

Description of Project Alternatives

PROPOSED ACTION ALTERNATIVE

CONSTRUCTION OF NEW SETBACK DIKE

The Proposed Action Alternative includes construction of a new setback dike and breaching of two sections of the existing DD5 dike on County land along Union Slough. The proposed alignment of the new dike will enable restoration of approximately 400 acres of estuarine tidal marsh between the dike and Union Slough. Approximate measurements of the proposed dike are:

- Length.....8,700 feet
- Height.....11.5 feet
- Weight41 tons per lineal foot
- Footprint17 acres
- Volume160,000 cubic yards

The new dike will be built from imported fill from various County-approved sources and will be designed to meet the Corps' PL84-99 standards. It will be designed to minimize seepage and withstand wave action during high tides and high water events. Seepage will be minimized by incorporating impermeable materials into the dike. Protection for wave action on the waterward dike slope is expected to consist of riprap (large rocky material), compacted earth with grass, or an extended shallow slope that would reduce wave energy against the dike by providing a gradual "beaching" slope to dissipate wave action (see Figure 6, Dike Cross-Section).

US Army Corps of Engineers PL84-99 Program

Under Public Law 84-99 (PL 84-99), federal assistance is available to ensure that local flood control structures damaged by flooding will be repaired or restored to pre-disaster conditions and levels of protection. To participate in the program, flood control structures must meet standards for design, construction, operation and maintenance established by the US Army Corps of Engineers. These specifications include minimum standards for elevation, material uniformity and compactness, slope stability and numerous other structural elements as well as ongoing inspection and maintenance.

The dike will be built to an elevation approximately two feet higher than the final desired elevation to allow for expected compaction of soils. See Geology and Soils section for further details. Design and construction specifications for the dike, including dike materials and top width, will be finalized in consultation with the City of Everett and Diking District 5.

Following construction of the proposed new dike, two large sections of the existing dike will be breached to allow the exchange of tidal and river water between Union Slough and the project area. In total, these breached areas are expected to be approximately 4,500 feet in length. The exact extent of the dike breaches have not yet been finalized but will likely include sections that

