ANALYSIS AND DECISION OF THE DIRECTOR
OF THE SEATTLE DEPARTMENT OF CONSTRUCTION AND INSPECTIONS

SEPA Threshold Determination
for
Seattle Floodplain Development Regulations Amendments

Project Proponent: City of Seattle

BACKGROUND AND PROPOSAL

Proposal Summary

Seattle's floodplain regulations have been in place for several decades and vary by specific flood zone designations and the type of development proposed. Generally, the regulations require raising the first floor of a new building above the anticipated flood levels and require buildings to be engineered to withstand storm winds and excessive flooding.

In 2020, the Federal Emergency Management Agency (FEMA) issued new Flood Insurance Rate Maps (FIRM) and a Flood Insurance Study (FIS) for the City and also audited Seattle's floodplain regulations. Through the audit, FEMA identified several places in Seattle's code that needed to be amended in order to comply with the minimum standards in the Code of Federal Regulations (CFR) including NFIP regulations in Title 44 of the Code of Federal Regulations (CFR) 60.3 and to meet the state standards in RCW 86.16 and WAC 173-158.

In response, the City Council adopted interim Floodplain Development Regulations on July 20, 2020 as Ordinance 126113[1] and extended interim regulations six times through the following Ordinances: 1) Ordinance 126271 in January 2021,[2] effective February 22, 2021 through February 22, 2022; 2) Ordinance 126536 in February 2022,[3] effective February 18, 2022, through August 18, 2022; 3) Ordinance 126651 in August 2022,[4] which included amendments to Section 25.06.110 of the Seattle Municipal Code and effective August 17, 2022 through February 17, 2023; 4) Ordinance 126763 in February 2023,[5] effective February 15, 2023 through August 15, 2023; 5) Ordinance 126885 in August 2023,[6] effective August 15, 2023 through February 15, 2024; 6) Ordinance 126994 in February 2024,[7] effective February 13, 2024 through August 13, 2024. The seventh extension of the interim regulations is expected in August 2024 and has been introduced to the Seattle City Council as Council Bill 120808.

[1] http://clerk.seattle.gov/search/ordinances/126113.
[2] http://clerk.seattle.gov/search/ordinances/126271.
[3] http://clerk.seattle.gov/search/ordinances/126536.
[4] http://clerk.seattle.gov/search/ordinances/126651.
[5] http://clerk.seattle.gov/search/ordinances/126763.
[6] http://clerk.seattle.gov/search/ordinances/126885.
[7] http://clerk.seattle.gov/search/ordinances/126994.

The interim regulations and extensions were to provide additional time for SDCI to develop permanent regulations. The City adopted the interim regulations because there was not sufficient time to adopt permanent regulations before FEMA's deadline of August 2020. This legislative proposal encompasses the City's proposed permanent floodplain regulations.

For the purposes of this SEPA Checklist, the proposal includes the regulatory changes contained in the Interim Floodplain Development Regulations adopted in July 2020 (Seattle Municipal Code 25.06) and also additional development standards that require increased elevation of construction to 3-feet (compared to 2 feet under the interim regulations) to better account for sea level rise, and new standards for the storage of materials and equipment and standards for accessory structures in flood-prone areas. See draft legislation and see also Appendix C (FEMA Appendix Table).

Background

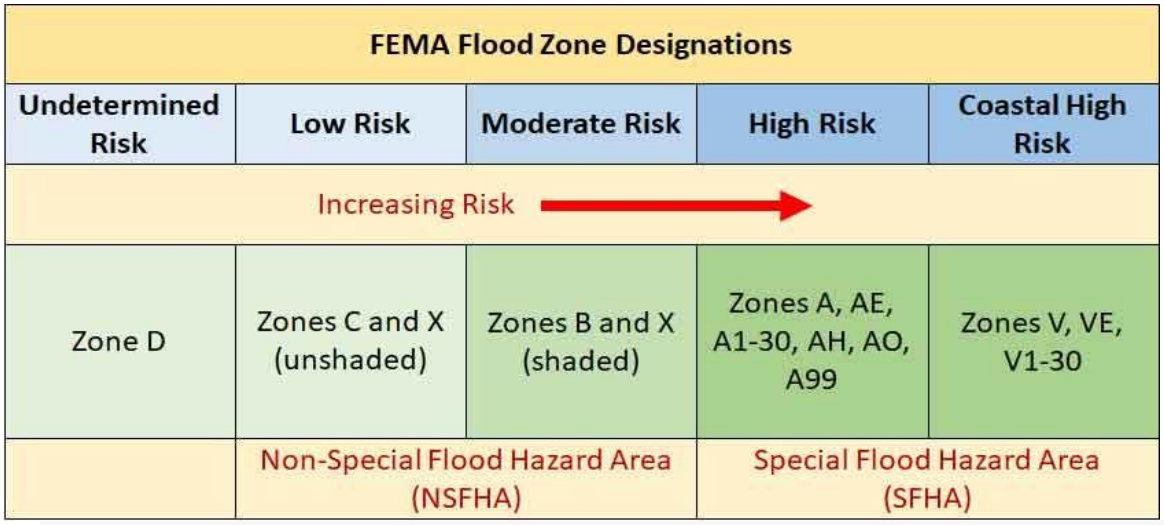
The federal government through the Federal Emergency Management Agency (FEMA) identifies and maps areas at risk of flooding, establishes development standards, and oversees implementation of the NFIP. Additionally, the federal government provides affordable insurance coverage and provides disaster response and recovery.

The state through the Department of Ecology (Ecology) is contracted by FEMA to help document floodplain management activities and establish state development codes. Ecology also provides technical assistance, provides disaster and mitigation assistance; and manages the hazard mitigation grant programs.

The local government through Seattle Department of Construction and Inspections (SDCI) is responsible for developing and implementing floodplain regulations including the review of permit applications and determining compliance of the regulations through issuing or denying permits. Additionally, SDCI is required to conduct inspections, take enforcement actions for noncompliance, coordinate map appeals and revisions, maintain floodplain maps and flood data, and disseminate floodplain management information.

FEMA Flood Zones

FEMA flood zones are geographic areas defined according to varying levels of flood risk. Each zone reflects the severity of type of flooding expected in an area. Each flood zone designation, represented by a letter, letters, or letters & numbers, indicates the risk of flooding anticipated over a period of time. Special Flood Hazard Areas (SFHAs) are considered the areas that are at the greatest risk of flooding; Non-Special Flood hazard Areas are the areas with the least risk of flooding. See below for an illustration of the range of FEMA flood zones.



ClimateCheck, 2024

General descriptions of Flood Zone, X, AE, AO and VE are provided below.

Flood Zone X is an area with a moderate or low risk of flooding, with a 1% or less chance of experiencing a flood in a given year. (Further details: "shaded X" areas have a flood risk between 0.2% and 1% chance in a given year, and "unshaded X" areas are lower than the 0.2% chance level).

Flood Zone AE is an SFHA designated as a high-risk flood zone because of its proximity to floodplains, rivers, lakes, and other bodies of water. Flood Zone AE areas have a 1% risk of flooding annually.

Flood Zone AO is an SFHA designated as a high-risk flood zone with a 1% risk of flooding annually. Flooding risk is associated with sheet-flow with average depth of one to three feet.

Flood Zone VE is a high-risk coastal SFHA with a 1% or greater chance of annual flooding, and an additional hazard associated with storm waves (where wave action and fast-moving water can cause damage during a base flood event).

Table 1 provides a general summary of the general characteristics of the primary FEMA zones in the city of Seattle.

Table 1
FEMA Zone Characteristics

	A and AE zones	VE zones	AO zones
Source of flooding	Riverine	Large, open bodies of water	Riverine sheet flow with depth 1'-3'
Relative hazard	High – waves greater than 3 feet in height	Highest hazard – high velocity waves 3 feet in height or greater	High, but waves and speed of water flow generally not an issue
Primary form of regulatory protection	Elevate lowest floor, allow floodwaters in flood damage resistant space below lowest floor (wet floodproofing) or construct watertight (dry floodproofing, non-residential only)	Elevate on pilings, allow high-velocity waves to flow unobstructed below structure Generally, prohibit new construction waterward of the reach of mean high tide*	Elevate lowest floor, allow floodwaters in flood damage resistant space below lowest floor (wet floodproofing) or construct watertight (dry floodproofing, non-residential only)
Floodway	Yes, development generally prohibited within floodway	no	no
Use of space below lowest floor	May only be used for storage, parking and building access	May only be used for storage, parking and building access; may be enclosed with lattice or breakaway walls	May only be used for storage, parking and building access

* Unless a variance is obtained. See discussion below related to variances.
Source: City of Seattle, 2024.
Not included in the table are flash flood areas, mudslides or similar areas not present within Seattle.

Regulatory Context

The National Flood Insurance Program (NFIP) is intended to: reduce the emphasis on flood control; increase emphasis on floodplain management; reduce federal disaster costs; shift burden from general taxpayers to floodplain occupants; provide insurance coverage not generally available on the private market; and promote sound floodplain management practices.

A local jurisdiction can participate in the NFIP if they adopt and enforce a floodplain management ordinance that meets or exceeds federal standards in Title 44 of the Code of Federal Standards (CFS) 60.3 and complies with State standards. The City of Seattle Department of Construction and Inspections (SDCI) is responsible for developing and implementing floodplain regulations including regulations to protect environmentally critical areas (ECAs), including flood-prone areas.

The Washington State Growth Management Act (GMA) requires local governments to manage growth by designating urban growth areas, preparing comprehensive plans, and adopting development regulations, including regulations to protect environmentally critical areas (ECA). One of these defined critical areas is "frequently flooded areas" also referred to as "flood-prone areas." Flood-prone areas are required to be identified and FEMA's minimum standards for SFHAs are also the minimum standards required for protection of flood-prone areas. Seattle's flood-prone areas designation includes the FEMA mapped areas and areas identified by Seattle Public Utilities as having risk of flooding.

In general, SDCI's Floodplain Development Regulations apply to any development on public or private property containing a FEMA SFHA zone designation or ECA flood-prone area. Development is any man-made changes to real property including but is not limited to buildings or other structures, dredging, filling, grading, excavation, paving and storage of equipment or materials.

Seattle's floodplain regulations have been in place for several decades and vary by specific flood zone designation and type of development proposal. See Figure 1 for a map illustrating the area affected by the Seattle floodplain regulations effective as of August 2020 to present (the "interim standards") and Figure 2 illustrating the FEMA mapping designation prior to the 2020 FEMA updates, also referred to as the 1995 FEMA maps. Generally, the pre-2020 regulations required raising the first floor of a new building above the anticipated flood levels and required buildings to be engineered to withstand excessive flooding. Since 1989, the Seattle floodplain regulation standard has required new construction to be elevated to be at least 2-feet above base-flood elevation (BFE).

As indicated in Table 2, within the city of Seattle, in the 1995 FEMA mapping there were approximately 1,927 parcels and 3,304 acres containing floodplains, and in the 2020 FEMA mapping there were approximately 2,207 parcels and 3,385 acres containing floodplains. This indicates that there has been an increase of 280 parcels and 351 acres of land and water included in the updated 2020 FEMA mapping.

Table 2
Area and Number of Parcels in the 1995 and in the 2020 FEMA Maps

	1995	2020	Difference between 1995 and 2020
Parcels #	1,927	2,207	280
Area acres	3,304	3,385	351

City of Seattle, 2024

Figure 1. Parcels Affected by New 2020 FEMA Designations

Source: City of Seattle, 2024.

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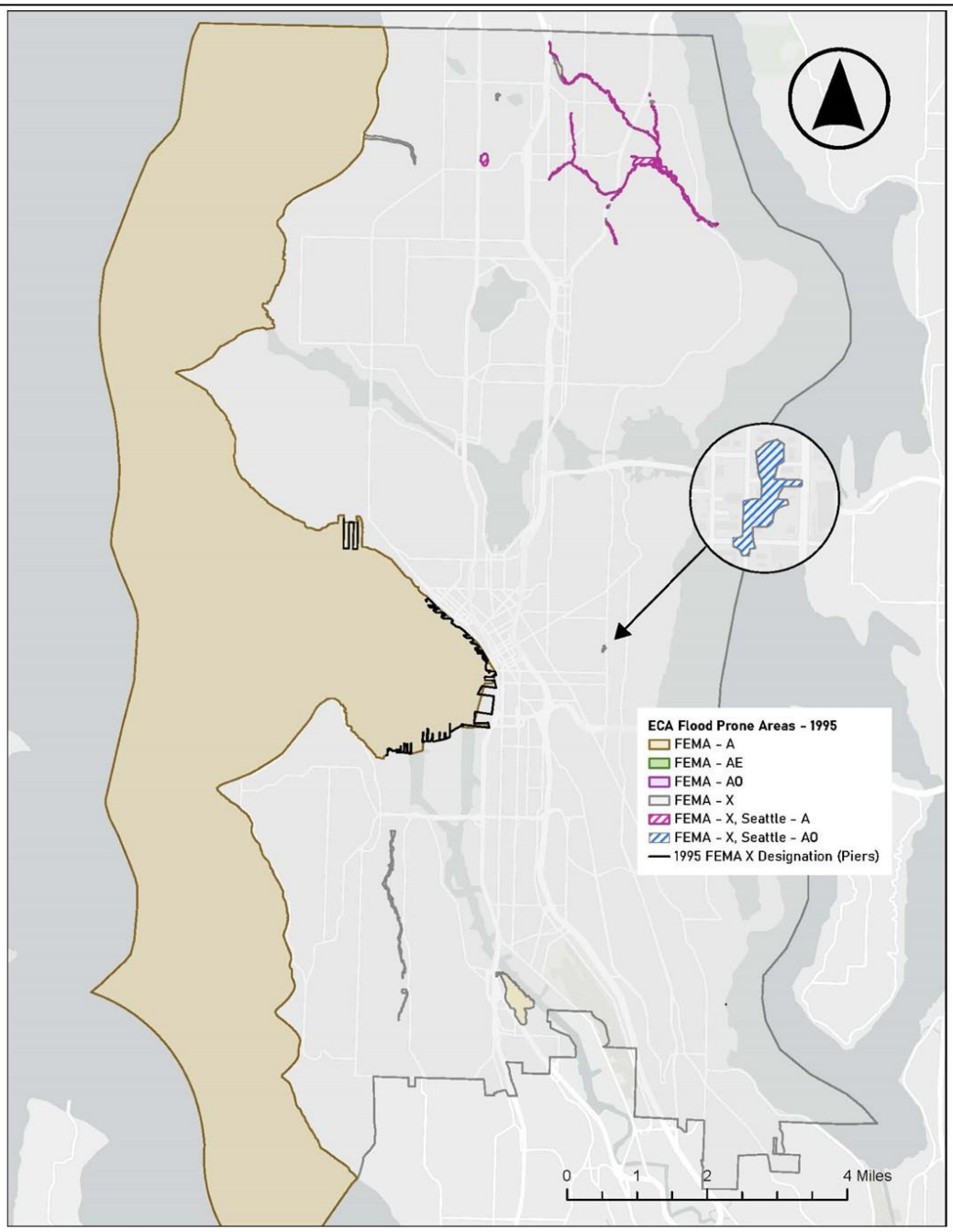

Figure 2. Map Illustrating the 1995 FEMA Mapping

Source: City of Seattle, 2024.

2020 FEMA Updates/Interim Seattle Floodplain Development Regulations

In February 2020, FEMA required an update to Seattle's Floodplain Development Regulations to reflect FEMA's new Flood Insurance Rate Map (FIRM) and new Flood Insurance Study (FIS). The updated FIRM map includes approximately 280 additional parcels. These new parcel designations are A Zone type or VE Zone[8], about half of which are industrial properties along the Duwamish Waterway and River that were not previously mapped by FEMA. Areas that were mapped to the FEMA Zone AE designation also include: Thornton Creek-North Branch, Thornton Creek-South Branch, Thornton Creek, Little Brook and Victory Creek (all in the Northgate and Magnuson Park area); Longfellow Creek in West Seattle; Pipers Creek in Carkeek Park; and the Shilshole Bay and Smith Cove marinas on Puget Sound.

The newly mapped FEMA VE Zone is the coastal high hazard flood zone and there is a requirement for corresponding regulations for this zone; FEMA zoned areas previously with X and AE designations were changed to VE. This new VE zone occurs in and adjacent to Elliott Bay and Puget Sound, both of which have a variety of port, maritime, industrial uses and residential uses. The VE zone also encompasses other parcels along Harbor Island in or near the Greater Duwamish Manufacturing and Industrial Center (MIC) that may be subject to future flooding events; see Figures 3, 3a and 3b for maps illustrating the updated 2020 FEMA mapping by parcel, Figures 4, 4a, and 4b for maps illustrating the area changed by FEMA from Zone X to A, Figures 5, 5a, 5b, 5c, and 5d for the area changed by FEMA from Zone X to VE, and Figures 6 and 6a for the area changed by FEMA from Zone A to VE.

In summary, the new FEMA FIRMs include:

- Mapping of floodplains on certain parcels not previously mapped as floodplains;
    - Changing the floodplain zone on certain parcels from X to an A zone;
    - Changing the floodplain zone on certain parcels from X to VE and,
    - Changing the floodplain zone on certain parcels from an A zone to VE.

As indicated in Table 3, the updated FIRM 2020 maps identify approximately 238 acres that have changed from X to an A Zone, 286 acres that have changed from X to VE, and approximately 1,839 acres that have changed from Zone A to VE. Additionally, Table 3 shows parcels numbers that have changed and include 1,084 parcels that have changed from X to As, 870 parcels that have changed from X to VE, and approximately 879 parcels that have changed from Zone A to VE. Table 4 shows the area and parcel number changes between 1995 and 2020 and separates the numbers further into area and parcels on land and in the water.

[8] *AE is a newer version of flood zone A that takes into consideration the base flood elevation (BFE).*

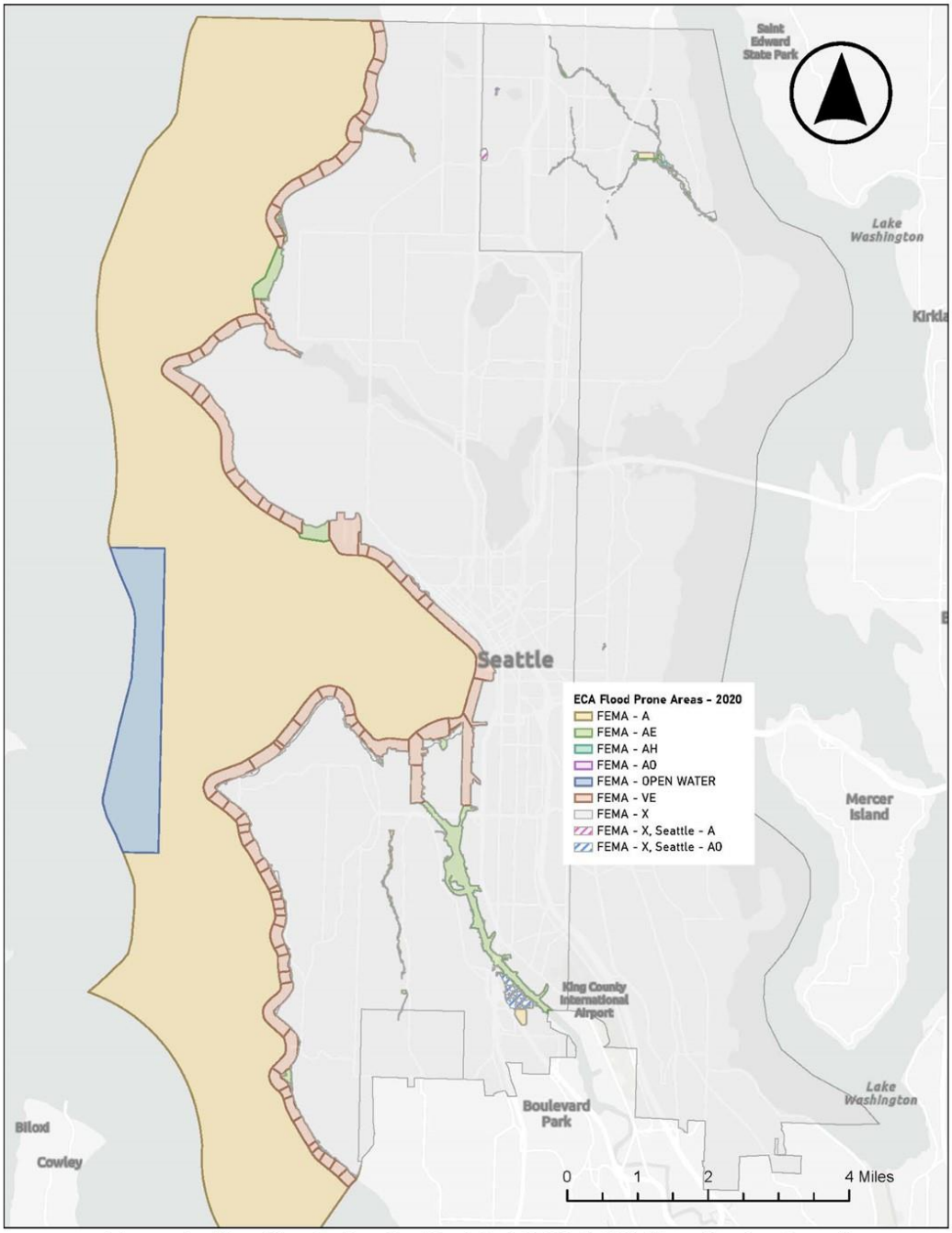

Figure 3. Map Illustrating the Updated 2020 FEMA Mapping by Parcel

Source: City of Seattle, 2024.

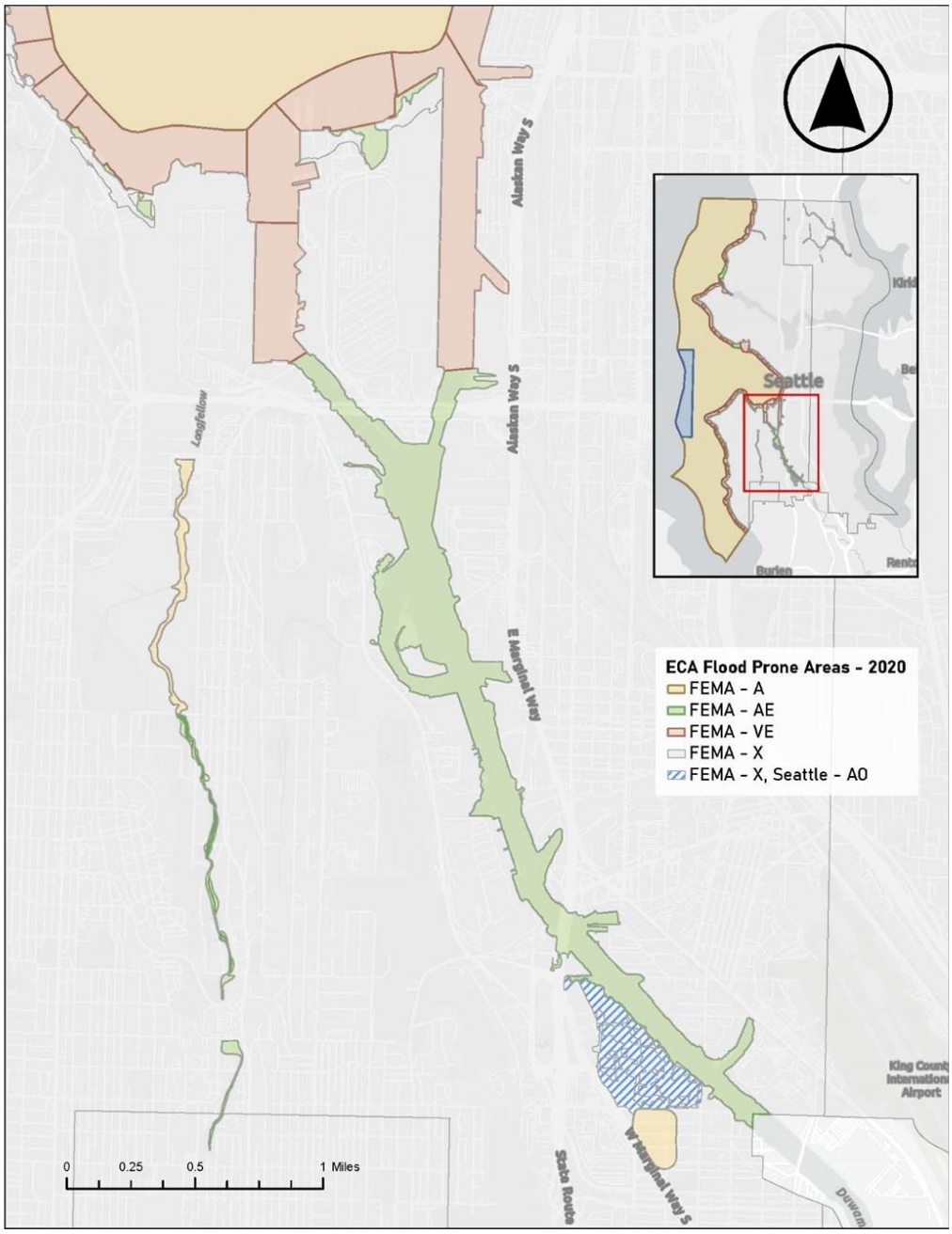

Figure 3a. Map Illustrating the Updated 2020 FEMA Mapping by Parcel—Duwamish Focus Area

Source: City of Seattle, 2024.

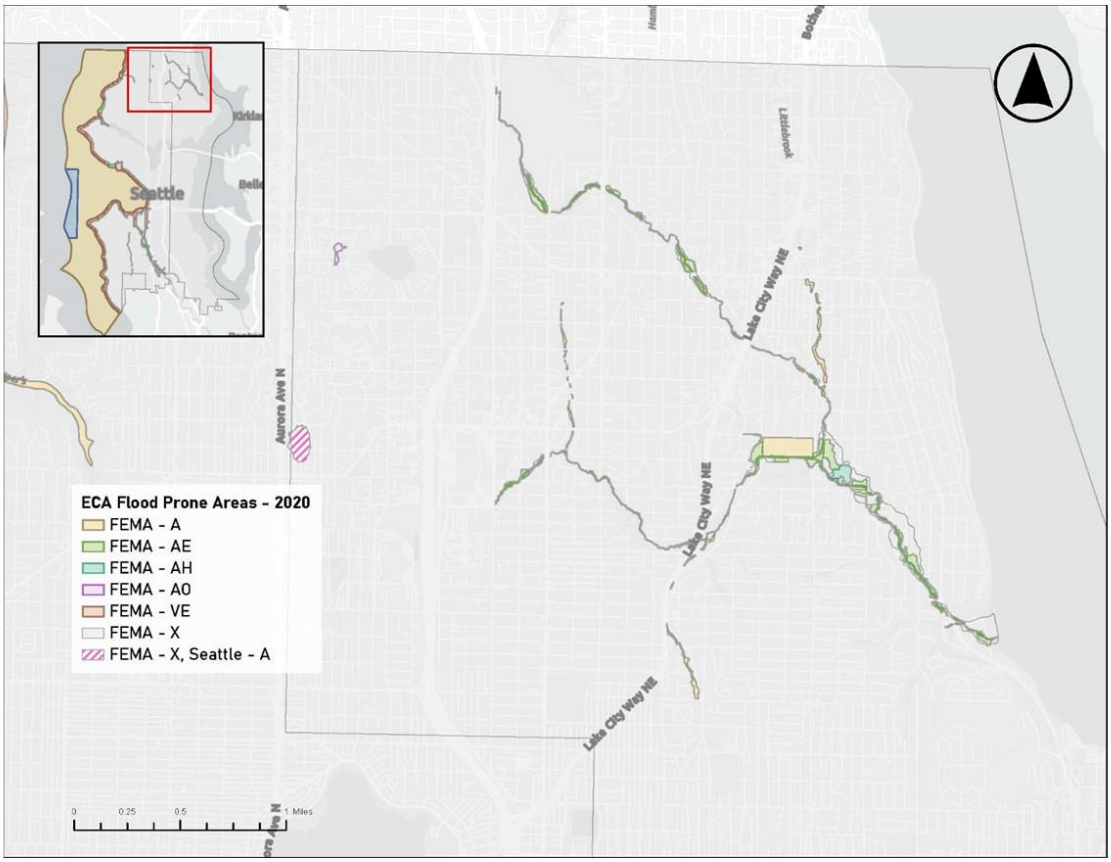

Figure 3b. Map Illustrating the Updated 2020 FEMA Mapping by Parcel—Thornton Creek Area

Source: City of Seattle, 2024.

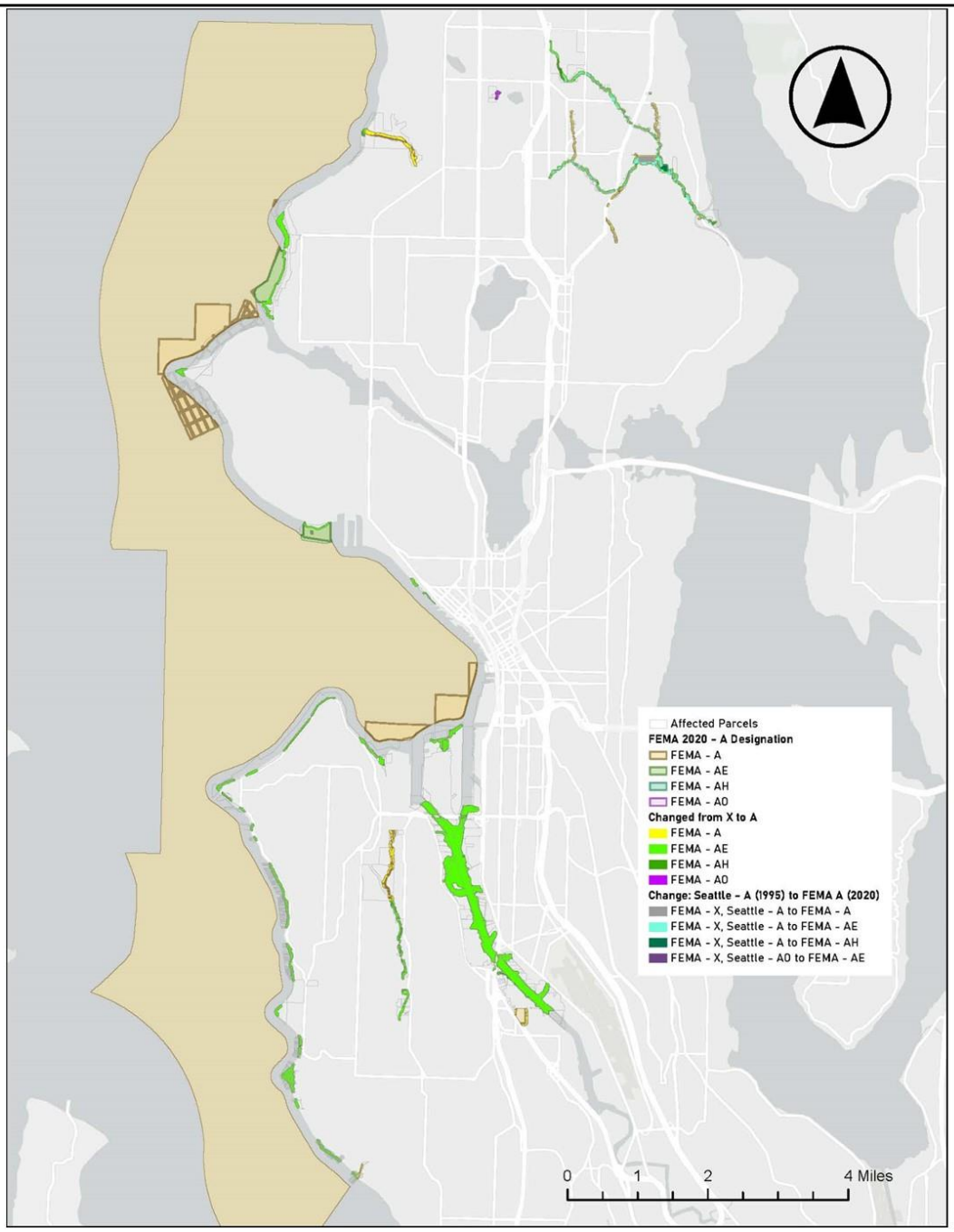

Figure 4. Map Illustrating the Update 2020 FEMA Mapping—Zones X to A

Source: City of Seattle, 2024.

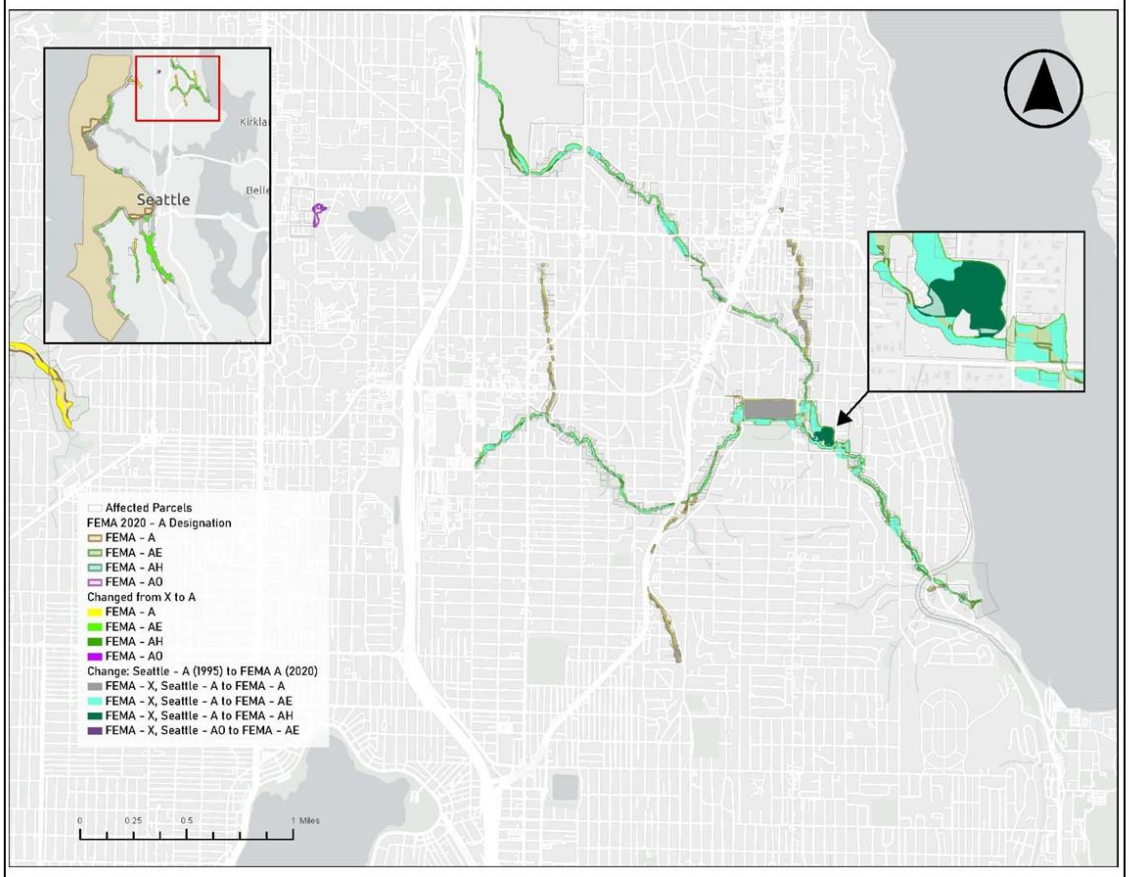

Figure 4a. Map Illustrating the Update 2020 FEMA Mapping—Zones X to A—Thornton Creek Focus Area

Source: City of Seattle, 2024.

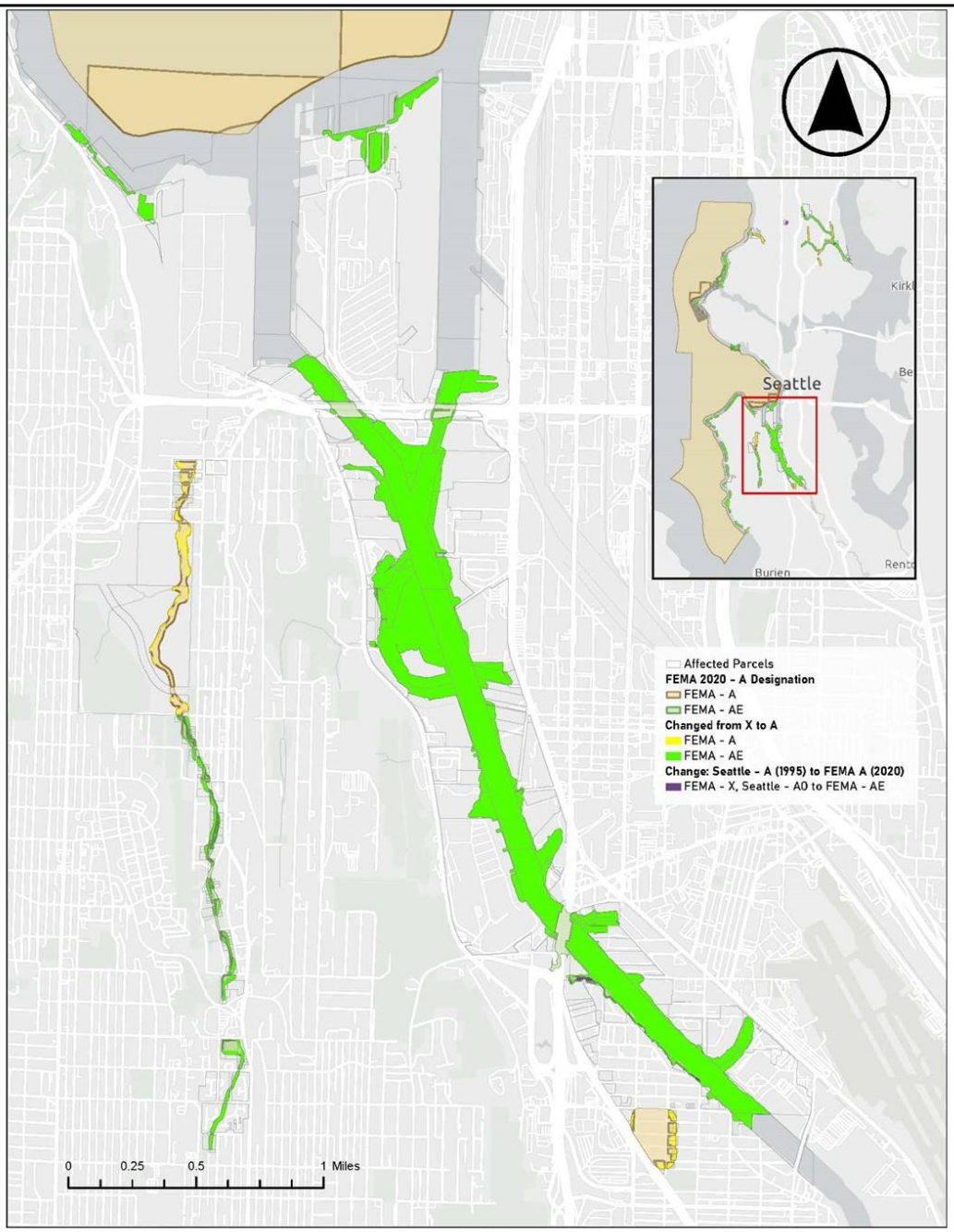

Figure 4b. Map Illustrating the Update 2020 FEMA Mapping—Zones X to A—Duwamish Focus Area

Source: City of Seattle, 2024.

