

**2021 SHORELINE MASTER PROGRAM PERIODIC UPDATE
ISSUE: POTENTIAL SEA LEVEL RISE**

**DRAFT PROPOSED POLICY AND CODE REVISIONS
SHOWN AS RED UNDERLINE, ~~BLACK STRIKEOUT~~, PER SECTION EXCERPT
Explanations for changes are listed in *italic blue* before each change**

Date: October 13, 2020

New SMP Definitions:

100 Year Coastal Flood Elevation means the elevation in feet of the area which has a one percent chance or greater of being flooded in any given year.

100 Year Coastal Flood Hazard Area means an area which has a one percent chance or greater of being flooded in any given year.

Channel Migration Zone means an area in a floodplain where a stream or river channel can be expected to move naturally over time in response to gravity and topography.

Freeboard means the difference between the height of a shoreline armor structure and the water depth at the seaward toe of the structure.

1. Consultant Recommendation: Coastal High Hazard Designation for City’s Marine Shoreline

“It is recommended that all the City’s marine shoreline be designated a coastal high hazard area due to the frequency and spatial extent of coastal flooding, the abundance of nearshore fill, and the risk of tsunamis. Coastal flooding will increase in frequency over a relatively short period of time with additional implications associated with mass wasting, coastal roads, and other heavily utilized public areas. The mapping developed for this effort does not include flooding from stormwater. Recent research has documented the projected increase in the frequency of 100-year floods. In Seattle, with 1.6 feet of SLR the 10 percent 1 percent and 0.2 percent annual chance of floods are expected to recur 108, 335, and 814 times as often (Buchanan et al. 2017).

“According to (POMC) 20.170, “Coastal high hazard area” means an area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources”. Current and past flood mapping of the City of Port Orchard is largely mapped as A (or AE in the past (2010) mapping method), which does not qualify as a high coastal hazard area. Code language currently includes the V-zone for coastal high hazard areas, which is not mapped anywhere within the City, and is therefore irrelevant.

“The spatial extent of nearshore fill also contributes to the recommendation to consider all shores coastal high hazards areas in Port Orchard. Although there is not substantial wave energy in Sinclair

Inlet, shorter frequency waves can do considerable damage when sustained over longer duration, particularly in flooded areas.

“The threat of wave action from tsunamis contributes to the recommended coastal hazard status of the Port Orchard shoreline. According to the Washington Department of Geology and Earth Resources, much of the City of Port Orchard’s downtown shore is considered to be within areas mapped as having “High Liquefaction Susceptibility” due to the extent of nearshore fill (Figure 9). The Seattle-fault zone earthquake that occurred in 900-930 resulted in at least 9.8 feet (3 meters) of uplift near Gorst, located at the head of Sinclair Inlet (Arcos 2012). Tsunami and debris flow deposits in the salt marsh sediment at Gorst further document this historical occurrence of tsunamis from a large Seattle fault earthquake in Sinclair inlet. Arcos (2012) confirmed paleotsunami modeling of a Seattle fault earthquake by Koshimura et al. (2002). Model results showed that a tsunami wave measuring up to 13.1 feet (4 meters) in height would develop in Sinclair Inlet (Figure 10), which had some of the largest tsunami wave heights resulting from a Seattle fault earthquake in the Puget Sound region.”

Proposed Code Revision: POMC 20.170.110 – Flood Damage Prevention

(7) Coastal High Hazard Area: means Port Orchard’s marine shoreline, including: Sinclair Inlet and associated submerged lands and tidelands; shorelands extending landward for two hundred feet in all directions as measured on a horizontal plane from the ordinary high water mark of Sinclair Inlet; and the floodway and contiguous floodplain areas landward two hundred feet of such floodways associated with the tidal estuary portion of Blackjack Creek. ~~an area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources. The area is designated on the FIRM as Zone V1-30, VE or V.~~

2. Consultant Recommendation: Formally Adopt 2017 Flood Insurance Rate Mapping (FIRM)

“Coastal flooding in the City of Port Orchard is an existing problem that will continue to get worse with sea level rise. Existing flood regulations (POMC) 20.170.060 referenced “The Flood Insurance Study for the Kitsap County, Washington and Incorporated Areas,” dated November 4, 2010. The (POMC) adopts the Federal Emergency Management Agency 2010 and any revisions thereto. The new FIRM developed in 2017 is therefore technically adopted but the updated mapping should be explicitly referenced and related base flood elevations for added clarity.”