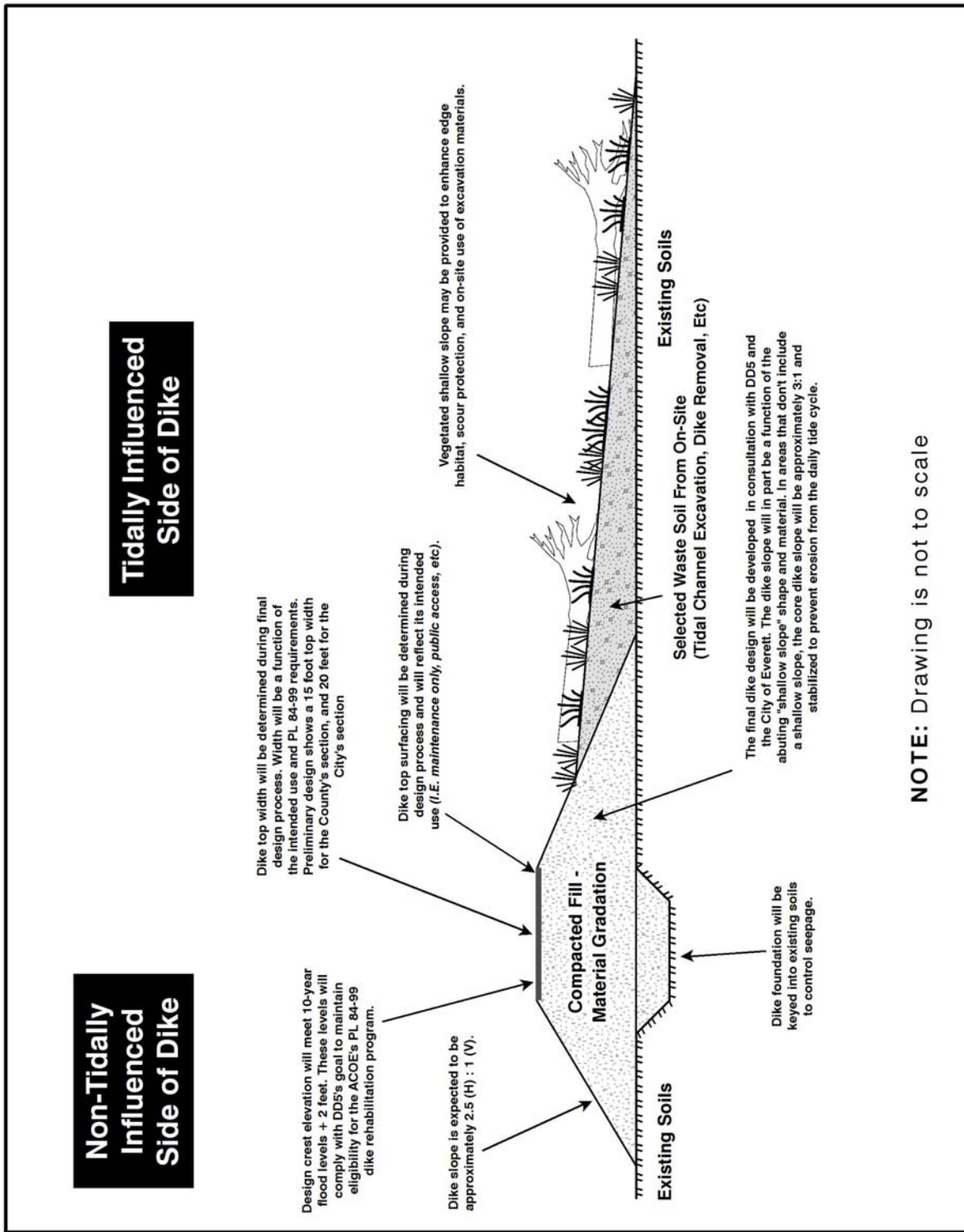


FIGURE 6. DIKE CROSS-SECTION

are on the outside bends in Union Slough and in stretches where the existing dike lies directly adjacent to Union Slough. Locations that would likely be avoided include the vicinity of the PSE pipeline crossing, Buse Timber's log rafting areas, the inside bends in Union Slough, and sections of dike not directly adjacent to Union Slough. The non-breached areas of the existing dike will remain to function as upland habitat but will no longer be maintained for flood protection.

PROPOSED DIKE ALIGNMENT

The new setback dike alignment will be located near the east bank of the west tidal channel (see Figure 2, Proposed Action Alternative). At its north end, the dike would tie into the existing dike along Union Slough just east of Buse Timber property. The alignment would curve toward I-5, but remain on County property. The dike would then parallel, with a sufficient offset, the east bank of the west tidal channel along IFF property boundary. At IFF's southern property line, the alignment would curve in a southwest direction for approximately 1,400 feet crossing both the natural gas pipeline and 12th Street NE near the I-5 overpass. It would then extend south for approximately 750 feet to the City's WPCF, then east for approximately 1,400 feet adjacent to the WPCF to tie in with the City's east-west dike at the northeast corner of the WPCF.



View of project area looking west showing the proposed dike alignment (approximate). The City of Everett wastewater treatment facility is in the upper left of the photo to the south, I-5 parallels the project area to the west, and Union Slough encircles the project area to the north and east.

The Proposed Action Alternative is intended to hasten and enhance the full restoration of natural processes and create public access and recreation opportunities. Drainage on the waterward side of the dike will be restored to estuarine tidal marsh through removal of the three tide gates in the existing dike, plugging and filling of thousands of feet of existing linear drainage ditch, and creating, enhancing and extending up to 15,000 feet of the dendritic blind tidal channel network. The tidal channel network will be connected to Union Slough. Drainage on the landward side of the new dike will be improved through construction of new ditches and installation of a new tide gate into Union Slough. Cleaning and possibly slip-lining the existing culverts that drain west under I-5 will likely be conducted by DD5 in advance of the project, which will also ensure positive drainage of properties landward of the dike.