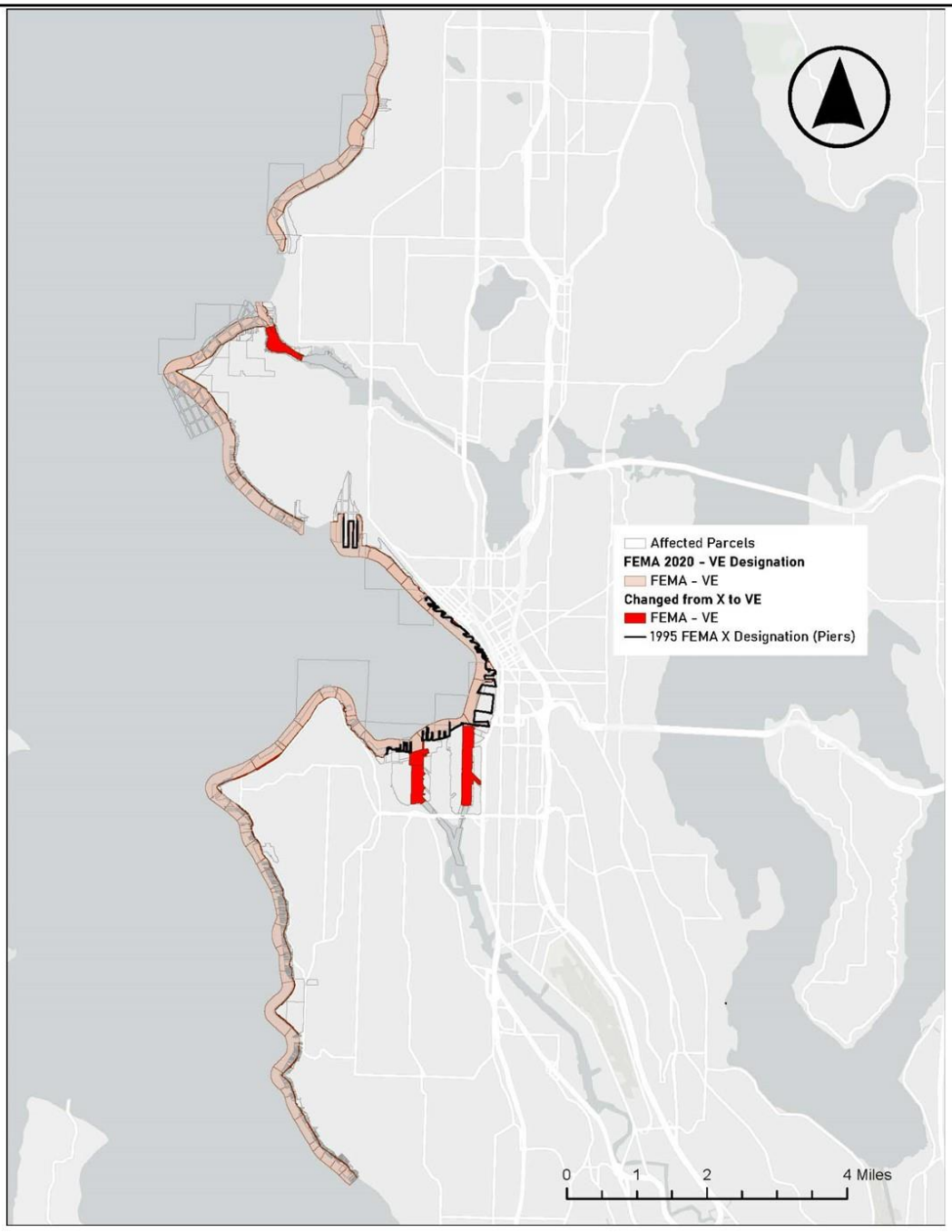

Figure 5. Map Illustrating the Updated 2020 FEMA Mapping—Zones X to VE

Source: City of Seattle, 2024.

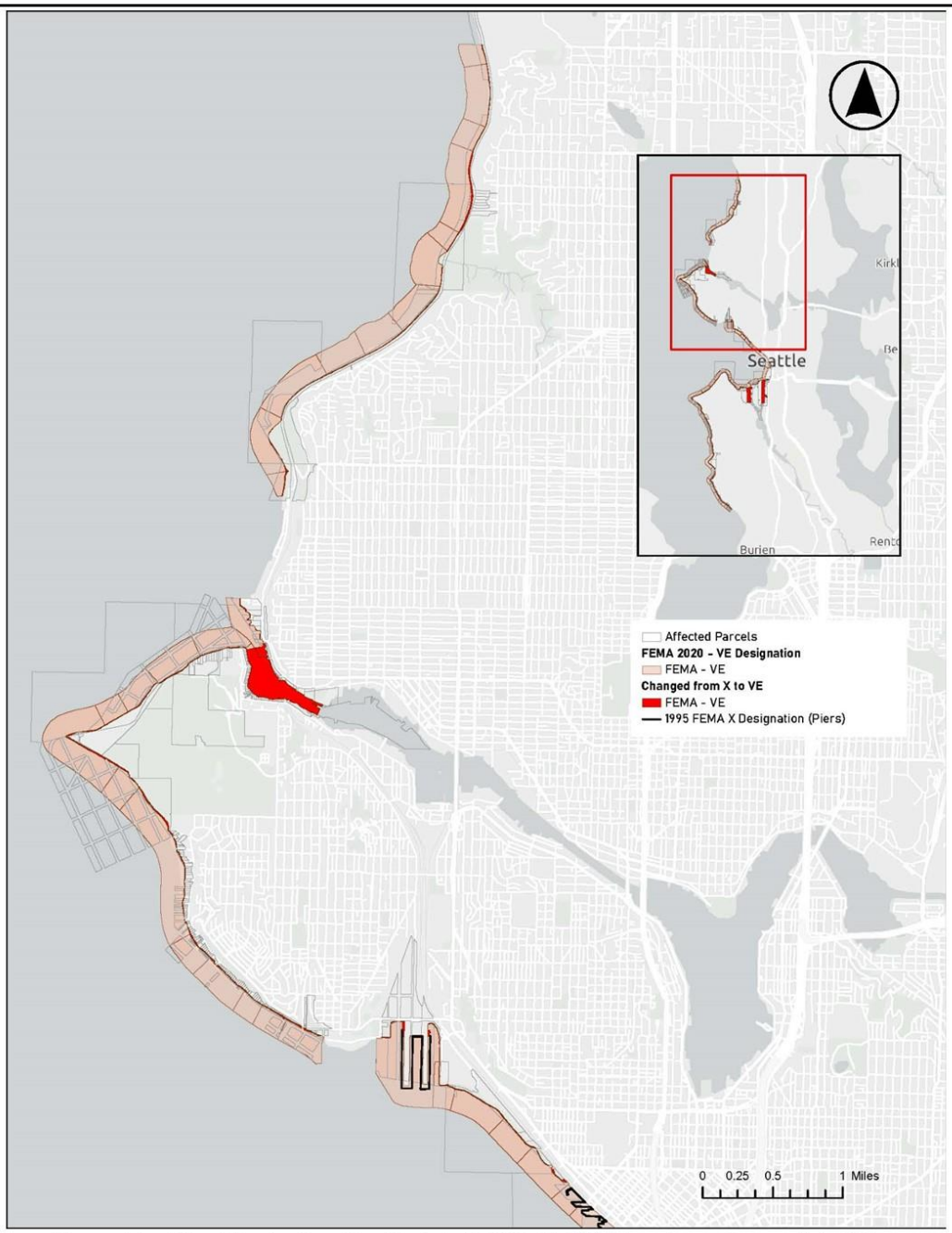

Figure 5a. Map Illustrating the Updated 2020 FEMA Mapping—Zones X to VE—Magnolia Focus Area

Source: City of Seattle, 2024.

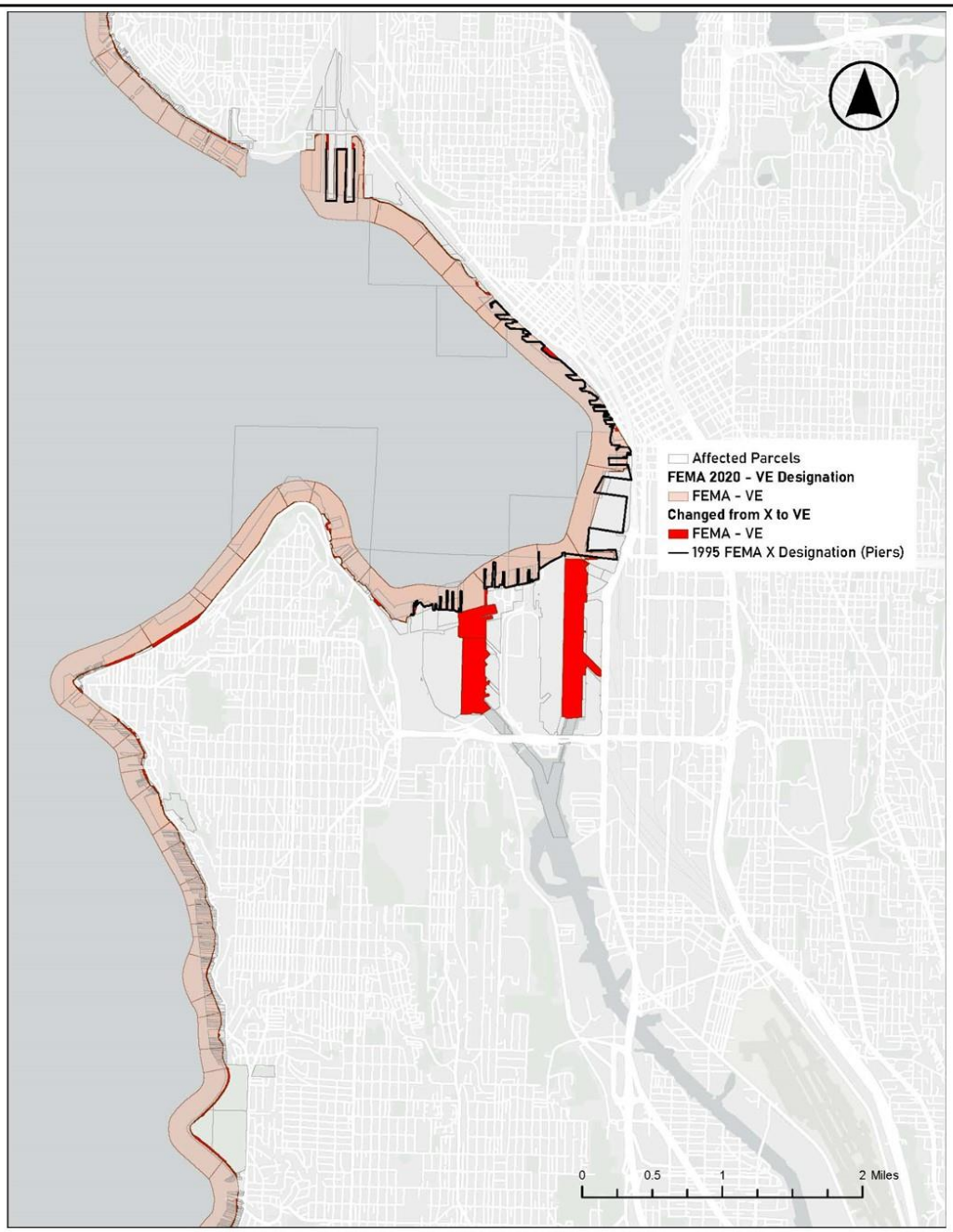

Figure 5b. Map Illustrating the Updated 2020 FEMA Mapping—Zones X to VE—Elliott Bay and Duwamish Focus Areas

Source: City of Seattle, 2024.

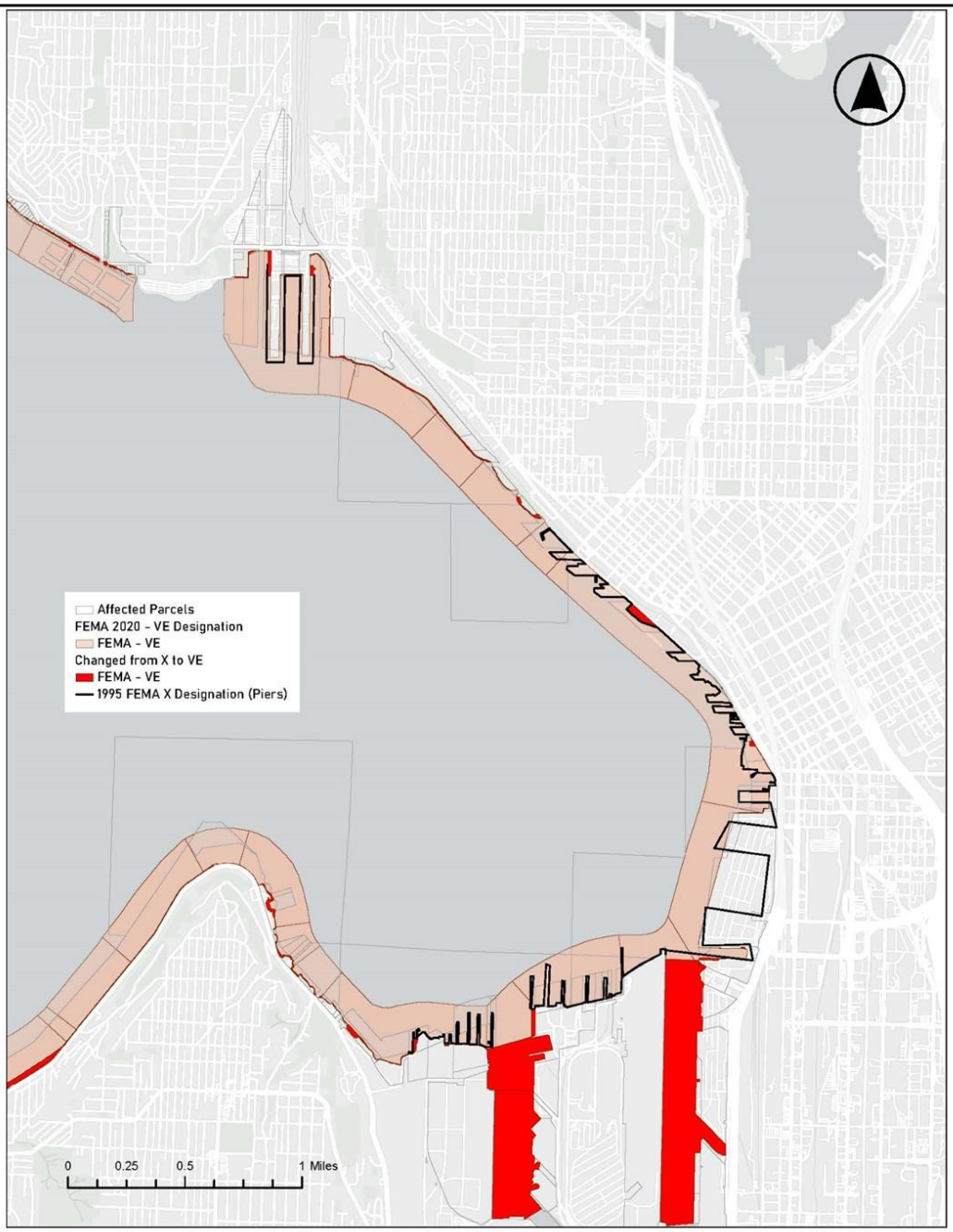

Figure 5c. Map Illustrating the Updated 2020 FEMA Mapping—Zones X to VE—Elliott Bay Piers

Source: City of Seattle, 2024.

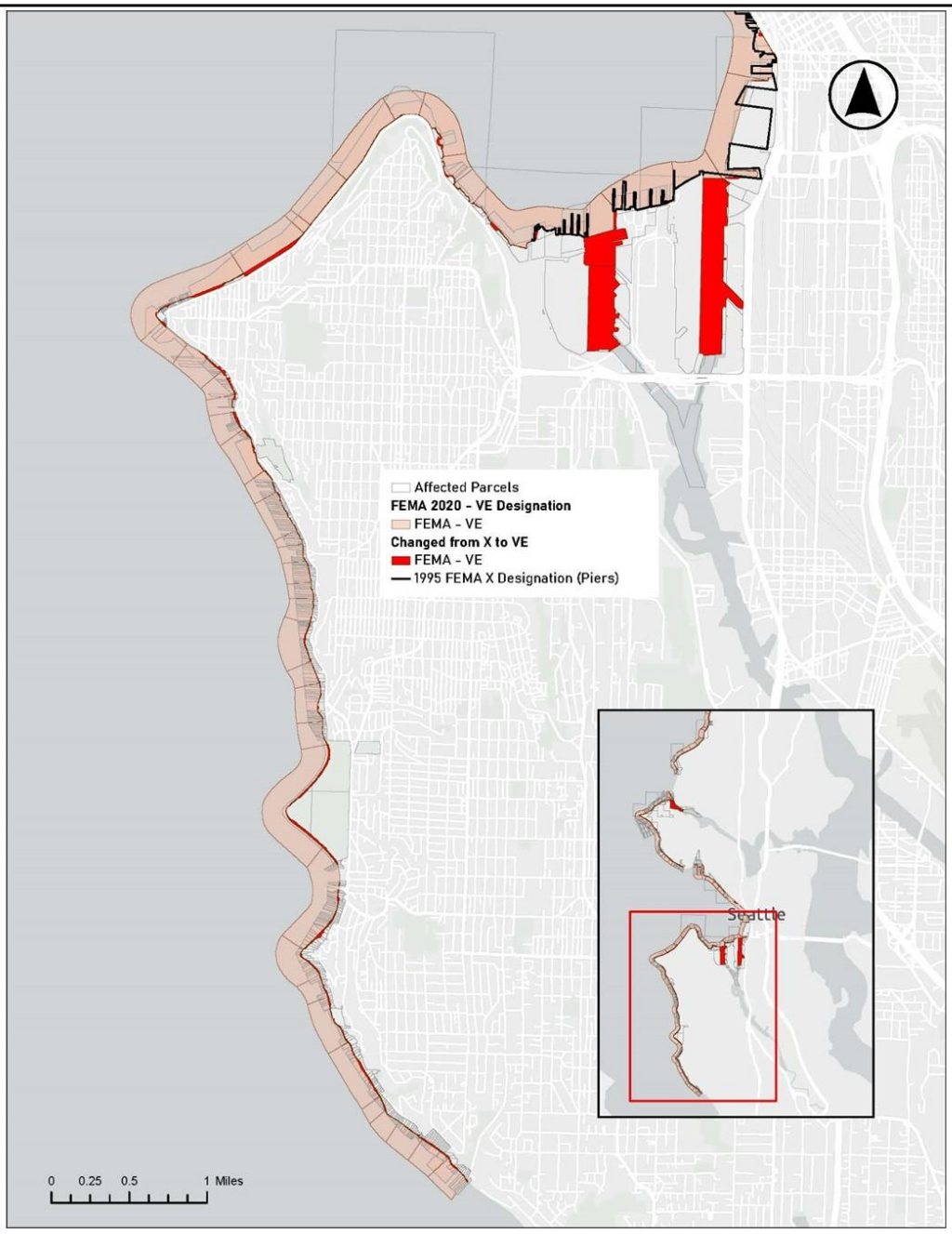

Figure 5d. Map Illustrating the Updated 2020 FEMA Mapping—Zones X to VE—West Seattle Focus Area

Source: City of Seattle, 2024.

Figure 6. Map Illustrating the Updated 2020 FEMA Mapping—Zones A to VE

Source: City of Seattle, 2024.

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Figure 6a. Map Illustrating the Updated 2020 FEMA Mapping—Zones A to VE—Elliott Bay and Duwamish Focus Areas

Source: City of Seattle, 2024.

Table 3
Change in Floodplain FEMA Floodplain Designation for Areas and Parcels between 1995 and 2020

	Areas Acres All	Number of Parcels All
X 1995 to As 2020	238.48	1,084
X 1995 to VE 2020	286.31	870
As 1995 to X 2020	55.74	718
As 1995 to VE 2020	1,839.77	879

City of Seattle 2024

Table 4
Change in Floodplain FEMA Floodplain Designation for Areas and Parcels between 1995 and 2020 on land and in the water

	Areas Acres On Land	Number of Parcels On Land	Areas Acres In-Water	Number of Parcels In-Water
X 1995 to As 2020	137.87	988	100.61	96
X 1995 to VE 2020	86.97	692	199.34	178
As 1995 to X 2020	46.20	676	9.54	42
As 1995 to VE 2020	.04	1	1,839.73	878

City of Seattle, 2024

FEMA's adoption of the new map and study also included an audit of Seattle's Floodplain Development Regulations, specifically Seattle Municipal Code (SMC) Chapter 25.06 – Flood Development. Through the audit, FEMA identified several places in the code that need to be amended in order to comply with minimum FEMA standards. The FEMA audit identified those updates to the floodplain development regulations required to be made to remain in compliance with the NFIP; without the updates, property owners in identified floodplains cannot purchase new flood insurance or renew an existing policy.

In order to meet FEMA's requirement, interim Floodplain Development Regulations (SMC 25.06) were adopted by the Seattle City Council on July 20, 2020 and took effect August 20, 2020. The interim Flood Development Regulations include amendments related to: new definitions and updates to existing definitions to meet minimum standards, updates to regulatory floodway development standards, and the inclusion of the newly mapped coastal high hazard flood zone (VE) and regulations for this zone.

The interim Floodplain Development Regulations will have been extended seven times so that Seattle remains in compliance with FEMA. Seattle is required to have permanent Floodplain Development regulations prior to the expiration of the 7th extension of the interim regulations; without permanent regulations, property owners in identified floodplains cannot purchase new

flood insurance or renew an existing policy. The interim regulations have been extended to allow for the drafting and adoption of the proposed permanent floodplain development regulations.

The Proposed Permanent Seattle Floodplain Development Regulations

As indicated, Seattle is required to have permanent Floodplain Development regulations prior to the expiration of the 7th extension of the interim regulations. In addition to incorporating the interim regulations, Seattle is considering additional requirements to account for sea level rise, including a one-foot increase in the elevation for construction above the base flood elevation than currently established under the pre-2020 regulations and the interim regulations in both the A and VE zones with an exception for substantial improvement on existing piers, which must be elevated to BFE.

The proposed permanent floodplain regulations would primarily be reflected in amendments to SMC 25.06 – Floodplain Development. The proposed permanent floodplain development regulations proposed by the Executive and analyzed in the SEPA checklist, is hereafter referred to as Alternative 2. Alternative 2 includes the standards contained in the interim Floodplain Development Regulations, referred to as Alternative 1, plus additional regulations. The additional regulations proposed under the Alternative 2 include:

- An increase in the elevation of construction to 3-feet above BFE (compared to 2 feet under Alt. 1/the interim regulations and the pre-2020 regulations) for new development to better account for sea level rise except for existing piers (substantial improvements on existing piers must only meet BFE); and

- New sections that include standards for the storage of materials and equipment in both the VE and A zone categories, and standards for accessory structures in the SFHAs, including A and V zones.

- Both Alternative 1 and 2 adopt the "The Flood Insurance Study (FIS) for King County, Washington and Incorporated Areas," dated August 19, 2020, and any revisions thereto, and the accompanying Flood Insurance Rate Maps (FIRMs), dated August 19, 2020, and any revisions thereto, that are hereby adopted by reference and declared to be a part of this Chapter 25.06.

As has been the case since 1989, the City of Seattle is responsible for reviewing permit applications and determining compliance with floodplain development regulations; this will continue under either alternative 1 or 2 (proposed permanent regulations). Where no other permit or authorization from the City is necessary, the approval is documented by issuance of a floodplain development permit. For proposed development where some other permit or authorization is required (i.e., Master Use Permit, Building Permit, etc.) the floodplain development approval is incorporated into the other permit or authorization.

In general, an application for development on a site within an identified SFHA that is considered new or a substantial improvement (which is an improvement with a cost that equals or exceeds 50 percent of the value of the structure – including the cost of a pier structure if the improvement is on a pier) is required to adhere to floodplain development regulations, including elevation and location standards.

Both Alternative 1 (interim regulations) and Alternative 2 (proposed permanent regulations) include a permit process to allow applicants to seek a variance from the regulations, including a variance from meeting the required elevation standards. The variance provision comes from 44 CFR 60.6. The proposed permanent regulations indicate that the long-term goal of preventing and reducing flood loss and damage can only be met if floodplain variances are strictly limited. Therefore, the floodplain variance guidelines are detailed and contain multiple provisions that must be met before a floodplain variance can be granted. The criteria are designed to screen out those situations in which alternatives other than a floodplain variance are more appropriate.

An example of the types of variances that may be issued include:

1. Historic Structures – Variances could be issued for the repair, rehabilitation or restoration of historic structures, and the floodplain variance is the minimum necessary to preserve the historic character: and,

2. Functionally Dependent Uses – Floodplain variances may be issued for new and substantial improvement and other development for the conduct of a functionally dependent use (i.e. a use that cannot perform its intended purpose unless it is located or carried out in close proximity to water).

General requirements for floodplain variances include:

1. Floodplain variances shall not be issued within any floodway if any increase in flood levels during the base flood would result;

2. Variances shall only be issued upon a determination that the floodplain variance is the minimum necessary, considering the flood hazard, to afford relief; and,

3. Variances shall only be issued upon a showing of: good and sufficient cause; determination that failure to grant the floodplain variance would result in exceptional hardship to the applicant; and, the variance will not result in an increased flood height, additional threats to public safety, extraordinary public expense, or conflict with existing laws.

Alternatives Evaluated

This SEPA Checklist evaluates two floodplain regulation action alternatives to allow comparison of amendments to City of Seattle floodplain development regulations, including: **Alternative 1** which reflects the minimum changes to the pre-August 2020 floodplain development regulations needed to meet the new FEMA mapping, and development standards required by FEMA located in 44 CFR 60.3 (i.e., the existing Interim Regulations); and, **Alternative 2** which largely includes the actions under Alternative 1 plus amendments to provide further flood hazard protection and to conform to the City's obligations under the Growth Management Act. Flood-prone areas are required to be identified under the GMA and have the minimum standards that FEMA requires for special flood hazard areas. The regulations to protect flood-prone areas can and are encouraged to include impacts from sea-level rise, impacts of tsunamis, wave-run up, surface run-off, and future flow conditions. Seattle's flood-prone areas include the FEMA

mapped areas and other areas identified by Seattle Public Utilities as having a risk of flooding based on known flooding in these identified areas. Both Alternative 1 and 2 would involve adoption of the updated FEMA maps.

These alternatives are intended to be "bookends" covering the range of possible approaches that could be embodied in Seattle's adopted revisions. A **No Action** alternative that reflects the pre-August 2020 Floodplain Regulations is also a basis of comparison.

It should be noted that meeting the elevation standard above Base Flood Elevation (BFE) would be triggered when proposed new construction or an improvement to an existing development would meet the definition of substantial improvement (unless a variance is granted for an improvement project). Substantial improvement is defined as "reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the value of the structure before the start of construction."[9]

The alternatives evaluated in this SEPA Checklist are detailed as follows:

- **Alternative 1 – Minimum Amendments to the pre-August 2020 Floodplain Regulations (Interim Regulations) –** Alternative 1 reflects the minimum amendments required to meet FEMA 2020 FIRM and 44 CFR 60.3 and includes the mapping of floodplains on certain parcels not previously mapped as floodplains; X to A and X to VE, and the changing of the floodplain zone designation on certain parcels from A to VE. The interim regulations provided in SMC Chapter 25.06 also include amendments related to new definitions and updates to previous definitions to meet minimum standards, updates to regulatory floodway development standards, and inclusion of the newly mapped coastal high hazard flood zone (VE) and regulations for this zone. They also include a BFE + 2 ft requirement in the Special Flood Hazard Areas (SFHA), as was present in the floodplain regulations prior to August 2020.

- **Alternative 2 –Alternative 1 Amendments with Additional Recommended and FEMA-Optional Regulations** – Alternative 2 includes all the updates and amendments associated with Alternative 1 along with additional regulations to better account for sea level rise, and additional standards for storage and accessory structures.

- **No Action Alternative – Floodplain Regulations prior to the August 2020 Interim regulations –** These included a BFE + 2 ft requirement in the Special Flood Hazard Areas (SFHA).

See Table 5 for a comparison between the no action alternative and Alternatives 1 and 2 for the changes in flood zone categories.

[9] The term substantial improvement does not include either: improvement of a structure to correct previously identified existing violations of state or local health or safety code, or alteration of the historic structure that does not preclude the structures continued designation as an historic structure.

Table 5
Description of the No Action, Alternative 1 and Alternative 2 requirements for flood zone category changes per location

Locations	**No Action Alternative** = requirements from the pre-August 2020 Floodplain Regulations	**Alternative 1** = requirements from the interim Floodplain Regulations	**Alternative 2** = requirements from the interim Floodplain Regulations with additional flood protection requirements
Duwamish River South end of the East and West Duwamish Waterways and the Duwamish River Changed from X to AE Flood Zone	No requirements because this area was not a Special Flood Hazard Area	A/AE floodplain regulation standards apply to this area. **A Zone** New development, expansion of existing development and SI BFE +2 = FFE requirement	A/AE floodplain regulation standards appl to this area. **A Zone** New development, expansion of existing development BFE +3 = FFE requirement SI BFE = FFE requirement
Duwamish River north end of the East and West Duwamish Waterway Changed from X to VE Flood Zone	No requirements because this area was not a Special Flood Hazard Area	**VE Zone** New development and/or expansion of existing development overwater not allowed. If proposed the following applies **Elevation** = BFE +2 measured from LHSM **Location** overwater would need a variance SI on existing overwater pier **Elevation** = BFE +2 measured from LHSM **Location** overwater would need a variance	**VE Zone** New development and/or expansion of existing development overwater not allowed. If proposed the following applies **Elevation** = BFE +3 measured from LHSM **Location** overwater would need a variance SI on existing overwater pier **Elevation** = BFE measured from LHSM **Location** overwater would need a variance
Elliott Bay, Shilshole Bay and Puget Sound Change from A to VE	**A standards apply including** **Elevation** = BFE +2 measured from the FFE **Location** = no restrictions	**VE Zone** New development and/or expansion of existing development overwater not allowed. If proposed the following applies **Elevation** = BFE +2 measured from LHSM **Location** overwater would need a variance	**VE Zone** New development and/or expansion of existing development overwater not allowed. If proposed the following applies **Elevation** = BFE +3 measured from LHSM **Location** overwater would need a variance

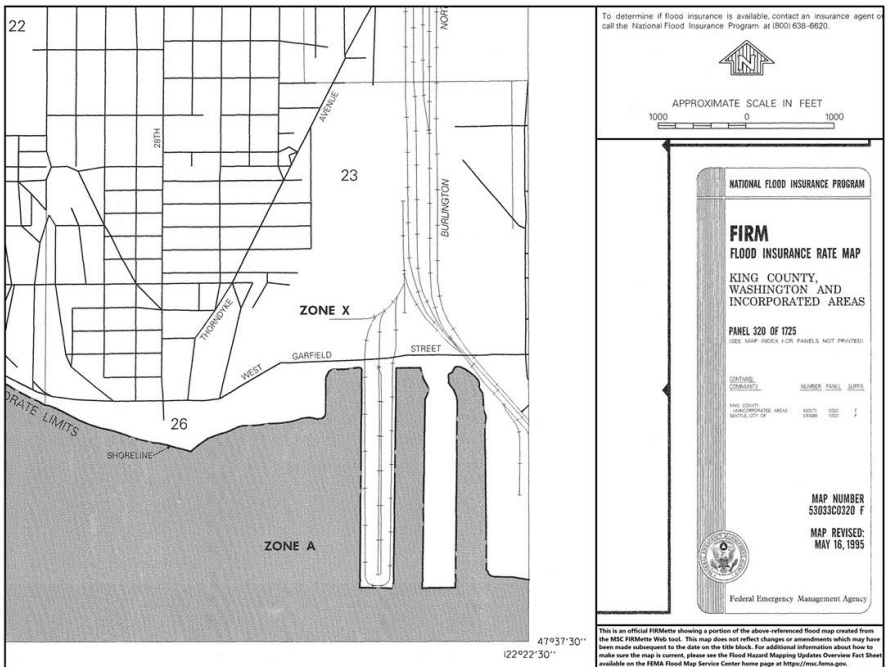
Locations	**No Action Alternative** = requirements from the pre-August 2020 Floodplain Regulations	**Alternative 1** = requirements from the interim Floodplain Regulations	**Alternative 2** = requirements from the interim Floodplain Regulations with additional flood protection requirements
		SI on existing overwater pier **Elevation** = BFE +2 measured from LHSM **Location** overwater would need a variance	SI on existing overwater pier **Elevation** = BFE measured from LHSM **Location** overwater would need a variance
Elliott Bay Terminal 91 to Terminal 46 Change from X Zone to VE Zone for pier areas on overwater piers to VE Zone	Piers overwater = No requirements because this area was not a Special Flood Hazard Area	**VE Zone** New development and/or expansion of existing development overwater not allowed. If proposed the following applies **Elevation** = BFE +2 measured from LHSM **Location** overwater would need a variance SI on existing overwater pier **Elevation** = BFE +2 measured from LHSM **Location** overwater would need a variance	**VE Zone** New development and/or expansion of existing development overwater not allowed. If proposed the following applies **Elevation** = BFE +3 measured from LHSM **Location** overwater would need a variance SI on existing overwater pier **Elevation** = BFE measured from LHSM **Location** overwater would need a variance
Streams and Floodways	**A Zone** New development, expansion of existing development and SI **Elevation** = BFE +2 measured from the FFE **Location** = no development in floodways.	**A Zone** New development, expansion of existing development and SI **Elevation** = BFE +2 measured from the FFE **Location** = no development in floodways.	**A Zone** New development, expansion of existing development and SI **Elevation** = BFE +3 measured from the FFE **Location** = development in floodways may be allowed if Ecology reviews the application and determines the replacement to be safe.

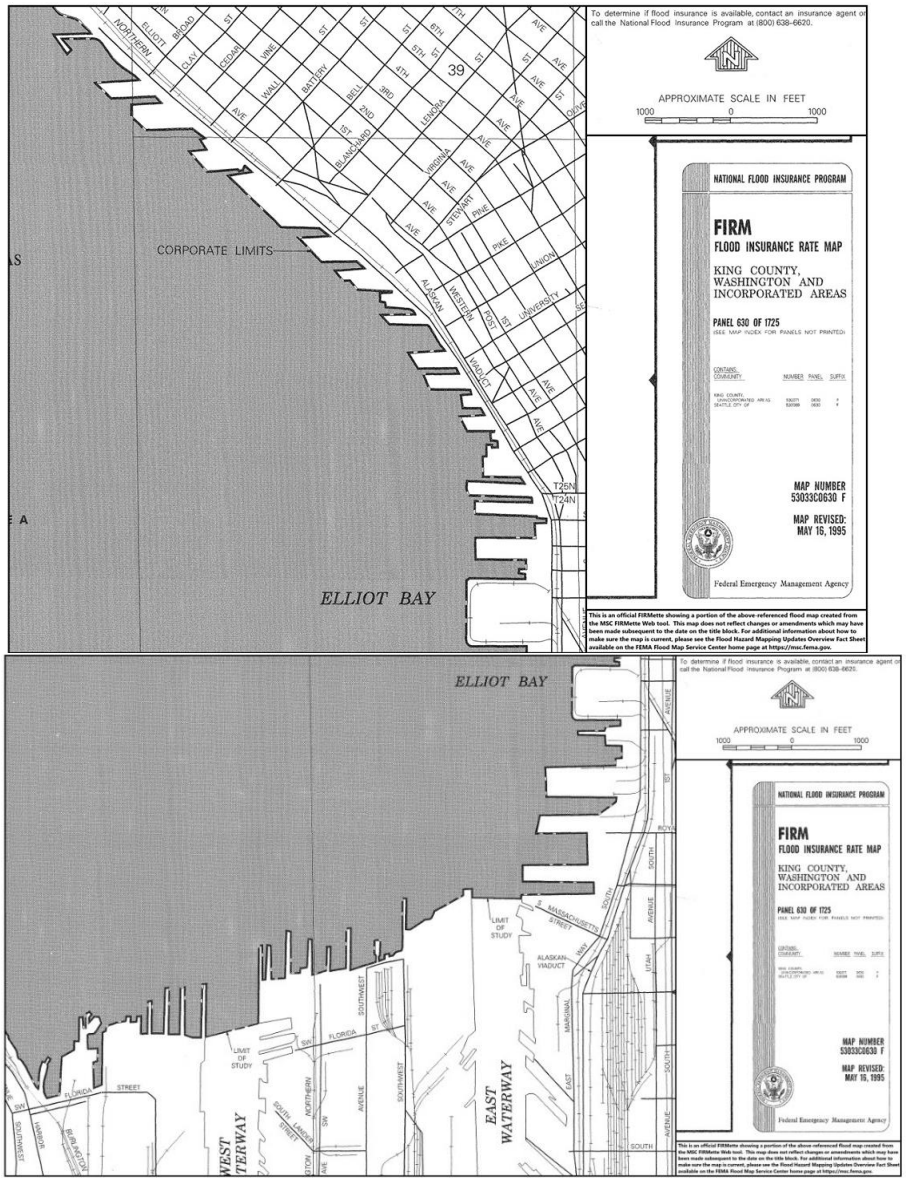
BFE - Base flood elevation
FFE – First floor elevation
LHSM – Lowest horizontal structural member
SI – Substantial improvement

If the City takes no action to adopt the new FEMA maps and development standards, the City will no longer be eligible to participate in the National Flood Insurance Program and property owners in the City of Seattle would not be eligible to purchase flood insurance or obtain

federally backed mortgages. There would also be an increased risk of flood damage in the VE and A zones without more stringent standards for development in these flood-prone areas.

