalf of the City within the City limits, shall be the sole responsibility of the owner of the site for which the Permit was issued.

18.2 No provision of or term used in the Master Program is intended to impose any duty upon the City or any of its officers or employees that would subject them to damages in a civil action.