Besides the tidal channel enhancements, habitat improvement elements will include creating topographic and edge habitat complexity by installing shallow slopes on the setback dike,

building hummock islands and dike fingers, and sculpting the remnant dike sections. Large woody debris complexes will be created within the tidal channels and at other strategic locations throughout the site.

Active and passive measures will be employed to encourage natural tidal marsh vegetation and to suppress and control invasive weeds. Selected upland areas above the mean higher high tide elevation will be planted with native species, and areas below that will naturally re-vegetate from recruitment of native seeds.

Public access facilities will include a dike-top trail on the City's new dike to the south of 12th Street NE. Other public access features and amenities, such as a parking lot, may also be considered and developed as the design progresses.



A section of new dike constructed for the Nisqually Delta Restoration Project south of Seattle. The dike features a gravel dike-top road, graduated slope and beaching area. This view is to the waterward side of the new dike showing the early stages of new tidal marsh formation.

COMPENSATORY MITIGATION PROGRAM ELEMENT

When the County Council approved the acquisition of the Rhodes property, it requested County staff to investigate compensatory mitigation opportunities on 100 acres of the property that was purchased with County Conservation Futures Funds. Staff has since determined that the Smith Island Restoration Project offers an exceptional opportunity to provide wetland compensatory mitigation.

There are several key benefits to implementing a compensatory mitigation program related to this project. Restoration of a larger consolidated area with high ecological functions and values will fare better than restoration of smaller individual areas that have greater risks of not achieving the “no net loss” criteria applied for mitigation purposes. Combining salmon habitat restoration with wetland compensatory mitigation leads to a reduction of the overall amount of land – mostly designated agricultural - sought in the estuary for ecological benefits. Combining restoration and mitigation also avoids the acquisition of many smaller parcels that are limited to serve single project compensatory mitigation needs which over time contributes to fragmentation of the County’s agricultural land base.

There may be an opportunity to provide other landowners or project proponents, including farmers and diking or drainage districts, with an option to fulfill mitigation requirements for possible project impacts in the estuary. Partnering with other entities that require compensatory mitigation for their project impacts will help fund construction of the Smith Island Restoration Project.

KEY DIFFERENCES BETWEEN RESTORATION AND COMPENSATORY MITIGATION ELEMENTS

The Smith Island project is, first and foremost, a restoration project. However, the County and City propose to use portions of the project area for advance compensatory mitigation programs. These programs provide both immediate opportunities to obtain funds to construct the project and future opportunities to fulfill regulatory requirements for mitigation associated with public infrastructure projects. It is important that the restoration and compensatory mitigation elements of the project remain distinct. Salmon recovery grant funds used to acquire properties for habitat restoration cannot be used to subsidize compensatory mitigation programs.

From a physical standpoint, there is often no difference between habitat restoration areas and compensatory mitigation areas. From a regulatory standpoint, however, compensatory mitigation must achieve a "no net loss" standard, meaning that a project's mitigation actions must provide at least as much benefit to ecological functions and values within the ecosystem as the project will displace. In contrast, habitat restoration projects are implemented to improve habitat functions and values often resulting in a net gain.

Approximately 250 acres of the total project area are being proposed for salmon habitat restoration. Although the term "restoration" typically refers to the work of restoring natural processes to a location where they were somehow altered or destroyed, restoration projects can and often do create habitat in a new location. Smith Island was historically a broad, estuarine tidal marsh as evidenced on the site today by the remnant tidal channels that meander across the project area.

The Smith Island Restoration Project proposes to reserve approximately 150 acres for a compensatory mitigation program that will be used for other development projects' wetland impacts. Although the project itself will impact existing wetlands in the project area, it is considered to be "self-mitigating" due to the overall gain in wetland functions and values achieved on the project's remaining 250 acres.

COMPENSATORY MITIGATION PROGRAM STRATEGY

A number of federal, state, and local agencies regulate development impacts and corresponding mitigation for those impacts to protect habitats and species. Snohomish County's investigation into the use of the Smith Island Restoration Project for compensatory mitigation purposes has focused on wetland regulations. Agencies which have regulatory authority to approve the use of Smith Island Restoration Project for wetland mitigation are the Corps, WDOE, Snohomish County and City of Everett.