It should be noted that until the interim regulations took effect in August 2020, the prior mapping and designations only defined an A zone to the edges of the piers along Elliott Bay (among other places), while locations within the area of the piers were in unregulated "X" zones. The 1995 FIRM map panels 320F and 630F, included below, show this relationship for the pier from T91 (north edge of Elliott Bay) around to T5 (West Seattle edge of Elliott Bay near Harbor Avenue SW). This means that the more recent FEMA designation changes brought more regulatory restrictions with intended greater levels of protection against damage from flood hazards to the Port of Seattle's and others' piers in this part of Elliott Bay.





The overall assumptions under the Alternatives are summarized in Table 6 and include: **1)** approximate number of over-water parcels (on-piers); **2)** VE standard for elevation above BFE; **3)** A/AE elevation above BFE and, **4)** allowance for residential structure replacement.

Table 6
Comparison of SEPA Alternatives

	No Action: Pre-2020 Regulations Pre-2020 FEMA Maps	Alternative 1: Interim Regs and 2020 FEMA Maps	Alternative 2: Interim Regs + Add'l standards and 2020 FEMA Maps
Number of affected over-water parcels (e.g., those that have existing piers with buildings on them)	53	53	53
VE Zone Bottom of Lowest Horizontal Structural Member Elevation above Base Flood Elevation (BFE)	2 feet	2 feet	3 feet
A/AE Zone Finished Floor Elevation above Base Flood Elevation (BFE)	2 feet	2 feet	3 feet
Allowance for Residential Structure Replacement (only with Ecology Approval)	Yes	Yes	Yes

Source: KPFF, 2024

Three hypothetical sites are studied to examine distinctions between Alt. 1 and 2:

In order to better understand the possible environmental and built environment impacts of the proposed legislation, the City prepared and analyzed how the legislative proposal may play out for future development/redevelopment on three example sites.

These illustrate how hypothetical future development scenarios could be affected under the SEPA Alternatives; including a programmatic-level interpretation of the potential environmental impacts that might occur due to the proposed code amendments. The three example sites are Pier 90/91, Pier 67, and Pier 56 (see Figure 7 for a map illustrating the locations of the three example sites).

- Pier 90/91- The Pier 90/91 site is owned and operated by the Port of Seattle, is located along the northern shoreline of Elliott Bay, and represents the majority of the waterfront portion of Terminal 91 (see Figure 8). The example site is a U-shaped wharf with Pier 91 on the west and Pier 90 on the east. This site structure consists of both older timber wharf and pre-cast concrete wharf; a portion of this site is over-water, although an appreciable area is located over upland fill material rather than water (see Figure 13, approximate locations of fill shown, hatched pattern). Mapping included with a "letter of map revision" [LOMR] dated 12-1-2023 shows surveyed areas relevant to the LOMR that are over fill area at Pier 90 and 91. This LOMR documents a determination from FEMA that removes this area over fill from the SFHA/VE Zone. The Pier 90/91 site contains berths, maritime industrial uses, and cruise ship terminal (seasonal); see Figure 8 for the Pier 90/91 site.

As illustrated on Figures 5 and 5a, the FEMA 2020 FIRM changed the flood zone of Piers 90 and 91 from X to VE and the LOMR changed the portion of the area that was identified by the associated survey as underlain by fill from VE back to X.

- **Pier 67** – This site is located on the Elliott Bay shoreline in downtown Seattle and consists of overwater pier area (see Figure 9). Pier 67, renamed from Galbraith-Bacon Pier, Wall Street Pier, or Vine Street Pier in World War II, is the site of The Edgewater Hotel. Early in 1962, the 530-foot-long Galbraith Bacon dock and its neighbor to the north, the 200-foot Booth Fisheries pier (Pier 68), were demolished for the construction of the inn on the newly reconstructed Pier 67, which opened in the spirit of, if not in time for, the opening of Seattle's Century 21 World's Fair. The Edgewater Hotel has occupied Pier 67 since 1962. Currently, in addition to the four-story, 223-room Edgewater Hotel, the Six Seven Restaurant and The Brim Coffee House are all located on Pier 67. The hotel has hosted numerous celebrities over the years, most famously the Beatles who came to Seattle in 1964 during the height of Beatlemania.

  As illustrated in the Figure 5 series maps, specifically Figure 5c, the updated FEMA mapping designation for Pier 67 changed from X to VE (note all the overwater piers that existed in 1995 were designated as an X Zone).

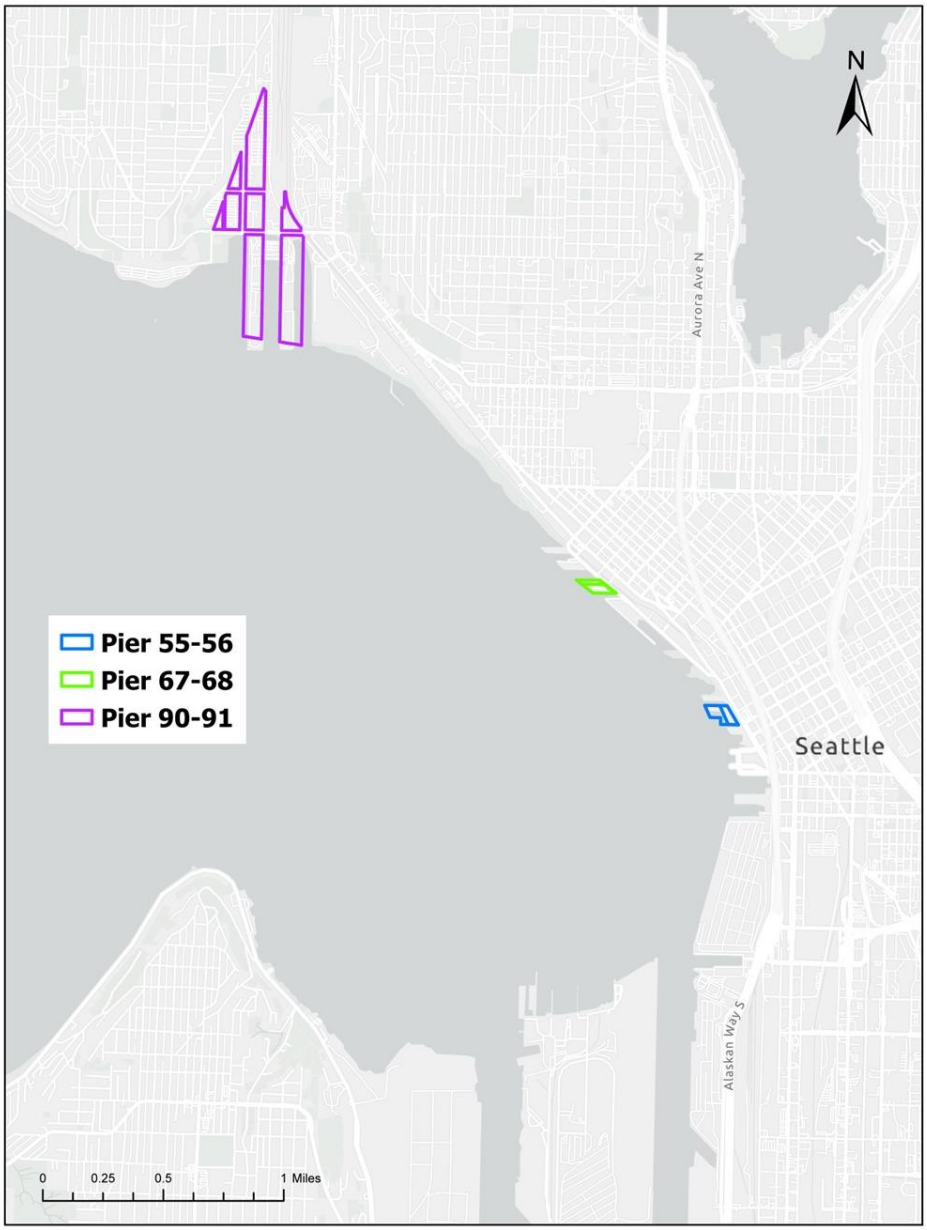


Figure 7. Map Illustrating the Example Site Locations

Source: City of Seattle, 2024.

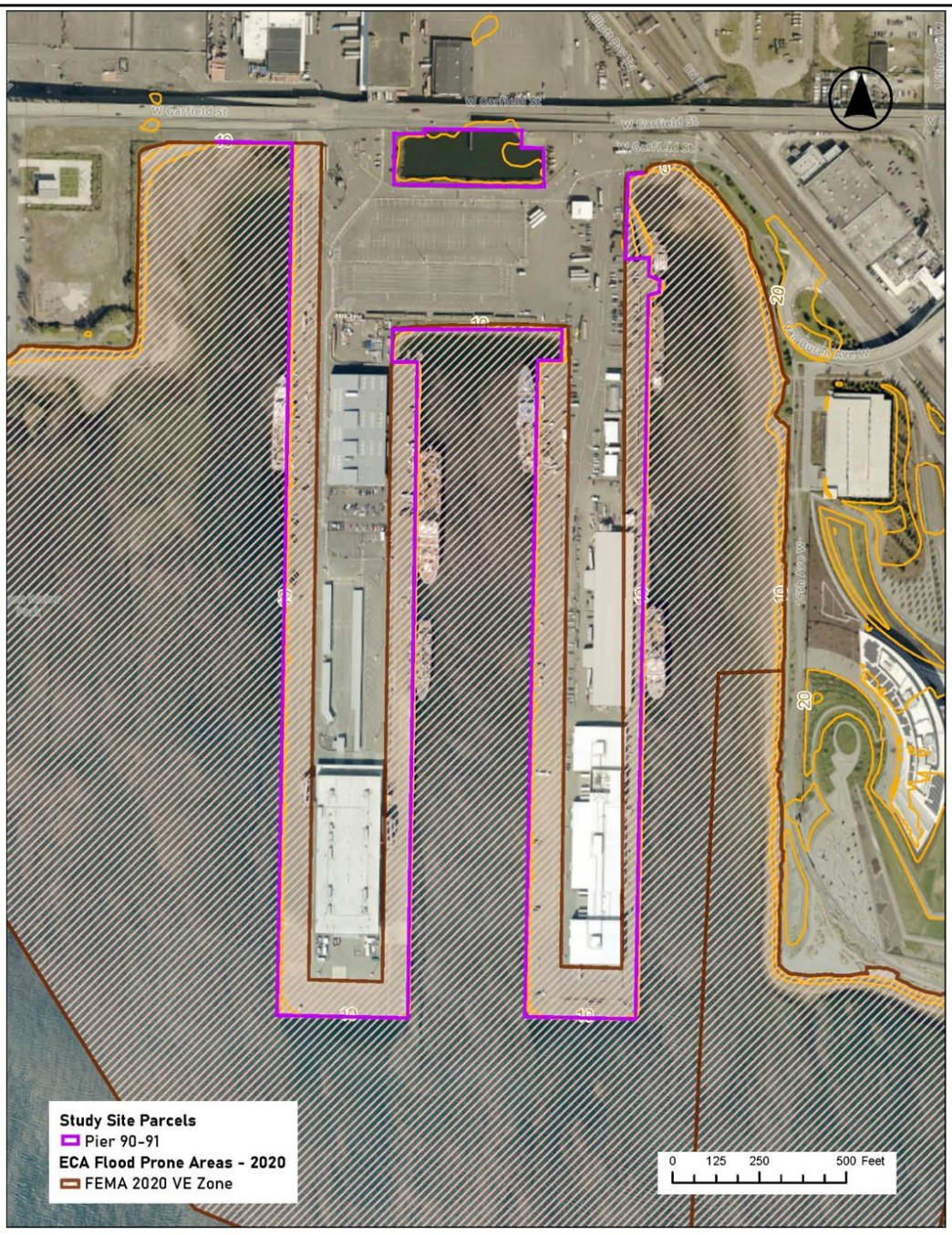


Figure 8. Map of Pier 90/91 Example Site

Source: City of Seattle, 2024.

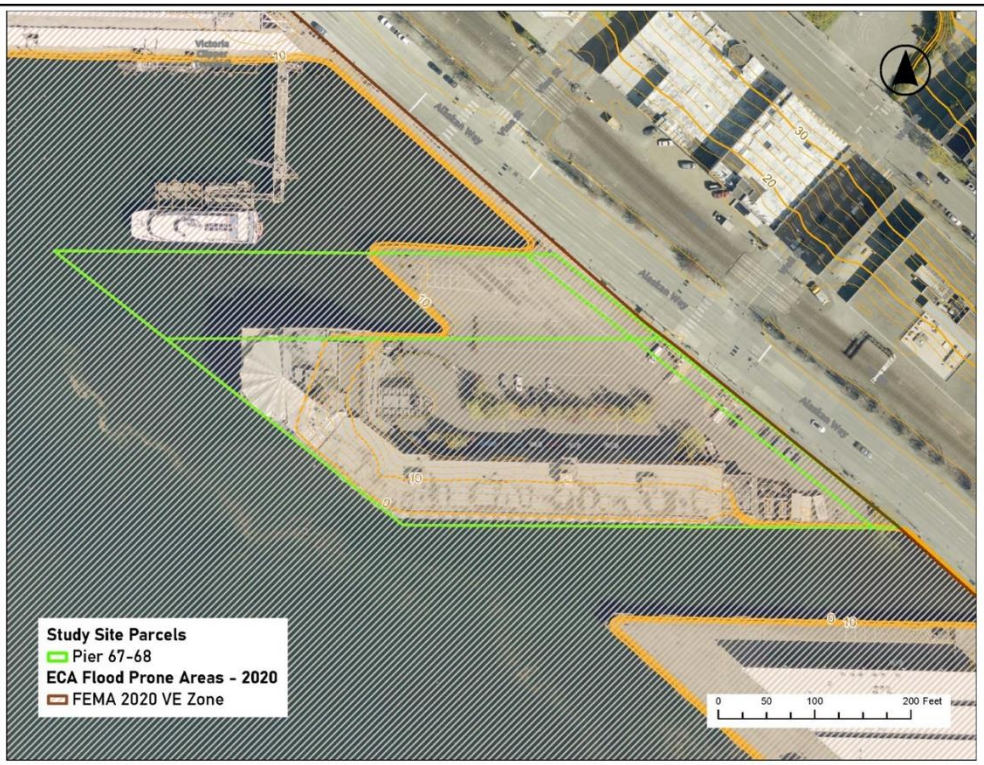


Figure 9. Map of Pier 67/68 Example Site

Source: City of Seattle, 2024.

EA Engineering, Science, and Technology, Inc., PBC

- **Pier 55-56** – This site is located on the Elliott Bay shoreline in downtown Seattle and consists of overwater pier area (see Figure 10). Pier 56 was built in 1910 with a major renovation in 2000. Uses on the Pier 56 site primarily included shipping terminal uses until 1960 when retail uses catering to tourists predominated. The Pier 56 site currently contains a commercial building with retail uses including Elliott's Oyster House. The primary structure on the site is a designated historic structure.

  As illustrated in the Figure 5 series of maps, specifically Figure 5c, the updated FEMA mapping designation for Pier 56 changed from X to VE (note all the overwater piers that existed in 1995 were designated as an X Zone).

Description of Future Hypothetical Development Projects Analyzed in Section B
The proposed amendments to floodplain development regulations are legislative in nature and thus considered a SEPA "non-project" action, and there are no specific development projects or plans associated with the proposed amendments.

However, based on the proposed legislation, the following SEPA analysis evaluates a range of possible indirect impacts that could arise from future new development, development that is considered substantial improvement and/or development that is not considered substantial improvement using hypothetical future development projects at example sites. The subsequent sections that discuss elements of the environment in Section B of this checklist provide additional description of development scenarios that help illustrate and disclose potential environmental impacts from future development, as well as physical implications such as the relationships between new development and adjacent uses.

For example, if a new structure or an expansion of an existing structure were to be proposed on an over-water existing pile-supported pier affected by the proposed amendments, the following actions could be necessary:

Alternative 1
Elevation requirements

A. If the Lowest Horizontal Structural Member (LHSM) of a property on the waterfront (i.e., underside of pier) is below the Base Flood Elevation (BFE), the LHSM could need to be raised above the BFE which could require the following:

- Demolition or removal[10] of structures;
- Temporary support of existing pier/wharf structures;
- Disconnection of existing piles from existing pier/wharf
- Install new taller piles;
- Replace wharf/pier structure;
- Return or construct structure(s) on the improved pier to the required elevation above BFE;
- Reestablish pedestrian access, including required ADA access; and,

[10] *Possibly including relocation to an off-site area for temporary storage.*

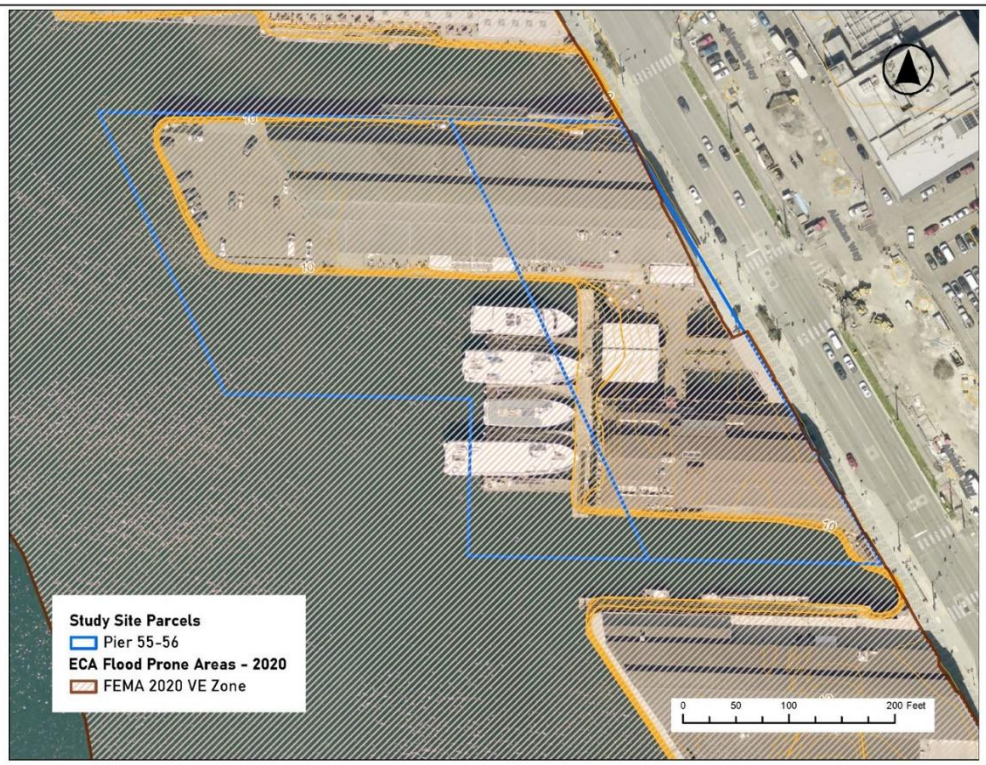


Figure 10. Map of Pier 55/56 Example Site

Source: City of Seattle, 2024.

EA Engineering, Science, and Technology, Inc., PBC

Reconnect utilities.
Or request a variance from the elevation standards and meet the requirements in Section 25.06.136.

B. If the LHSM of a property on the waterfront (i.e., underside of pier) is above the BFE, the following could be required:

- Demolition or removal of structures;
- Return or construct structure(s) on the improved pier to the required elevation above BFE;
- Reestablish pedestrian access, including required ADA access; and,
- Reconnect utilities.

Or request a variance from the elevation standards and meet the requirements in Section 25.06.136

Location Requirements

- Overwater in the VE zone, no new construction is allowed waterward of the reach of mean high water; therefore, a variance for location would be required and the standards in Section 25.06.136 would need to be met.

Alternative 2
Elevation Requirements

A. If the LHSM of a property on the waterfront (i.e., underside of pier) is below the BFE, the LHSM could need to be raised above the BFE which could require the following the same as for Alternative 1.
Or request a variance from the elevation standards and meet the requirements in 25.06.136.

B. If the LHSM of a property on the waterfront (i.e., underside of pier) is above the BFE, there would be no requirements.

Location Requirements

- Same as for Alternative 1.

Note that it is possible that other methods for achieving adherence with the proposed floodplain development regulation amendments could be implemented. For SEPA analysis purposes, the construction assumptions are considered adequate to identify the types of environmental impacts that could be associated with requirements to meet VE Zone standards.

For each example site, the new regulations would result in a Top of Deck / Finished Floor elevation above the elevation of the adjacent uplands. See the diagrammatic conceptual portrayals in Figure 11 (Pier 90/91 Elevation) and Figure 12 (Pier 67 and 56 Elevation). To make up this elevation difference, it is likely that new ramps complying with the Americans with Disabilities Act (ADA) would be required. The regulations would also require the bottom of the lowest horizontal structural member of the supporting pier to be elevated 2-ft above BFE for Alternative 1 and 3-ft above BFE for Alternative 2.

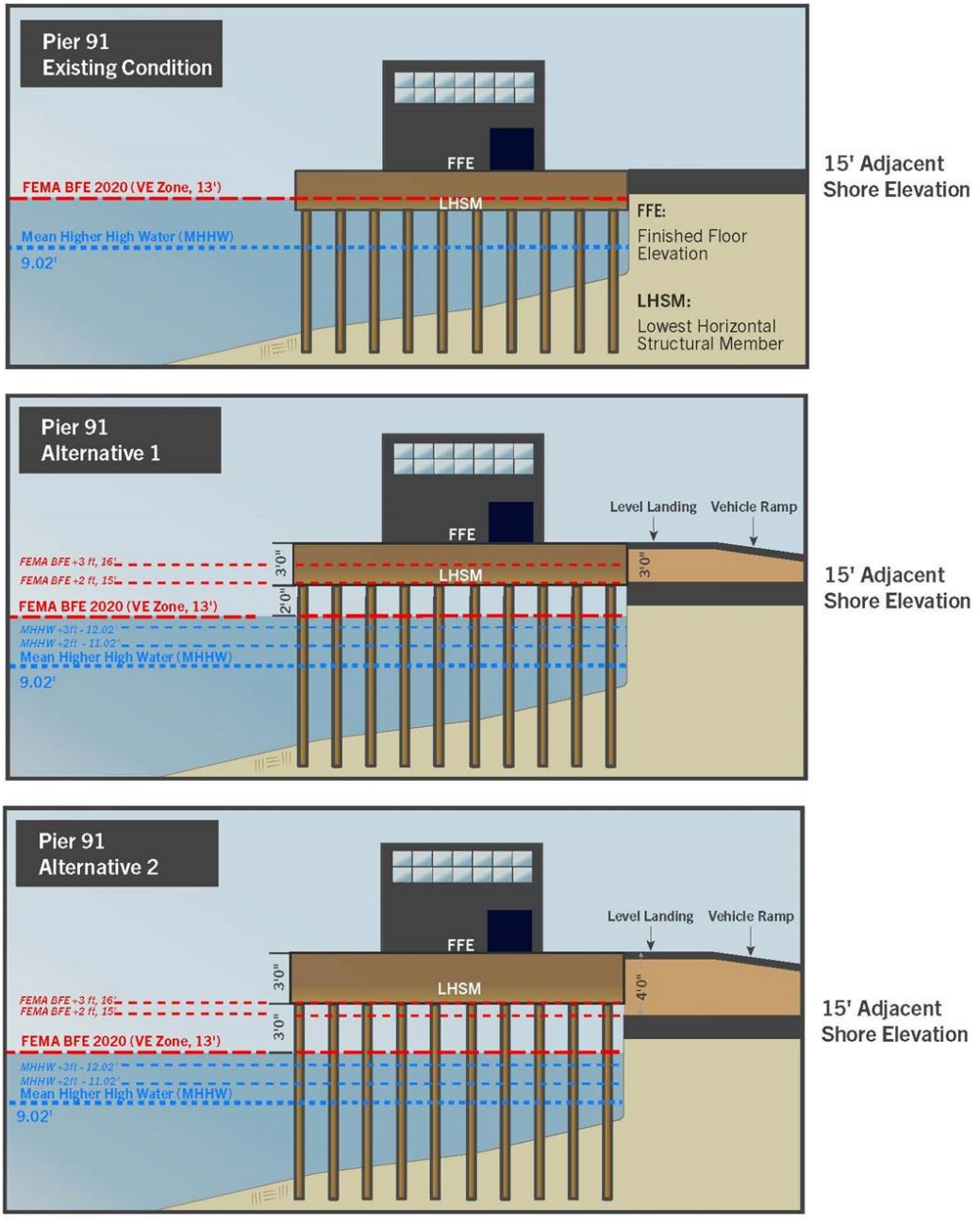


Figure 11. Illustrations of Conceptual Improvements to Comply with Updated Regulations at Pier 90/91 under SEPA Alternatives

Source: City of Seattle, 2024.

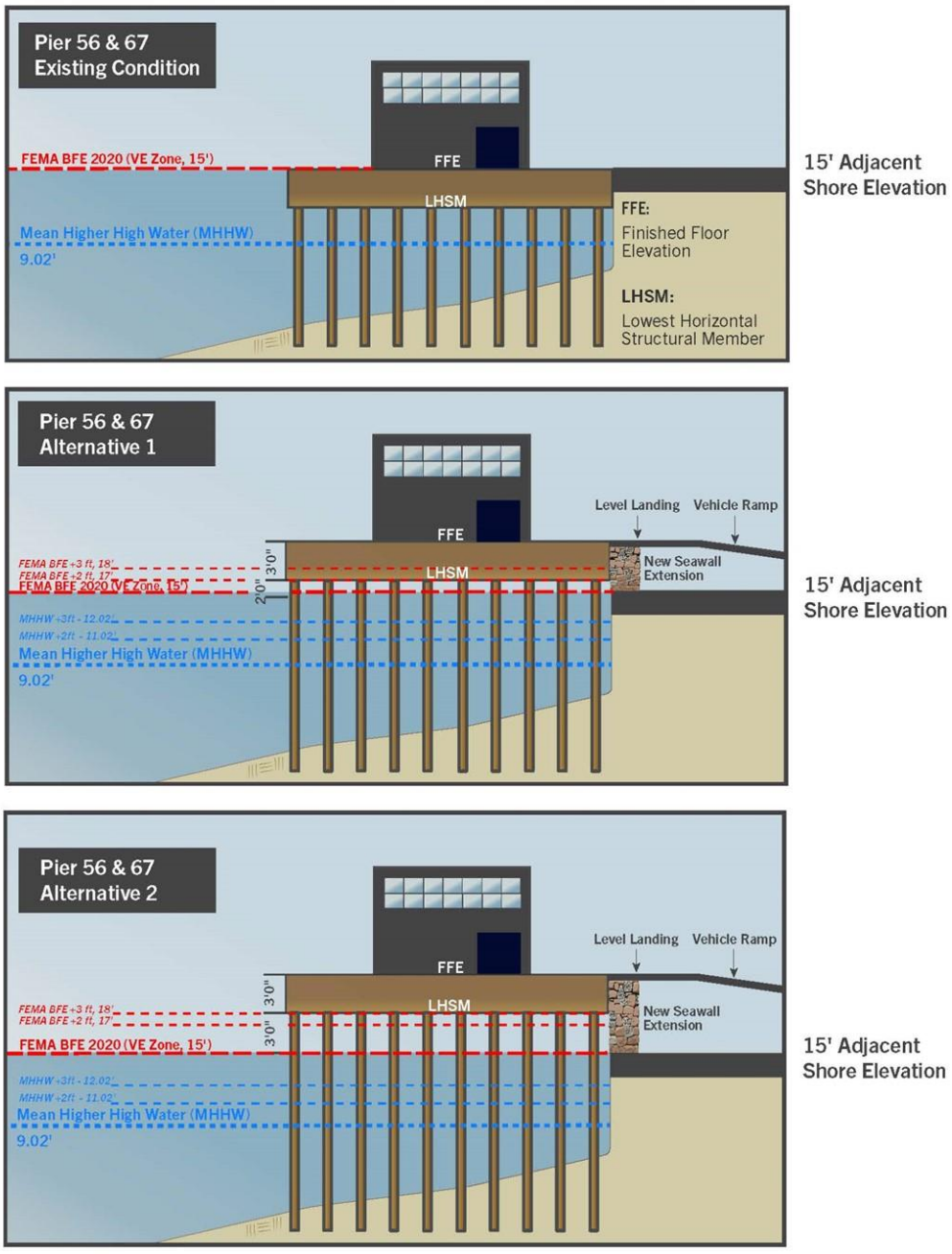


Figure 12. Illustrations of Conceptual Improvements to Comply with Updated Regulations at Piers 67/68 and 55/56 under SEPA Alternatives

Source: City of Seattle, 2024.

Elevating a structure would also likely drive the need to modify utility connections at each example site. The anticipated types of improvements to comply with the proposed amendments are summarized in Table 7. Note that the FEMA VE Zone BFE varies within Elliott Bay, from an elevation of 13 feet at Terminal 90/91 to an elevation of 15 feet at western (offshore) end of Pier 56.

Table 7
Example Site Conditions Under SEPA Alternatives

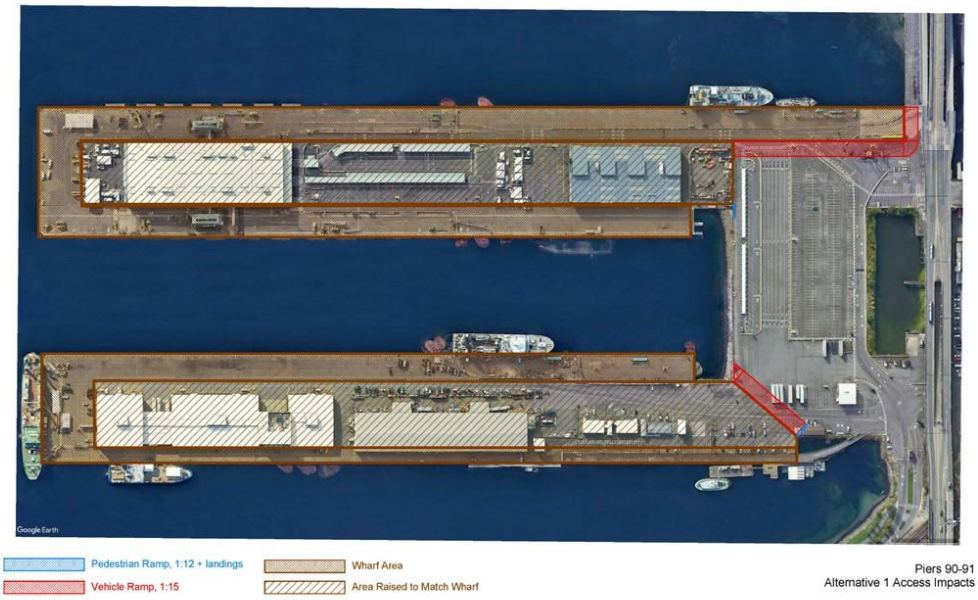
Description	Pier 56		Pier 67		Pier 91	
	Alt 1	Alt 2	Alt 1	Alt 2	Alt 1	Alt 2
Mean Higher High Water	9.02’					
Upland ground	15’					
FEMA VE Zone Base Flood Elevation (BFE)	15’		15’		13’	
Bottom of Lowest Horizontal Structural Member Elevation of Existing Piers	16’	18’	19’/16’	21’/18’	14’	16’
Approx. Finished Floor Elevation of Existing Piers	20’	21’	20’	21’	17’	19’
Finished Floor Elevation Above Upland Ground	5’	6’	5’	6’	2’	4’
20:1 ped Ramp Length (no landings)	100’	120’	100’	120’	40’	80’
12:1 Ped Ramp Length (landing every 30')	70’	82’	70’	82’	24’	53’

Source: KPFF, 2024

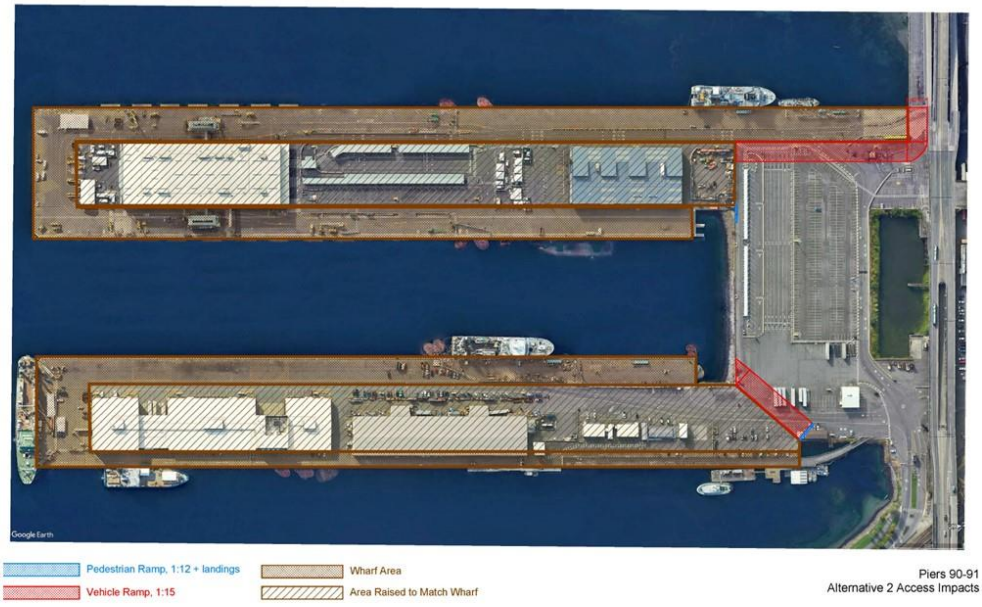
Typical Access Issues

As indicated above, to make up the anticipated difference in elevation between the adjacent upland and the estimated Finished Floor elevation at each hypothetical site, ADA-compliant access ramps would likely be required. These ramps should be at least six feet wide to allow 2-way pedestrian traffic and would need to be wider in areas with substantial foot traffic (i.e., Pier 67 and 56 example sites).

Because the elevated portion of the pier would extend to the seawall, the ADA access ramps would likely need to be built within the adjacent right-of-way. Vehicle ramps onto the elevated pier can have a steeper slope but they would also need to start upland from the pier edge. Under SEPA Alternative 2, the elevation difference between the Top of Deck/Finished Floor and the adjacent upland would be one foot larger than under SEPA Alternative 1 and would intrude further into the right-of-way. See Figure 13 for Pier 90 access ramps, Figures 14 and 14a for Pier 67 access ramps and Figures 15 and 15a for Pier 56 access ramps.



Alternative 1



Alternative 2

Figure 13. Illustration of Conceptual Pedestrian and Vehicular Access to Comply with Updated Regulations at Pier 90/91 under SEPA Alternatives

Source: KPFF, 2024.

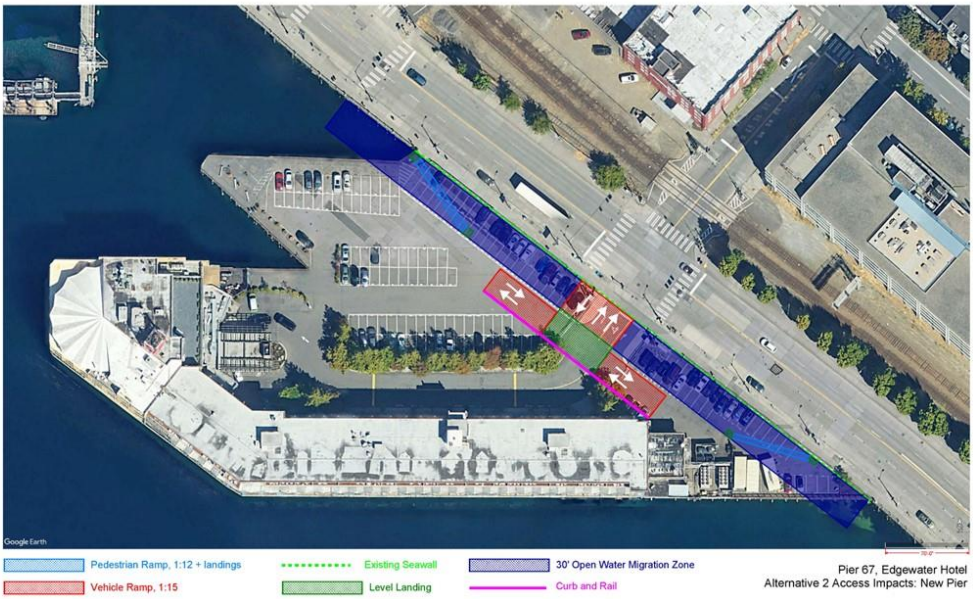
Alternative 1

Alternative 2

Figure 14. Illustration of Conceptual Pedestrian and Vehicular Access to Comply with Updated Regulations at Pier 67/68 under SEPA Alternatives

Source: KPFF, 2024.

