

1 Summary

This Final Supplemental Environmental Impact Statement (FSEIS) was prepared in accordance with the requirements of the State Environmental Policy Act (SEPA), as defined in WAC 197-11. This impact analysis evaluates and compares a range of remedial action alternatives for the cleanup of the Whatcom Waterway site in Bellingham.

This FSEIS incorporates changes made in response to public comments received on the *Draft Supplemental EIS* that was issued for public review (October 10, 2006 – December 13, 2006) jointly with a draft *Remedial Investigation & Feasibility Study* (RI/FS, RETEC 2006) for the Whatcom Waterway site. This FSEIS includes a Responsiveness Summary (Appendix G) addressing comments received on both documents.

Using information in the final RI/FS and the Draft Supplemental EIS, and in consideration of public comments received, Ecology proposed one cleanup alternative as the final remedy for the cleanup of the Whatcom Waterway site. This final remedy was described in a draft Cleanup Action Plan (CAP), which was issued for public review and comment (from July 12, 2007 to August 13, 2007) as an exhibit to a draft legal agreement called a consent decree (Decree).

Ecology has addressed public comments received on the draft Decree including the draft CAP, in a Responsiveness Summary, and has finalized the Decree. This FSEIS is being issued jointly with the final Decree and the Responsiveness Summary. The Decree will now be signed by Ecology and the parties implementing the cleanup, and entered in Whatcom County Superior Court. The cleanup will then move forward into design, permitting, construction and long-term monitoring.

This document was prepared consistent with the requirements of the State Environmental Policy Act (SEPA) regulations, as defined in WAC 197-11. In addition, this document provides an evaluation of proposed actions against a set of non-regulatory goals, developed by Ecology in conjunction with other regulatory and resource agencies, local governments, tribes, and project stakeholders as part of the Bellingham Bay Demonstration Pilot. Background regarding the Whatcom Waterway site and the Bellingham Bay Demonstration Pilot are provided in Sections 1.1 and 1.2 below. Subsequent sections of this summary describe the project regulatory context, and describe the evaluated project alternatives and the conclusions of the FSEIS.

1.1 Whatcom Waterway Project Background

The Whatcom Waterway site is located within Bellingham Bay (Figure 1-1). The site includes lands that have been impacted by contaminants historically released from industrial waterfront activities, including mercury discharges

from the former Georgia Pacific (GP) chlor-alkali plant, as well as other industrial releases. A history of the site and surrounding area was provided in Section 2 of the Remedial Investigation report (Volume 1 of the RI/FS) and is summarized in Section 2.1 of this FSEIS.

The RI/FS process for the Whatcom Waterway site was initiated by Georgia Pacific under Ecology oversight. The RI/FS process was specified under MTCA Agreed Order DE 95TC-N399 and was initiated in 1996. The study included detailed sampling and analysis in 1996 and 1998, and subsequent sampling activities in 2002, 2003 and 2004. The site investigation data from these activities are described in the Remedial Investigation report (Volume 1 of the RI/FS).

In parallel with the RI/FS activities, a Bellingham Bay Comprehensive Strategy EIS was developed by an interagency consortium known as the Bellingham Bay Demonstration Pilot (Pilot). The Pilot brought together a cooperative partnership of agencies, tribes, local government, and businesses known collectively as the Pilot Work Group, to develop an approach for source control, sediment cleanup, and associated habitat restoration in Bellingham Bay. As part of the approach, the Pilot Work Group developed a Comprehensive Strategy that considered contaminated sediments, sources of pollution, habitat restoration, and in-water and shoreline land use from a bay-wide perspective. The strategy integrated this information to identify priority issues requiring action in the near-term and to provide long-term guidance to decision-makers. The Comprehensive Strategy was finalized in October 2000 as a *Final Environmental Impact Statement* and prepared under the State Environmental Policy Act (SEPA), as described in Section 1.2 below.