Past discussions have primarily focused around two different compensatory mitigation programs that are able to meet the goals of mitigation strategy; an in-lieu fee mitigation program and an advanced mitigation program.

An in-lieu fee mitigation program allows a public agency to establish a program under which it can collect funds from a project proponent in lieu of requiring that same proponent to perform compensatory mitigation elsewhere. The public agency in turn must use these funds to implement

approved habitat restoration and conservation projects within a defined service area. Under this program, the public agency becomes the responsible party to the regulatory agency for fulfilling the “no net loss” requirements of the fee payer. In order to establish an in-lieu fee mitigation program, the public agency must first gain approval from the appropriate federal, state, and local agencies.

An advanced mitigation program consists of a proponent implementing a habitat restoration project and at a later date requests regulatory agencies to consider the improved habitat functions of that restoration project be used to offset impacts associated with its own future development projects. These various future projects are issued permits individually. The term “advanced” refers to the establishment of a compensatory mitigation site in the current time frame for the purposes of mitigating for future projects.

At this time, a decision on what type of mitigation program the Smith Island Restoration Project will be has not been made. The City’s compensatory mitigation program is separate and distinct from that proposed by the County. The City intends to use its mitigation program to compensate for impacts associated with its own future public projects.

POTENTIAL MITIGATION OPPORTUNITIES FOR BNSF AND WSDOT

Snohomish County has had a number of conversations with other local entities regarding the potential use of the Smith Island Restoration Project for their mitigation needs. As currently proposed, the project may provide mitigation opportunities for BNSF’s Delta Rail Yard project and WSDOT’s SR 529 Bridge Replacement project.

BNSF and WSDOT, in cooperation with the County, have worked with the regulatory agencies and have been permitted to conduct compensatory mitigation within the Smith Island project area for project impacts. The permits issued to both BNSF and WSDOT indicate the Smith Island Restoration Project as the preferred option for completing their respective compensatory mitigation requirements.

For BNSF, the proposal is to provide compensatory mitigation for impacts associated with the company’s Delta Rail Yard expansion project, an approximately two-mile long project located at the north end of the City of Everett. BNSF’s project will permanently fill 11.2 acres of Category III and IV freshwater wetlands. Using guidance from the Snohomish Estuary Wetland Integration Plan (SEWIP), BNSF proposes to fund restoration of 14 acres of Category I estuarine wetland within the Smith Island project area.

For WSDOT, the proposal is to provide compensatory mitigation for impacts associated with the agency’s SR 529 Bridge Replacement Project over Ebey Slough in Marysville. WSDOT proposes to fund restoration of 1.8 acres of Category I estuarine wetland within the Smith Island project area to compensate for the 0.37 acre of impact to Category II estuarine wetlands and 0.08 acre of impact to Category IV palustrine emergent freshwater wetland.

CONVEYANCE OF NORTHWEST PIPELINE CORPORATION PROPERTY

By court order, Northwest Pipeline Corporation was required to convey a 32-acre parcel within the Smith Island project area to Snohomish County partly to compensate for wetland impacts associated with construction of the natural gas pipeline that crosses through the project area. The conveyance process was completed in April 2011 and the parcel is in County ownership.

CONSTRUCTION PHASING AND ESTIMATED COST

The project will likely be constructed in two phases, with a total expected construction period of two to three years. The first phase will cover site preparations, constructing the new setback dike, and constructing interior restoration features such as hummocks, dendritic channels, large woody debris complexes, invasive plant species control, and filling of linear drainage ditches. Drainage features on the landward side of the proposed dike will also be constructed early during the first phase to prohibit disruption of drainage functions. The first phase will occur over one or two construction seasons.

The second phase will involve breaching the existing dike and allowing water from Union Slough to enter the project area. The east tidal channel will be reconnected to Union Slough. During this phase, minor modifications may be made to the new setback dike to adjust for settlement that may occur during the first phase. This would be followed by finishing the City's section of the dike top with a suitable surface for public access and recreation, and the County's section with a suitable surface for maintenance activities. The material removed from the existing dike will be used appropriately to supplement topographic enhancements onsite such as shallow dike slopes and hummocks.