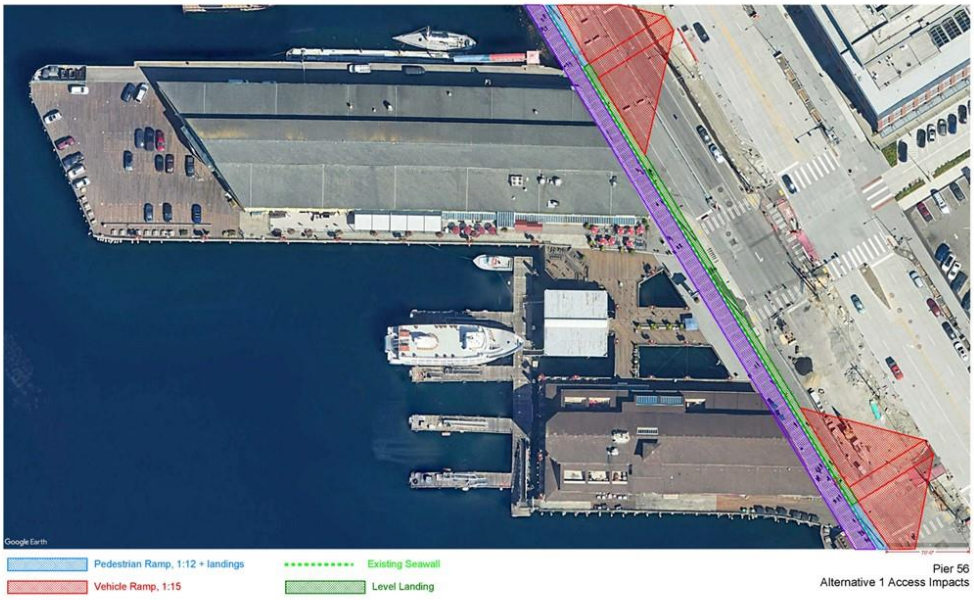
Alternative 1



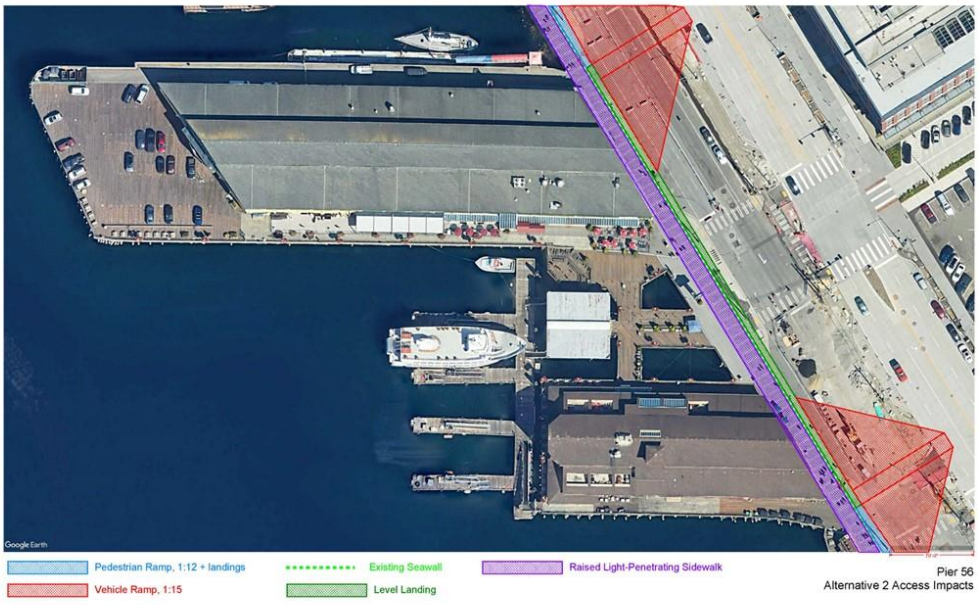
Alternative 2

Figure 14a. Illustration of Conceptual Pedestrian and Vehicular Access for Construction of a New Pier to Comply with Updated Regulations at Pier 67/68 under SEPA Alternatives

Source: KPFF, 2024.



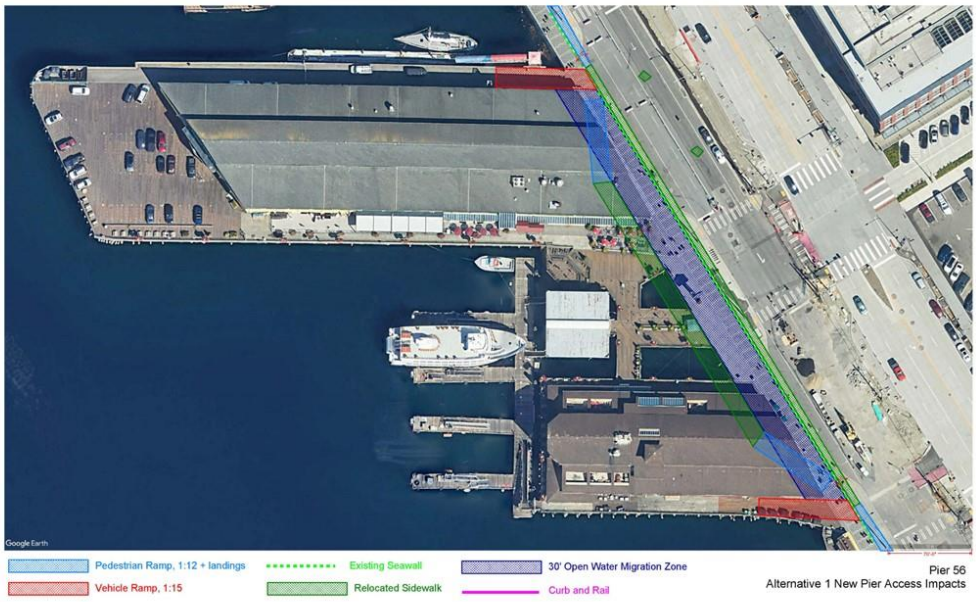
Alternative 1



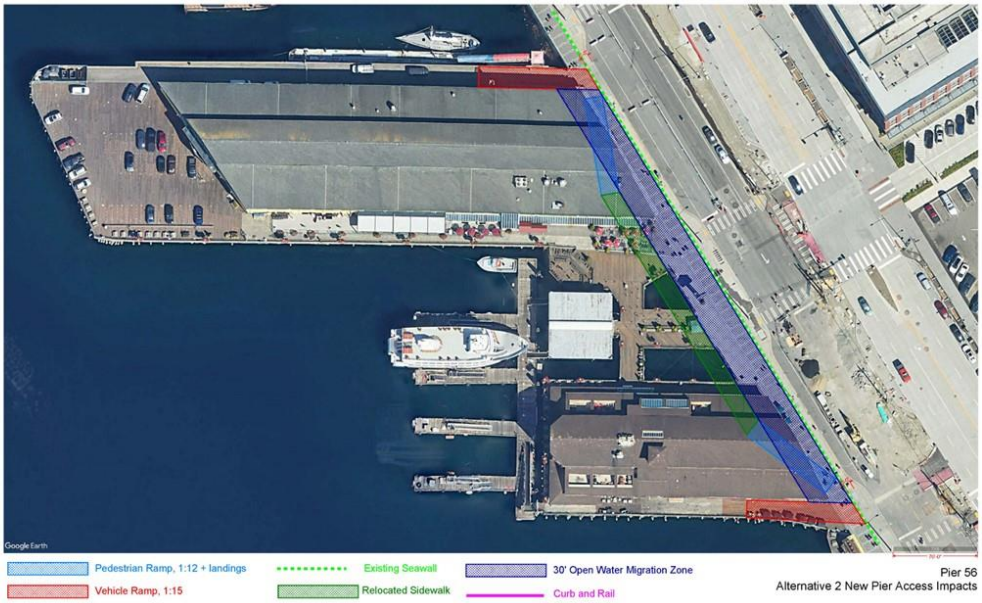
Alternative 2

Figure 15. Illustration of Conceptual Pedestrian and Vehicular Access to Comply with Updated Regulations at Pier 55/56 under SEPA Alternatives

Source: KPFF, 2024.



Alternative 1



Alternative 2

Figure 15a. Illustration of Conceptual Pedestrian and Vehicular Access for Construction of a New Pier to Comply with Updated Regulations at Pier 55/56 under SEPA Alternatives

Source: KPFF, 2024.

Structural Elevation Issues

Because the identified improvements to meet VE Zone standards would result in the bottom of the pier structure being higher than the adjacent uplands, an additional retaining wall may be required between the top of the existing seawall and the bottom of the deck of the elevated pier. Any utilities that pass through the existing seawall would need to be modified to provide a connection to the elevated pier. Also, it should be noted that the checklist analysis evaluates two different Access Scenarios – 1 and 2 – that describe two possible options to allow for vehicle and pedestrian access to a hypothetical future taller pier at Example Sites.

This SEPA Checklist provides an evaluation of alternative approaches to implementing FEMA regulations and associated mapping. It is intended to help decision-makers choose a set of actions meant to fulfill obligations arising from FEMA, within the context of Seattle's range of Federal, State, and City responsibilities, and other similar requirements.

Location of the Proposal's Affected Area

The proposed amendments to the floodplain development regulations is a non-project action that affects multiple parcels in the city of Seattle. As shown on **Figure 1**, the area affected by the proposed amendments to the Floodplain Development Regulations includes approximately 2,200 properties located along Elliott Bay, Puget Sound and Duwamish Waterway/River shoreline, and area associated with Thornton Creek, Longfellow Creek, and Pipers Creek.

Public Comment

The changes to the Land Use Code require City Council approval. Opportunity for public comment will occur during Council meetings and hearings. The ordinance and this environmental review and SEPA Determination will be available online for public comments.

ANALYSIS – OVERVIEW

Environmental review resulting in a Threshold Determination is required pursuant to the State Environmental Policy Act (SEPA), WAC 197-11, and the Seattle SEPA Ordinance (Seattle Municipal Code (SMC) Chapter 25.05).

The following report describes the analysis conducted to determine that the non-project action is not likely to result in *probable significant adverse environmental impacts*. This threshold determination is based on:

- the language of the proposed amendments and related contents as described above;
- the information contained in the *SEPA checklist* (dated June/July 2024), including annotations made by City staff;
- review of materials prepared as background information about the code amendments, prepared by City staff including the Director's Report; and
- the experience of the analyst in reviewing similar documents and actions.

ELEMENTS OF THE ENVIRONMENT

Short-Term and Long-Term Impacts

NATURAL ENVIRONMENT

Earth, Water, Water Quality, Plants/Animals/Fisheries/Marine Life

The action is not expected to generate significant adverse impacts for these natural environmental elements, at a non-project level, directly, indirectly, or in its potential for cumulative impacts related to future development influenced by the action.

Earth

The Puget Sound region is a seismically active region; thus, the area subject to proposed amendments could experience seismic activity, which may cause surface rupture, liquefaction and subsidence and landslides. The area subject to proposed amendments along the Elliott Bay shoreline (including the Pier 90/91, Pier 67 and Pier 56 Example Sites) generally consists of fill and is a Liquefaction Prone area.[11] This includes most of the flat land around Elliott Bay (from Magnolia marina southward), the Duwamish Waterway vicinities, and even portions of Alki, and West Point at Magnolia. This also includes in landward portions of many but not all residential properties intermittently present south of Alki Point to Lincoln Park.

The area subject to proposed amendments along the upland areas in the vicinity of the Duwamish shoreline is also dominated by artificial fill overlying tideflat deposits, peat, and alluvium. The Duwamish Delta area consists of glacially overridden deposits that are overlain by a thick sequence of very loose to dense or very soft to very stiff soils. These materials were deposited after the retreat of the last glacier in the Seattle area and include beach, alluvial, estuarine, landslide, and fill deposits. These deposits are at least 250 feet thick in the vicinity of the Duwamish Waterway. Liquefaction Prone areas are environmentally critical areas usually associated with soils that lose substantial strength during earthquakes.

The City has identified landslide-prone areas that include steep slopes, known landslide areas, and areas with landslide potential because of geologic conditions. Steep slopes are defined by the City as slopes steeper than an average of 40 percent and with at least 10 feet of vertical change. Some of the slopes at the ground surface in downtown Seattle in the vicinity of the central waterfront may be classified as steep. However, because these areas are fully developed with buildings, roadways, and other structures, the potential for landslides is low.

No agricultural land of long-term commercial significance is known to be present within the area subject to the proposed amendments.

For the Example Sites located in the central waterfront vicinity of Elliott Bay, the adjacent upland portions generally consist of fill, recent sand and silt/marine deposits underlain by glacial

[11] Seattle Department of Construction and Inspections (SDCI) GIS Map. http://web6.seattle.gov/dpd/maps/dpdgis.aspx.ring

clay and silt, which is underlain by glacial sand, gravel and silt. The fill can contain scattered to abundant wood debris, including creosoted piles (vertical grain), driftwood (cross-grain), and sawdust (as thick as 20 feet). The Example Sites are generally flat, including the upland paved areas and overwater pile-supported piers and apron areas.

Soils and geology as they relate to historic or cultural resources and environmentally critical areas

The following additionally describes the soils and geologic context, including with respect to historic and cultural resources (also see Appendix A for more discussion).

Elliott Bay and the Duwamish River and Waterway

A past evaluation for Pier 62 and 63 replacement by the Seattle Department of Parks and Recreation characterized soils in this vicinity as: "*artificial fill underlain by tideflat deposits*," citing *The Geologic Map of Seattle – A Progress Report* by Troost, Booth, Wisher, and Shimel (2005). The executive summary for the DEIS for the Elliott Bay Seawall project also notes that "*rip-rap (loose foundation stones)*" also existed near the downtown seawall; and these were at least partially removed during the seawall work. Several other vicinities in and around Elliott Bay and elsewhere on Seattle's Puget Sound edges continue to use rip-rap and similar rock installations as armoring strategies at the shoreline edge.

In the Downtown Seattle waterfront vicinity, the Waterfront Seattle FEIS (2016; relevant portions incorporated by reference) describes the nature of soils below ground surface and the potential to uncover artifacts during construction of the recent waterfront improvements:

"Various geological events, including glaciation and seismic activity, have changed the location of the shoreline over time and created complex subsurface layers that have varying potential to contain archaeological deposits. In the late 19th century, the shoreline was subject to extensive grading and filling in efforts to improve waterfront access, hold back the tidal Elliott Bay, and raise the level of the city streets above high tide. As can be seen in Figure 10-1 [page 10-2 of the Waterfront Seattle FEIS]*, most of the study area was under water prior to the filling; however, it intersects several features of the historic shoreline. Between S. King Street and Yesler Way, the study area extends over a former tidal marsh and lagoon; north of Yesler Way, it is entirely west of the historic shoreline until approximately Pike Street. North of Pine Street, the study area is mostly landward of the historic shoreline, running along former beach areas and up the steep bluff to the east (FHWA et al. 2004).*

In general, areas located on native soils have the potential to contain pre-contact (prior to 1850) cultural resources, while those located in fill areas have the potential to contain historic-era (post-1950) [sic: 1850?] *resources."*

Other areas

Along the edge of Puget Sound, uses along shorelines vary between parklands (Alki Beach, Lincoln Park, other small shoreside parks) and intermittent groupings of residential uses in West Seattle. Where present in West Seattle, most residential uses consist of low-density residential structures, although some properties have multifamily uses just south of Alki. Most of the residential properties' shore edges are protected by existing concrete walls, or have similar

armoring strategies. The shoreline is punctuated with occasional beach areas, in front of many but not all existing seawalls in this area.

In Magnolia, certain portions of the shoreline have residential uses in close proximity to the shore, while slopes and parklands lie adjacent to shorelines. Also, Shilshole Marina and Golden Gardens Park lie north of the ship canal, and north of that most of the shoreline is affected by the slopes of foundational rockeries, walls and rock-beds adjacent to the shoreside railroad that connects to Edmonds and Everett. Carkeek Park's beach and a small beach at Blue Ridge near NW 100th Street are the primary exceptions along this portion of the shoreline.

Earth Impacts

The floodplain legislation is a non-project action that affects multiple parcels in the City of Seattle. No grading would be associated with the proposed legislation, due to lack of a directly related development. The proposed non-project action would not directly, indirectly, or cumulatively lead to significant impacts to the earth resources.
Generally, the proposed floodplain code amendments discourage filling and regulates excavation, and grading within special flood hazard areas (SFHA). However, it is likely over the long term that a range of future development would occur with or without the adoption of the floodplain regulations. The projected long-term outcomes of adopting updated floodplain code requirements for natural environment impacts, such as to earth resources, due to future development actions in the VE zone are likely to be comprised of an unknown number of development actions that are "non-substantial" and limited in degree of change with a corresponding potentially limited degree of physical disturbance, along with an unknown number of future "substantial improvement" projects fully subject to VE zone requirements regarding structure replacement and a corresponding potentially more extensive degree of physical disturbance.

These types of earth impacts are illustrated by the hypothetical future development scenarios for the Example Sites evaluated in the environmental checklist. If future substantial improvements were proposed that included increasing the elevation of the lowest horizontal structural member (LHSM) of the pier structure(s), a substantial amount of in-water and adjacent upland earthwork would likely be needed to raise the pier elevation and to provide accessibility to the raised pier elevations under both Alternative 1 and 2 (see Figures 10-15 of this SEPA Determination). For the Piers 56 and 67 Example Sites, the checklist evaluation also included two "access scenarios" that illustrated a variety of possible upland access designs would be possible, involving greater or lesser volumes of fill soil placed in near-shore and other upland areas. Access Scenario 1 illustrates access improvements that would provide a berm on which a vehicle access ramp (and pedestrian access) could be provided, but which could overlap into Alaskan Way (Pier 67) or into pedestrian promenade area (Pier 56). Access Scenario 2 illustrates access that might use an over-water bridge section and sloping ramp on a new pier to achieve access to the added height of the new pier. The Access Scenario 2 might entail less placement of fill in upland areas, although fill soils and/or more structure might also need to be constructed near the shoreline to serve pedestrian access needs. These scenarios illustrate that the reconstruction of piers at a higher level in the central waterfront area could require upland improvements that use fill soils in greater or lesser amounts. Such fill soils would add to the total amount of upland disturbance

near Elliott Bay waters and could add to total amounts of erosion and soils that could reach Puget Sound waters during construction. The scenarios also illustrate that the degree of earth-related adverse impacts of this kind in future development would depend on factors like architectural and engineering design of access features to a new pier, plus the responsible parties' design preferences with respect to whether vehicle access onto the pier would be preferred and designed into the project, or not. This finding can also be generalized to other larger properties in the Elliott Bay vicinity, to the extent that providing taller pier improvements could lead to associated improvements in upland areas in order to accommodate the ability for new or existing maritime uses to be able to effectively conduct their operations. However, the types of earth resource impacts would be similar to those impacts under the no action alternative, such as when existing piers were removed due to the end of their useful life or if the existing pier was removed and replaced at the same/current elevation.

It may also be speculatively interpreted that, under the proposed floodplain codes, if an intended future development to an existing structure will be deemed a substantial improvement, the resulting need to develop a taller pier and improvements atop it could entail a greater amount of disturbance to a site's in-water and upland soils than would otherwise have occurred under past floodplain regulations. The Port of Seattle has speculated that redevelopment scenarios conceptually might involve removing the buildings atop a pier, moving them elsewhere for storage during the pier development period, and then moving them back and placing them on the new pier. Logistically, and relating to engineering for such efforts and for the new piers, the physical process and outcomes might entail a greater amount of disturbance to upland and in-water soils than other development scenarios that would not have required building a new taller pier. The potential difference in earth related impacts from a possible increase in pier height to BFE+2 or BFE+3 exists, although it is difficult to assess when/where this will occur, how extensive it will be, it is expected to be a less than a significant impact based on the proposal as compared to the earth impact that may occur under the no action alternative, which will allow more types of development in the floodplain zones. This SEPA determination acknowledges the plausibility of this interpretation of adverse earth-related impacts, for the sake of this programmatic level evaluation of impacts.

Potential mitigation measures for future development indirectly related to the proposal

This is a non-project action that affects multiple parcels in the City of Seattle. No increase in the potential for erosion would directly occur for this non-project action due to lack of a directly related development. Thus, no mitigation measures are proposed or necessary for the non-project action.

The Example Sites developments (the Piers 56 and 67 in particular) evaluated in the environmental checklist illustrate a number of potential adverse impacts that could arise in future development related to earthwork and disturbance. To the extent that site-specific construction associated with future development or improvements could occur within the affected area and disturb upland and in-water soils, the following mitigation measures could be considered:

- Comprehensive Drainage Control Plans (including Construction Best Management Practices and Erosion and Sediment Control Plans for both in-water and upland areas)

could be submitted as part of Grading and Building Permit applications, in accordance with City of Seattle requirements.

Water, Water Quality

This non-project action would result in no direct adverse or significant adverse impacts to earth or water environmental elements because it does not directly propose development of new buildings and no increase in discharges to water would directly occur from adoption of the proposed code amendments. Similarly, this analysis identifies no adverse or significant adverse indirect or cumulative environmental impacts of this kind.

To the extent that future development is likely to occur in the affected areas, future construction activities could generate discharge to water, which would be identified as future possible indirect impacts of development. The potential magnitudes of total future development-related emissions depends to some degree on the scale and scope of future development that would be undertaken. Within VE zone designated areas, if the scale of the future development (and associated code requirements and permitting) would necessitate a greater amount of reconstruction such as demolishing existing piers at lower elevations and building taller wharfs/piers, a higher amount of total emissions of water pollutants during construction would be expected.

The potential future impacts associated with proposed future construction of improvements under the proposed amendments under SEPA Alternatives 1 and 2 can be described in slightly greater level of detail, as follows:

- Releases of debris or sediments into the water during pier/wharf removal, transport, and reattachment activities;
- Removal/disturbance of asphalt could lead to hazardous materials spills entering the soil, groundwater, and surface waters;
- Temporary increases in turbidity caused by suspended sediments during pile removal and pile driving activities, which would also result in a localized impact on water quality; and
- Release of hazardous and other materials stored and used on site.

For future construction, factors that would influence design, scale, and scope of development would primarily relate to:

- FEMA Zone of the property;
- Percentage of the property designated as floodplain; and,
- The nature and extensiveness of the future development proposal (i.e., affecting whether it would meet the definition of new or "substantially improved" structure[12] or not).

Given the special flood hazard area (SFHA) zones described by FEMA as a "coastal high-risk" category, VE zones are subject to more protective requirements than other FEMA zones. So, built features in these zones are potentially subject to more extensive requirements for built or

[12] Substantially Improved Structure is defined as improvements that would equal or exceed 50 percent of the value of the structure before the start of construction.

rebuilt structures, in some cases requiring them to be rebuilt at higher elevations than their existing condition. Also, the magnitude of a change could have a bearing on how the floodplain requirements apply: targeted types of work, including those that are limited in size may not meet the threshold of a substantial improvement. These are evaluated by comparing the value of the existing improvements to the proposed improvements. For projects that do not meet the substantial improvement threshold, the additional requirements of the VE zone pertaining to rebuilding structures at higher elevations would not apply, and thus a comparatively smaller scale and lesser degree of construction may be expected with relatively lesser potential for water and air pollutant emissions during future construction. (The environmental checklist also discloses the following interpretation related to impacts on future development: "For this programmatic-level impact analysis, to the extent that updated floodplain codes could influence in some fashion the formulation of development projects and the manner in which they are sized and executed, differences in potential for future accidental discharges to water during construction are possible.")

As implied by the programmatic-level discussion above, applicants for future development in many cases may have the ability to define the magnitude of their proposal and thus influence the scale and scope of the required improvement level. This would depend on the range of discretion an applicant may have in defining a project: in some cases, perhaps the scale of improvements would be extensive due to the total size of the area, or structure, needing renovation. And possibly, the age and physical condition of the structure for which permits are sought. Scenarios might include if a natural disaster caused massive and widespread damage to a facility – in this case a substantial improvement might be unavoidable. But in other cases, it is possible that development actions could be targeted, limited, or strategic in nature. These could be approached in a way that would accommodate the continued presence of existing uses and built features in the environment that are reinforced or renovated in ways that extend their practical lifespan.

So, the projected long-term environmental impact outcomes of the updated floodplain code requirements for water resources, due to future development actions in the VE zone would be comprised of:

- An unknown number of development actions that are "non-substantial" and limited in degree of change with a corresponding potentially limited degree of physical disturbance; and
- An unknown number of future "substantial improvement" projects fully subject to VE zone requirements regarding structure replacement and a corresponding potentially more extensive degree of physical disturbance.

The following provides a general discussion on the types of discharge/emission conditions that could occur with future possible development if the development actions are required to comply with proposed amendments to floodplain development regulations.

Zone VE Parcels along the Central Waterfront

Properties along the central waterfront on Elliott Bay (from approximately Smith Cove on the north to approximately S Hinds Street near the West Seattle Bridge on the south) were designated VE by FEMA in 2020. Several of the affected properties along the Central

Waterfront include the long-time presence of over-water piers and structures on them. The VE zone is applied to all over-water portions of these properties. This is a change from the 1995 FEMA maps where water-covered areas had a SFHA zone of A and areas covered by piers were designated X, meaning uses and area atop the piers were excluded from the SFHA altogether. So the overwater piers are being regulated under 25.06 for the first time.

Both Alternative 1 and Alternative 2 evaluated in this checklist reflect FEMA requirements of the VE Zone for Base Flood Elevation (BFE) measured from the "lowest horizontal structural member" (LHSM), and requirement for proposals associated with substantially improved structures to be elevated either 2 feet (Alternative 1) or 3 feet (Alternative 2) from the LHSM. This would apply to portions of existing wharf/piers over-water that support enclosed buildings and are within the VE Zone. To adhere to these VE Zone standards, a substantial amount of in-water construction (to raise the LHSM of the pier above BFE) and upland construction for access connections to the raised pier could be proposed. The environmental checklist analysis identified two types of access improvements: Access Scenario 1 which would provide earthen berms, in whole or partially, to allow vehicles and pedestrians to be able to reach the newly rebuilt taller piers; and Access Scenario 2 which would accommodate more elevation gain for vehicles and pedestrians on over-water bridges and via ramps on the newly elevated pier itself, which would limit the amount of sloping access improvements on the upland portion. Under Access Scenario 2 at Example Sites, this would allow for lesser quantities of materials to be placed in upland locations, and development of the overwater portion of the site could also allow for a "gap" in the overwater coverage of development within 30 feet of the shoreline. This probable newly uncovered area, if it occurred in future development, may provide a benefit to threatened salmonid species that use this aquatic habitat for feeding and migration.

In-water and upland construction activities to achieve VE Zone standards would increase the potential for disturbed underwater sediments, increased erosion potential at upland area, an increase in potential for air emissions associated with construction vehicles and equipment, potential to encounter and disturb existing contaminated area, and potential to generate noise associated with demolition and construction activities. To the extent there could be a number of possible strategies for undertaking pier rehabilitation, renovation, and rebuilding, conducting this work could generate differing degrees of physical impacts of these kinds on their immediate surroundings.

The Port of Seattle has also provided information to the City that speculates on possible pier/structure renovation scenarios involving removing existing structures atop piers, moving them away from the site for temporary storage, and then returning the structures to be again placed on top of a new or renovated pier structure. As the Port notes, such work could create an additional increment of potential emissions to air and water, noise generation, and potential release of hazardous substances.

Over the long-term operation of future new or renovated/remodeled facilities, the City anticipates that compliance with code regulations pertaining to stormwater management controls, water quality treatment of runoff, and other similar requirements (as applicable) would help to avoid or minimize potential water-related pollution discharge impacts.

Relationship of hazardous substances regulations (Alternative 2)

The following interprets effects related to the intended regulatory protections included in the legislation's Alternative 2, which address controls for hazardous substances and development that includes accessory structures.

- The added regulatory controls would add requirements intended to have new facility developments that would be involved with the processing and storage of hazardous substances to be located away from flood-prone areas. The proposal also includes provisions meant to increase the protectiveness of storage practices for hazardous materials in areas subject to the proposed regulations, to reduce potential for damage and pollution that could otherwise occur during a flood event. To the extent the proposed regulatory controls are implemented over the long-term in the future, there is a probable positive impact outcome of reducing the potential for worst-case flood-related damages and pollution.
- It is possible that the added regulatory controls could indirectly induce the need for additional improvements or development actions that would provide for the increase safety of storage or use of hazardous materials within areas affected by the floodplain code. While the probable result for safety of storage can be projected as positive in nature, the improvement or development activity itself would create a potential for construction-related emissions to water. Future improvement or development of this kind could be subject to future permit reviews on a project-by-project basis, allowing for consideration of those impacts and identification of mitigation measures, best management practices, or other prescription required by codes including but not limited to building code and floodplain code requirements.

VE and AE Zoned Parcels along Southern Elliott Bay (Including Harbor Island and Terminals 5, 18, and 30)

The portions of developed over-water uses on parcels along the southern portion of Elliott Bay's designated VE Zone include a number of over-water piers projecting perpendicular to the shoreline such as at the northwest corner of Harbor Island, and an apparent warehouse structure partially over-water at the southwest corner of Harbor Island. But more commonly, over-water structures consist of continuous wharf edges for extensive distances along Port of Seattle container terminal operations, on Harbor Island along the East Duwamish Waterway and along parcels accessed via Alaskan Way south of Colman Dock, including Terminals 18 and 30. These wharf edges are pile-supported structures extending over water with a varying range of size, lengths, and widths of over-water coverage.

For the portions of these existing wharf/piers over-water that include structures on them and are within the VE Zone, any proposed development meeting the definition of "substantially improved structure" (that did not otherwise obtain a variance) would be required to meet VE zone standards, including measurement of BFE from the LHSM. For these kinds of future development, in-water and upland construction activities to achieve VE Zone standards would increase the potential for disturbed underwater sediments, increased erosion potential at upland area, an increase in potential for air emissions associated with construction vehicles and equipment, potential to encounter and disturb existing contaminated area, and potential to generate noise associated with demolition and construction activities.

- It is possible that in-water development actions that result in taller piers/wharves would also require additional upland improvements in order to support their proper functioning, such as access improvements and possibly addition of fill to improve topographical relationship of the improved pier to adjacent lands. This could conceptually contribute to increased magnitudes of potential pollutant contributions to water resources depending on how they are designed and built.
- Or, if development was pursued in a manner comparable to "Access Scenario 2," lesser amounts of disturbance upland might be possible. (This analysis does not forecast which future developments in this subarea, if any, might be able to be designed in this manner.)
- Or, to the extent that non-substantial-improvement projects are evaluated and approved, they could also generate potential for these kinds of physical development impacts due to physical renovations of existing over-water features.

Portions of parcels located approximately south of S Hinds Street (such as the southern portion of Harbor Island and those adjacent to the Duwamish River) are designated in the AE zone. For the upland portions of these parcels in the AE Zone, any project meeting the definition of "substantially improved structure" would be required to meet AE zone standards, including elevating the first floor two or three feet above the BFE[13] under Alternative 1 or Alternative 2 respectively. It is also possible that over-water developments, either substantial improvements or non-substantial improvements, would occur. Any of these types of possible future construction projects would be expected to generate potential emissions to water and air commensurate with the scale and scope of the project and the project site. Potential for hazardous materials effects would depend on local site-by-site conditions, including in relation to past use history and the presence of contaminated sediment or soils.

Zone VE and AE Parcels along the West Seattle, Magnolia, and North Seattle Shorelines
The portions of parcels along the shoreline of West Seattle, Magnolia and North Seattle designated in the VE Zone primarily consist of water area close to the shoreline with little to no over-water pier supported structures (with the exception of one over-water residential condominium south of Alki Point, and the Fauntleroy ferry dock). Most shoreside locations in West Seattle are designated in the AE zone, and have upland edges protected by existing concrete bulkheads or other armoring. Similarly, in other places like Magnolia where residential development is present near the shoreline, armoring such as rip-rap is usually present. If portions of these parcels have area covered by water and in the VE Zone, any future over-water project meeting the definition of "substantially improved structure" (that otherwise does not obtain a variance) would be required to meet VE zone standards, including measurement of BFE from the LHSM. But, as noted, the instances of existing over-water development in these areas is limited, and the probability of future new over-water development is likely low. To the extent that new development or improvement actions would occur, they likely would occur in upland locations, which still could be subject to floodproofing requirements or other code requirements depending on the structures' elevation in relation to defined future flood requirements.

[13] New/substantially improved structures in the AE Zone do not need to consider measurement from the LHSM because these areas are located on fill material and do not contain pile supported pier structures.

The portions of parcels along the Puget Sound shorelines of West Seattle, Magnolia, and North Seattle with AE zone designations are primarily located at Shilshole Marina and the Elliott Bay Marina, or in upland portions of properties adjacent to shorelines. For the portions of these vicinities in the AE Zone, any project meeting the definition of "substantially improved structure" (that otherwise does not obtain a variance) would be required to meet AE zone standards, including elevating the first floor elevation two or three feet above the BFE under Alternative 1 and Alternative 2, respectively. This would apply to over-water as well as upland locations.

For projects in the VE Zone area, the potential for emissions to water are similar to but may be more limited than identified for VE Zone projects in the Central waterfront. This would relate to a probable limited size of project that could occur in these areas (primarily for low-density residential uses), and the rarity of such projects especially in over-water locations.
See also the findings earlier in this environmental element discussion, for "Zone VE Parcels Along the Central Waterfront" relating to Alternative 2 regulatory controls for hazardous substances, which also are the relevant findings for this subarea. These might most specifically relate to vicinities such as the Elliott Bay Marina and Shilshole Bay Marina, where hazardous substances' use or storage may be more likely than in low-density residential areas. Due to similarity of the intended requirements' wording, the code and this finding with respect to water quality-related impacts would be relevant to AE zone areas that are present at these marinas.

Zone AE Parcels along the Duwamish Waterway
The AE zoned Duwamish Waterway and River shorelines currently have a diversity of physical conditions: some locations having natural shore edges, but more commonly edges lined by rip-rap armoring, interspersed with a variety of piers/wharves of varying sizes. While most of the northern portion of this subarea is lined on both sides with heavy commercial, commercial, industrial and/or maritime facilities, the adjacent and nearby vicinity in the South Park neighborhood near the 14th Ave S bridge includes a mix of lower-density residential and commercial uses, and at least two marinas. North of the South Park neighborhood, roughly half or more of the adjacent properties have access to the river, via piers perpendicular and piers or wharves paralleling the river edges. Ages and sizes of these existing piers/wharves vary greatly in size.

For this riverine environment, a future project that is a "substantially improved structure" (that does not otherwise obtain a variance) would be required to meet AE zone standards, which could include elevating the first floor elevation[2] two or three feet above the BFE under Alternative 1 and Alternative 2, respectively. This would pertain to enclosed uses on piers or in upland locations. For existing piers/wharves without structures, the AE zone regulations would accommodate reconstruction of those piers/wharves at their same elevation, as long as they are structurally designed to withstand the forces from anticipated storm intensities. In other words, because these areas' designations have not changed to the VE zone, they are not subject to the more extensive requirements of the VE zone that would require increased elevation of rebuilt pier/wharf structures. For existing piers/wharves with structures, the AE zone regulations would require the elevation of the first floor to be at BFE for redevelopment and at or above BFE +2 for Alternative 1 and BFE +3 for Alternative 2. Or seek a variance from the elevation standards. These requirements may influence how future improvement or renovation projects are designed and engineered. But ultimately, such future actions would generate construction-

related impacts of air and water pollutant emissions, disturbance of land and shoreline areas, noise, and potential release of hazardous substances, commensurate with the size of the future development action.

For the portions of parcels within the AE Zone that are also designated as "floodway," new or substantially improved structures (if allowed) would also need to demonstrate that there would be no cumulative net rise in flood elevations. The City anticipates it will include practices that meet FEMA's expectations that cumulative effects on flood elevations are tracked over time with future development. Pile support for structures in the floodway may be a method for structure elevation that could aid in avoiding or limiting net rises in flood elevation.

See also the findings for "Zone VE Parcels Along the Central Waterfront" relating to Alternative 2 regulatory controls for hazardous substances, which also are the relevant findings for this subarea. Due to similarity of the intended requirements' wording, the code and this finding would be relevant and applicable to AE zone areas as are present in this subarea.

One probable effect of the floodplain code amendments in the South Park vicinity would be for future new development to be designed in ways that would reduce the potential for future flood damages and provide for increased life safety. Because at least part of this neighborhood is known to be vulnerable to flooding during large storm events, the long-term effects of the code proposal are likely to be positive in nature for people in this area at residential or non-residential uses. Also, there could be a somewhat reduced risk of hazardous conditions from flood levels and a possibly reduced risk from materials swept away in a flood including hazardous substances. To the extent that the proposal (via two possible elevation differences evaluated in Alternative 1 and Alternative 2 in the environmental checklist) weighs regulatory protection at either BFE +2 or BFE +3 elevation levels, the difference of one foot in height is qualitatively interpreted here as possibly making a difference in the overall protection level that would be afforded to the South Park neighborhood in an area that includes both residential and non-residential uses.