A previous version of the RI/FS was produced in 2000, alongside the production of the October 2000 Pilot EIS. That RI/FS addressed portions of the Whatcom Waterway site, but did not address the Aerated Stabilization (ASB) portion of the site (see Figure 1-1). However, since 2000, the Bellingham Waterfront has undergone a series of dramatic land use changes. Those changes have included but are not limited to the following:

- 2001 closure of the Georgia Pacific pulp mill and chemical plant
- 2005 sale of 137 acres of GP waterfront property to the Port
- Additional land use ownership changes in the Central Waterfront Area
- An area-wide shift from industrial to mixed-use development and zoning in waterfront areas.

The closure of the Georgia Pacific mill operations in 2001 necessitated the evaluation of ASB remediation options which had not been previously addressed by the RI/FS or EIS process. In 2002 a draft supplemental

Feasibility Study and EIS Supplement were completed but not finalized. Data collected subsequent to these 2002 documents and planned land use changes resulting from the Port's property acquisition in 2005 required the production of the 2006 RI/FS and EIS documents to address site decision-making requirements.

The 2006 RI/FS document integrates previous efforts and provides a comprehensive evaluation of site conditions and cleanup options. The document addresses current and anticipated land uses, and is performed consistent with the Agreed Order and its Amendments. This FSEIS evaluates environmental impacts associated with the RI/FS remedial alternatives, as well as a No Action Alternative.

1.2 Overview of the Bellingham Bay Demonstration Pilot and the Bellingham Bay Comprehensive Strategy

The cleanup of contaminated sediments has proven to be a difficult task, complicated by high costs, limited options for sediment management, concerns about environmental liability, source control issues, habitat alterations, and regulatory and land use considerations. To address the need for sediment cleanup and overcome some of the existing roadblocks to optimizing cleanup actions, the Bellingham Bay Demonstration Pilot (Pilot) was established.

The Pilot brings together a cooperative partnership of agencies and tribes, local government and businesses known collectively as the Pilot Team, to develop an approach for source control, sediment cleanup, and associated habitat restoration in Bellingham Bay. The history of the Pilot has been closely aligned with the MTCA process for the Whatcom Waterway site, though the Pilot scope is more comprehensive than that single site.

As described in Section 2.2.2, the Pilot Team first crafted a Mission Statement for the project. That mission statement is:

“To use a new cooperative approach to expedite source control, sediment cleanup and associated habitat restoration in Bellingham Bay.”

The Pilot Team then defined four fundamental project elements – sediment cleanup and source control, sediment disposal siting, habitat, and land use. The Pilot Team then developed seven baywide Pilot goals that reflect the collective interests of the Pilot Team and the desired outcome of the project.

Seven Baywide Pilot Goals

Goal 1 – Human Health and Safety: *Implement actions that will enhance the protection of human health.*

Goal 2 – Ecological Health: *Implement actions that will protect and improve the ecological health of the bay.*

Goal 3 – Protect and Restore Ecosystems: *Implement actions that will protect, restore, or enhance habitat components making up the bay’s ecosystem.*

Goal 4 – Social and Cultural Uses: *Implement actions that are consistent with or enhance cultural and social uses in the bay and surrounding vicinity.*

Goal 5 – Resource Management: *Maximize material re-use in implementing sediment cleanup actions, minimize the use of non-renewable resources, and take advantage of existing infrastructure where possible instead of creating new infrastructure.*

Goal 6 – Faster, Better, Cheaper: *Implement actions that are more expedient and more cost-effective, through approaches that achieve multiple objectives.*

Goal 7 – Economic Vitality: *Implement actions that enhance water-dependent uses of commercial shoreline property.*

The Pilot Team compiled, collected, and analyzed information for each project element separately. The information and priorities for each of the four project elements were then combined to create the Comprehensive Strategy.

The Comprehensive Strategy was presented in the *Bellingham Bay Comprehensive Strategy Final Environmental Impact Statement*, October, 2000 (2000 FEIS). Section 2.2.3 of this document provides an overview of the elements of the Comprehensive Strategy. The 2000 FEIS included both programmatic elements, as well as project alternatives addressing SEPA review for specific projects:

- **General Baywide Recommendations:** These programmatic elements of the strategy were not tied to specific project alternatives or actions. Together with the Mission Statement and the Goals, these recommendations remain unaffected by land use changes and other actions on Bellingham Bay.
- **Subarea Strategies:** These programmatic strategies provided greater detail on priorities and recommended actions for land use, habitat, sediment cleanup and source control within each of nine geographic sections of the Bay. Some of these strategies have been

affected by the sweeping land use changes that have taken place in the Bay, and Ecology has indicated that these Subarea Strategies will be updated after completion of the community land use planning process.