The following table summarizes approximate project costs estimated conservatively.

TABLE 2 – ESTIMATED PROJECT COSTS

Project Phase	Estimated Cost
Property Acquisition	\$1,800,000
Restoration Feasibility, Design, Permitting, etc.	\$2,400,000
Restoration Construction	\$13,500,000*
Maintenance and Monitoring (10 years)	\$600,000
Total	\$18,300,000

*Includes City of Everett cost share estimate of \$2M

IMPACT ON SALMON RECOVERY PLANNING

Under the No Action Alternative, the County would forego an opportunity to comply with federal ESA mandates to implement salmon recovery plans, such as the 2005 Plan that was developed in coordination with the Snohomish Forum. The Smith Island Restoration Project is the largest project in the 2005 Plan and occupies a key central position between upstream and downstream restoration projects.

There is a long history of County commitment to salmon recovery in the estuary, as evident by the Snohomish County Council's approvals to fund the effort. The County has acquired property and is party to grant agreements with funding agencies such as the Salmon Recovery Funding Board and Governor's Salmon Recovery Office. The County would need to negotiate with funding agencies to determine how to handle the consequences of not constructing the project. These funding sources, together with Snohomish County Conservation Futures funding, have been used to purchase land on Smith Island, and to fund project planning, design, permitting, and construction. Certain grant-funded land acquisition agreements include a default provision that would require the County to return the grant funds plus interest penalties if the purchased land is not used for habitat restoration or to acquire equivalent properties elsewhere that fulfill the same purpose.

If the project is not implemented, it is expected that the County's ability to secure grant funds and gain support and partner with other agencies and stakeholders on future restoration projects will be compromised. Without grant funding and partnerships, the ability to implement projects for habitat restoration would be diminished. This could result in net reductions in restoration efforts that help to promote salmon recovery.

The Snohomish Forum operates on the premise that all members are individually and collectively responsible for taking part in the recovery of salmonid species. If Snohomish County chooses not to implement the Smith Island Restoration Project, the County would undoubtedly lose standing with long-time partners who are cooperatively working toward common salmon recovery goals.

IMPACT ON THE COMPENSATORY MITIGATION COMPONENT

Selecting the No Action Alternative would mean that potential mitigation partners would need to develop and implement new mitigation plans for regulatory agencies. The County and City would not be able to implement their proposed compensatory mitigation programs and would need to look for other locations to meet their present and future mitigation needs. Both the City and County will continue to have development projects that require compensatory mitigation for project impacts. Without the option of having Smith Island Restoration Project as an available compensatory mitigation resource, both entities will need to acquire lands and design and permit projects on a piecemeal basis, a process which will be considerably more expensive.

TABLE 3 – GRANT FUNDS AWARDED TO DATE

Grant Program / # / Source	Date Awarded	Amount Awarded	Amount Expended*	Purpose
SRFB / #01-1298A / RCO	2001	\$ 705,865	\$ 705,865	269-ac Rhodes property acquisition
SRFB / #99-1704D / RCO	2004	\$ 73,758	\$ 73,758	Support planning and design tasks
SFRB / #05-1514A / RCO	2005	\$ 415,900	\$48,000	Rhodes, Buse, Harnden Acquisitions (only appraisal costs and ancillary costs associated with 85-acre Rhodes acquisition expended)
SRFB / #07-1705N / RCO	2007	\$ 300,000	\$ 300,000	Design and permitting; primarily SEPA/EIS costs expended
NCWC / unk. / USFWS via ILA with WDFW**	2007	\$312,000	\$0	Design and permitting
ESRP / #08-2155R / RCO	2008	\$2,600,000	\$45,000	Construction (includes some A&E, SEPA/EIS, survey, and permitting)
SRFB / #09-1279R / RCO	2009	\$1,500,000	\$255,000	Construction (includes some A&E, SEPA/EIS, survey, and permitting)
Total		\$5,895,523	\$1,427,623	

SRFB = Salmon Recovery Funding Board (IAC/RCO)

GSRO = Governor’s Salmon Recovery Office (predecessor to IAC/SRFB)

NCWC = National Coastal Wetlands Conservation Grant Program (USFWS)

ESRP = Estuary and Salmon Restoration Program (RCO)

* Approximate as of March 2011

** Grant originally awarded to WDFW for different project. County and WDFW entered into an interlocal agreement (ILA) in 2007 to apply \$695,000 of grant toward Smith Island acquisitions. The grant funds were never used for this. County and WDFW are currently developing a new ILA to use the funds for design and permitting.