Conclusion: For future possible development or improvement projects in the AE Zone area, there would be potential for construction-related emissions to water and air, potential to encounter hazardous materials, and potential to generate noise due to construction activities, or if existing piers were permitted to be rebuilt or structurally renovated.

Zone AE Parcels adjacent to Longfellow, Pipers, and Thornton Creeks
The portions of parcels adjacent to Longfellow Creek, Pipers, and Thornton Creek designated AE zone are primarily located on land above the banks of the creeks. For the portions of these parcels in the AE Zone, any project meeting the definition of "substantially improved structure" (that does not otherwise obtain a variance) would be required to meet AE zone standards, including elevating the first floor elevation two or three feet above the BFE under Alternative 1 or Alternative 2, respectively.

For the portions of parcels with the AE Zone that are also designated as "floodway", new or substantially improved structures would also need to demonstrate that there would be no net rise in flood elevations. It is possible that pile support for structures in the floodway would be a method for structure elevation without a net rise in flood elevation. Additionally, these projects

would require the Department of Ecology to review the proposal and if they determine the replacement to be safe the project could proceed. There are two such project sites located within the city of Seattle.

Interpretation of non-significant cumulative non-project impacts regarding evaluation of variances

The proposal includes provisions for possible variances from floodplain code regulations, including a variance from the elevation standard and the location standard. But the proposal also supports an outlook that the long-term goal of preventing and reducing flood loss and damage can only be met if floodplain variances are strictly limited. Therefore, the floodplain variance guidelines are detailed and contain multiple provisions that must be met before a floodplain variance can be granted. The criteria are designed to screen out those situations in which alternatives other than a floodplain variance are more appropriate.

Types of variances that could be issued include:

1. Historic Structures – variances could be issued for the repair, rehabilitation or restoration of historic structures, and the floodplain variance is the minimum necessary to preserve the historic character: and,
2. Functionally Dependent Uses – floodplain variances may be issued for new and substantial improvement and other development for the conduct of a functionally dependent use (i.e. a use that cannot perform intended purpose unless it is located or carried out in close proximity to water).
3. Other Uses

General requirements for floodplain variances include:

1. Floodplain variances shall not be issued within any floodway if any increase in flood levels during the base flood would result;
2. Variances shall only be issued upon a determination that the floodplain variance is the minimum necessary, considering the flood hazard, to afford relief; and,
3. Variances shall only be issued upon a showing of: good and sufficient cause; determination that failure to grant the floodplain variance would result in exceptional hardship to the applicant; and, the variance will not result in an increased flood height, additional threats to public safety, extraordinary public expense, or conflict with existing laws.

As implemented following the adoption of the proposed code updates, Seattle's floodplain codes would accommodate a degree of flexibility in how future development proposals would be evaluated and decided, but with an intent and an interpreted probable outcome that would avoid cumulative significant adverse impacts regarding flood heights and hazards.

Potential mitigation measures for future development indirectly related to the proposal

This is a non-project action that affects multiple parcels in the city of Seattle, with no direct increase in the potential for emissions to water and air, potential to encounter hazardous

materials, or potential to generate noise impacts due to the proposed amendments. This is due to lack of directly related development. Therefore, no measures specifically related to the proposed amendments' direct impacts are necessary.

To the extent that future development and construction could be conducted within the FEMA designated SFHAs to comply with the proposed code amendments under Alternative 1 or 2, the following types of mitigation measures could be considered during permit reviews and decisions for future specific development/ construction proposals, if environmental impacts of such development occur:

- Comprehensive Drainage Control Plans (including Construction Best Management Practices and Erosion and Sediment Control Plans for both in-water and upland areas) could be submitted as part of Grading and Building Permit applications, in accordance with City of Seattle requirements.

- To the extent that future construction could be conducted within the area subject to the proposed code amendments, the following air quality measures could be considered associated with future individual proposals:

    - Using well-maintained equipment could reduce emissions from construction equipment and construction-related trucks, as this would avoid prolonged periods of vehicle idling.

    - Using electrically operated small tools in place of gas-powered small tools, wherever feasible.

    - Trucking building materials to and from the project site could be scheduled and coordinated to minimize congestion during peak travel times associated with adjacent roadways.

- Stormwater treatment associated with any improvements to existing structures along the shoreline of Elliott Bay or the Duwamish Waterway would be provided per City of Seattle requirements, including pre-treatment and basic treatment.

- Dredged sediment could be characterized to determine if any dredged material is suitable for open water disposal. Any material not meeting the open water suitability requirements would be disposed of upland at an appropriate landfill. Water quality monitoring during dredging would also be conducted.

Plants/Animals/Fisheries/Marine Life

The proposed amendments to Seattle Floodplain Regulations are a non-project action that affects multiple parcels in the city of Seattle. No direct impacts to plants, animals, fish or marine life are likely to result from the non-project action. No likely significant indirect or cumulative impacts to plants, fish or marine life are expected to result from this non-project action as compared to the no action alternative.

Existing Conditions

A brief discussion about existing habitat conditions associated with the VE Zone area along Puget Sound/Duwamish Waterway/Magnolia Shoreline/West Seattle Shoreline and the AE Zone areas along Thornton Creek/Pipers Creek/Pipers Creek/Longfellow Creek is provided below.

Puget Sound/Duwamish Waterway/Magnolia Shoreline/West Seattle Shoreline Area

Many groups of biota use the shoreline and aquatic habitats in the area affected by the FEMA mapping and associated floodplain development regulations. Elliott Bay supports a rich community of resident and transient fish species, including several species and stocks of anadromous salmonids. Resident fish species commonly observed in the shoreline area along the Elliott Bay Seawall include surfperch, bay pipefish, shiner perch, sculpin, greenling, various flatfishes, and a limited number of lingcod.

The Washington State Department of Fish and Wildlife (WDFW) indicates that the area includes Puget Sound nearshore and estuarine zone Priority Habitats. WDFW Priority Species in the Puget Sound nearshore area and vicinity include Pacific lamprey, Pacific herring, Bull trout, Chinook salmon, chum salmon, pink salmon, coho salmon, cutthroat trout, kokanee, sockeye salmon, pygmy whitefish, steelhead, Pacific cod, Pacific hake, English sole, rockfish, lingcod, common loon, common murre, western grebe, Brandt's cormorant, shearwaters, storm petrels, terns, great blue heron, black crowned night hero, brant, cavity nesting ducks, bald eagle, waterfowl concentrations, purple martin, Dall's porpoise, gray whale, harbor seal, Pacific harbor porpoise, orca, California sea lion, Steller sea lion, butter clam, geoduck, native littleneck clam, and Dungeness crab.

WDFW Priority Habitats and Species maps indicate that no forage fish spawning occurs within the area affected by the FEMA mapping and associated floodplain development regulations.

Endangered Species Act (ESA)-listed species within the areas subject to the proposed legislation include Puget Sound Chinook salmon, Puget Sound steelhead, bull trout, bocaccio, yelloweye rockfish, Southern Resident killer whale (SRKW), humpback whale, and marbled murrelet. Critical habitat for Puget Sound Chinook salmon, bull trout, rockfish, SRKW is also present within some of the parcels subject to the proposed legislation.

The entire Puget Sound area is within the Pacific Flyway, which is a major north-south flyway for migratory birds in America—extending from Alaska to Patagonia. Every year, migratory birds travel some or all of this distance both in spring and in fall, following food sources, heading to breeding grounds or travelling to overwintering sites. Additionally, salmon and bull trout are known to migrate yearly through the area affected by the FEMA mapping and associated floodplain development regulations.

Birds common to the area include: European starling, house sparrow, rock dove, American crow, seagull, western gull, Canada goose, American robin, and house finch.

There are no known threatened or endangered plant species located in-water or upland portions of the area affected by the FEMA mapping and associated floodplain development regulations.

Thornton Creek, Pipers Creek and the Longfellow Creek Area

Thornton Creek consists of approximately eighteen miles of urban creek flowing from southeast Shoreline to Matthews Beach Park. The creek system is not known to contain any endangered plant or animal species, although kokanee have been known to travel upstream. Wildlife species known to utilize Thornton Creek and associated riparian area include muskrat, beaver, otter, and great blue heron. As is common for urban creeks, invasive species such as Japanese knotweed and rats inhabit Thornton Creek.

Pipers Creek flows approximately five miles through urbanized area of northwest Seattle entering into the Puget Sound. The lower approximately 1+ mile is located within Carkeek Park. Within Carkeek Park there is a hatchery for Chum salmon and this hatchery provides the brood stock of juvenile chum for the "Salmon in the Classroom" program that exist in some Seattle Public Schools.

Longfellow Creek flows approximately four miles through urbanized area in West Seattle to the Duwamish waterway. The upper approximately one mile stretch of Longfellow Creek is piped. The habitat condition of the creek is urban in nature and limited due to instream structures and barriers, although some coho and chum salmon have been observed. Longfellow Creek and associated riparian area provides some habitat for eagles, muskrats, beavers, and other species tolerant of urban environments.

There are no known threatened or endangered plant species located in-water or upland portions of the area affected by the FEMA mapping and associated floodplain development regulations.

Other regulatory context

The document "Community Checklist for the National Flood Insurance Program and the Endangered Species Act" (FEMA Region 10, April 2011) summarizes a relationship between a National Marine Fisheries Service (NMFS) "Biological Opinion," the National Flood Insurance Program, and the Endangered Species Act (ESA). NMFS required changes to the implementation of the NFIP in order to meet the requirements of the ESA in the Puget Sound Watershed.

> "*FEMA offers two ways to meet this ESA requirement:*
>
> 1. *Prohibit all development in the floodway and other areas as specified by the RPA.*
> 2. *Enact regulations that allow development that meet the criteria specified in the Biological Opinion by either:*
>   *a. Adopting the Model Ordinance, or*
>   *b. Enforcing the same requirements in other ordinances, such as the growth management, zoning, or critical areas regulations.*
>
> *If a community chooses not to enact regulations under the two options described above, then a third option of showing compliance with ESA on a permit by permit basis will be required. This will typically involve requiring applicants for floodplain development permits to develop in the Special Flood Hazard Area to submit permit applications to [NMFS]. If option 3 is chosen, NFIP communities must ensure that permit applicants*

> *have demonstrated compliance with ESA before issuing a floodplain development permit."*

In the City of Seattle, option 2.b was chosen. In effect, this means that if applicants meet State and City requirements for shoreline jurisdictions and other aspects like stormwater regulations, fish/wildlife protection intents are likely to be satisfied. In addition, as applicable, applicants may also need to obtain permits from the Army Corps of Engineers to meet federal requirements.

Impacts

Regarding future possible indirect impacts upon plant, animal, and fish/marine habitats, development and improvement proposals could occur on properties subject to the proposed code amendments. These could include construction activities in regulated areas, with associated potential for future adverse impacts to plants, animals, fish or marine life, including to threatened species under the ESA and to the WDFW Priority Species identified as possibly present in the Puget Sound nearshore area and vicinity. To the extent that the proposed amended regulations might affect what is developed or how it is developed or constructed, differences in degree of future development impacts might be indirectly related to the code amendment proposal.

The potential for future proposals on properties subject to the proposed amendments to generate construction related indirect impacts to plants, animals, fish or marine life would primarily depend on:

- FEMA Zone of the property;
- Location of the property (including whether it's over water or on land);
- Percentage of the property designated as floodplain; and,
- Nature of the proposal (i.e., new construction or whether it would meet the definition of "substantially improved structure[14] or not).

The following provides a generalized, programmatic-level discussion on the types of potential impacts to plants, animals, fish or marine life conditions that could occur with future possible construction associated with projects that would be required to comply with proposed amendments to floodplain development regulations.

Zone VE Parcels along the Central Waterfront

Properties along the Central Waterfront on Elliott Bay (here summarized as being located from approximately Smith Cove on the north to Colman Dock on the south) were designated VE by FEMA in 2020. Many of the affected properties along the Central Waterfront are over-water pier structures and the VE zone is applied to all over-water portions of these properties (e.g., which represents a change because prior mapping had excluded the geographic area containing the piers themselves from floodplain regulations in the vicinity of the Central Waterfront).

Both the Alternative 1 and Alternative 2 proposals reflect FEMA's requirement of the VE Zone for Base Flood Elevation (BFE) to be measured from the "lowest horizontal structural member

[14] Substantially Improved Structure is defined as improvements which equals or exceeds 50 percent of the structure before the start of construction.

(LHSM), and the requirement for future proposals associated with substantially improved structures to be elevated either 2 feet (Alternative 1) or 3 feet (Alternative 2) from the LHSM. To adhere to these VE Zone standards, a substantial amount of in-water construction (to raise the LHSM of the pier above BFE) and upland construction (to provide access and utility connections from adjacent upland area to the raised pier) would likely be required.

In-water and upland construction activities to achieve VE Zone standards would increase the potential to disturb marine life and vegetation. Potential impacts to in-water wildlife associated with construction of/replacement of any pier or wharf/seawall structures along the shoreline could include adverse effects on migratory and resident fish and wildlife from in-water pile driving noise and presence of water-based construction equipment.

The overall amount of over-water coverage from future development may or may not increase depending on individual future projects' designs. If increases in over-water coverage did not occur or were minor in added area, long-term adverse impacts on plants and animal habitats would also likely be minimal-to-minor in estimated magnitude. (However, the Port of Seattle in the past has submitted information about conceptual development scenarios involving temporary removal of above-pier structures and their interim storage in over-water locations. Which, in that scenario, would likely create temporary impacts of increased over-water coverage, and increases in total extent of adverse impacts to plant and animal habitat during the construction period.) The following provides a few more observations:

- Pier replacements could result in seabed impacts, which is a potential temporary loss of habitat;

- To the extent that any wharf structures, buildings, and/or floats would need to be temporarily stored overwater (according to Port of Seattle analyses), this action could potentially lead to an increase in habitat impacts during construction.

- There could be temporary positive impacts at the pier/wharf removal/reconstruction site during the construction period due to decreases in shading and increases in algae and invertebrate production, as well as reduced migratory impediments to salmon, but potentially a corresponding temporary negative impact to the location where the wharf and building would be stored overwater.

- After the completion of any project using bridging methods for vehicle access to rebuilt piers (e.g. Access Scenario 2), there likely would be some level of improved habitat at the shoreline edge due to less overwater coverage within the first 30 feet from the shoreline. This would improve habitat for migrating salmon and other pelagic fish, benthic organisms, and sessile organisms along the seawall. Sessile organisms are immobile organisms that attach to a substrate like the seawall.

It is noted here that FEMA's indications about how the ESA is met, and the City's position on this matter, will lead to the need for several floodplain development applicants to pursue NMFS permits. Applicants must fulfill requirements to the extent they are relevant to a development. But it is acknowledged here that due to the floodplain zone changes, those areas which formerly had no floodplain designation other than X (not regulated) are now obligated to meet the NMFS requirements if applicable.

Upland construction with improvements to comply with the floodplain regulations would primarily occur in urban areas (the Downtown central waterfront vicinity) and more-than-minor upland plant and animal impacts would not be anticipated, due to scarcity of such plant and animal presence.

With respect to the intended regulatory protections included in Alternative 2 that address controls for hazardous substances, the protective intent of the regulations can be interpreted to probably reduce the long-term potential risks of exposure of waters to hazardous substance spills and/or flood-related damages. This can be interpreted as a probable positive environmental impact that is more likely to occur than not.

Zone VE and AE Parcels along Southern Elliott Bay (Including Harbor Island and Terminals 5, 18, 30)

The portions of parcels along the southern portion of Elliott Bay designated VE Zone primarily consist of pier-supported over-water structures. For the portions of these parcels over-water and within the VE Zone, projects meeting the definition of "substantially improved structure" (that do not otherwise obtain variances) would be required to meet VE zone standards described for VE Zone parcels in the Central Waterfront, including measurement of BFE from the LHSM.

The portions of upland parcels along the southern portion of Elliott Bay designated AE zone are primarily located on fill material. For the portions of these parcels in the AE Zone, any project meeting the definition of "substantially improved structure" (that does not otherwise obtain a variance) would be required to meet AE zone standards, including elevating the finished floor elevation[15] two or three feet above the BFE under Alternative 1 and Alternative 2, respectively.

For projects in the VE Zone area, the potential for marine and upland impacts to plants and animal conditions would be similar to that discussed above for VE Zone projects in the Central Waterfront. For projects in the AE Zone area, the potential to impact plant and animal communities would be limited to urbanized upland area and the potential to impact plants and animal communities would be low.

With respect to the intended regulatory protections included in Alternative 2 that address controls for hazardous substances, the findings are the same as described above for the Central Waterfront.

Zone VE/AE Parcels along the West Seattle, Magnolia, and North Seattle Shorelines

The portions of parcels along the shoreline of West Seattle, Magnolia, and North Seattle designated VE Zone primarily consist of water area close to the shoreline with little to no over-water pier supported structures present (with the exception of one over-water residential condominium south of Alki Point and Fauntleroy ferry dock). For the portions of these parcels over-water and within the VE Zone, any project meeting the definition of "substantially improved structure" (that does not otherwise obtain a variance) would be required to meet VE zone standards described for VE Zone parcels in the Central Waterfront, including measurement

[15] New/substantially improved structures in the AE Zone do not need to consider BFE measurement from the LHSM because these areas are located on fill material and do not contain pile supported pier structures.

of BFE from the LHSM. But, as noted, the instances of existing over-water development in these areas is limited.

The portions of parcels along the shorelines of West Seattle, Magnolia, and North Seattle designated AE zone are primarily located at the Magnolia Marina and Shilshole Marina. For the portions of these parcels in the AE Zone, any project meeting the definition of "substantially improved structure" (that does not otherwise obtain a variance) would be required to meet AE zone standards, including elevating the finished floor elevation[2] two or three feet above the BFE under the Alternative 1 and Alternative 2 proposals, respectively. To the extent that future development might occur in these few locations, there would be a minor potential for impacts to plants and animals due to construction activities.

For future projects in the VE Zone area, the potential for impacts to plants and animals would be limited to construction activities which are most likely to occur in upland area on residential parcels in shoreside environments, and the potential for impact is low due to a probable rarity of development and intermittent locations and timing of future development. Potentially affected species could include all of those adapted to urban habitat upland environments plus those that may frequent shoreside areas, which could include bald eagles, rabbits, deer, coyote, a range of common bird species, and a variety of marine bird species such as cormorants.

With respect to the intended regulatory protections included in Alternative 2 that address controls for hazardous substances, the findings are the same as described above for the Central Waterfront. These are most relevant to places like the Shilshole and Elliott Bay Marina vicinities, where hazardous substances may be used; while in mostly residential, low density areas along West Seattle and Magnolia, there is little if any exposure to hazardous substances from adjacent properties.

Zone AE Parcels along the Duwamish Waterway

For future possible development/construction projects in the AE Zone area along the Duwamish Waterway, construction of improvements required to comply with the floodplain regulations would have the potential to displace some existing plant and animal habitat within this largely urbanized industrial area. The range and degree of potential future plant, animal, and fisheries impacts due to future development that is indirectly related to the floodplain code proposal would be similar to what is discussed above for the "Central Waterfront" and the "Zone VE and AE Parcels along Southern Elliott Bay." This includes with respect to the intended regulatory protections included in Alternative 2 that address controls for hazardous substances.

Zone AE Parcels adjacent to Longfellow, Pipers, and Thornton Creeks

The portions of parcels adjacent to Longfellow Creek, Pipers Creek, and Thornton Creek designated AE zone are primarily located on upland material above the banks of the creeks. For the portions of these parcels in the AE Zone, any project meeting the definition of "substantially improved structure" (that does not otherwise obtain a variance) would be required to meet AE zone standards, including elevating the finished floor elevation two or three feet above the BFE under the Alternative 1 and Alternative 2 proposals, respectively

For the portions of parcels with the AE Zone that are also designated as "floodway", new or substantially improved structures would also need to demonstrate that there would be no net rise in flood elevations. It is possible that pile support for structures in the floodway would be a method for structure elevation without a net rise in flood elevation. Table 8 below lists the approximate number of structures located in a floodway.

Table 8

Creek	Approximate No. of Structures in the Floodway
Longfellow Creek	6
Pipers Creek	0
Thornton Creek	12

For projects located in the AE zone along Longfellow Creek, Pipers Creek, and Thornton Creek, future possible construction-related disturbances, to the extent they are permitted, could result in relatively slight amounts of loss of existing plant and animal habitat on a site-by-site basis, including for those species adapted to urban areas, creeks/wetlands, and forested or otherwise vegetated greenbelt areas. To the extent interpretable, the effect of the regulations would likely be to adjust siting to be in the most amenable portions of a site, e.g., with the least overlap with creeks and adjacent water resources. Given that the greatest plant and animal habitat value is likely in places nearest these creek resources, the probable impact of the proposed regulations on plant and animal habitat would be positive in these areas.

Both the Alternative 1 and Alternative 2 proposals include provisions for the request of a variance from the regulations, including regulations related to increasing site elevation. The provisions for a variance would be as described in the response to question D.1. Such variances might also add a slight increment of possible future habitat loss from development, if such variances would result in additional permitted development sites in the future.

Similar to West Seattle and Magnolia, the affected areas of these kinds are mostly in residential, low density uses or vegetated areas, with only slight presence of other kinds of uses. Thus, there is a low degree of exposure to hazardous substances from adjacent properties.

Wetlands, floodplains and prime farmlands

The overall purpose of the proposed floodplain regulations is to comply with FEMA regulations to increase emphasis on floodplain management, as well as to promote public safety and welfare. Additionally, the proposed regulations are intended to reduce the potential for flood-related impacts to natural resources that could occur from uses located adjacent to Puget Sound, Duwamish Waterway, and creek systems. Thus, the proposed amendments to the Seattle floodplain code are intended to minimize the potential for flood related impacts and would not be anticipated to negatively affect floodplain conditions.

If improvements to comply with the proposed floodplain development regulation amendments were to occur at a property containing wetland area, applicable federal, state and local regulations related to wetland and wetland buffers would be applied to any such projects. Therefore, the potential for significant adverse wetland impacts is interpreted to be low.

No area of prime farmlands is located within the area affected by the proposed amendments to the Seattle Floodplain Development Regulations.

Potential mitigation measures for future development indirectly related to the proposal

This is a non-project action that affects multiple parcels in the city of Seattle, with no direct increase in the potential for plants and animal habitat impacts due to the proposed amendments; and thus, no measures specifically related to the proposed amendments' direct impacts are necessary.

To the extent that future development and construction could be conducted within the affected area to comply with the proposed code amendments, the following types of measures could be considered for future individual development/construction proposals:

- Proposed projects' construction would be required to comply with all City of Seattle requirements, such as Best Management Practices (BMPs) including general construction BMPs, pile removal/ installation water quality measures, pile removal/installation noise abatement, and marine mammal monitors during any pier-replacement pile driving activities. Additionally, mitigation would be required for project related impacts per Seattle's Shoreline Master Program, WDFW's HPA and permits required by the U.S. Army Corps of Engineers including Section 7 consultation with NOAA Fisheries.

Air Quality, Noise, Energy, Natural Resources Depletion, Environmental Health

This non-project action will result in no direct adverse or significant adverse impacts to these environmental elements because it does not directly propose development. Similarly, this analysis identifies no potentially significant adverse indirect or cumulative environmental impacts of these kinds.

Air Quality, Toxic/Hazardous Substances, Noise

Pollution from past and current commercial and industrial activities is a known factor in pollution of rivers and coastal marine resources. NOAA focuses its efforts on addressing hazardous waste releases with the potential to harm rivers and marine coastal resources. These include chemicals like PCBs, and dioxins, PAHs, and toxic metals such as lead and mercury. These substances are released into coastal habitats and waterways from many commercial and industrial activities, such as shipbuilding, oil storage and transfer, and chemical manufacturing among others. Released contaminants can also include discarded products like cleaning fluids, pesticides, and batteries.

Impacts

The proposed non-project action would not directly, indirectly, or cumulatively lead to significant increases in discharges or emissions of toxic or hazardous substances, to the air or natural environment, or significantly increase the production of noise. This is due to lack of directly related development. Rather, the proposal includes code provisions that would include providing new controls on hazardous substance processing in its affected area, and additional provisions

seeking securing of hazardous materials and non-hazardous materials in order to reduce the potential for such materials to be swept away during a flood event.

Floodplain code requirements, including those related to base flood elevation and related requirements, may influence how future improvement or renovation projects are designed and engineered. Such future actions would generate construction-related impacts of air and water pollutant emissions, disturbance of land and shoreline areas, noise, and potential release of hazardous substances, commensurate with the size of the future development action.

Potential for hazardous materials effects could also depend on local site-by-site conditions, including in relation to past use history and the presence of contaminated sediment or soils.

The following summarizes the potential for indirect impacts from future development affected by the floodplain code amendments, by subarea. Please review the analyses provided for the Earth, Water, and Plants and Animals elements of the environment above, for more interpretation of factors (with a relationship to these elements) that would contribute to environmental impacts of future development.

Zone VE Parcels along the Central Waterfront, and VE and AE Parcels along Southern Elliott Bay

In-water and upland construction activities to achieve VE Zone standards would increase the potential for disturbed underwater sediments, increase erosion potential from upland area, increase the potential for air emissions from construction vehicles and equipment, increase the potential to encounter and disturb existing contaminated area, and increase the potential to generate noise associated with demolition and construction activities. To the extent there could be a number of possible strategies for undertaking pier rehabilitation, renovation, and rebuilding, conducting this work could generate differing degrees of physical impacts of these kinds on their immediate surroundings, on a site by site basis.

The Port of Seattle has also provided information to the City that speculates on possible pier/structure renovation scenarios involving removing existing structures atop piers, moving them away from the site for temporary storage, and then returning the structures to be again placed on top of a new or renovated pier structure. As the Port notes, such work could create an additional increment of potential emissions to air and water, noise generation, and potential release of hazardous substances.

For projects in the AE Zone area, the potential for emissions to air, potential to encounter hazardous materials, and potential to generate noise may be most likely for upland construction activities, but could also occur in over-water locations depending on future development proposals' permitting outcomes.

See also the findings in the **Water/Water Quality** element of the environment earlier in this SEPA Determination, for "Zone VE Parcels Along the Central Waterfront" relating to Alternative 2 regulatory controls for hazardous substances, which are also relevant to the hazardous substances topic in this element.

Zone AE Parcels along the Duwamish Waterway

For projects in this area, the potential for emissions to water and air, potential to encounter hazardous materials, and potential to generate noise are similar to that discussed above for the Central Waterfront and Southern Elliott Bay. See also the findings in the **Water/Water Quality** element of the environment earlier in this SEPA Determination, for "Zone VE Parcels Along the Central Waterfront" relating to Alternative 2 regulatory controls for hazardous substances, which are also relevant to the hazardous substances topic in this element.

Zone VE/AE Parcels along the West Seattle, Magnolia, and North Seattle Shorelines

For projects in the VE Zone area, the potential for emissions to water and air, potential to encounter hazardous materials, and potential to generate noise are similar to but may be more limited than identified for VE Zone projects in the Central waterfront. This would relate to a probable limited size of project that could occur in these areas (primarily for low-density residential uses), and the rarity of such projects especially in over-water locations.
See also the findings in the Water/Water Quality element of the environment earlier in this SEPA Determination for "Zone VE Parcels Along the Central Waterfront" relating to Alternative 2 regulatory controls for hazardous substances, which are also relevant to the hazardous substances topic in this element. These might most specifically relate to vicinities such as the Elliott Bay Marina and Shilshole Bay Marina, where hazardous substances' use or storage may be more likely than in low-density residential areas. Due to similarity of the intended requirements' wording, the code and this finding would be relevant to AE zone areas that are present at these marinas.

Potential mitigation measures for future development indirectly related to the proposal
To the extent that future construction could be conducted within the area subject to the proposed code amendments, the following noise measures could be considered for future individual development/construction proposals:

> Any proposed project could be required to comply with provisions of the City's Noise Ordinance (SMC 25.08); specifically: limiting construction hours to standard construction hours (non-holiday) from 7 AM to 10 PM and Saturdays and Sundays from 9 AM to 10 PM. If extended construction hours are necessary, the applicant and/or the contractor would apply for a noise variance.

Energy and Natural Resource Depletion

The non-project action would not likely generate significant direct, indirect, or cumulative adverse impacts of energy consumption or natural resource depletion. If new development proposals are encouraged by this legislative proposal, they would be required to meet obligations of City and State energy-related requirements, which would help avoid or minimize potential impacts on natural resources. These would apply to future development with or without the proposal.

The overall purpose of the proposed floodplain development regulations is to comply with FEMA regulations to increase emphasis on floodplain management, as well as to promote public safety and welfare. Additionally, the proposed regulations are intended to reduce the potential for flood-related impacts to natural resources that could occur from uses located adjacent to Puget Sound, Duwamish Waterway, and creek systems.

Accordingly, the proposed floodplain regulations include provisions for limiting the potential for stored hazardous materials to be released to natural resources during flooding events, and the potential for the extent or elevation of floodwaters associated with creeks to expand. The strongest hazardous materials measures are proposed within Alternative 2 that is evaluated in this checklist. Compared to Alternative 2, Alternative 1 would be less beneficial in protection from hazardous materials releases, and thus has a greater potential for adverse impacts than Alternative 2 in this regard.

The use of energy associated with responding to damage associated with flooding events would likely be reduced with implementation of the proposed floodplain development regulations.

To the extent that future development/construction improvements related to complying with the proposed amendments would occur at a property, some energy would be utilized for the construction activities.

Potential mitigation measures for future development indirectly related to the proposal

None are required or proposed.

BUILT ENVIRONMENT

Land and Shoreline Use, Relationship to Plans and Policies

The **Seattle Floodplain Regulations** proposal is the City of Seattle's response to the Federal Emergency Management Agency's (FEMA) adoption of new Flood Insurance Rate Maps (FIRMs) and a Flood Insurance Study (FIS) for all jurisdictions in King County, including Seattle. FEMA's adoption of the new FIRMs and FIS requires that each jurisdiction update their floodplain maps and regulations with this new information in order to comply with the National Flood Insurance Program (NFIP), in accordance with NFIP regulations in Title 44 of the Code of Federal Regulations (CFR) 60.3.

The proposal includes mapping and code amendments to the Seattle Municipal Codes that are responsive to the FEMA mandates. This would increase the amount of regulatory requirements and the geographic span of requirements within Seattle, due to changing the FEMA zone designations toward the "High Risk" and "Coastal High Risk" designations of the A and VE zones, respectively (refer to chart in the response to Question A.11 of this checklist). These zones are categorized as "special flood hazard areas" (SFHA). The VE zone regulations are primarily located and oriented to uses and structures that are over-water, and often pertain to regulating new construction/development, or substantial improvements to existing facilities. Per the FEMA standards for the VE Zone, new construction waterward of the reach of mean high water is prohibited without a variance. The A and VE zone regulations also address details relating to the intended protection from damages that might be caused by flood events, such as by releases of hazardous materials, damages caused by floods sweeping away stored materials or debris from damaged buildings. Provisions speak to ensuring that the lowest horizontal structural member supporting buildings or the lowest finished floor of a building are elevated at certain levels, structurally built and flood-proofed in ways that avoid or mitigate the hazards and severity of flood damages.

Compared to the pre-2020 floodplain map and regulations, the proposal in Alternative 1 or Alternative 2 adds new flood-hazard-related regulatory requirements in locations where they did not exist before. Examples include along Seattle's downtown waterfront, the area occupied by piers changed from not being designated within a FEMA SFHA to having a SFHA designation of VE and areas in the Duwamish River and some adjacent lands changed from not being designated within a SFHA to having a SFHA designation of AE. These mapping changes add new regulatory requirements that include regulating the location of structures and regulating new or substantially improved development in these newly designated areas.

This means that existing uses may be subject to requirements in ways they previously were not, as well as affecting new construction, new uses, or substantially improved uses and facilities through new requirements.

This DNS relies on the checklist, which evaluated the potential for the proposed code amendments and associated map changes to generate land use and shoreline use impacts as evaluated under SEPA policies and requirements. This DNS includes discussion about the relationship of the proposals to the City's plans and policies (e.g., relating to a big-picture municipal policy perspective) as well as the proposal's potential to generate short and long-term cumulative adverse impacts that may relate to compatibility of land uses and the effects of the regulations on current and future land uses and growth patterns.

Summary of the Primary Land Use Impact Findings

Significant adverse land use or shoreline use environmental impacts, directly, indirectly, or cumulatively, are not anticipated with respect to adoption of the proposed floodplain code amendments.

The Seattle floodplain proposal is the City's response to FEMA's adoption of new Flood Insurance Rate Maps (FIRMs) and a Flood Insurance Study (FIS) for all jurisdictions in King County, including Seattle. FEMA's adoption of the new FIRMs and FIS requires that each jurisdiction update their floodplain maps and regulations with this new information in order to comply with the National Flood Insurance Program (NFIP), in accordance with NFIP regulations in Title 44 of the Code of Federal Regulations (CFR) 60.3.

The proposal includes mapping and floodplain code amendments to the Seattle Municipal Codes that are responsive to the FEMA mandates. This would increase the span of regulatory requirements and the geographic extent of those requirements within Seattle, due to changing the FEMA zone designations toward the "High Risk" and "Coastal High Risk" designations of the A and VE zones, respectively. The code proposal has undergone successive levels of in-depth review by FEMA staff, with the City incorporating their guidance as to specific code content that would likely be compliant with FEMA's requirements.

The analysis in the City of Seattle's environmental checklist has identified several findings related to the proposal's potential to generate long-term adverse land use-related environmental impacts. These relate to:

- The proposal would increase the restrictiveness of code requirements, which may affect the code's relationship to current and future land use permissibility, future improvements, and current and future operational practices in certain areas of the city, most notably within the VE zones bordering on Elliott Bay including in the Harbor Island vicinity.
- Related to the above, if the proposed requirements might lead to situations where future pier/wharf rebuilds are difficult or impossible to avoid, the proposed increases in requirements could lead to the need for development/rebuild projects that are more expensive and physically extensive than would otherwise have been required under prior requirements.
- The potential to induce demolition of historic pier structures at an unknown date in the future, if approaches like variances based on historic use preservation would not be able to accomplish or ensure the long-term preservation of historic structures.
- The potential to generate awkward or more challenging between existing structures and adjacent possible future required pier/wharf improvements with a potentially higher rebuilt dock three feet or so higher next to an existing building;
- The potential to generate awkward or conflicting relationships between future new over-water structures on existing piers and adjacent streets or public spaces; if, for example, access improvements to future rebuilt piers would necessitate altering streets, sidewalks in neighboring rights-of-way or waterfront recreational spaces or any mismatch that may be addressed via design such as ramping, bridging, or other design solutions.
- The potential for code use and operational requirements to adversely affect long-term development and use considerations at Port and non-Port marine facilities, which are important contributors to the local, regional, and state economy. This impact is identified in relation to the City's Comprehensive Plan policies that address and support maintaining the container port activities as a key city and regional economic driver and hub.
- In the Duwamish Waterway/River environment that is tidally influenced, the proposed code would incorporate FEMA requirements that would limit the total cumulative rise in the base flood elevation from new development to no more than a one foot increase. In the worst case, this might be a factor that restricts or prevents new development from occurring over the long-term, unless the cumulative-increase matter is possible to mitigate for. (It is noted that the proposed code would still accommodate the possibility of future "like-for-like" renovation projects for existing facilities, or other similar projects not enlarging an existing structure.) Such restrictions that affect Port-related uses and facilities in the Duwamish Waterway/River could be of most concern if they prevented new development that would be deemed critical to the overall functioning of Port facilities and operations.
- If the requirements encompassed in Alternative 2 relating to design flood elevation are approved, the minimum standard would be one foot higher than the minimum standard under Alternative 1 (BFE+3 vs. BFE+2), which would affect future development design specifications and could have a bearing on development project costs.
- Restrictions on hazardous materials' processing and storage conceivably could be a factor that discourages, or prevents, certain new uses from locating in affected areas. This would likely occur if processing of hazardous materials is an intrinsic or important part of the use's business purpose or operational practices. It would probably lead interested parties to seek sites in places outside areas affected by floodplain regulations and could increase future competition for sites without floodplain regulations. However,

if such potential uses also needed or preferred a location in shoreline areas, their interest in locating land for their intended use could be thwarted.

At the same time, the environmental checklist analysis concludes that the floodplain code proposal likely would be implemented by the City in a manner that meets FEMA requirements while also preserving a number of capabilities for existing uses and facilities in the floodplain zoned areas to be retained and improved over the long-term. These include strategies relating to:

- Opportunities for the City to continue reviewing and approving use permits and/or building permits for improvements to existing over-water uses and structures that would help preserve and rehabilitate them and extend their useful life indefinitely. If this approach was pursued strategically by applicants, an ability to plan the sequencing and timing of improvements could accommodate a wide range of potential improvements over a long period of time.
- Variance-related permitting approaches that would allow for future non-substantial (or in some cases substantial) improvement proposals to be reviewed with consideration of site-specific factors, which may help accommodate long-term retention of, and improvements to an existing facility;
- The continued accommodation of strategic approaches that may be used by development proponents to define the scope, geographical extent, and sequencing of their improvement projects in order to be rated as not "substantial improvements" and thus likely permissible, which would also allow for prolonging the useful life of existing uses and facilities.