- **Draft Habitat Mitigation Framework:** This programmatic element was developed by the Pilot Team to address the analysis of habitat impacts and benefits. The Pilot Team also identified priority restoration opportunities within the Bay, many of which have already been implemented.
- **Integrated Near-Term Remedial Action Alternatives:** These project alternatives addressed multiple sediment cleanup sites, including the Whatcom Waterway. This FSEIS updates these project alternatives, to address new site data, area land use changes, and actions taken at other cleanup sites. These changes do not affect the programmatic elements of the Pilot which are addressed by the 2000 FEIS.

Following review and evaluation of public comments on the Draft EIS (published in August 1999), the Comprehensive Strategy was identified as the Preferred Alternative in the 2000 FEIS.

1.3 Role of the Current FSEIS

This FSEIS evaluates environmental impacts associated with a specific project, the cleanup of the Whatcom Waterway site.

1.3.1 Proposed Action and FSEIS Regulatory Role

The purpose of this FSEIS is to evaluate environmental impacts, benefits and potential mitigation actions associated with the cleanup of the Whatcom Waterway site. The methodology of the environmental review is conducted consistent with SEPA regulatory requirements.

In addition, this FSEIS analysis document reviews the consistency of the proposed action with the goals of the Pilot, as documented in the 2000 Comprehensive Strategy.

1.3.2 Relationship to Previous EIS Documents

As described above, the 2000 FEIS included both programmatic and project elements. The programmatic elements of the FEIS remain unchanged, and are carried forward in this document.

The subarea strategies documented in the 2000 FEIS may be updated by the Department of Ecology and the Pilot Team after completion of the community land use planning process. This EIS discusses factors which have affected the

subarea strategies, but does not propose final amendments to those subarea strategies.

The specific project alternatives evaluated in the 2000 FEIS must be updated in order to address new site data, area land use and navigation changes, and actions taken at other cleanup sites. This FSEIS provides a current comprehensive analysis of project alternatives for cleanup of the Whatcom Waterway site, and represents a FSEIS with respect to the Whatcom Waterway project elements of the 2000 FEIS.

1.3.3 SEPA Lead Agency

The Department of Ecology is the SEPA lead agency for this FSEIS. This is consistent with the 2000 FEIS, for which Ecology was the SEPA lead agency.

1.3.4 Relationship to Land Use Planning Process

Community land use planning efforts are ongoing with respect to the future waterfront land uses, infrastructure, and associated land use regulations. Significant planning activities have already been completed. Upcoming activities associated with this process include development of a final area Master Plan for the “New Whatcom” area of Bellingham’s Waterfront. That area extends along the waterfront between the Cornwall Avenue Landfill and the I&J Waterway (see Figure 1-1). The Master Planning process includes SEPA environmental review of the Master Plan elements. An EIS is currently being prepared for the Master Planning effort. The current FSEIS does not address the activities of the Master Plan, but remains focused on those activities directly associated with the cleanup of the Whatcom Waterway site.

1.3.5 Future Environmental Reviews and Permitting

This is not the only environmental review that will be conducted for the Whatcom Waterway site cleanup. Cleanup of the Whatcom Waterway site will involve future environmental review and permitting activities.

Federal permitting for in-water construction can be implemented either under a Federal 404 Individual permit, or under a Nationwide 38 permit. The federal permitting process includes review of issues relating to wetlands, tribal treaty rights, threatened and endangered species, habitat impacts, and other factors. It is anticipated that the cleanup of the Whatcom Waterway site will be performed using a Federal 404 Individual permit. Where appropriate, that permit will include related actions (e.g., updates to shoreline infrastructure, habitat enhancement projects). This permitting will be conducted concurrently with other approvals associated with in-water construction activities. National Environmental Policy Act (NEPA) review will be completed at the time of project permitting, with the completion of an environmental review by the Corps of Engineers.

In addition, the cleanup may require a Water Quality Certification and a National Pollutant Discharge Elimination Permit from the Department of Ecology, as well as a Washington State Scientific Collection Permit from the Department of Fish and Wildlife.