IMPACT ON PROJECT PARTNERS AND STAKEHOLDERS

Without the new dike, DD5 would need to upgrade the existing dike within the project area to the Corps’ PL84-99 standards to remain eligible for federal assistance. The cost of the improvements to the 50 to 80-year old dike is roughly estimated to be \$1.5 million (Steve Fogg, personal communication).

The County’s pending partnership agreements with WSDOT and BNSF to use part of the Smith Island Restoration Project as compensatory mitigation for their own projects’ wetland impacts would not be implemented. Both agencies’ respective permits acknowledge that if the project is not constructed, there is an allowance for them to develop new mitigation plans with regulatory agencies. The consequences of the No Action Alternative are added costs to WSDOT and BNSF associated with developing and implementing new mitigation plans elsewhere.

DIKE ALIGNMENT ALTERNATIVES CONSIDERED AND DISMISSED

Since project inception, Snohomish County has informally considered and dismissed multiple setback dike alternatives. In the 2009 SEPA Checklist, three dike alignment alternatives were presented for public review and consideration (see Figure 7, Dike Alternatives Considered).

- Alternative A - Maximum habitat restoration: 478 acres
- Alternative B - Medium habitat restoration: 362 acres
- Alternative C - Minimum habitat restoration: 262 acres

The Action Alternative presented and discussed in this DEIS is a refinement of Alternative B. It was developed after consideration of several issues that were identified as part of the preliminary engineering and environmental review process. The alternatives considered and dismissed are summarized below.