Assuming these proposed permitting approaches would be implemented in the contemplated manner, the long-term cumulative impacts of the floodplain proposal on the land use patterns within the floodplain-affected area likely would not be significant and adverse. The ability for existing over-water uses and pier/wharf facilities to be planned for improvements that would extend their life would limit the overall degree of, and slow the pace of, future changes in land use patterns over the long-term. This would tend to enable a continuation of the functions, activities, and uses that contribute to current economic activities that comprise the marine Port, Port-related, and non-Port economy, and the assemblage of uses that are currently present on the downtown central waterfront. This overall trend, combined with the contents of the floodplain code amendments, would also aid in accomplishing a long-term trend that would gradually lead to transitions in land uses at the waterfront toward a greater presence of functionally dependent uses. The requirements would also aid in future uses, through improvements or redevelopment, achieving occupied floor elevations that are high enough to meet minimum requirements that will provide for improved life safety during future flood events. Even if maintenance were not utilized to extend the life of piers or wharves, the existing piers would need to be replaced at some point or removed.

Overview of Regulatory Subjects and Selected Details Contained or Addressed in the Proposal

Summarized in Table 9 below are certain assumptions and description about the characteristics of the affected types of areas, the relative hazard sources in those areas, and the manner in which protection is assumed to be provided by the regulatory codes, for various types of FEMA zones. Table 10 is an overview comparison of the proposed code amendments, by alternative.

Table 9
Descriptive Details and Assumptions About FEMA Zones, Hazards, and Regulatory Protections

	A and AE zones	**VE zones**	**AO zones**
Source of flooding	Riverine	Large, open bodies of water	Riverine sheet flow with depth 1'-3'
Relative hazard	High – waves <3' in height	Highest hazard – high velocity waves 3' in height or greater	High, but waves and speed of water flow generally not an issue
Primary form of protection	Elevate lowest floor, allow floodwaters in flood damage resistant space below lowest floor (wet floodproofing) or construct watertight (dry floodproofing, non-residential only)	Elevate on pilings, allow high-velocity waves to flow unobstructed below structure Generally, prohibit new development waterward of the reach of mean high tide.	Elevate lowest floor, allow floodwaters in flood damage resistant space below lowest floor (wet floodproofing) or construct watertight (dry floodproofing, non-residential only)
Floodway	Yes, development generally prohibited within floodway	N/A	N/A
Use of space below lowest floor	May only be used for storage, parking and building access	May only be used for storage, parking and building access; may be enclosed with lattice or breakaway walls	May only be used for storage, parking and building access

Table 10
Overview Comparison of Regulatory Changes in Specific Geographic Areas for Each Alternative

Locations	**No Action Alternative** = Requirements from the pre-August 2020 Floodplain Regulations	**Alternative 1** = Requirements from the interim Floodplain Regulations	**Alternative 2** = Requirements from the interim Floodplain Regulations, with additional flood protection requirements
Duwamish River New areas changed from X to AE Flood Zone	No requirements	A/AE floodplain regulation standards apply to this area. **A Zone** New development, expansion of existing development and SI BFE +2 = FFE requirement	A/AE floodplain regulation standards apply to this area. **A Zone** New development, expansion of existing development BFE +3 = FFE requirement SI BFE = FFE requirement
Duwamish River near Harbor Island	**X Zone** = No requirements	**VE Zone**	**VE Zone**

Locations	**No Action Alternative** = Requirements from the pre-August 2020 Floodplain Regulations	**Alternative 1** = Requirements from the interim Floodplain Regulations	**Alternative 2** = Requirements from the interim Floodplain Regulations, with additional flood protection requirements
Changed from A to VE Flood Zone at the North End of Harbor Island and from X to VE Flood Zone	**A Zone** New development, expansion of existing development and SI **Elevation** = BFE +2 measured from the FFE **Location** = no restrictions	New development and/or expansion of existing development overwater not allowed. If proposed the following applies: **Elevation** = BFE +2 measured from LHSM **Location** overwater would need a variance SI on existing overwater pier **Elevation** = BFE +2 measured from LHSM **Location** overwater would need a variance	New development and/or expansion of existing development overwater not allowed. If proposed the following applies: **Elevation** = BFE +3 measured from LHSM **Location** overwater would need a variance SI on existing overwater pier **Elevation** = BFE measured from LHSM **Location** overwater would need a variance
Elliott Bay Terminal 91 to Terminal 46 Change from X Zone for areas on overwater piers to VE Zone	Piers overwater = No requirements	**VE Zone** New development and/or expansion of existing development overwater not allowed. If proposed the following applies: **Elevation** = BFE +2 measured from LHSM **Location** overwater would need a variance SI on existing overwater pier **Elevation** = BFE +2 measured from LHSM **Location** overwater would need a variance	**VE Zone** New development and/or expansion of existing development overwater not allowed. If proposed the following applies: **Elevation** = BFE +3 measured from LHSM **Location** overwater would need a variance SI on existing overwater pier **Elevation** = BFE measured from LHSM **Location** overwater would need a variance
Streams and Floodways	**A Zone** New development, expansion of existing development and SI **Elevation** = BFE +2 measured from the FFE **Location** = no development in floodways.	**A Zone** New development, expansion of existing development and SI **Elevation** = BFE +2, measured from the FFE **Location** = no development in floodways.	**A Zone** New development, expansion of existing development and SI **Elevation** = BFE +3, measured from the FFE SI **Elevation** = BFE **Location** = development in floodways may be allowed if Ecology reviews the application and determines the replacement to be safe.

The proposed amendments to the Seattle Floodplain Development Regulations would provide additional standards, generally based on new FEMA mapping and standards, that could affect future applications for development on designated flood-prone areas in the city of Seattle. A summary of the key provisions of the proposed amendments as they relate to the various FEMA zones is provided in Table 11 below.

Table 11
Summary of Selected Details of the Proposed Floodplain Code Amendments

	Interim Regulations (Alternative 1)	**Permanent Regulations (Alternative 2)**
VE Zone – Over-Water	• BFE measured from LHSM	• Same as Alternative 1
	• Substantially improved elevated +2 ft. from BFE. • New structures prohibited waterward of the reach of mean high water.	• Substantially improved elevated +3 ft. from BFE • New structures prohibited waterward of the reach of mean high water.
AE Zone - Shoreline	• BFE measured from FFE	• Same as Alternative 1
1	• Substantially improved or new structure elevated +2 ft. above BFE; elevation rise can be on fill.	• Substantially improved or new structure elevated +3 ft. above BFE; elevation rise can be on fill.
AE Zone in Floodway	• Demonstrate no net rise	• Same as Alternative 1
	• Substantially improved or new structure elevated +2 ft. above BFE; elevation rise must allow water to flow through (i.e., elevated on piles)	• Substantially improved or new structure elevated +3 ft. above BFE; elevation rise must allow water to flow through (i.e., elevated on piles)
Ability to replace residential structure (all zones)	• Yes – with Washington State Department of Ecology approval.	• Same as Alternative 1
AE Zone Accessory Structures	• No standards	• Limited to 500 sq.ft. and used solely for parking or limited storage

BFE = Base flood elevation; FFE = First floor elevation; LHSM = Lowest horizontal structural member

Existing codes and interpretations re: "functionally dependent use"

Consistent with FEMA's regulations (44 CFR §59.1), SDCI defines a "functionally dependent use" (FDU) as a use that cannot perform its intended purpose unless it is located or carried out in close proximity to water.

FEMA's definition limits functionally dependent uses to:

- docking facilities;
- port facilities that are necessary for the loading and unloading of cargo or passengers; and

- ship building and ship repair facilities.

Structures that Require an Overwater Location to Operate

SDCI has determined that other types of development also rely on a location over or near the water to operate. Below are examples of structures, (defined by Seattle's building code), and development including accessory utilities and attendant equipment, that can be considered by SDCI as requiring an overwater location.

1. Equipment used for boat launching and landing;
2. Structures used to operate or control water-borne equipment or vessels;
3. Marine service stations if fuel is sold to boats in the water;
4. Pipes used to convey water or stormwater;
5. Waste pump-out equipment;
6. Spill clean-up equipment;
7. Bathrooms and break rooms on piers with an over-water length extending waterward greater than ¼ mile;
8. Restoration and enhancement projects.

Structures in floodways

The proposal indicates that for all substantially damaged residential structures, other than farmhouses, located in a designated floodway, the floodplain administrator may make a written request that the Washington Department of Ecology assess the risk of harm to life and property posed by the specific conditions of the floodway. Based on analysis of depth, velocity, flood-related erosion, channel migration, debris load potential, and flood warning capability, the Department of Ecology may exercise best professional judgment in recommending to the local permitting authority repair, replacement, or relocation of a substantially damaged structure.

Building Code interpretations: relationship to certain uses and development scenarios

Would utility facilities be "structures" and are they subject to the floodplain regulations?

44 CFR 9.4 provides that Facility means any man-made or man-placed item other than a structure where as *Structures* means walled or roofed buildings, including mobile homes and gas or liquid storage tanks.

The evaluation of these facilities would determine if any given utility facility would be a "structure" -- generalized here simply as a walled and roofed building. For those facilities matching the character of a structure, they would be evaluated according to requirements applicable to structures. This includes manufactured homes and a factory-built structures. Regardless of interpretation as structures or not, utilities and attendant equipment would be subject to the following regulations, worded the same for AE and V zones:

"New or replacement utilities and attendant equipment shall be:

a. Located at an elevation at or above the flood protection elevation or elevated as required by ASCE 24, whichever is greater: or

b. Designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to the design flood elevation in accordance with ASCE 24; and

c. Electrical wiring systems are permitted to be located below the flood protection elevation provided that they conform to the provisions of the electrical part of this code for wet locations and shall be anchored following the provisions of 25.06.134.B."

SMC 25.06.100.E and 25.06.134.G.5.

New floating structures, VE zone: New construction, whether floating or not, would not be allowed waterward of the reach of mean high tide in VE zones without a variance.

Relocating an existing floating structure to another location on the same development site: An existing floating structure could be relocated to another location on the same development site, provided there is no increase in nonconformities or creation of increased hazard.

Relocating a building from one area of an existing pier to another area on the same pier: This would not be treated as "new construction." It would be assumed allowable provided there is no increase in nonconformities or creation of increased hazard.

Relocating a building from a different pier to another pier: Unless building a new foundation and relocating a building would be valued as a substantial improvement, this action would be treated comparable to an "alteration" per the building code (SEBC). However, the associated construction would need to be consistent with new construction SEBC requirements regarding the building's location and any new work (tie downs, pony walls, columns, etc., that would support the relocated building).

Regarding the structure and space below a relocated building: The portion of a structure below the relocated buildings and above the foundation, including the pier deck, posts, pony walls, tie downs, etc., would be treated like an alteration if the space below the relocated building does not create a story with new useable, occupiable space, or does not increase the height of the building. Otherwise, the space below the relocated building would be considered an addition. Alterations must be consistent with requirements for new construction, but do not necessarily require non-conforming portions to be brought into compliance. An addition must meet new construction requirements.

Hazardous and Non-Hazardous Materials regulations vary between Alternatives 1 and 2

The proposed amendments under Alternative 1 and Alternative 2 have differences in the regulations that would apply to the storage and processing of materials, including hazardous material. For Alternative 1, the proposed code would not change the pre-2020 code requirements, that does not have specific standards for the storage and processing of non-hazardous material and regulates the storage, use, and processing of hazardous material under the "critical facilities" provisions. The only change proposed in Alternative 1 from the pre-2020 code is to remove Port Police from being

included in the definition of a critical facility. However, Alternative 1 contains standards for location/treatment of critical facilities.

For Alternative 2, the new proposed code text would increase regulatory guidance about hazardous (and non-hazardous) materials use and storage and would specifically prohibit the processing of hazardous material within a SFHA.

Accommodation for no variance required if pier meets BFE and structure atop it meets building code standards

The proposal also includes an accommodation that would permit substantial improvement projects to be permissible without a variance if: 1) the existing pier meets the base flood elevation applicable to the existing pier; and 2) the structure(s) will meet existing building code standards including but not limited to ASCE 24 requirements. See the discussion below on permissibility of land uses as it relates to the Duwamish River/waterway AE zone.

Comparison to the No Action Alternative

Refer to Table 10 above.

What is the effect of the proposal on the permissibility of land uses?

The proposed amendments to the Seattle Floodplain Development Regulations are not intended to prohibit all new development or substantial improvements within designated flood-prone area; but are intended to provide regulations that comply with FEMA mandates and provide additional standards for protection of people and the environment from impacts associated with flood events.

Under both Alternative 1 (interim development standards) and Alternative 2 (proposed permanent development standards), the City of Seattle is responsible for reviewing permit applications and determining compliance with floodplain development regulations. Where no other permit or authorization from the City is necessary, the approval is documented by issuance of a floodplain development permit. For proposed development where some other permit or authorization is required (i.e., Master Use Permit, Building Permit, etc.) the floodplain development approval is incorporated into the other permit or authorization.

The intent for future proposed uses and developments to be consistent with City adopted land use regulations, goals and policies is also expressed in the City's SEPA policies pertaining to SMC 25.05.675.J Land Use impacts, subsections J.2.a and J.2.b. This reinforces the need for future City reviews to be conducted in a way that results in developments that are compliant with regulatory requirements and with conditioning as necessary to mitigate impacts. These policies in 25.05.675.J state:

"2. Policies

a. *It is the City's policy to ensure that proposed uses in development projects are reasonably compatible with surrounding uses and are consistent with any applicable, adopted City land use regulations, the goals and policies set forth in the Land Use Element, Growth Strategy Element, and Shoreline Element of the Seattle Comprehensive Plan for the area in which the project is located.*

b. *Subject to the overview policy set forth in SMC Section 25.05.665, the decisionmaker may condition or deny any project to mitigate adverse land use impacts resulting from a proposed project or to achieve consistency with the applicable City land use regulations; the goals and policies set forth in the Land Use Element, Growth Strategy Element, and Shoreline Element of the Seattle Comprehensive Plan; the procedures and locational criteria for shoreline environment redesignations set forth in Sections 23.60A.060 and 23.60A.220, respectively, and the environmentally critical areas policies."*

Zone VE Parcels along the Central Waterfront and Southern Elliott Bay (Including Harbor Island and Terminals 5, 18, and 30)

It is acknowledged that the standards of the proposed Seattle Floodplain Development Regulations could increase the potential for denial or conditioning of individual permit applications for development in flood-prone areas. This includes, for example, a probability that newly-proposed over-water uses on existing piers that are not functionally dependent uses (per FEMA's terminology and intent) would be found inconsistent with Seattle's Floodplain Development Regulations and could be denied if no variance is obtained. Potential examples include any uses that do not fit FEMA's guidance, which states, "…*a use that cannot perform its intended purpose unless it is located or carried out in close proximity to water. The term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and ship building and ship repair facilities, and does not include long-term storage or related manufacturing facilities.*" And also note the City's additional allowance for structures that require an overwater location for the Operation of the Use. Examples of such structures are: equipment used for boat launching and landing; structures used to operate or control water-borne equipment or vessels; marine service stations if fuel is sold to boats in the water; pipes used to convey water or stormwater; waste pump-out equipment; and spill clean-up equipment. Note that the proposed permanent Floodplain Development Regulations include provisions for requesting a variance from the regulations (see Response to Question D.1, the variance criteria that are repeated below in this analysis, and the programmatic-level, interpretive discussion below about possible future variance evaluations).

As described elsewhere in the SEPA checklist evaluation, prospects for future granting of variances for various kinds of proposed improvement actions would depend on the review of site-specific information, the nature of the proposed improvement, and the degree to which a proposed improvement would be classified as a substantial improvement or not, based in part on the cost of the improvement in relation to the value of the existing structure as a whole. (It should also be noted that other regulations, such as shoreline regulations, could pertain and affect permissibility of uses or certain actions.) It is possible that a wide range of improvements to existing structures and facilities in VE zones (over-water) could be approved through standard permit reviews or variances, depending on the potential applicant's approach to defining the proposed project. The variance-related discussion interprets in a broad fashion what ranges of improvements may be approvable by variance or other method, but future reviews could still depend on the relevance of future site-specific physical characteristics and matters of existing uses and improvements.

To the extent that future improvements of large facilities (facilities that include over-water occupied structures) might be interpreted as substantial improvements that would lead to pier/wharf replacement at a higher elevation, this checklist analysis acknowledges that such rebuilding could entail probable expensive and extensive improvements in both over-water and upland locations. This

would include the possibility of extensive improvements that might be needed in order to maintain appropriate accessibility and vehicle, goods, and personnel movement if portions or the entirety of a container terminal's over-water structures would need to be eventually rebuilt. The particulars of such projects would depend on a number of design, use, locational size and focus, and other magnitude-of-project factors that cannot be analyzed in detail for this programmatic proposal. For example, the definition of the project site could have a bearing on what exact extent of over-water structures (piers, wharfs, and/or associated structures atop them) would be required to be rebuilt at a higher elevation.

For piers or wharves without structures atop them, the proposed codes for VE zones do not mandate the same kind of rebuilding at higher elevations as discussed above. Rather, existing pier or wharf structures and improvements to them are likely able to be retained over the long-term. Such improvements to piers would still require designs strong enough to comply with building code requirements that they will be reasonably safe from flooding. This would continue to support the codes' intended purposes for maintaining public safety, life safety, and reducing hazards and risks that could arise due to flood hazards. Functionally dependent uses on overwater structures (new and existing) will continue to be presumed as permissible uses, as would structures that require an overwater location for the Operation of the Use; and an applicant would continue to be able to request variances for relief from code requirements.

Examples discussed in Section B of the checklist illustrate that site-specific situations might lead to different possible outcomes, with respect to land use permissibility and ability to retain existing types of uses; or a need to plan for only functionally dependent uses if future improvements would be substantial and if permitting outcomes would dictate rebuilding at higher elevations. In short:

- Existing historically-designated pier structures such as Pier 56 could be eligible to receive historic-related variances, or be granted permits for non-substantial improvements, of which either type of permit decision would accommodate a continuation of the existing pier structure and improvements on the pier, along with categories of uses similar to what currently exists.
- In contrast, structures that are not historically designated, such as at Pier 67, could be limited primarily to non-substantial improvement permits such as pier-reinforcement improvements, interior renovations, and other improvements that would not expand the footprint of the existing structure. But if substantial improvements became necessary (such as an improvement valued at greater than 50 percent of the value of the existing structure) and the development could not otherwise be accommodated by City permitting such as through variances, then a pier rebuild at a higher elevation would likely be required at Pier 67 and the existing lodging use would likely not be a permissible use on the rebuilt pier. It is likely then that a property owner would be limited to other use options that would replace it with a use that is a Functionally Dependent Use or uses that requires an overwater location for the Operation of the use (such as equipment used for boat launching and landing; structures used to operate or control water-borne equipment or vessels; marine service stations if fuel is sold to boats in the water; pipes used to convey water or stormwater; waste pump-out equipment; and spill clean-up equipment).

Zone AE Parcels along the Duwamish Waterway

In AE zones, the relative restrictiveness of codes on future permissible uses would be somewhat less than within the VE zones, with one notable exception about tracking cumulative contributions to flood levels for new development. If existing over-water structures would need repairs or improvements, the amended floodplain code would likely accommodate either substantial or non-substantial improvements, and a continuing capability for the existing kinds of uses to continue to be permitted in improvements on top of the piers. For construction on top of existing piers that do not meet the FEMA base elevation standard, a variance request could be made to allow substantial improvements, which would need to demonstrate, among other things, that the existing (e.g. proposed to be improved) pier structure would withstand the expected wind and wave conditions for a 100-year flood event. New construction or substantial improvement on an existing pier would need to meet building code requirements including but not limited to current ASCE 24 requirements and demonstrate that the elevation of the proposed development (e.g., the first floor elevation in an A zone) is constructed above the design flood elevation.

The Zone AE also includes a variety of parcels in the northern portion of South Park, which have a mix of commercial and residential uses in them. Future uses and development in this area would be required to show that standards such as lowest occupied floor are sited/designed to meet the required elevation standard. This could, for example, result in new residential development or non-residential development that would need to have the first floor elevation built above existing ground level, along with suitable flood-proofing elements in their building design.

Alternative 2: Another implication for these Zone AE parcels, including but not limited to those properties in the South Park vicinity, is that future new development of uses involving hazardous materials would need to meet applicable requirements for permissible use and storage of such materials. These added requirements are in addition to the pre-2020 code and Alternative 1 code requirements that only allow new hazardous material storage and use within SFHAs if no feasible alternative site is available. This requirement is also included in Alternative 2.

Need to track cumulative contributions to flood levels for new development in this area

In this riverine environment that is tidally influenced, the proposed code would follow FEMA requirements that do not allow for future new developments to cumulatively increase more than one foot of additive rise in the base flood elevation. City authorities will need to keep track of a record of such future projects and their contributions to increasing flood elevations, to assess cumulative increases over time. Future applicants for new development would also be expected to provide information that evaluates the potential for a project to contribute to an increase in the flood elevation level. But the City's proposed codes also anticipate that this requirement would not apply to proposals involving "like-for-like" replacement of existing structures, or for improvement projects that similarly are not enlarging an existing structure.

This cumulative-increase-tracking aspect of the requirements could ultimately be a factor that restricts or prevents new development from occurring over the long-term, if the cumulative contributions of future development will lead to one foot of total flood-level rise. If that occurs, it presumptively leads to prohibition of other future new development in the area affected by this requirement (unless the cumulative-increase matter is otherwise addressed or ameliorated, if that is possible). It presumptively would still accommodate the possibility of future "like-for-like" renovation projects for existing facilities, or other similar projects not enlarging an existing structure,

which is assumed not probable to cause net increases in flood levels. But the probable restrictiveness created by this proposed requirement has the potential to generate adverse land use impacts if it would put a "hard stop" on future new development for the long-term, and if such new development would unduly restrict future new development of certain uses. Port-related uses and facilities that might experience this new-development restriction are the land use category that would be potentially of most concern if the proposed code prevented new development that is deemed critical to the overall functioning of Port facilities and operations (and/or other uses that contribute substantially to Seattle's maritime economy). Currently, Port facilities in AE designated portions of the Duwamish River vicinity south of Harbor Island include but are not limited to facilities such as Terminal 107, 108, and 115. This is interpreted as a possible future indirect adverse cumulative impact of the floodplain code proposal.

Amendments accommodating residential building replacement in the floodway

The proposed legislation allows flexibility for residential buildings in the floodway to be replaced in very limited instances, with review and approval from the Department of Ecology. SDCI has identified less than ten residential buildings in the floodway, the area with the very highest flood risk. Currently SDCI only allows repair and maintenance of these structures. This change would allow the homeowner to get a permit from SDCI to replace the structure only if Ecology reviewed the application and determined the replacement to be safe. The land use impacts, even if all residential buildings seek replacement, would be very minor in nature since it would be replacement of a residential building, if approved by Ecology, rather than repair and maintenance.

Zone VE and AE Parcels Along the West Seattle, Magnolia, and North Seattle Shorelines

Overwater locations in these subareas are designated within the VE zone, except for the marina vicinities at Magnolia and Shilshole, which are designated in the AE zone. And, in upland property lying next to over-water locations in these areas, the FEMA designation is typically and predominantly in the AE zone. As noted in Section D of the checklist, most of the existing development on parcels along the shorelines of West Seattle and Magnolia is in low-density residential (single-family or multifamily) uses, which are primarily located on upland locations above the shoreline. Exceptions include one over-water condominium in Alki, a ferry dock at Fauntleroy, and certain other existing structures located in ways that partially overlap into the VE zone. In West Seattle and Magnolia, the interface between uplands and shorelines are protected in nearly all properties with concrete bulkheads or other armoring like rip-rap.

For the future, essentially all development and improvement actions would be expected to occur in upland areas (except possibly improvements within marinas). Development proposals would need to document their building sites will meet requirements relating to elevation of occupied floors of the structure, and provision of floodproofing methods that meet the requirements, if applicable. The relevance of these requirements would depend on site specific characteristics such as elevation; in many or most cases floodplain-related requirements may not materially affect existing or future residential uses due to their upland locations and existing elevation differences. New development of occupied structures in previously undeveloped over-water locations is not predicted by this evaluation to occur in these areas.

Zone AE parcels in the Longfellow, Pipers and Thornton Creek areas

The portions of parcels adjacent to Longfellow Creek, Pipers Creek, and Thornton Creek designated AE zone are primarily residential in nature and located on upland material above the banks of the creeks. For the portions of these parcels in the AE Zone, any project meeting the definition of "substantially improved structure" would be required to meet AE zone standards, including elevating the finished floor elevation[2] two or three feet above the BFE under Alternative 1 and 2, respectively.

If portions of parcels within the AE Zone are designated as "floodway," new or substantially improved structures would also need to demonstrate that there would be no net rise in flood elevations and gain the approval of Department of Ecology in order replace a residential structure in the floodway.

These requirements could result in future residential development or improvements that are set back farther away from creeks, and/or raised in their occupied floor locations, with appropriate methods of floodproofing in lower portions of the structures.

While these could cause local variations in the locational patterns and appearance of individual homes or other structures, these kinds of impacts would be minor and localized in nature. The requirements are for the purpose of avoiding flooding and life safety impacts along these urban creek systems that provide local and subarea drainage for parts of North Seattle and West Seattle. New development in over-water locations would not be expected to occur.

Overall

The City of Seattle will review future development permit applications for sites within flood-prone area for their compliance with applicable City plans, policies and regulations (including regulations mandated by Federal and State government).

Variance criteria and relationship to land use impact analyses

The floodplain variance criteria at 44 CFR 60.6 are detailed and contain multiple provisions that must be met before a floodplain variance can be granted. The criteria are designed to screen out those situations in which alternatives other than a floodplain variance are more appropriate.

An applicant can seek a variance from any floodplain standard. The types of variances that could be sought include but are not limited to:

1. Historic Structures – Variances could be issued for the repair, rehabilitation or restoration of historic structures, and the floodplain variance is the minimum necessary to preserve the historic character: and,
2. Functionally Dependent Uses – Variances of this kind can be sought for any floodplain standards; however, the FEMA requirements are that any variance sought should be for the minimum necessary both in the number of standards it is varying from and the extent of variance. Floodplain variances may be issued for new and substantial improvement and other development for the conduct of a functionally dependent use (i.e. a use that cannot perform intended purpose unless it is located or carried out in close proximity to water).
3. Other Uses – a project proponent can seek a variance from the standards for other uses and must meet the FEMA variance criteria described below.

General requirements for floodplain variances include:

1. Floodplain variances shall not be issued within any floodway if any increase in flood levels during the base flood would result;
2. Variances shall only be issued upon a determination that the floodplain variance is the minimum necessary, considering the flood hazard, to afford relief; and,
3. Variances shall only be issued upon a showing of: good and sufficient cause; determination that failure to grant the floodplain variance would result in exceptional hardship to the applicant; and, the variance will not result in an increased flood height, additional threats to public safety, extraordinary public expense, or conflict with existing laws.

This would involve making a determination that the granting of a floodplain variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public, or conflict with existing local laws or ordinances.

In general, going forward, SDCI will evaluate a variance request based on all the criteria set out at SMC 25.06.136, which is based on 44 CFR 60.6. SDCI's review will evaluate whether denying the variance would result in hardship, and whether granting the variance would result in increased flood-related impact risks, and whether the development proposing a variance would reasonably minimize its degree of impact in the flood zone and seek a variance for the minimum necessary to afford relief. To help to determine whether a proposed variance meets these criteria, the types of questions that SDCI will ask include but are not limited to the following:

Is there an alternative location for the proposed development?

- For what reason(s) is the project unable to comply with the regulations?
- Does issuing the variance increase the risk of flooding or flood damage to the adjacent properties or neighborhood?
- Is the variance detrimental to public health, welfare, or safety?
- Does the development only deviate from flood code compliance to the extent necessary?

The variance application would also need to demonstrate that the structure or other development is protected by methods that minimize flood damages during the base flood event, create no additional threats to public safety, and that materials at the site are secured in a manner that prevents them from being swept away into the water or onto land to the detriment of the aquatic environment, existing structures, or humans.

For example, a variance request for construction on top of existing piers that do not meet the FEMA elevation standard would need to demonstrate, among other things, that the existing (or improved) pier would withstand the expected wind and wave conditions for a 100-year flood event. Any new construction or substantial improvement above the existing pier would need to meet building code requirements including but not limited to ASCE-24 requirements (an existing component of the building code), which is an existing requirement, and demonstrate that the elevation of the proposed development is constructed above the design flood elevation.

See other discussion of variance evaluation matters in Appendix B to the checklist (Variance Guidance document), which is incorporated by reference.

Going forward, the City's anticipated approach to future permitting of development or improvements in floodplain-designated areas would consider on a site-by-site basis how future proposals relate to code requirements, and what permitting mechanisms may be usable. This would allow for proper assessment of whether each proposal could be accomplished in a manner that accommodates the continued existence of existing over-water uses and structures, the degree to which repairs and improvements to those would be permissible, or ultimately whether a development or improvement proposal is extensive enough that it requires a rebuilding of the existing pier at a higher elevation consistent with City and FEMA requirements, as included in the floodplain code proposal.

Because this permitting approach may apply to several varieties of possible situations with site-specific and project-specific characteristics, it would be necessary to make future project-specific evaluations and judgments. However, the City's analysis for this SEPA environmental determination examines a range of possible scenarios in order to conceptually interpret how future permitting allowances could play out for different kinds of proposed improvements.

These kinds of variances could be granted in relation to:

- Variances from **locational** requirements (the positioning of a new development over water or not);
- Variances from **elevation** requirements (whether the substantial improvement or new development is required to meet City's elevation standards in relation to base flood elevation requirements or not);
- Variances in relation to **functionally dependent use** requirements;
- Variances in relation to **historically-designated** uses or structures.

Potential factors influencing the evaluation of future variance requests include (but are not limited to):

Nature of the proposed over-water use(s): Is the existing or proposed use a functionally dependent use? Is the existing or proposed use occurring in a historic or landmark-designated structure?

Nature of the proposed physical change: Would the proposal physically expand a building or pier's footprint (e.g., adding to a structure's site coverage) or not?

Elevation of the affected location: Whether the location of the development is above the base flood elevation level could make a difference in the variance evaluation.

Location over water: Would the proposed improvement newly extend a portion of a structure over water?

Total value of proposed improvements: The FEMA criteria that the City is required to use to determine whether a proposed development is a substantial improvement is based on the financial

value of a proposed development as compared to the financial value of an existing structure. If the value of the improvement exceeds 50% of the value of the existing structure, it is a substantial improvement. The City considers the cumulative value of multiple improvement projects over a 5 year period. These financial values are calculated according to methods used for determining building code permit review fees. These are described in the SDCI Director's Rules 2-2021 and 1-2024, which address the use of building valuation data (BVD) from the International Code Council (ICC) and other valuation criteria approved by the SDCI Director to determine the value of construction. Directors Rule 2-2021 outlines the means and methods used to calculate and update the BVD.

Age and physical condition of the existing structure: Is the existing structure nearing the end of its practical lifespan in terms of physical condition and structural viability? Physical decay may compromise portions of an existing structure, even possibly jeopardizing the ability to effectively rehabilitate it through repairs. For these criteria, the size and the financial value of the existing structure in question could have a bearing. Because future possible improvement projects would be evaluated by comparing their financial value to the value of the existing structure, the value of minimum necessary repairs to an existing small, old structure could more easily exceed the 50% financial value criterion than might occur for a larger structure that is in better physical condition and thus more highly valued. A sample comparison might be the value of improvements at a small, older pier facilitating vehicle ferry loading, versus the value of improvements made at Colman Dock. For the latter, a more extensive amount and type of structural renovations may be permissible by future City reviews because of the probable high existing financial value of Colman Dock's physical infrastructure.

Other code considerations: A floodplain variance cannot be granted where it would conflict with other local, state, or federal laws; provided that an applicant may also apply for modifications, variance or deviations from those other codes and standards as applicable and available. Examples of local laws that may conflict with a variance include State and local building codes, health and safety regulations, and laws protecting environmental and other natural resources, including but not limited to threatened or endangered species and historic or cultural resources. Any variance must comply with the provisions of State zoning legislation.

Summary portrayal of a range of possible variance and non-variance permitting scenarios

Table 12 illustrates how a range of conceptual future development or improvement proposals might be evaluated, without considering any other site-specific particulars or possible physical matters that could have a bearing on a variance analysis. This also illustrates that a range of possible improvements that do not meet the threshold of substantial improvement are likely permissible without requiring a variance. This affords property owners or responsible parties the opportunity to evaluate strategies that could pursue a series of improvements over many years to sequentially improve their pier structures and structures atop piers. While the cumulative value of projects over a five-year period is considered by the City, strategies could be planned over longer than five-year periods that would enable existing uses and structures to continue to exist indefinitely over the long term.

Table 12
Permitting scenarios for a range of possible future use and development examples

Use/development scenario	Functionally Dependent use?	What is likely permissible by code without variances?	What is likely permissible by variance?	Comments
Restaurant or retail center, over-water, existing	No	Interior improvements, minor	Depending on site-specific analysis, variance for substantial improvements is possible; but City assumes these should not expand by adding to building footprint. Historic structure may be able to obtain historic variance	• Based on evaluation: preponderance of review factors • Value of improvement; age and condition, relation to BFE, design for flood risks, and building code requirements may matter
Seattle Aquarium, existing	No	Non-substantial and substantial improvements on upland structure, if meet floodplain standards	Variance not needed for upland improvements that meet floodplain standards. Variance for new over-water additions less likely, if use is not necessary to be over-water and is not functionally dependent use	May be difficult to justify an over-water aquarium addition as being a functionally dependent use
Aquarium, if new	No	No	No	Aquarium is not a functionally dependent use
Hotel over-water, existing	No	Non-substantial interior or exterior improvements, if footprint is not expanded	Depending on site-specific analysis, variance for substantial improvements is possible; but City assumes these should not expand by adding to building footprint or building envelope.	The cost of substantial improvements compared to existing value of pier and improvements may be a factor in City evaluation
Hotel over-water, new	No	No	No	Hotel is not a functionally dependent use

Use/development scenario	Functionally Dependent use?	What is likely permissible by code without variances?	What is likely permissible by variance?	Comments
Ferry dock, existing	Yes	Minor improvements, non-substantial	Yes, variances are possible for substantial improvement	• Based on evaluation: preponderance of review factors • Value of improvement; age and condition, and definition of project details may matter
Ferry dock, new	Yes	New, if built to required elevation	Yes; variances are possible for new structures, if variance criteria met	• Based on evaluation: preponderance of review factors • Hardship and relationship to flood impact risks, plus all other variance factors described in the checklist narrative above
New over-water pier with a functionally dependent use such as docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and shipbuilding and ship repair facilities	Yes	Yes, if located landward of the reach of high tide in the VE zone or within the A zones	Yes; variances for location are possible overwater in the VE Zone, if variance criteria are met	• Based on evaluation: preponderance of review factors • hardship and relationship to flood impact risks, plus all other variance factors described in the checklist narrative above
Existing overwater office building,	No	Minor non-substantial improvements	Yes, variances are possible for substantial improvements if variance criteria are met. But the City assumes these should not expand by adding to building footprint.	The cost of substantial improvements compared to existing value of pier and improvements may be a factor in City evaluation
New overwater office building	No	No	No	Office use is not a functionally dependent use

Use/development scenario	Functionally Dependent use?	What is likely permissible by code without variances?	What is likely permissible by variance?	Comments
New marine institute/school	No	No	No	Marine institute/school is not a functionally dependent use
Existing marina	Yes	Minor non-substantial improvements	Yes; variances for location are possible for piers with new structures that meet the definition of a functionally dependent uses, if variance criteria are met	• Based on evaluation: preponderance of review factors • Value of improvement; age and condition, and definition of project details may matter
Overwater Structures used to operate or control water-borne equipment or vessels, new or existing	Yes	Minor improvements, non-substantial	Yes. A variance would be needed for elevation for an existing structure if the existing pier does not meet the elevation standards and a variance would be needed for new overwater structures and the new structure would be expected to meet the elevation standards.	Assumed to be a functionally dependent use
Marine service stations if fuel is sold to boats in the water	Yes	Minor improvements	Depends on site-specific analysis	• Based on evaluation: preponderance of review factors • Factors could include those related to base flood elevation, where located, whether flood-proofing is included
Bathrooms and break rooms on piers, up to ¼ mile waterward length	No	No	Yes	• Based on evaluation: preponderance of review factors • Hardship and relationship to flood impact risks, plus all other variance factors described in

Use/development scenario	Functionally Dependent use?	What is likely permissible by code without variances?	What is likely permissible by variance?	Comments
				the checklist narrative above

Alternative 2: Other considerations, and differences in land use impacts from Alternative 1

The differences between Alternative 1 and Alternative 2 largely relate to differences in the proposed regulation of hazardous and non-hazardous materials, and related topics of anchoring of materials and treatment of floating features. Also, there is a one-foot difference in the setting of the base flood level elevation at either BFE +2 or BFE +3 that must be accounted for in the design of future buildings and the elevation of their first occupied floor. Further Alt. 2 contains an exception to the elevation standard for piers or wharves that existed on or before August 19, 2020 for commercial, industrial or other non-residential standards such that they must only meet BFE, not BFE +3 at SMC 25.06.110 and .134(a)(2) under Alternative 2 legislative proposal.

The following discussion evaluates impacts related to these subjects.

Impacts Related to Differences in Use and Storage of Hazardous and Non-Hazardous Materials and Equipment Regulations

This subject relates to "critical facilities" regulations addressed by FEMA, and also by the Washington State Model Code intended to address that subject. The Model Code defines critical facilities as follows: it involves schools, nursing homes, hospitals, police, fire and emergency response installations and ***installations which produce, use or store hazardous materials or hazardous waste*** (emphasis added).

The Model code addresses storage of materials and equipment at pages 17-18 and provides

"the storage or processing of materials that could be injurious to human, animal or plant life if released due to damage from flooding is prohibited in special flood hazard areas (recommended).*

*Storage of other material or equipment may be allowed if not subject to damage by floods and if firmly anchored to prevent flotation, or if readily removable from the area within the time available for a flood warning.

Zone A discusses storage structures at page 23.