Proposed Code Revision: POMC 20.170.060 Basis for establishing the areas of special flood hazard.

The areas of special flood hazard identified by the National Flood Insurance Program (NFIP) ~~Federal Insurance Administration~~ in a scientific and engineering report entitled “The Flood Insurance Study for the Kitsap County, Washington and Incorporated Areas,” dated February 3, 2017 ~~November 4, 2010~~, and any revisions thereto, with accompanying flood insurance maps, is adopted by reference and declared to be a part of this chapter. ~~The best available information for flood hazard area identification as outlined in POMC 20.170.170 shall be the basis for new regulation until a new FIRM is issued that incorporates data utilized under POMC 20.170.170.~~ The most current NFIP flood insurance study and

flood insurance maps are is on file at the city clerk's office: 216 Prospect Street, Port Orchard, WA 98366.

(Also see proposed SMP-GP-20 and SMP-GP-21 below.)

3. Consultant Recommendation: Revise Coastal Flood Hazard Regulations

"Much of the current 100-year flood hazard areas intersect with areas with existing development and areas proposed for redevelopment. These primarily occur in Urban Conservancy and High Intensity shoreline environmental designations. Code revisions should address reducing known flood hazards, including the following:

"6.4 Flood Hazard Reduction. Removing, moving, elevating and building at new, higher elevations should augment the existing language in section 6.4 – Flood Hazard Reduction. Adding freeboard to existing shore armor, in areas that are frequently flooded landward of shore armor."

(1) Proposed Code Revision: SMP Section 6.4 Flood Hazard Reduction Management Policies

SMP-GP-14 Discourage future non-water-dependent development, including redevelopment and expansion of existing development, in areas lying at or below the 100 year coastal flood elevation, ~~flood-prone areas consistent with the City's flood damage prevention regulations (POMC Title 20).~~ unless flood hazard is reduced by removing, moving, elevating, and/or building structures at new, higher elevations. Flood hazard reduction may also include adding freeboard to existing shore armor in areas that are frequently flooded (i.e. within a 100-year coastal flood hazard area) landward of existing shore armor, in compliance with FEMA requirements for coastal flood protection structures.

SMP-GP-16 When feasible, give preference to nonstructural flood hazard reduction measures over structural measures, except that in areas that are frequently flooded (i.e. within a 100-year coastal flood hazard area) landward of existing shore armor, hazard reduction measures may include adding freeboard to existing shore armor.

SMP-GP-17 ~~Ensure~~ Intend to the greatest extent ~~means~~ feasible that flood hazard protection measures do not result in a net loss of ecological functions.

SMP-GP-18 The creation of new lots that would be located entirely within ~~a~~ the 100-year ~~floodplain~~ coastal flood hazard area should not be allowed ~~should be discouraged~~, consistent with SMP-SU-14 and the City's flood damage prevention and subdivision regulations (POMC Title 20).

SMP-GP-20 The City shall create and maintain for public reference and planning purposes a coastal flood hazard map which shows the City's base 100 year coastal flood elevation areas at the time of map creation, and includes a future projection of any additional areas which have at least a 50% probability of being flooded within 20 years. This map shall be based on best available science provided by the State of Washington and shall be updated, at minimum, with each required periodic and comprehensive update of the City's shoreline master program.