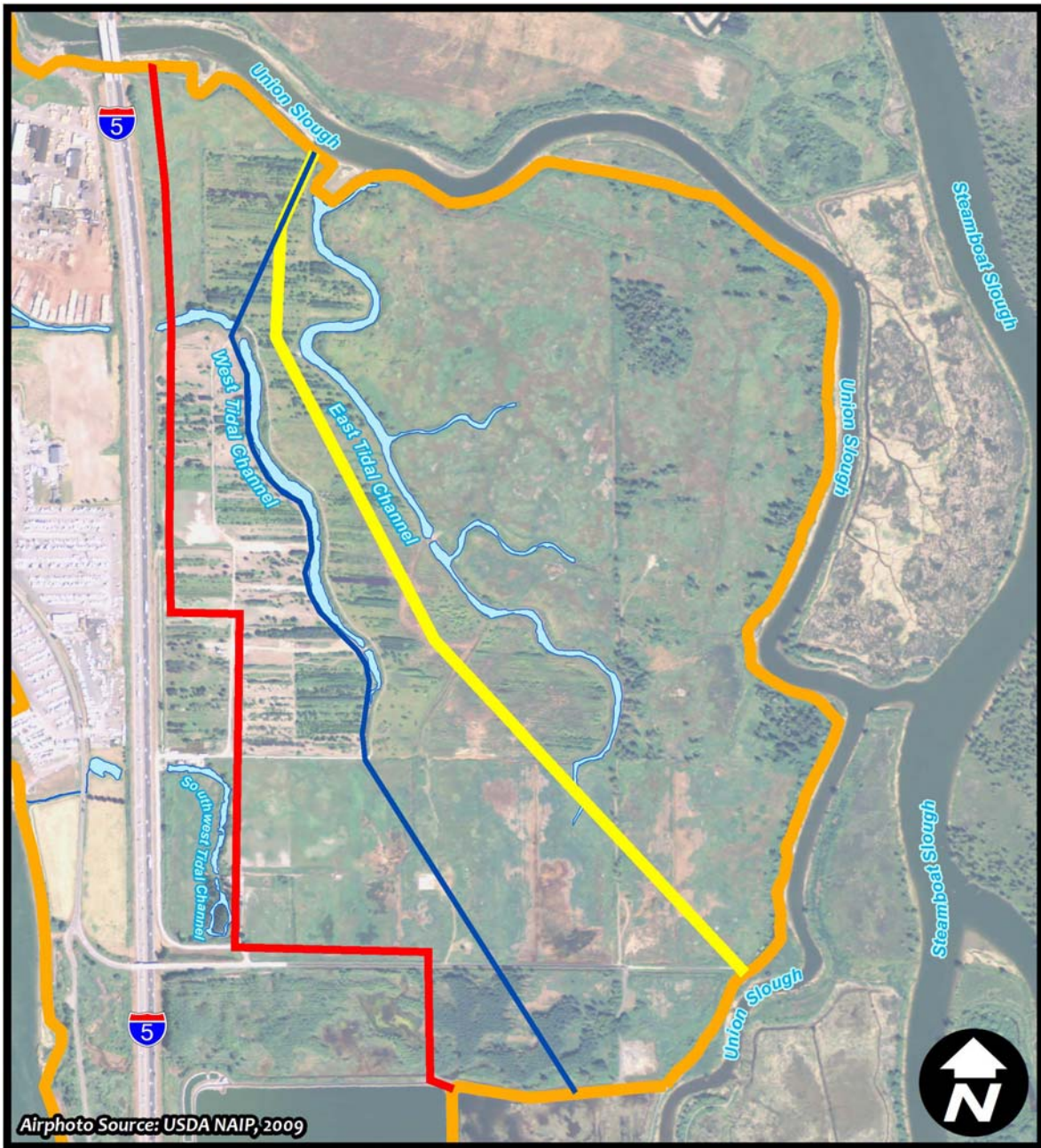
ALTERNATIVE A

This potential alignment proposed restoring 478 acres and leaving 22 acres landward of the setback dike that would not be subject to tidal influence. The proposed dike would have been adjacent and roughly parallel to the east side of I-5. At its north end, the new dike would have connected to DD5's existing dike near the I-5 bridge over Union Slough.

At its south end, the new dike would have connected to the dike on City property at the northeast corner of the City's WPCF. Alternative A's implementation was contingent upon the County acquiring property or obtaining easements on property currently owned by IFF and Buse Timber. As the County did not acquire these properties, this dike alignment was dismissed from consideration.

ALTERNATIVE B

Alternative B proposed restoring approximately 362 acres and leaving 138 acres landward of the setback dike. The new dike would have been located on IFF's property parallel to the west tidal channel. At its north end, the new dike would have connected to DD5's existing dike east of Buse Timber's property boundary. At its south end, the dike would have connected to the north end of the City's setback dike approximately halfway between the WPCF's northeast corner and Union Slough. As the new setback dike would have connected to the existing dike on the City's property at a diagonal from the southeast corner of IFF property, Alternative B would have left more City property -- compared to Alternative A -- landward of the dike. This proposed alignment was dismissed because IFF did not grant an easement to include the west tidal channel as part of the restoration and the City desired to incorporate more of its property into the project.



Key to Features:

- Existing Diking District 5 Dike
- Dike Alternative A Alignment
- Dike Alternative B Alignment
- Dike Alternative C Alignment

0 500 1,000 Feet



Snohomish County disclaims any warranty of merchantability or warranty of fitness of this map for any particular purpose, either express or implied. Any user of this map assumes all responsibility for use thereof, and further agrees to hold Snohomish County harmless from and against any damage, loss, or liability arising from any use of this map.



FIGURE 7. DIKE ALTERNATIVES CONSIDERED

ALTERNATIVE C

Alternative C proposed restoring 262 acres and leaving 238 acres landward of the new setback dike. The new dike would have been located further to the east than Alternative B and would have run southeastward between the two remnant tidal channels. At its north end, the new dike would have connected to DD5's dike in the same location as Alternative B. At its south end, this alignment would have reconnected to DD5's dike along Union Slough near the east end of 12th Street NE. This alternative was also dismissed because, as described in Alternative B, the City desired to incorporate more of its property into the project and this would not have been possible with Alternative C.