Lastly, under the MTCA cleanup actions are exempt from the procedural requirements of the following state and local permits however the substantive requirements must be followed:

- Hydraulic Project Approval (Washington Department of Fish and Wildlife)
- Shoreline Substantial Development (City of Bellingham).

1.4 Significant Areas of Controversy and Uncertainty

The primary areas of controversy and uncertainty are as follows:

- The relationship between site cleanup activities required under Model Toxics Control Act (MTCA) and Sediment Management Standards (SMS) regulations, and planned land and navigation uses in waterfront areas
- What mitigation measures may be required to address adverse environmental impacts associated with the RI/FS cleanup alternatives
- Willingness of the parties implementing cleanup to incorporate habitat restoration projects consistent with the Bellingham Bay Comprehensive Strategy.

1.5 SEPA Evaluation of Project Alternatives

The primary function of this FSEIS is to document the environmental impacts of each of the project alternatives, consistent with the requirements of SEPA regulations. Review of potential SEPA impacts of site cleanup is also required under SMS regulations. Where the project alternatives as described in the FS Report have significant adverse impacts that can be mitigated, appropriate mitigation measures are defined in the FSEIS. Where project alternatives result in net adverse impacts that are integral to the alternatives and cannot be mitigated, these are identified and discussed.

Based on the SEPA analysis as summarized in Section 4, most of the project alternatives will require mitigation measures over-and-above the elements of the MTCA remedy design concepts. Mitigation measures defined in the SEPA analysis should be considered as part of cleanup planning and implementation. Incremental costs of mitigation will affect the overall cost of each alternative.

Alternatives 5 and 6 had net beneficial impacts or mitigated impacts under the SEPA criteria, indicating that required mitigation measures will be minimal for implementation of these alternatives.

1.5.1 Elements of the Environment

The SEPA regulations (WAC 197-11-444) define different elements of the environment that should be considered in the development of an EIS. Following EIS scoping, the Comprehensive Strategy 1999 draft and 2000 final EIS documents organized these SEPA environmental elements into five categories. These five categories were used in analysis of remedial alternatives as part of this FSEIS. The five elements of the environment included the following:

- **Geology, Water, Environmental Health:** These factors include both the natural and built environment. The geology element includes soil and sediment stability issues. The water element focuses on water quality. The environmental health element incorporates both the pollution control benefits of conducting the cleanup, as well as potential impacts/benefits associated with implementation of the cleanup itself.
- **Fish and Wildlife:** This category includes the fish and wildlife in the project area, the different existing habitats, and the potential changes (positive and negative) to those habitats that may occur as part of the cleanup.
- **Land Use, Navigation, and Public Shoreline Access:** This category includes the uses of the project area, including the aquatic areas and nearby shorelines and waterfront properties. The elements within this category focus on existing community priorities that have been defined in previous and ongoing land use planning efforts, and how these priorities are either furthered or adversely impacted by the cleanup alternatives.
- **Air and Noise:** These elements address potential impacts to existing air quality and noise levels, particularly during the construction of the cleanup.
- **Cultural Resources:** Cultural resources include existing archaeological, cultural, and historical resources that may be impacted by the proposed project.

1.5.2 SEPA Evaluation of Alternatives

Table 1-1 summarizes the findings of the SEPA evaluation for each of the eight RI/FS alternatives and for the SEPA No Action Alternative. For each element of the environment, the conclusions are summarized based on the level of net impacts to the environment, and whether any adverse impacts are

mitigated within the scope of the alternative as defined in the FS Report. Where additional measures may be required above-and-beyond the remedial alternative, such mitigation measures are discussed.