SMP-GP-21 For each required periodic and comprehensive update to the City’s shoreline master program, the City shall evaluate the program’s coastal flood hazard reduction policies and development regulations, and coastal flood hazard map, and shall revise them according to best available science provided by the State of Washington.

Development Regulations

G-DR-12 New or expanded development or uses in the shoreline zone, including the subdivision of land, that would require structural flood control works within a stream, a channel migration zone and/or a floodway are prohibited.

(2) Proposed Code Revision: Shoreline Master Program Appendix E

E. Redevelopment Within a Shoreline Buffer

1. Within a shoreline buffer, redevelopment of an existing non-water-dependent, legal conforming or nonconforming building or portion of such building, may be allowed subject to the following:
 - f. Redevelopment within a shoreline buffer is not allowed in areas of special flood hazards as established according to defined in POMC Section 20.170.060 ~~15.38.110~~, or in geologically hazardous areas as defined in POMC Section 20.162.044 ~~15.38.020~~.

4. Consultant Recommendation: Additions to Appendix E of the SMP (Mitigation and Restoration for Redevelopment Activities in the High Intensity Shoreline Environment Designation)

“Consider adding more of the pollution abatement functions of marine riparian areas (vegetation), particularly along paved parking lots adjacent to the marine shoreline.”

Proposed Code Revision: SMP Section 6.6 Shoreline Vegetation Conservation and Restoration

New Development Regulations:

G-DR-36 The City shall require, where feasible, restoration of native shoreline and aquatic vegetation in mitigation and restoration plans and stormwater management for redevelopment activities within the shoreline area.

G-DR-37 Redevelopment activities in the High Intensity (HI) shoreline environment designation shall comply with the shoreline vegetation conservation and restoration requirements of Appendix E of this plan, in addition to any other applicable City requirements and regulations.

5. Consultant Recommendation: “Consider evaluating all locations in which there are known contaminated sediments that are within coastal flooding areas and develop a long-term plan to address those in need of attention.”

Proposed Code Addition: SMP Chapter 6 General Policies and Regulations

6.4 Flood Hazard Reduction

Management Policies

SMP-GP-22 The City should map all shoreline locations in which there are known contaminated sediments, and develop a long-term plan to evaluate and address those in need of attention due to risk of mobilization due to coastal flooding.

Development Regulations

G-DR-13 As part of the City’s shoreline permit application review process, all proposed development and redevelopment activities in the City’s shoreline requiring a permit shall determine and disclose whether any sediment material on the development site, including fill, is contaminated and requires remediation to prevent spread of contamination through mobilization due to coastal flooding events. This requirement applies whether or not the contaminated area on the site will be disturbed as part of the development process. If contaminated sediment at risk of mobilization is determined to be present, the City shall require a remediation plan as a condition of shoreline permit approval. The City may require independent review at the applicant’s expense of findings and recommendations regarding contamination and remediation, by a hydrologist, geologist, engineer or other qualified professional.

6. Consultant Recommendation: “Create standards for sea level rise for the downtown waterfront redevelopment based on design lifetimes and offering leadership for other small coastal cities.”

Proposed Code Addition: SMP Chapter 6 General Policies and Regulations

(New Section) 6.7 Sea Level Rise and Coastal High Hazards.

Management Policies

SMP-GP-38 The City should create specific development and design standards for the downtown shoreline that address issues related to coastal high hazards and future sea level rise, including but not limited to: coastal flooding, earthquake liquefaction and tsunami risk, saltwater intrusion, mobilization of contaminated sediments, and impacts to geologic hazard areas.

Development Regulations

G-DR-39 During each periodic review of the City’s shoreline master program, the City will evaluate its development and design standards and revise them as needed for the downtown shoreline to protect against risks from sea level rise and coastal high hazards including but not limited to: coastal flooding, earthquake liquefaction and tsunami risk, saltwater intrusion, mobilization of contaminated sediments, and impacts to geologic hazard areas.