DISADVANTAGES AND BENEFITS OF DELAYING ACTION ON THE PROPOSAL

As part of the discussion of alternatives, SEPA requires an EIS to discuss the benefits and disadvantages of delaying action on the proposal. The following considers both the potentially negative and potentially positive outcomes of the Snohomish County Council postponing a decision on the Proposed Action versus No Action Alternative.

DISADVANTAGES OF DELAYING IMPLEMENTATION

Some outcomes of delaying action on the proposal may have the same effect as selecting the No Action Alternative. Certain grant awards received for the project are nearing expiration and may not be renewed. Because of current economic pressures, state agencies such as the Department of Fish and Wildlife will not guarantee grant recipients that unspent funds will remain in their budgets after 2011. Snohomish County has received approximately \$4.1 million in construction funding grants for the Smith Island Restoration Project that have expiration dates beginning in 2011.

Preliminary agreements with project partners and stakeholders, including the City of Everett, WSDOT and BNSF are important elements of the project's funding strategy. Each of these entities has its own regulatory obligations to fulfill; a delay in the Smith Island Restoration Project may require them to fulfill their obligations through other means.

Delaying action on the proposal may jeopardize the County's relationships with organizations it is working with to meet regional salmon recovery goals. It has been over five years since the community-supported 2005 Plan was adopted by Snohomish County. The Snohomish County Council has passed six resolutions demonstrating its commitment to the 2005 Plan and to the Smith Island Restoration Project. The project is a major component in a suite of restoration efforts that the County and its salmon recovery partners are relying on to meet 10-year restoration targets outlined in the adopted 2005 Plan.

A major portion of the lands acquired for the Smith Island Restoration Project was purchased with significant financial assistance from salmon recovery grant funding with the intention of restoring them to estuarine tidal marsh. By delaying a decision, the County would continue to

incur site management and maintenance costs estimated at \$15,000 per year and risk defaulting on grant conditions. The grant conditions require a deed of right on the title to the properties which states that the land acquired with grant funding must be used for restoration purposes. Replacing these properties, as required by the deed of right requirements, would cost the County an estimated \$1.8 million.

DD5 must upgrade its dikes to remain eligible for the Corps' PL84-99 program. If the project is delayed, DD5 may be required to complete upgrades to its existing dike rather than having the Smith Island Restoration Project setback dike fulfill the Corps' requirement. The cost of these upgrades within the project area is estimated at \$1.5 million and will be distributed among DD5 members, which includes the County and City.

It cannot be predicted when a major flood event may cause the substandard DD5 dike to fail. A dike failure could result in increased risk to public and private infrastructure including the City's wastewater treatment plant, IFF's Hima Nursery, Buse Timber's mill, and I-5. If upgrades to the dike are not implemented in a timely fashion and in compliance with the Corps' PL84-99 program requirements, DD5's program eligibility will be jeopardized. In this case, any resulting damage caused by overtopping or breaching of the dike would not be funded or repaired by the Corps.

BENEFITS OF DELAYING IMPLEMENTATION

Snohomish County acknowledges that the loss of designated agricultural lands that would result from implementing the Smith Island Restoration Project represents an unavoidable adverse impact. The County also recognizes that the cumulative effect of habitat restoration and compensatory mitigation projects that have been completed, are currently underway, or are proposed on designated agricultural lands represent a mounting toll on the inventory of agricultural lands in Snohomish County.

The steady decline in farming and the number of farms in production in Snohomish County has been documented for many years. In 2005, County Executive Aaron Reardon launched the Snohomish County Agriculture Action Plan as a vigorous campaign to reverse this trend. At the same time, federal, state, and local initiatives to restore critical habitat for endangered salmon have accelerated the planning and implementation of projects that often conflict with the County's goals for agriculture.

Delaying action on this proposal would provide more time for the County to develop a strategy for harmonizing the land-base and resource needs of agriculture and salmon recovery. The Snohomish County Council could choose to modify the Proposed Action Alternative described in this DEIS to reflect this strategy before taking final action on the proposed Smith Island Restoration Project.