Figures 1-2 and 1-3 illustrate significant differences between several of the project alternatives. Those figures show elements of the remedial alternatives, overlain on the New Whatcom Draft Framework Plan (Appendix E) developed as part of the area land use planning process. Significant SEPA findings for the project alternatives are as follows:

- **No Action Alternative:** The No Action Alternative does not conduct sediment cleanup consistent with MTCA requirements. Adverse impacts are incurred for environmental health as a result. Mitigation of these impacts requires implementation of cleanup actions as in the other project alternatives. The No Action Alternative does not stabilize project shorelines. Because residual impacted sediments are left adjacent to unstabilized project shorelines under this alternative, net adverse impacts were noted under the first SEPA category (geology, water, environmental health). Net adverse impacts were noted under the fish and wildlife category, because while the No Action Alternative retains existing nearshore aquatic habitat within the Inner Whatcom Waterway, these habitat benefits are offset by the lack of environmental protectiveness of the alternative. Additional cleanup measures would be required to mitigate these adverse impacts. Under the third SEPA category (land use, navigation, and shoreline public access) the No Action Alternative was found to have net adverse impacts. The No Action Alternative does not address land use or navigation needs within the Whatcom Waterway channel, leaving residual contaminated sediments at locations and elevations that conflict with planned waterway uses. Further, the No Action Alternative does not support planned aquatic reuse of the ASB, and conflicts with land use plans for this area. Mitigation of land use impacts would require additional environmental cleanup measures, as included in other project alternatives. Because the No Action Alternative will not involve construction activities, there are no anticipated impacts to air or noise levels (SEPA category 4). The No Action Alternative does not involve dredging within the Whatcom Waterway, minimizing the risk of disturbance of historical or cultural artifacts, resulting in no anticipated impacts under SEPA category 5 (historic and cultural preservation).
- **Alternative 1:** Alternative 1 accomplishes sediment cleanup consistent with MTCA requirements. However, the cleanup actions do not stabilize project shorelines. Because residual impacted sediments are left adjacent to unstabilized project shorelines under this alternative, net adverse impacts were noted under the first

SEPA category (geology, water, environmental health). Net beneficial impacts were noted under the fish and wildlife category, because Alternative 1 retains existing nearshore aquatic habitat within the Inner Whatcom Waterway, and creates a new area of improved shallow-water habitat offshore of the ASB. Under the third SEPA category (land use, navigation & shoreline public access) Alternative 1 was found to have net adverse impacts. Alternative 1 does not address land use or navigation needs within the Whatcom Waterway channel, leaving residual contaminated sediments at locations and elevations that conflict with planned waterway uses. Further, Alternative 1 does not achieve restoration of aquatic uses within the ASB, and conflicts with land use plans for this area. Like all of the remediation alternatives, cleanup implementation will result in some impacts under SEPA category 4 (air and noise impacts), though these can be mitigated through compliance with applicable regulatory requirements and best practices. Alternative 1 does not involve dredge within the Whatcom Waterway, minimizing the risk of disturbance of historical or cultural artifacts.

- **Alternative 2:** Alternative 2 is expected to comply with MTCA cleanup requirements, protecting water quality and environmental health. However, the alternative requires deep dredging within the Inner Waterway area, which will destabilize project shorelines. This shoreline destabilization represents a net adverse impact under SEPA category 1 (geology, water, environmental health) that will require mitigation. Mitigation will include the construction of bulkheads and hardened shoreline infrastructure to prevent shoreline collapse and permit use and maintenance of target dredge depths. Probable costs for the construction of this deep draft infrastructure are estimated at \$30 million, not including long-term maintenance. Alternative mitigation strategies could include backfilling of the channel after temporary bulkheading and dredging, though this would prevent future deep-draft uses and would also be very costly. Alternative 2 was found to have net beneficial impacts under SEPA category 2 (fish & wildlife), through anticipated net gains in the quantity of shallow-water, nearshore habitat. Sediments removed from the Whatcom Waterway by dredging would be managed using a new containment facility constructed near the Cornwall Avenue Landfill. The design and operation of the facility would be generally consistent with that defined in the 2000 Pilot FEIS. The containment facility is assumed under this alternative to be constructed so that the top layer of the facility remained submerged, with an elevation suitable for development of premium shallow-water habitat. As described in Section 3.3, premium nearshore habitat has the combination of elevation, location,