The general requirement for other development is at page 27 of the checklist in a subsection addressing critical facilities that is optional. It provides the following:

- Construction of <u>new</u> critical facilities shall be, to the extent possible, located outside the limits of the SFHA (100 year floodplain).
- Construction of new critical facilities shall be permissible within the SFHA if no feasible alternative site is available.
- Critical facilities constructed within the SFHA shall have the lowest floor elevated three feet above BFE or to the height of the 500 -year flood, whichever is higher.

- Access to and from the critical facilities should also be protected to the height utilized above.
- Floodproofing and sealing measures must be taken to ensure that toxic substances will not be displaced by or released into floodwaters.
- Access routes elevated to or above the level of the BFE shall be provided to all critical facilities to the extent possible."

Alternative 2 includes proposed additional regulations addressing use and storage of materials and equipment and accessory structures, such as standards for hazardous material storage that relate to standards from the Washington State Model Code. The regulations related to use and storage of materials and equipment would apply to new development, substantial improvements and changes-of-use that propose use or storage of materials or equipment, if development proposals with substantial improvements are not able to obtain variances. These proposed regulations will not apply to existing uses that already use or store materials or equipment unless changes in use or development are proposed that involve new use or storage of materials or equipment. Thus, the proposed use and storage regulations do not apply to existing uses, which could continue current operational practices, including those uses that might be legal non-conforming uses.

Alternative 2 would prohibit the processing of hazardous materials within a SFHA in a VE and A, AE and AO zones for new development and substantial improvements.

Restrictions on uses with hazardous materials processing: Regarding impacts to land use patterns, such restrictions on hazardous materials' processing conceivably could be a factor that discourages, or prevents, certain new uses from locating in affected areas. This would likely occur if processing of hazardous materials is an intrinsic or important part of the use's business purpose or operational practices. It would probably lead interested parties to seek sites in places outside areas affected by floodplain regulations and could increase future competition for sites without floodplain regulations. However, if such potential uses also needed or preferred a location in shoreline areas, their interest in locating land for their intended use could be thwarted.

For the sake of protecting floodplains from the potential adverse effects of flooding at new uses involving hazardous materials processing, and associated facilities being damaged by floods, the proposal would appear to accomplish its protective intent.

Distinctions of land use impacts related to land uses that use or store hazardous materials, between existing uses/facilities, and new or substantially improved uses/facilities: In a manner similar to other intended outlooks for future land use permitting discussed elsewhere in this checklist, the proposed regulations would differently affect existing uses. This generally would relate to principles of non-conformity, which accommodate the ability of an existing use to continue operating even if later enacted regulations would prohibit such uses. Here, there are a variety of uses in the SFHA zones that currently use or store hazardous materials or equipment. These proposed regulations do not apply to these current uses unless there is a change of use, new construction or substantial improvement that proposes to use or store hazardous materials, which would trigger a need for SDCI review of that particular work. This outlook also assumes that minor non-substantial improvements to existing uses/facilities likely can be permitted, but that new development proposed at an existing facility use would be subject to floodplain review that may require some

floodproofing/sealing or increased elevation for the portion of proposed development or for new storage or use of materials. However, the review would be limited to the scope of the proposed work and would not require an existing use to conform to all new development standards but instead be limited to the scope of new development. This also assumes that variances to accommodate substantial improvements can be granted if a proposal is consistent with variance criteria. Per this outlook, the proposed floodplain code amendments and their proposed new restrictions related to use and storage of hazardous materials can be concluded as not likely to generate significant adverse impacts on existing land uses in floodplain regulated areas. Also, the intended ability to accommodate a property owner's strategic planning for sequential improvement projects over time (although cumulatively summed within a five year period), accommodates the ability to pursue improvements that would each be non-substantial in magnitude and aid the continuing operation of the existing use with stepwise improvements to its existing facilities. This would help preserve these uses' ability to continue to operate as they have for an indefinite period of time into the future. This is also assumed to apply to existing storage and hazardous materials use practices for such uses. For probable existing uses of interest such as container terminal operations, cruise ship facilities, or non-Port maritime or non-maritime uses, this appears likely to avoid probable significant adverse land use impacts.

Also, it is acknowledged that for development proposals that would be categorized as substantial improvements (if not able to obtain a variance), the code would trigger a requirement to elevate if no exemption applied to the elevation standard and to adopt Best Management Practices to limit hazardous waste getting swept away in a flood. This would be an additional level of obligation placed on property owners/users to comply with regulations, which could be interpreted as increasing standards to protect public health, safety and welfare and to increase cost of development but not to prohibit certain land use simply by using or storing hazardous or non-hazardous materials.

Requirements Related to Hazardous and Non-Hazardous Materials Storage and Floods, for New Uses and Substantial Improved Uses: The proposed amendments that are cited earlier in the response to this checklist question are intended to require practices for storage of hazardous and non-hazardous materials in ways that will reasonably limit the potential for flood damages and pollution that could be caused by stored items becoming debris swept into flood waters. This would include: seeking locations that are not vulnerable to floods, providing storage in structures that are flood-safe with features such as floor elevation above the pertinent flood elevation, and proper storage and anchoring techniques to minimize the potential for flood damages. Future new development proposals and substantial improvements may be required to meet these standards, if they are not able to obtain a variance. This means the added degree of regulation in these requirements would result in additional design considerations for future developments to meet.

Requirements Related to Flotation:

The City's proposed code language regarding flotation is meant to continue to accommodate the ability for floating structures and features to float. Examples include boathouses, fuel floats, gangways, and floating docks. The proposal intends to comply with the intent of FEMA prescriptions, which are to provide sufficient securing of floating features against wind and water loads and unintended lateral movement while still allowing them to float. An analogous example of intended outcomes is floats at a marina that are secured by piles while still accommodating

movements of tidal actions. Given the City's intent to comply with FEMA prescriptions, unusual or constricting impacts upon floating uses/features are not expected to be an outcome generating significant adverse land use impacts.

Conclusions regarding these materials and storage regulations

Although these proposed regulatory changes are concluded to likely increase levels of restrictions and obligate parties to follow new or additional materials storage and use practices for new development or development involving substantial improvements or to changes of use, the proposal is interpreted as not likely to result in widespread adverse changes to existing land use patterns. This conclusion relates to the aforementioned ability of property owners/users of existing uses to continue to use existing facilities and plan strategically for future improvements in ways that allow stepwise improvements while still remaining consistent with City codes. Despite the potential for added costs, inconveniences, restrictiveness, and uncertainties that may arise and be evaluated by property owners/users as consequences of the operation of the uses, the proposal accommodates continuation of practices and uses at existing uses and accommodates possible pathways to permitting improvements that will allow perpetuation of those uses over the long-term. Potential difficulties in managing the rearrangement of functions on a property, possible changes in operational practices, and possible changes in cost of operations and related inefficiencies are acknowledged as spinoff effects. When weighed in relation to the probable continuing probable advantages afforded by the affected locations along Elliott Bay (including but not limited to deepwater port accessing the Pacific Ocean, transportation transfer connections, and relevance to State, regional, and national economies), the probable outcomes in relation to the effects of the proposed floodplain regulations would not lead to abandonment and failure of these locations as major Port operations.

Relationship to Plans and Policies

The proposed amendments to the Seattle Floodplain regulations are intended to be consistent with Seattle plans and policies, including the Seattle Shoreline Master Program and the Seattle Comprehensive Plan as described below.

Seattle Shoreline Master Program

Summary: The purpose of the Seattle Shoreline Master Program (SMP) is to implement the policy and provisions of the Shoreline Management Act and the Shoreline Goals and Policies of the Land Use Element of the Seattle Comprehensive Plan, as well as the City's interest in the public health, safety and welfare, by regulating development, uses and shoreline modifications of the shorelines of the City in order to:

1. Protect the ecological functions of the shoreline areas;
2. Encourage water-dependent uses;
3. Provide for maximum public access to, and enjoyment of the shorelines of the City; and,
4. Preserve, enhance, and increase views of the water.

Discussion: The overall intent of the proposed Seattle Floodplain Development Regulations is to update the regulations to comply with the FEMA adoption of new Flood Insurance Rate Maps and Flood Insurance Study for Seattle. The National Flood Insurance Program (NFIP) is intended to:

reduce the emphasis on flood control; increase emphasis on floodplain management; reduce federal disaster costs; shift burden from general taxpayers to floodplain occupants; provide insurance coverage not generally available on the private market; and promote sound floodplain management practices. The proposed amendments to the Floodplain Development Regulations per SFHA zone type are described in Tables 10 and 11 in this evaluation.

The most restrictive SFHA zone and location is the VE Zone waterward of the reach of mean high water. Within this zone, the regulations encourage uses over time to change from those more general uses that exist to those uses that are termed "functionally dependent uses." This type of use cannot perform its intended purpose unless it is located or carried out in close proximity to water, such as docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and shipbuilding and ship repair facilities but not including long-term storage or related manufacturing facilities. Under certain circumstances, variances may be issued for functionally dependent uses to be located overwater.

The Shoreline Master Program which implements the Shoreline Management Act includes goals, policies and regulations that govern land use and activities within the Seattle Shoreline District. The policy goals include preserving the shoreline for uses that are water-oriented and appropriate for the environmental context, such as port facilities, shoreline recreational uses and water-dependent businesses such as marinas and vessel repairs.

The proposed amendments to the Floodplain Development Regulations are also intended to reduce the potential for impact to people, property and the environment from flood events, and the amendments reflect FEMA updated zone designations and measurement of the base flood elevation (BFE) to minimize the potential for such impacts. The proposed amendments are consistent with the purpose of the Seattle SMP to regulate shoreline development in regard to public health, safety, and welfare.

The pre-2020 Floodplain Development Regulations do not meet FEMA's minimum standards. Alternative 1 contains the requirements that are in the current Interim Seattle Floodplain Development Regulations and reflect the minimum City of Seattle actions to comply with FEMA's new mapping and standards. The proposed Permanent Seattle Floodplain Development Regulations (Alternative 2) include all the same regulatory standards included in the Interim regulations plus additional amendments to provide further flood hazard protections. Alternative 2 varies from Alternative 1 by increasing the freeboard elevation requirement from two feet to three feet and additional amendments addressing treatment of hazardous materials and accessory structures. See the Project Description in this SEPA Determination and the Environmental Checklist; and also see Tables 10 and 11 in this SEPA Determination. Either Alternative 1 or Alternative 2 would meet the purposes of the Seattle SMP.

Seattle Comprehensive Plan

Summary: As indicated in the summary for the Seattle Shoreline Master Program above, the Shoreline Goals and Policies of the Land Use Element of the Seattle Comprehensive Plan provide guidance for the regulating use of the Seattle shoreline. The excerpts below highlight Shoreline Goals and Policies of the Land Use Element of the Seattle Comprehensive Plan that relate to the management of shorelines:

GOALS

Goal SA G1 – Encourage shoreline uses that result in long-term over short-term benefit.

Goal SA G2: Define appropriate uses for specific segments of the shoreline.

Goal SA G3: Locate uses that are not water dependent or water-related on upland lots to optimize shoreline use and access.

Goal SA G4: Protect ecological function of those areas or shoreline that are biologically significant or that are geologically fragile.

Goal SA G10 Require that no net loss of ecological functions occurs as a result of uses, development, shoreline modifications, maintenance activities, or expansion of existing uses.

Goal SA G12 Preserve, protect, and restore areas necessary for the support of terrestrial and aquatic life or those identified as having geological or biological significance.

Goal SA G13 Use scientific information to guide shoreline protection, enhancement, and restoration activities.

Goal SA G14: Address and minimize the impacts of sea-level rise on the shoreline environment with strategies that also protect shoreline ecological functions, allow water dependent uses, and provide public access.

Goal SA G16: Restore lower Duwamish watershed habitat and marine ecology while sustaining a healthy and diverse working waterfront in this urban industrial environment.

POLICIES

Policy SA P1 (Excerpt, emphasis added): Allow only those uses, developments, and shoreline modifications that retain options for future generations, unless identified benefits clearly outweigh the physical, social, environmental, and economic loss over a twenty-year planning horizon. Use preference will be given in the following order:

1. On waterfront lots:

a. **Uses that protect or restore and enhance natural areas and ecological processes and functions**, particularly those areas or systems identified as containing or having unique geological, ecological, or biological significance.

b. **Water-dependent uses**—uses that cannot exist outside a waterfront location and are dependent on the water by reason of the intrinsic nature of operations.

c. **Water-related uses**—uses or portions of uses not intrinsically dependent on a waterfront location but whose economic viability is dependent upon a location in the shoreline district because

i. the use has a functional requirement for a waterfront location, such as the arrival or shipment of materials by water (a substantial portion of up to 50 percent of its product or

materials arrive by vessel), or the need for large quantities of water in the use;

ii. material is stored that is transported by a vessel and is either loaded or off-loaded in the shoreline district; or

iii. the use provides a necessary service supportive of water dependent uses, and the proximity of the use to its customers makes its services less expensive and/or more convenient. Citywide Planning Shoreline Areas Seattle 2035 172

d. **Water-enjoyment uses**—those uses that facilitate public access to the shoreline as a primary characteristic of the use; or uses that provide for recreational use or aesthetic enjoyment of the shoreline for a substantial number of people as a general characteristic of the uses and which, through location, design, and operation, ensure the public's ability to enjoy the physical and aesthetic qualities of the shoreline. In order to qualify as a water-enjoyment use, the use must be open to the general public, and the shoreline-oriented space within the project must be devoted to the specific aspects of the use that foster shoreline enjoyment.

Policy SA P2: In the Land Use Code, identify appropriate shoreline uses and related standards, and provide site-development standards and other appropriate criteria indicating minimal acceptable standards to be achieved.

Policy SA P19: Use mitigation sequencing to meet no net loss of ecological functions. Mitigation sequencing refers to taking steps in this order: avoid, rectify, minimize, and/or compensate for the loss to ecological functions.

Policy SA P20: Protect the natural environment of the shoreline through development regulations that include a requirement to use best management practices to control impacts from construction and development activities.

Policy SA P22: Develop methods to measure both the impacts of development in the shoreline district and the effects of mitigation so that no net loss of ecological function occurs through development projects.

Policy SA P23: Monitor the benefits of mitigation techniques to determine which are best suited to meet the goal of no net loss of ecological function.

Policy SA P24: Conserve existing shoreline vegetation and encourage new shoreline plantings with native plants to protect habitat and other ecological functions, reduce the need for shoreline stabilization structures, and improve visual and aesthetic qualities of the shoreline.

Policy SA P25: Avoid development in areas identified as special wildlife or priority saltwater or freshwater habitat unless no feasible alternative locations exist except for a water dependent use or water-related use that has a functional requirement for a location over water and is located in saltwater habitat that is priority habitat solely due to its use by anadromous fish for migration, if the development mitigates impacts to achieve no net loss of ecological function.

Policy SA P26: Protect environmentally critical areas as set out in the policies for environmentally critical areas and modified to reflect the special circumstances of such areas in the shoreline

district.

Policy SA P27: Require that all commercial, industrial, or other high-intensity uses provide means for treating natural or artificial urban runoff to acceptable standards. Developments with industrial or commercial uses that use or process substances potentially harmful to public health and/or aquatic life shall provide means to prevent point and nonpoint discharge of those substances.

Policy SA P28: Consider the Lower Duwamish Watershed Habitat Restoration Plan (Weiner, K. S., and Clark, J. A., 1996); the Port of Seattle Lower Duwamish River Habitat Restoration Plan, the Final Lower Duwamish River NRDA Restoration Plan and Programmatic Environmental Impact Statement, the WRIA 8 Chinook Salmon Conservation Plan and implementation documents, and the WRIA 9 Salmon Habitat Plan and implementation documents when conducting planning, permitting, mitigation, and restoration activities within the Duwamish/Green River and Cedar River watersheds.

Policy SA P32: Work with other government agencies and shoreline users to reduce the input of pollutants, to restore contaminated areas, to control disposal of dredge spoils, and to determine the appropriate mitigation for project impacts.

Policy SA P35: Support the scientific study of the shoreline ecosystems that will provide information to help update baseline condition information; to monitor the impact of any action; and to guide protection, restoration, and enhancement activities to meet the no net loss requirements and implement the restoration plan.

Policy SA P37: Support the retention and expansion of existing conforming water-dependent and water-related businesses, and anticipate the creation of new water-dependent and water-related development in areas now dedicated to such use.

SA P38 Identify and designate appropriate land adjacent to deep water for industrial and commercial uses that require such condition.

Policy SA P40: Identify and designate appropriate land for water-dependent business and industrial uses as follows:

1. Cargo-handling facilities:

…

b. Work with the Port of Seattle to develop a long-range port plan in order to provide predictability for property owners and private industry along the Duwamish River and Elliott Bay.

Environmentally Critical Areas (ECAs) are areas with physical vulnerabilities that are sensitive to damage from changes, which also could cause harm to other locations through effects such as landslides, earthquake-related damage, or water quality pollution. The City thus protects and regulates how locations with these critical areas may be used. The excerpts below highlight Goals and Policies in the Comprehensive Plan's Land Use Element that address Environmentally Critical Areas that are most applicable to the proposal:

Goal LU G17 – Maintain a regulatory system that aims to:

- protect the ecological functions and values of wetlands and fish and wildlife conservation areas;
- protect public health, safety, and welfare in areas subject to landslides, liquefaction, floods, or peat settlement, while permitting reasonable development;
- protect the public by identifying seismic and volcanic hazard areas; and,
- avoid development that causes physical harm to people, property, public resources, or the environment.

Policy LU 17.3 – Regulate the design and siting of structures and land-disturbing actions associated with development projects in environmentally critical areas and buffers to protect the ecological functions and values of environmentally critical areas and their buffers and to protect public health and safety on development sites and neighboring properties.

Policy LU 17.25 – Regulate development in flood-prone areas in order to protect public health and safety, and aquatic habitat, and to prevent damage to private property caused by hazardous flooding conditions.

Discussion: The proposed amendments to the Seattle Floodplain Development Regulations are intended to implement the goals and policies contained in the Seattle Comprehensive Plan related to Shorelines and Environmentally Critical Areas, including protecting ecological values, protecting public health and safety, avoiding development that causes harm to people and property, and regulating the siting of development in flood-prone areas, which are one type of Environmentally Critical Area (ECA).

The proposed amendments to the Seattle Floodplain Development Regulations also work in concert with Seattle Municipal Code (SMC) 25.09 (regulations for Environmentally Critical Areas) that identify and provide regulations for Environmentally Critical Areas (ECA). The ECAs identified in SMC 25.09 include geologic hazard areas; liquefaction-prone areas; landslide-prone areas; steep slope erosion hazard areas; peat settlement prone areas; seismic hazard areas; volcanic hazard areas; and flood-prone areas. Chapter 25.09 Development Standards for flood-prone areas refer to SMC Chapter 25.06 (Floodplain Development) for standards and regulations. Proposed amendments to SMC Chapter 25.06 (Floodplain Development) are the subject of this non-project action.

Maritime and Port-Related Policies in the Comprehensive Plan

Economic Development Policy ED 3.1: Promote the expansion of international trade within Seattle and throughout the region.

Land Use Policy LU 10.2: Preserve industrial land for industrial uses, especially where industrial land is near rail- or water-transportation facilities, in order to allow marine- and rail-related industries that rely on that transportation infrastructure to continue to function in the city.

Land Use Policy 10.8: Apply the general industrial zones mostly within the designated manufacturing/ industrial centers, where impacts from industrial activity are less likely to affect residential or commercial uses. Outside of manufacturing/industrial centers, general industrial

zones may be appropriate along waterways used for maritime uses.

The Comprehensive Plan has a Container Port Element. Its overview states: "*One of the factors behind Seattle's strong economy is the city's role in importing and exporting goods. The Port of Seattle operates one of the largest container-shipping facilities on the West Coast. Not only do the workers who move cargo in and out of the shipping terminals make good wages, but exporting goods made in the Seattle area brings additional money into the regional economy. The Land Use, Transportation, and Economic Development elements of this Plan contain related policies about the importance of these areas and how the City regulates uses and provides critical transportation services to them.*"

Container Port Goal CP G1 states: "*Maintain viable and thriving import and export activities in the city as a vital component of the city's and the region's economic base*."

Supporting policies include (but are not limited to):

Policy CP 1.1: Help preserve cargo-container activities by retaining industrial designations on land that supports marine- and rail-related industries, including industrial land adjacent to rail- or water-dependent transportation facilities.

Policy CP 1.2: Continue to monitor the land area needs, including those related to expansion of cargo container-related activities, and take action to prevent the loss of land needed to serve these activities.

Policy CP 1.4: Consider how zoning designations may affect the definition of highest and best use, with the goals of maintaining the jobs and revenue that cargo-container activities generate and protecting scarce industrial land supply for cargo-container industries, such as marine- and rail-related industries.

Policy CP 1.6: Monitor, maintain, and improve key freight corridors, networks, and intermodal connections that provide access to cargo-container facilities and the industrial areas around them to address bottlenecks and other access constraints.

Policy CP 1.7: Provide safe, reliable, efficient, and direct access between Port marine facilities and the state highway or interstate system, and between Port terminals and railroad intermodal facilities, recognizing that Port operations must address other transportation needs, such as pedestrian safety.

Policy CP 1.10: Identify emerging cargo-container freight transportation issues by working with affected stakeholder groups, including the Seattle Freight Advisory Board. Provide regular opportunities for communication between the City, the freight community, other affected communities, and other agencies and stakeholders.

Policy CP 1.12: Given the importance of cargo container-terminal operations to the state and regional economies, develop partnerships within the City, the Port, the region, and the State to advocate for project prioritization and timely funding to improve and maintain freight infrastructure, and explore funding partnerships.

Policy CP 1.15: Work cooperatively with other agencies to address the effects of major land use and transportation projects to avoid or mitigate construction and operational effects on the cargo container–industry sector.

Policy CP 1.19: Work with nonprofit, community-based, private, and public stakeholders to formulate plans for public open space, shoreline access, and fish- and wildlife habitat improvements that incorporate community needs and area-wide habitat priorities with the need to maintain sufficient existing marine industrial lands for present and anticipated cargo-container needs.

Other Goals and Policies

Ballard/Interbay Northend Manufacturing & Industrial Center (BINMIC) Element Policy BI-P18: Support maintenance of and creation of pier space for larger vessels (over 60 feet) within the BINMIC to facilitate loading of cargo, provisions, and fuel and obtaining maintenance.

Discussion: These goals and policies describe the City's acknowledgement of Port, container terminal, and maritime industry uses as major economic drivers for the City, State and region; seeking to prioritize and ensure the continuation of these uses in the places ideally suited to supporting those economic sectors; continuing to address freight transportation accessibility and mobility improvements; and continuing and growing partnership-oriented approaches around future funding addressing these topics, including with respect to ongoing interests in public recreation, public access to shorelines, and environmental protection. Underlying these goals and policies are an anticipated continuation of mutual respect among all parties, including the importance of protecting Port, container terminal and maritime industry uses while also protecting the public and property owners from increased risk of floods, maintaining effective planning practices for current and future land uses, respect for the roles of public policy, and recognition of the need to adhere to established hierarchies of law, policy, and regulation. In that light, the City anticipates continuing its role in maintaining consistency of its laws with State and federal requirements, continuing to support the crucial role of the Port and maritime industries, and fairly evaluating future development and improvement proposals within the range of options afforded by applicable laws in light of protecting the public in flood prone areas.

The relationship of the floodplain code proposal to these policies lies in the addition of more regulatory requirements that could have a bearing on the long-term continuation of long-existing facilities and land uses and affect the review of future over-water and upland improvement/development proposals. The FEMA designation changes would bring an increased possibility that flood-protective improvements to structures would need to be built in the future. The degree of these effects could relate to factors like the age and condition of existing facilities, and to what degree affected parties could formulate and implement improvement strategies that could maintain existing facilities in their current elevations and configurations for as long as possible. And, effects would also relate to what degree land use permitting strategies such as variances can be employed to accommodate supportive improvements to uses that would help realize the longest possible lifespan for existing uses and improvements. If there would come a time when existing improvements are no longer physically feasible to maintain or be permissibly renovated or rehabilitated within the constraints of pertinent regulatory requirements, the revised

floodplain code could lead to a need to rebuild facilities at higher elevations under both alternatives.

The floodplain code proposal would also affect the variety of possible uses that could occur in over-water locations, requiring them to be functionally dependent uses or to seek a variance from the City under variance criteria set out in 44 CFR 60.6. This could ultimately result in the discontinuation of existing over-water uses that are not functionally dependent uses. It would also tend to narrow the range of new uses that would be possible to build or initiate in over-water locations, which would be constraining on the diversity of uses that might otherwise be favored by property owners or interested parties but that are nonetheless not permissible due to floodplain code regulations.

Freight Mobility Policies in the Comprehensive Plan

Transportation Goal TG5: Improve mobility and access for the movement of goods and services to enhance and promote economic opportunity throughout the city.

Transportation Policy T5.1: Enhance Seattle's role as the hub for regional goods movement and as a gateway to national and international suppliers and markets.

Transportation Policy T5.2: Develop a truck freight network in the Freight Master Plan that connects the city's manufacturing/industrial centers, enhances freight mobility and operational efficiencies, and promotes the city's economic health.

Transportation Policy T5.6: Work with freight stakeholders and the Port of Seattle to maintain and improve intermodal freight connections involving Port container terminals, rail yards, industrial areas, airports, and regional highways.

Transportation Policy T5.7: Support efficient and safe movement of goods by rail where appropriate, and promote efficient operation of freight rail lines and intermodal yards.

Transportation Policy T7.4: Support a strong regional ferry system that maximizes the movement of people, freight, and goods.

Transportation Policy T7.5: Plan for the city's truck freight network, developed as part of the Freight Master Plan, to connect to the state and regional freight network, and to continue providing good connections to regional industrial and warehouse uses.

Transportation Policy T8.6: Designate a heavy haul network for truck freight to provide efficient freight operations to key port terminals and intermodal freight facilities.

Discussion: The Comprehensive Plan freight mobility goals and policies underscore the City's interest in promoting accessibility improvements including those that facilitate Port and maritime economic activities, and intermodal connections. It also supports the continuation of the regional ferry system as a key element of personal and freight mobility.

The Comprehensive Plan's Freight Network map includes Elliott Avenue, Alaskan Way and

several streets in SODO as part of surface streets considered "Major" parts of the freight network. Since this Comprehensive Plan's adoption, the recent completion of an Elliott Way street connection in Downtown near the waterfront has made the combination of Western Avenue and Elliott Way a freight route that bypasses approximately the north half of Alaskan Way along the central Seattle waterfront.

For this legislative non-project proposal evaluated in this checklist, the legislation will not result in likely direct impacts to freight mobility or freight access. The legislation does not make any direct changes to freight access or mobility or propose new development projects.

For a discussion of indirectly-related possible future transportation-related impacts at container terminals and Pier 90/91, please see the response to the Transportation questions later in this checklist, including the Effects on water, rail, or air transportation question**.**

In order to evaluate the potential for future freight-mobility impacts related to future individual pier rebuild projects, the City prepared analysis using a few example sites along the central Seattle waterfront. The City analyzed the conceptual feasibility of potential access ramps to rebuilt taller piers under the legislative proposal; and identified a possible range of physical impacts related to access improvements. These included the potential for ramps or other vehicle access methods extending from the piers landward, potentially affecting Alaskan Way right-of-way conditions (or Waterfront Seattle park promenade area) due to ramps or bridges, depending on how access would be designed. In the worst case (described as Access Scenario 1), access improvements could affect local pedestrian features, street lane configuration, or other similar aspects of Alaskan Way right-of-way operations (see Figures 14 and 15 in the checklist). Or, alternately, access ramps to new rebuilt piers might be able to gain most of the needed elevation with a combination of ramp improvement over water plus on the new piers themselves (identified as Access Scenario 2). This programmatically suggests that future access improvements to taller rebuilt piers are possible, with design options that could limit the degree of physical consequences on adjacent public right-of-way. Therefore, while future development might lead to physical effects on Alaskan Way right-of-way in some fashion (if lane closures or other physical revisions are needed in right-of-way near a new rebuilt pier), indirect significant adverse transportation-related impacts at or near rebuilt pier locations are not concluded as probable. Future development projects to rebuild piers, if they occur, would be subject to project-specific permitting and environmental reviews at the time such proposals are submitted to SDCI and access to the piers could be designed similar to Access Scenarios 1 or 2, or another design option proposed by a project proponent.

Relationship to State requirements and mandates: GMA, Shorelines, Sea Level Rise et al

The City of Seattle's proposal in this checklist is cognizant of, and responsive to, State requirements, policy mandates and recommendations. **Alternative 1** reflects the minimum City of Seattle actions required to meet the new FEMA mapping and development standards required by FEMA. **Alternative 2** includes the actions under Alternative 1 plus amendments to provide further flood hazard protection and to conform to the City's obligations under the Growth Management Act. In particular, Alternative 2 includes additional regulations to better account for sea level rise, and additional standards for storage and accessory structures, such as standards for hazardous material storage that relate to the standard from the Washington State Model Code. These alternatives are intended to be "bookends" covering the range of possible approaches that could be

embodied in Seattle's adopted revisions.

- **GMA:**
  Under the GMA requirements for frequented flood areas **WAC 365-190-110** states the following:
  Flood plains and other areas subject to flooding perform important hydrologic functions and may present a risk to persons and property.
  (1) Classifications of frequently flooded areas should include, at a minimum, the 100-year flood plain designations of the Federal Emergency Management Agency and the National Flood Insurance Program.

  (2) Counties and cities should consider the following when designating and classifying frequently flooded areas:

  (a) Effects of flooding on human health and safety, and to public facilities and services;

  (b) Available documentation including federal, state, and local laws, regulations, and programs, local studies and maps, and federal flood insurance programs, including the provisions for urban growth areas in RCW **36.70A.110**;

  (c) The future flow flood plain, defined as the channel of the stream and that portion of the adjoining flood plain that is necessary to contain and discharge the base flood flow at build out;

  (d) The potential effects of tsunami, high tides with strong winds, sea level rise, and extreme weather events, including those potentially resulting from global climate change;

  (e) Greater surface runoff caused by increasing impervious surfaces.

  Additionally, local governments have responsibility under the Endangered Species Act to prevent harm to listed fish and other species commonly inhabiting floodplains. No adverse effects to habitat function are allowed in areas vital to these species.

- **Shorelines:**
  See the discussion "Seattle Shoreline Master Program" earlier in this Relationship to Plans and Policies section.

- **Sea level rise:**
  FEMA encourages local communities to go beyond the minimum requirements and to include provisions that address unique circumstances, climate change and sea level rise among other events and situations that have the potential to impact the extent of flooding.

  "A local government may have unique risks due to the potential for tsunamis, high tides with strong winds, **sea level rise**, or extreme weather events it may want to address in its frequently-flooded-areas provisions." …Greater protection from floods may be a policy objective that should be incorporated into the CAO [Critical Area Ordinance}. For example, some jurisdictions use the "flood of record" or "freeboard" requiring greater elevations of structure.

The City has gathered additional information about sea level rise to summarize here as follows:

- Sea level rise in Seattle is projected to be approximately one foot by 2050 and between two and five feet by 2100. See Projections & Maps - Utilities | seattle.gov

- By 2050, there is a 50% chance of at least 0.8 feet of sea level rise in Seattle. This means that monthly high tides will be 2 feet higher than today's average monthly high tide (known as Mean Higher High Water or MHHW). King Tides will be 3 feet higher than today's MHHW, and storm surges could be 4 feet higher than today's MHHW.

- By 2100, projections show between 2.4 and 5.2 feet of sea level rise in Seattle. If we consider 3 feet of rise, then monthly high tides will be 4 feet higher, King Tides will be 5 feet higher, and storm surge could be 6 feet higher than today's MHHW.

- Sea level refers to a Mean Higher High Water (MHHW) level of 9 feet on the North American Vertical Datum of 1988 (NAVD88). The Sea Level Rise Map refers to sea level rise in the following way:

    - 2 feet of SLR = 11 feet NAVD88
    - 3 feet of SLR = 12 feet NAVD88
    - 4 feet of SLR = 13 feet NAVD88
    - 5 feet of SLR = 14 feet NAVD88

- Seattle's sea level rise projections and scenarios are based on the **2018 Washington Coastal Resiliency Project (WCRP)** by **Miller et al. (2018).** They are Washington-specific SLR projections based on climate models from the **IPCC's fifth assessment report (Church et al.2013).** For more information about these projections, and for extensive documentation on the methodology used, please visit the **University of Washington Climate Impacts Group website.**

Discussion: The City proposal (e.g., evaluated in Alternative 2) includes code amendments that would address State guidance and requirements by:

1. Following standards for hazardous material storage that are relevant to standards in the Washington "Model Code;"
2. Addressing "sea level rise" matters in an ongoing fashion that includes proposing an additional one foot be considered as a protective measure (BFE+3, rather than BFE+2 as proposed in Alt. 1); and
3. Continuing to follow State guidance and regulatory requirements pertaining to shoreline designated areas.

Regarding item 1 above, hazardous materials including petroleum products, chemicals and other toxic substances, when located in the floodplain not only can leak during a flood causing

health/ecological problems but can also become floating debris that may strike buildings or plug bridge/culvert openings causing increased flood heights and damages. Hazardous materials should be stored outside the floodplain whenever possible, or, at a minimum, be elevated higher than the base flood elevation with explicit anchoring requirements. The pre-2020 regulations regulate hazardous material through the Critical Areas Facilities and the change proposed for the City proposal is to exclude Port of Seattle police, fire and emergency response installations as critical facilities, providing the Port of Seatle greater flexibility in locating these installations. Additionally, Alternative 2 includes a prohibition for the processing of hazardous material to be located in SFHAs.

Regarding item 2 above, the proposal (under Alternative 2) includes the increase in base flood elevation by one foot beyond the current standard to "BFE +3" to support an intended City policy outlook that is responsive to future probable risks of sea level rise, to be responsible and proactive in the City's perspectives as the City plans for the future.

Regarding item 3 above, shorelines, the City remains committed to having regulatory codes that are consistent with State requirements and does not propose amendments in this legislation that would affect permissibility of uses in shoreline areas in one way or another.

Aesthetics and Public View Protection

This is a non-project action that affects multiple parcels, including parcels along the shoreline of Elliott Bay and the Duwamish Waterway in the city of Seattle. No direct impacts are anticipated due to the lack of a directly related development associated with the non-project action.

If improvements to comply with the proposed amendments were to occur at a property, like the Example Sites (Piers 56, 67 and 90/91), along the shorelines of Elliott Bay or the Duwamish Waterway, the project would most likely be of a similar height and design to existing structures, only differing in height by roughly 3-6 feet under each of the Alternatives (see Figures 10, 11, and 12 in the environmental checklist). Pier/structure design for any buildings that would need to be replaced would likely consider contextual materials that relate to the surrounding maritime industrial setting, although it is not possible to discern the specific future design of any structures at this time.

While the basic differences in height of existing versus future structures may be only 10 feet or less, differences involving a change in height along the downtown central waterfront would likely be experienced at the conjunction of the pier and the upland, which for Pier 56 is currently the sidewalk or promenade environment at the west edge of Alaskan Way. At that location, an immediate change of up to 5 to 6 feet might be experienced as a vertical wall extending above the existing sidewalk level, or as a modification to the sidewalk environment such as an earthen berm, earthen ramp or other manmade ramp structure that would aid in pier users reaching a new elevated pier. While designs of future improvements could consider designs that overcome the height difference with less aesthetic disruption, the overall effect, within the context of the improved "Waterfront Seattle" park promenade, would likely generate an adverse aesthetic impact on visual quality. This would be more pronounced if only one pier was replaced in such a manner, because the comparative viewscape would be altered by having one site raised while other adjacent piers might remain indefinitely at their original long-term surface elevations. The degree of this

adverse impact could vary depending on its context. For example, at Pier 56, the contrast in pier heights caused by a new Pier 56 under either Alternative 1 or Alternative 2 would affect the perception of visual character and architectural continuity in this core Pier 54 – 57 area that is part of a designated "Central Waterfront Piers" (Piers 54 through 59) area. This area has its own design guidelines and a certificate of approval process through the Landmarks Preservation Board. This also suggests the probability of historic-preservation related impacts if a pier like Pier 56 was proposed to be demolished and rebuilt with a new structure and taller pier. (This scenario contemplates a worst-case situation where a historic-related floodplain variance would not be granted.)

Certain of the impacts identified in the paragraph above could be reduced if either vehicle access to a redeveloped version of Pier 56 would be foregone, or if the future pier was configured differently, to accomplish necessary elevations via ramps bridging water to reach a pier that is separated a distance from the upland shoreline. Assuming this is possible, it could reduce the length of ramps for vehicle access improvements on land that would displace or impair a portion of the park promenade. However, such improvements would also be potentially visually disruptive of the aesthetic setting of the park promenade at Pier 56.

At Pier 67, the hotel use is somewhat separated from the neighboring Bell Harbor and Port of Seattle facilities which are newer and taller structures, and thus a potential change in height of a rebuilt pier at Pier 67 may generate a lesser degree of adverse visual impact on the character of its built-environment surroundings, other than the immediate 5-6 foot change in "surface" heights that would occur at the interface of Alaskan Way and a rebuilt pier. But because the sidewalk environment is narrower than exists around Pier 56, the potential for changes to the local sidewalk and street environment at the adjacent portion of Alaskan Way would also represent a change in the aesthetics and operational characteristics of the sidewalks and streets near Pier 67. These would represent probable adverse aesthetic-related impacts. Similar to the discussion above for Pier 56, vehicle access to a redeveloped taller pier at Pier 67 might be provided by ramps bridging a section of water adjacent to the shoreline with further elevation gained on ramps on the new pier itself. For Pier 67, this could be more feasible than ramps or bridges affecting physical characteristics of Alaskan Way, with fewer potential aesthetic impacts, while preserving vehicle access capabilities to a new pier.

At Pier 90/91, given the different visual and land use context (framed by the Magnolia Bridge to the north, large office complex with shoreside pedestrian/bicycle trail, green-space and shore edge to the east, and a large marina to the west, a potential difference of approximately up to 4 feet elevation between an existing wharf edge and a possibly rebuilt taller wharf edge would be considerably less likely to be visually detected by passersby. Although a difference might be detectible from some vantage points, few passersby would be traveling immediately adjacent to the property to directly experience the possible height difference. Also, factors such as the potential adding of fill materials to raise the elevation of the surface level at the facility (in locations not over water) could help minimize the visual perception of passersby that a rebuilt wharf would be taller. Therefore, the probable severity of visual-related aesthetic impacts would be minor (if detectible) and not likely significant adverse in nature. It would not be necessary to consider over-water vehicle access ramps due to the physical characteristics of Pier 90/91 and the adjacent land.

Also at Pier 90/91, there could be a possibility that existing building(s) serving cruise ship

passengers might be present at, partially over, or adjacent to a vicinity where a wharf/pier structure might require building to a higher elevation, at Pier 91. Depending upon the range of possibilities for future design, it is possible that the existing building could experience a change in visual and functional relationship with the adjacent wharf/pier if the wharf/pier is rebuilt. And it is possible that a wharf/pier rebuild could prompt a need to rebuild or substantially remodel the existing main structure on Pier 91, for visual, aesthetic, and/or functional reasons.

At these Example Site locations, the rebuild scenarios would contrast with the anticipated approach (e.g., most favorable to potential permit applicants) that would accommodate renovations to existing buildings and existing piers that are "non-substantial" improvements (and in certain other permitting scenarios such as variances). Existing facility renovation scenarios would accommodate retaining the piers at existing elevations, and retaining existing over-water structures on piers, with typical assumptions that the structures' footprints would not be expanded. In these cases, the kinds of visual and aesthetic impacts identified in this discussion might not occur, and future possible development proposals for structures with historic designations otherwise also could be subject to reviews by the Landmarks Preservation Board.

Public View Protection and Scenic Routes

The City of Seattle's public view protection policies are intended to "protect public views of significant natural and human-made features: Mount Rainier, the Olympic and Cascade Mountains, the downtown skyline, and major bodies of water including Puget Sound, Lake Washington, Lake Union and the Ship Canal, from public places consisting of specified viewpoints, parks, scenic routes and view corridors identified in Attachment 1" to the SEPA code.[16] And it is City policy to protect public views of the Space Needle from designated public places.[17]

If improvements to comply with the proposed amendments were to occur at a property, such as at the Example Sites (Piers 56, 67 and 90/91), along the shorelines of Elliott Bay or the Duwamish Waterway, the project would most likely be of a similar height to existing structures, only differing in height by roughly 3-6 feet under each of the Alternatives (see Figures 10, 11, and 12 in the environmental checklist). The following observations regarding relationship to public view protection and scenic routes are made:

- Alaskan Way is designated as a "scenic route" that is subject to the City's SEPA "public view protection" policies (SMC 25.05.675.P.2.a.1. For a scenic route, impacts of future actions on the scenic qualities of a scenic route may be grounds for impact findings and conditions of approval. Scenic routes vary in the content of their protected qualities – some having broad scenic territorial views, views toward scenic landmarks, or focused sightline views, or views including built elements. For the Alaskan Way waterfront, the views and visual character of the central waterfront structures and marine Elliott Bay setting are together interpreted as probable elements of scenic value. So, to the degree that one or more than one future pier redevelopment could occur along Alaskan Way, changes caused by new higher piers, the possible changes in visual qualities of structures upon the piers, and potential for disruption of

[16] *SMC Chap. 25.05.675 P.2.a.i.*
[17] *SMC Chap. 25.05.675 P.2.c.*

the ground environment of Alaskan Way itself, could generate adverse impacts on the vicinity's perceived scenic and aesthetic character qualities. The same could be true under either Alternative 1 or Alternative 2, and even if alternative over-water vehicle access bridges might make vehicle access improvements less noticeable.

- Similarly, to the extent that a rebuilt taller pier plus buildings could occur in one or more places along the central waterfront, the visual impacts could include alteration and slight-to-moderate impairment of views and their scenic qualities in multiple locations from certain places along Alaskan Way when looking toward Elliott Bay.
- To the extent that "non-substantial improvement" renovation scenarios could occur at the Example Sites, the lack of change in heights of piers and buildings would likely avoid most future potential for noticeable adverse view-related impacts.

Historic Preservation and Cultural Resources

Historic Preservation Resources

Existing Conditions

Seattle contains a number of landmarks, properties, and districts that are listed on, or proposed for, national, state, and local preservation registers. In addition, while Seattle today comprises a highly urbanized and developed area, it is also an area with potential for the presence of cultural artifacts from indigenous peoples that could be detected during development within a broad cross-section of properties in the city.

The non-project proposal is not likely to affect whether known historic sites or structures might be redeveloped. Existing designated/protected historic sites or structures are effectively protected by current regulations and so they may only be demolished in rare circumstances that occur with consent of the City. Also, the intent of current codes and practices is to have as-yet-undesignated properties with features that may be historic go through a landmark nomination and review process. Such processes can and do lead to designation of new historic sites and structures according to the decisions of the landmark board(s).

Relationship to potential future development scenarios

This is a non-project action that affects multiple parcels, including parcels along the shoreline of Elliott Bay and the Duwamish Waterway in the city of Seattle; there are numerous buildings/structures within this area that are either designated as City Landmarks or listed on/eligible for listing on the National Register of Historic Places (NRHP). Many of the piers themselves/structures on the piers along the Seattle waterfront are also designated City Landmarks and/or are listed on the NRHP, most notably the piers and associated structures from Pier 59 (south of the aquarium, at approximately Alaskan Way/Pike Street) southward through Fire Station 5, at Alaskan Way/Madison Street. As noted earlier, this vicinity is part of a designated "Central Waterfront Piers" (Piers 54 through 59) area with associated design guidelines and a certificate of approval process through the Landmarks Preservation Board.

Also as noted earlier, potentially redeveloping Pier 56 would suggest the probability of adverse historic-preservation related impacts if the pier and its structures would be proposed for demolition and rebuilt with a new structure, different uses, and a taller pier. This would include consideration of visual impacts as well as impacts related to the historic preservation values associated with this grouping of the historic piers, their associated structures, and their collective contributive value to preserving the history of Seattle. Such impacts could occur regardless of whether more intrusive or less intrusive methods of providing vehicle access to the pier would occur.

However, to the extent that "non-substantial improvement" renovation scenarios (or substantial improvements accommodated through historic-related variances) could occur at the Example Sites, a possible lack of change in heights of piers and only landmark-board approved improvements to exteriors and interiors of buildings could help avoid the potential for adverse historic-related impacts.

In any case, future evaluations of uses of Pier 56 and others like it may need to evaluate their long-term viability and stability of pier structures, especially if sea level rise eventually leads to greater risks of structural damage over the long-term.

In contrast, at Pier 67, the Edgewater Hotel in its current form is not designated as a landmark. This would suggest that the potential magnitudes and types of historic-preservation related impacts may be evaluated differently than at Pier 56, if future development was proposed and Pier 56 remained without a landmark designation at that time. It is possible that landmark designation could be newly evaluated; however, past historic inventorying analysis noted that the existing structure's exteriors have been changed since its original construction, which may affect a future evaluation about its landmark value. Different scenarios for vehicle access to a new pier would not likely have a bearing on historic preservation review matters. However, if landmarking was considered possible at a future date, providing vehicle access in a less disruptive and more visually integrated fashion, such as contemplated in an over-water bridge to a new pier, would likely be favored.

Pier 90/91 is also not a landmark-designated property, although it has a long history of use. In the future, this location might or might not be subject to future consideration for landmark status. It should also be noted that portions of these piers that are underlain by fill soil have been excluded from the mapped FEMA flood zones (December 2023).

See Appendix A to this checklist for more discussion of historic and cultural resources considerations, including in the Pier 90/91 vicinity.

Cultural Resources

Existing Conditions

The information below discusses historic and cultural resources in the area affected by the proposed floodplain development regulations, followed by a discussion on the potential for encountering historic or cultural sites as part of future site-specific development or construction projects that could be subject to floodplain regulations, including the proposed amendments (see

Appendix A of the environmental checklist) for additional information on Historic and Cultural Resources).

Elliott Bay and Duwamish Waterway
Historical analyses of indigenous people and settlement indicate thousands of years of human presence by Coast Salish peoples, with a gradual shift toward reliance on marine and riverine resources – such as salmon and shellfish – for subsistence. There were at least 17 villages in the Seattle vicinity and more than 90 longhouses. This included several villages in the vicinity of the former mouth and lower reaches of the Duwamish River. After 1855's Treaty of Point Elliott, some but not all Duwamish relocated to the Port Madison Reservation with others remaining until the early 1900s.

A wide scattering of sites are noted in the vicinities of: South Park, east side of the Duwamish River north of South Park, West Marginal Way vicinity near Harbor Island, west edge of Harbor Island, a few sites intermittently identified in Port of Seattle terminal properties, and a grouping along primarily the east side of Elliott Ave W.

The growth of Seattle in the 1880s-1890s brought increased economic activity, use of the Elliott Bay waterfront in downtown Seattle, and extensive filling of tideflats in the early 1900s to form the southern portion of the Pioneer Square district and most of the flat lands in SODO, Harbor Island, and edges of the Duwamish River. The river was rechanneled and dredged to a 50-foot depth. Construction for the ship canal and locks altered the elevation of Lake Washington and led to the elimination of the Black River. Native settlements were removed or supplanted through these actions.

The downtown waterfront was improved through building a concrete seawall in the 1910s and 1930s, and areas to the east were gradually backfilled. The seawall vicinity extends between S Washington Street to the south and Broad Street to the north. To the south of Pier 48, the Terminal 37/46 complex was created by filling and joining several piers. Also, in recent years, the Alaskan Way Viaduct was removed and replaced by a tunnel, the downtown concrete seawall was replaced, and extensive Waterfront Seattle enhancement of the Alaskan Way surface street network have occurred. See Appendix A of the environmental checklist for additional information on recent development of the waterfront.

Most cultural resources at risk from future development in Seattle are in unknown locations due to their being buried under soils, although certain vicinities such as near-shore areas are known to have greater potential for presence of such resources given past activities of indigenous peoples.[18] The action does not include provisions that alter the likelihood of future development of new buildings occurring in any given location or type of vicinity such as near-shore areas; and there is little or no probability that proposals would lead to additional amounts of building coverage or larger or deeper site excavations on any given site.

[18] This analysis acknowledges, however, that most of the affected area is categorized as having a "very high risk" of finding archaeological/cultural resources compared to other parts of Seattle based on pre-contact peoples' occupation patterns and the State's probability models for archaeological resources. (Seattle Industrial and Maritime Strategy Final EIS, pages 3-512, 3-514, Berk).

Also, implementation of the action would not affect the strength of the City's regulatory protection of cultural sites or resources if they are discovered during future development, which is also addressed by other State and local regulations, policies, and practices. With or without the action, such processes are mandated to stop construction, assess the resources, and take appropriate next steps for the cultural resources' protection or preservation.

Impacts

The available information suggests that archaeological and cultural resources, including those dating from around 1850 or later, could be present in relatively near-surface locations, particularly those areas with native soils. Similarly, other resources from the past 6,000 years or so of indigenous settlement could be present. However, extensive grading, filling, and recent construction such as for the seawall, waterfront, and Alaskan Way Viaduct replacement projects also has led to alterations of the near-surface environments in the Downtown Seattle waterfront vicinity. The Waterfront Seattle EIS citation cited above also suggests that complex subsurface layering below the sediment levels in the marine environment may limit the likelihood that other, even older, archaeological resources may be found, if properties along the downtown waterfront are subject future development.

In other parts of the affected Elliott Bay and Duwamish River vicinity, given the extensive past presence of indigenous populations and their reliance on fish and other marine resources, there will continue to be a potential for future development to uncover archaeological and cultural resources. This is reflected by the State's Department of Archaeology and Historic Preservation's (DAHP) rating of the area to have a "High" or "Very High Risk" to contain precontact archaeological resources by DAHP's pre-contact archaeological site probability model.

In other parts of Seattle affected by designation changes, such as Puget Sound shoreline edges, where predominantly residential uses are present along shorelines, many are protected by existing concrete seawall edges with adjacent beach shorelands (depending on tide levels). These areas are likely to not be subject to frequent redevelopment in the future other than renovation or rebuilding of existing structures, to the extent permissible by regulations. In other areas, such as north of Golden Gardens Park, the presence of railroads rather than residential uses is likely to minimize future potential for development. Thus, the potential for future development (if any occurs) to cause disturbance and uncover unknown archaeological or cultural resources should be low.

Mitigation measures for the non-project action

None are proposed.

Transportation, Public Services and Utilities

This non-project action that would not likely directly, indirectly or cumulative result in significant adverse impacts on transportation, public services or utilities within the City of Seattle. The following discussion evaluates potential adverse impacts that could be generated by

the proposal, in relation to future developments that would be indirectly related (or would occur under) the proposed floodplain code amendments, by virtue of the floodplain code's possible effects on development requirements and outcomes.

Transportation

For the programmatic non-project proposal evaluated in the environmental checklist, no direct probable significant adverse impacts to transportation are identified. It is difficult to evaluate transportation impacts to future development or redevelopment that may occur if the new floodplain regulations are adopted, as compared to the no action alternative. Development will continue to occur under both scenarios and there would likely be more development under the no action alternative. Further, project specific analysis will occur under SEPA unless such development qualifies for a SEPA exemption.

That said, the City prepared an analysis of example sites along the central Seattle waterfront to explore the potential for future possible development outcomes and related impacts. These concluded that, if the proposed code would require the future rebuilding of certain piers such as Pier 56 and 67 on the central Seattle waterfront, vehicle access improvements to from the rebuilt taller piers might generate physical impediments affecting Alaskan Way right-of-way conditions, depending on how access is designed. Impediments could relate to required grade changes of the street itself to accommodate upward ramped access ways, or accommodation of bridges or ramps across Alaskan Way or over a portion of the park promenade at Waterfront Seattle. These potential impediments could affect local pedestrian facilities, street lane configuration, through movements of certain lanes, or other similar effects on Alaskan Way right-of-way operations.

But there would also remain a possibility that needed gains in elevation for pier access by vehicles could be mostly accomplished over the water or on the new piers themselves. As identified for Access Scenario 2 in Section B of the environmental checklist, these could use short bridge spans between upland edges and new piers and ramps on piers, which could reduce adverse overlaps with Alaskan Way. While outcomes of potential future impairments of this kind to Alaskan Way can be interpreted as potential adverse transportation-related impacts, they are not probable significant adverse impacts. This relates to the possibility that future design considerations at unknown sites of future development could help to avoid, remedy, or minimize the potential for disruptive physical impacts.

In the Magnolia vicinity north of the central waterfront, Pier 90/91 is located in a relatively less busy vehicle-traffic location with fewer or lesser conflicts with adjacent streets and pedestrian facilities. Although, traffic volumes are periodically attracted in relation to cruise ship activity and other daily activities at the pier, and also locally to and from a parking garage related to the adjacent office complex. At the Pier 90/91 location, depending on the nature of future possible development designs that might relate to future pier improvements, there is a probable low likelihood of adverse transportation impacts on local street networks. This would relate to access improvements at this pier not being likely to physically spill over into public rights-of-way, as in the rebuild scenarios for Pier 56 and Pier 67.

Effects on water, rail, or air transportation

Permanent significant adverse operational direct impacts to water, rail, or air transportation are not anticipated in the programmatic non-project analysis for this proposal. However, the potential for adverse indirect transportation-related impacts regarding water transportation can be interpreted.

At Pier 90/91, one of the example sites reviewed for possible development scenarios, given the site's existing use for marine uses including but not limited to cruise ship traffic, the proposed floodplain code amendments would have a bearing on future marine transportation functions. But the degree of potential impact would depend on the nature of future specific improvements pursued by the responsible parties for Pier 90/91, and whether or not they would entail building a new or remodeled pier/wharf that would have a higher elevation or not. Such considerations would include whether the responsible parties would decide to provide new surface fill materials (in places not over water) that would raise the "ground level" elevation and could help ease any physical transitions in elevation between actual ground elevations today at Pier 90/91 versus the elevations of any finished pier/wharf improvements that might be built in the future. Proximity of existing structures on Pier 90/91 to pier/wharf edges could also be a factor. Potentially, if a pier structure at Piers 90 or 91 was required to be rebuilt at a taller elevation, its relationship to the existing structures may be uncertain and potentially create a need for retrofit or redevelopment of the existing terminal structure.

This would depend on future project-specific design considerations that are not known at the time of this programmatic SEPA review. However, Figure 13 in the environmental checklist illustrates how ramps and surface modifications could be arranged if a pier/wharf was rebuilt.

Also, the proposed floodplain code amendments might or might not contribute to a future need for Port container terminal pier facilities to be rebuilt at a taller elevation. As described in other parts of the checklist's analysis, an applicant would have possible permitting strategies that could strategically pursue physical improvements to existing facilities, if the financial value of improvements remained less than 50% of the value to the affected facility. This could conceivably allow a container terminal owner (or any other affected property owner) to successfully pursue improvements to existing over-water facilities, such that rebuilding piers/wharves at higher elevations does not need to occur for the foreseeable future. Therefore, the floodplain code amendment proposal does not inherently mean that such facilities would be unavoidably affected at a later date by required rebuilding at a higher elevation.

To the extent that future improvements of large facilities might be interpreted as substantial improvements that would lead to pier/wharf replacement at a higher elevation, this checklist acknowledges that such rebuilding could entail probable expensive and extensive improvements in both over-water and upland locations. This would include the possibility of extensive improvements that might be needed in order to maintain appropriate accessibility and vehicle, goods, and personnel movement if portions or the entirety of a container terminal's over-water structures would need to be eventually rebuilt. The particulars of such projects would depend on a number of design, use, locational size and focus, and other magnitude-of-project factors that cannot be analyzed in detail for this programmatic proposal.

Potential future construction-related transportation impacts

To the extent that improvements to comply with the proposed amendments to the Seattle Floodplain Development Regulations were to occur at a property, increases in traffic and/or effects to the transportation system could occur due to:

- Traffic could increase with construction to comply with the Seattle Floodplain Development Regulations. The highest level of construction required to comply with the regulations is assumed to be associated with over-water properties in the VE Zone, and projects in the VE Zone have the greatest potential to generate construction related traffic.

- Under a variety of possible future development and access scenarios, reconfigured ADA compliant pedestrian and/or reconfigured vehicle access ramps could be necessary to provide access to elevated over-water pier structures in the VE Zone. The reconfigured ADA and/or vehicle access ramps could require construction and temporary disruption in adjacent public rights-of-way (public roadways). Some level of permanent reconfiguration of the adjacent public rights-of-way could be required to accommodate ADA and/or vehicle ramps accessing an elevated pier.

Construction associated with projects complying with the amendments to the Seattle Floodplain Development Regulations in the AE Zone would not be anticipated to result in increased traffic or impacts to adjacent roadways substantially beyond that associated with previous floodplain development regulations.

Traffic associated with the operation of projects constructed to comply with the Seattle Floodplain Development Regulations would not be anticipated to be substantially affected.

Significant adverse impacts related to traffic conditions at properties with improvements to comply with the proposed Seattle Floodplain Development Regulations are not anticipated.

Public Services

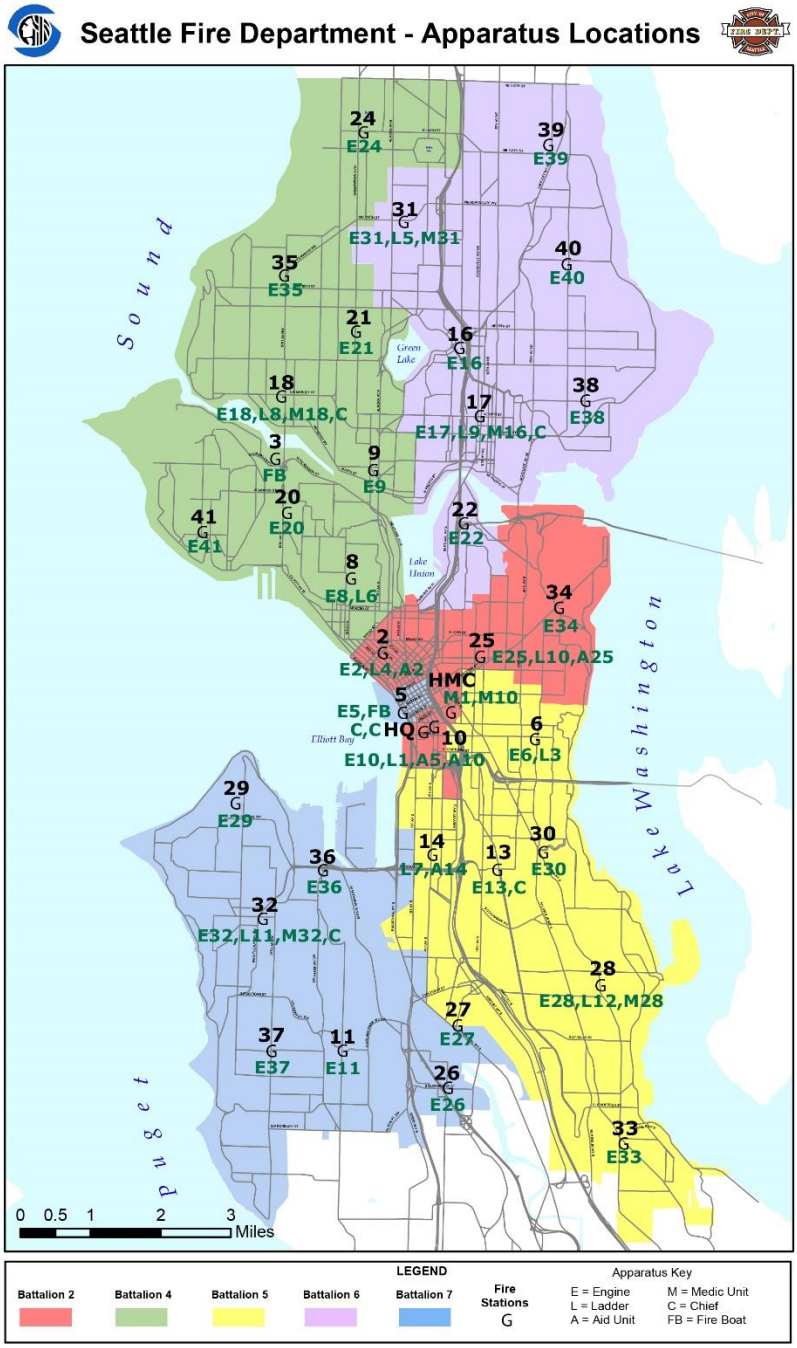
Fire/Emergency Services

Existing Conditions

The Seattle Fire Department provides a full range of fire and emergency services to the Elliott Bay and Duwamish River vicinities via several station facilities, as shown on Figure 16, SFD Apparatus Locations. This figure also indicates the presence of engines and ladder truck companies at these stations, as well as medical aid units and other specialty services. On-duty staffing is 4 personnel each for engines and ladder trucks at each station, and 2 personnel for medical aid units.

Highlighted stations responding to the affected areas include: Terminal 91 would have Engine 20 respond first (Interbay), while the central waterfront is served by Engine 5. Harbor Island/Duwamish is served by Engine 36. Additionally, the haz-mat team deploys from Station 10 (Pioneer Square), and fireboats deploy from Fire Station 5 or 3. SFD shore-side ship firefighters deploy from Station 36 (near Terminal 5) and the Rescue Team (Rope, Dive, Extrication) is based at Station 14 (SODO).

Figure 16



For marine responses, Fire Boat 1 and Fire Boat Chief Seattle are based at Station 3 at Fisherman's Terminal. Fire Boat 1 is 50 feet long and has a draft of 30 inches (2.5 feet), while the Chief Seattle is 97 feet long and has a draft of 7.5 feet. Fire Boat 2 and the Fireboat Leschi are based at Fire Station 5. FB2 has a length of 50 feet and a draft of 30 inches (2.5 feet), while the Leschi has a length of 108 feet and a draft of 10 feet.

The categories of emergency events that SFD is prepared to respond to in the Elliott Bay/ Duwamish waterfront, port, and industrial settings include emergency medical events, fires, collapse (such as earthquakes, construction mishaps), and flooding (such as tsunami or "king tide" events). The SFD's response to a major flooding event would likely involve calls to 9-1-1 for assistance of trapped people to which SFD would access from land or on vessels as the situation dictates. SFD tools include a small boat that can be trailered to a location on land to be launched, or small boats that can be launched from the large fireboats. SFD also has divers and rescue swimmers who can initiate a rescue.

Engines responding to fire events would be able to access water from existing hydrants in sufficient proximity to sites in the affected area. There is a "robust" hydrant system available in the affected areas around Elliott Bay, Harbor Island, and in the SODO Duwamish area, served by water mains of good size (SFD, Katka, 2024).

Existing types of fire/emergency risks in the affected area

Most commercial piers are concrete and evaluated as unlikely to burn. But there are existing older wooden piers at which a fire could spread, including under a pier's blacktop/concrete surface if that is present. Some piers have under-pier sprinklers, but these can be non-functional if compromised by long-term exposure to the marine environment (Katka, SFD, 2024).

Harbor Island has a large concentration of fuel storage tanks. The fire load of these and their risk potential is great. Derelict buildings such as the closed Fisher Flour Mill also are a known hazard.

At Harbor Island and other vicinities in the affected area, there are derelict wooden piers in various states of disrepair that would not support a fire apparatus but pose substantial fuel loads due to their construction (Katka, SFD, 2024). Given that Harbor Island and the SODO area includes much heavy industry, shipyards and terminals, rail, truck, and intermodal transportation facilities, it is integral to the city and regional economy. If there is a major fire event at or near these facilities or on a vessel, the event and its damages potentially could affect commerce and goods movement.

Potential for future fire/emergency services impacts related to the proposal

For the primary waterfront areas near Elliott Bay, Harbor Island, and the Duwamish River addressed in this legislative proposal, Seattle Fire Department does not anticipate that the proposed floodplain action would generate significant adverse impacts on its service provision. Fire/emergency service demand volumes associated with the operation of projects constructed to comply with the Seattle Floodplain Development Regulations would not be anticipated to be substantially affected.

The capabilities described above regarding fire protection service provision on land and from the water, plus the good existing availability of public water utility infrastructure and hydrants in these affected areas, should continue to provide for good provision of fire/emergency services into the future. If piers are rebuilt at higher elevations, water and other utility capabilities needed to provide emergency services and features can be provided by connections and extensions that appropriately address changes in elevations of future pier structures and improvements. Fire

events would be diagnosed and served by on-land resources as necessary. Future responses to fire/emergency service events are expected to be possible from land locations, and from vehicle access routes or other on-site infrastructure to the extent required by building and life safety codes. Significant adverse impacts to staffing are not anticipated (Katka, 2024).

In the case of possible flooding or similar events caused by natural events, as today, SFD would respond strategically to fire and emergency needs (in cooperation with police and other agency resources), which might include diagnosing extent of affected area and how to access it, life safety interventions and rescues, and other public safety support and troubleshooting. SFD would coordinate with the City's Emergency Operations Center efforts for major emergency events.

Another possible impact could occur if floodplain regulations would lead property owners to defer maintenance indefinitely to old facilities. If this occurred, an increase in numbers of vacant and/or dilapidated structures could eventually increase SFD response demands associated with arson and other incidents.

In relation to future possible site-by-site development activity, construction associated with projects complying with the amendments to the Seattle Floodplain Development Regulations in the VE Zone could increase demands on the SFD during the construction period in relation to the following:

- Increased demand associated with plan review and inspection services.
- Potential increase in fire/emergency response demand associated with incidents during construction. Depending on the nature of the incident, SFD response could be via vehicles of boats, or both.
- Complexity of the response could increase given the nature of elevated piers; in the worst case, emergency accessibility to an elevated pier from adjacent roadways could be adversely affected if there is a substantial difference in elevation from surface elevation to a new pier.

Proposed mitigation measures

None proposed.

Police/Law Enforcement

Existing Conditions

Seattle Police Department (SPD) services are provided to the Elliott Bay vicinity primarily by the West Precinct, with coverage of the Elliott Bay waterfront addressed in six "beats" (patrol areas); Harbor Island and Alki addressed in one beat in the Southwest Precinct; and the Duwamish River addressed in two Southwest Precinct beats on the west side, and three beats on the SODO side in the South Precinct. The patrol beats are addressed by one or more police patrols in all shifts, with overlapping coverage provided as needed. Other emphasis staff such as bicycle patrols are also provided. SPD also has a harbor patrol vessel available for water-side activity. In addition, since 2023, Seattle Center management has delegated security staff to aid in public safety along the central waterfront, in partnership with the Office of the Waterfront and

Civic Projects (OWCP), the Friends of Waterfront Seattle (Friends), and Seattle Parks and Recreation.

In the central downtown waterfront, most criminal offense activities tend to occur rarely in the Alaskan Way vicinity: a map of recent March – May 2024 activity shows only 5-10 call locations. Typical calls may involve tourist or public vending related matters. This supports SPD staff opinions that the waterfront is not an area with high activity (Biondo, Nelson, April 2024). In other locations near Elliott Bay, Harbor Island, Port of Seattle properties, and the Duwamish River, also very few incidents are noted in recent data. On occasion, SPD also handles traffic and crowd control for special events or other times with high pedestrian volumes. SPD sometimes responds to assistance calls to Port property, for incidents such as protest activity.

Regarding "king tide" flooding or other natural emergency events, SPD provides support, as coordinated through the emergency operations center. This may include support for moving and setting up protective materials, transporting people, street and traffic control, and other mutual aid assistance as needed.

Other SPD input about generalized public safety for the affected area included an interest in addressing long-term vacant or abandoned buildings or facilities. Public safety interests relate to the potential for arson, squatting, and personal safety crimes.

Potential for future police public service impacts related to the proposal

Based on the discussion with SPD, no probable significant adverse impacts are identified as a result of the proposed floodplain non-project action.

Regarding future conditions at the affected waterfront areas near Elliott Bay, Harbor Island, and the Duwamish River, SPD does not anticipate that future changes related to the proposed floodplain action would generate significant impacts on its staffing or patrol needs for the affected areas (Nelson, 2024). Also, no particular increases in police response activity volumes would be anticipated, based on available information. This relates to low activity levels (police response call volumes) today.

Regarding future possible central waterfront pier re-build scenarios that could result in piers elevated 3 or 6 feet above current grade, the SPD staff's advice relates to Crime Prevention through Environmental Design (CPTED) principles for line-of-sight visibility, and general accessibility interests. Elevated piers conceivably could create hiding places or impair sight lines. Depending on the design of facilities there could be interest in understanding how responding officers would be able to access a pier, for instance, via ramps or stairs (Biondo, Nelson, 2024).

In relation to future possible development, construction associated with projects complying with the amendments to the Seattle Floodplain Development Regulations in the VE Zone could increase demands on SPD during the construction period in relation to the following:

- Increased demand associated with plan review and inspection services during the construction period.
- Potential increase in police response demand associated with incidents during the construction period.

Another possible impact could occur if floodplain regulations would lead property owners to defer maintenance indefinitely to old facilities. If this occurred, an increase in numbers of vacant and/or dilapidated structures could eventually increase SPD response demands associated with arson, squatting, and increases in person-crimes.

Proposed mitigation measures

None proposed.

Recreational Resources

This is a non-project action that affects multiple parcels, including parcels along the shoreline of Elliott Bay and the Duwamish Waterway in the City of Seattle. Public recreational opportunities in the central waterfront portion of Elliott Bay include but are not limited to the following:

Washington Street Boat landing - Washington Street at Alaskan Way
Boat Access to Blake Island - Pier 55 – Alaskan Way and Seneca Street
Waterfront Park - Alaskan Way between university and Pike Streets
Pier 62/63 Park - Alaskan Way at Pine Street
Pier 66, the Bell Street Terminal, Shoreline Access - Alaskan Way at Bell Street
Belltown Cottage Park - 2512 Elliott Avenue
Olympic Sculpture Park - Between Western Avenue and Alaskan Way at Broad Street
Myrtle Edwards Park - Alaskan Way at Bay Street
Elliott Bay Park - Pier 86 Waterfront Between Harrison Street and 16th Avenue West

In the South Park vicinity, parks/recreational space includes: the Duwamish Waterway Park, and Portland St/8th Avenue Street End.

In the Duwamish River north of South Park, parks not already referenced in historic/cultural discussion include Terminal 105 Park, Herring's House Park, and sbaqwa? Park and Shoreline Habitat.

In the West Seattle Puget Sound shoreline vicinity, parks/recreational space include Charles Rich Viewpoint, Cormorant Cove, Weather Watch Park, Emma Schmitz Memorial Overlook, Lincoln Park, and Lowman Beach Park.

In North Seattle, Carkeek Park is near Pipers Creek, Beaver Pond and Kingfisher natural areas are present along Thornton Creek, and Meadowbrook Playfield and Matthews Beach Park are

also present nearby in northeast Seattle. Natural green space is also present along Longfellow Creek in West Seattle.

Would the proposal displace any existing recreational uses?

This is a non-project action that affects multiple parcels, including parcels along the shoreline of Elliott Bay, the Duwamish Waterway, and other locations in the city of Seattle. As a non-project action, the proposed amendments would not directly displace any existing recreational uses, due to lack of a directly related development.

If improvements to comply with the proposed amendments were to occur at a property, such as at the Example Sites (Piers 56, 67 and 90/91), along the shorelines of Elliott Bay or the Duwamish Waterway, the project would not be expected to result in direct adverse permanent displacement of existing public recreational facilities.

However, as identified earlier in this checklist for aesthetic impacts, it is possible that access-related improvements of a taller pier such as at Pier 56 or Pier 67 could result in the need for access improvements that could overlap or adversely conflict with adjacent features like the Waterfront Seattle park promenade in the vicinity of Pier 56, or sidewalks at the upland edge in the Pier 67 vicinity. The degree of these adverse impacts could be more limited or mostly avoided if over-water bridges could be used as a design strategy to achieve vehicle access to piers while minimizing changes to the Alaskan Way sidewalk and recreational space environment.

To the extent that "non-substantial improvement" renovation scenarios could occur at the Example Sites, or those piers could proceed with renovations if obtaining a historic structure variance, a lack of probable required change in heights of piers and buildings would likely avoid the potential for the identified adverse impacts on recreational space and/or public right-of-way.

With potential future development subject to the amended floodplain code, temporary construction impacts, such as impeded access to or use of a facility, could occur on a temporary basis for safety reasons during construction activities.

Proposed mitigation measures

None proposed.

Utilities

This is a non-project action that affects multiple parcels, including parcels along the shoreline of Elliott Bay and the Duwamish Waterway (and other locations such as Puget Sound shorelines along West Seattle, Magnolia, and North Seattle) in the city of Seattle. Utility providers in the city of Seattle include the following:

- Water – Seattle Public Utilities.
- Sewer – Seattle Public Utilities.
- Natural Gas – Puget Sound Energy.

- Telecommunications – Century Link, Comcast.
- Electrical – Seattle City Light.
- Refuse/Recycling Service - Cleanscapes/Recology.

As a proposed non-project action involving a legislative code update but no proposed physical development, the proposal is not expected to result in direct adverse impacts to utilities. Indirectly, the proposed code amendments could affect the design, permissible features, and possibly timing of future development in the areas affected by floodplain code requirements.

If new, substantial development to comply with the proposed amendments were to occur at a property in the affected area, such as at the Example Sites discussed in the SEPA Checklist (Piers 56, 67 and 90/91), any proposed new buildings, renovations or improvements to existing buildings, and possible future new uses would be anticipated to continue being able to connect to the City's utility systems' infrastructure and services listed above.

For a future possible development or improvement scenario involving a rebuild of an existing pier to a higher elevation, any utilities that pass through an existing seawall (if it existed, depending on location such as at the central Downtown waterfront) would likely need to be modified to provide an upward connection to the elevated pier; which conceptually would need to extend approximately 3 to 6 feet higher in elevation to make required connections to improvements serving the pier and associated structures. These kinds of vertical utility extensions, at this programmatic level of review, can be interpreted as feasible and possible to design and install. They are not believed to generate any additional potential for significant adverse environmental impacts with respect to feasibility or serviceability of utility connections at pier locations, if they are subject to possible future minor or substantial improvements, or new development actions.

Therefore, no particular potential for significant adverse impacts upon utilities is identified with respect to the ability of over-water facilities or on-land facilities to be utility-served if future development occurs in the affected areas (SPU, K. Foun, M. Mayhew, 2023).

If improvements to comply with the proposed amendments included substantial site or structure elevation increases, some reconfiguration of utility connections could be required.

Significant impacts to utility providers serving properties with improvements to comply with the proposed Seattle Floodplain Development Regulations are not anticipated.

Proposed mitigation measures

None proposed.

DECISION – SEPA

This decision was made after review by the responsible official on behalf of the lead agency of a completed environmental checklist and other information on file with the responsible department. This constitutes the Threshold Determination and form. The intent of this declaration is to satisfy the requirement of the State Environmental Policy Act (RCW 43.21C), including the requirement to inform the public of agency decisions pursuant to SEPA.

[X] Determination of Non-Significance. This action has been determined to not have a significant adverse impact upon the environment. An EIS is not required under RCW 43.21C.030(2)(c).

[ ] Determination of Significance. This action has or may have a significant adverse impact upon the environment. An EIS is required under RCW 43.21C.030(2)(c).

Signature: _____/s/_____ Date: July 29, 2024_____
Gordon Clowers
Seattle Department of Construction and Inspections