substrate, and other factors that optimize the refuge and forage benefits of the habitat to juvenile salmonids. This habitat created under Alternative 2 would offset losses of existing nearshore aquatic habitat in the Inner Waterway associated with deep dredging of the 1960s federal channel. Under SEPA category 3 (land use, navigation, and shoreline public access) Alternative 2 is expected to result in significant net adverse impacts. The deep dredging and associated shoreline infrastructure requirements of this alternative are inconsistent with planned mixed-use redevelopment of the Inner Waterway. The bulkheads and other infrastructure is in direct conflict with planned habitat enhancements in this area, and the construction of deep draft infrastructure will be in conflict with area redevelopment planning (Figure 1-3). The use restrictions associated with the obsolete federal channel also conflict with local plans for public shoreline access and environmental enhancements in the Inner Waterway areas. These impacts could potentially be mitigated by backfilling the Inner Waterway area after temporary bulkheading and dredging. The capping in-place of the ASB sludges is in direct conflict with planned aquatic reuse of this area. The land use and navigation impacts of Alternative 2 cannot be mitigated, but are intrinsic to this alternative. Like all of the remediation alternatives, cleanup implementation will result in some adverse impacts under SEPA category 4 (air and noise impacts), though these can be mitigated through compliance with applicable regulatory requirements and best practices. Alternative 2 will involve dredging at the head of Whatcom Waterway, raising a potential for disturbance of historical or cultural resources (SEPA category 5). These impacts would need to be mitigated through appropriate planning, archaeological monitoring, and/or other measures.

- **Alternative 3:** Alternative 3 is expected to comply with MTCA cleanup requirements, protecting water quality and environmental health. However, the alternative requires deep dredging within the Inner Waterway area, which will destabilize project shorelines. This shoreline destabilization represents a net adverse impact under SEPA category 1 (geology, water, environmental health) that will require mitigation. Mitigation will include the construction of bulkheads and hardened shoreline infrastructure to prevent shoreline collapse and permit use and maintenance of target dredge depths (Figure 1-3). Probable costs for the construction of this deep draft infrastructure are estimated at \$30 million, not including long-term maintenance. Alternative mitigation strategies could include backfilling of the channel after temporary bulkheading and dredging, though this would prevent future deep-draft uses and would also be very costly. Alternative 3 is likely to produce net adverse impacts under SEPA category 2 (fish and wildlife),

through anticipated net loss in the quantity of shallow-water, nearshore habitat. Sediments removed from the Whatcom Waterway by dredging would be managed by construction a nearshore fill within the ASB, without creation of new nearshore habitat as in Alternative 2. Some nearshore habitat is constructed offshore of the ASB, but this habitat enhancement may not be sufficient to offset losses of existing nearshore aquatic habitat in the Inner Waterway associated with deep dredging of the 1960s federal channel. These impacts could potentially be mitigated by backfilling the Inner Waterway area after temporary bulkheading and dredging. Otherwise, additional habitat mitigation is likely to be required. Under SEPA category 3 (land use, navigation & shoreline public access) Alternative 3 is expected to result in significant net adverse impacts. The deep dredging and associated shoreline infrastructure requirements of this alternative are inconsistent with planned mixed-use redevelopment of the Inner Waterway. The bulkheads and other infrastructure is in direct conflict with planned habitat enhancements in this area, and the construction of deep draft infrastructure will be in conflict with area redevelopment planning. The use restrictions associated with the obsolete federal channel also conflict with local plans for public shoreline access and environmental enhancements in the Inner Waterway areas. These impacts could potentially be mitigated by backfilling the Inner Waterway area after temporary bulkheading and dredging. The construction of the nearshore fill within the ASB is in direct conflict with planned aquatic reuse of this area. The land use and navigation impacts of Alternative 3 cannot be mitigated, but are intrinsic to this alternative. Like all of the remediation alternatives, cleanup implementation will result in some adverse impacts under SEPA category 4 (air and noise impacts), though these can be mitigated through compliance with applicable regulatory requirements and best practices. Alternative 3 will involve dredging at the head of Whatcom Waterway, raising a potential for disturbance of historical or cultural resources (SEPA category 5). These impacts would need to be mitigated through appropriate planning, archaeological monitoring, and/or other measures.

- **Alternative 4:** Alternative 4 is expected to comply with MTCA cleanup requirements, protecting water quality and environmental health. Unlike previous alternatives 1, 2 and 3, Alternative 4 conducts remediation of the Inner Waterway area consistent with the multi-purpose waterway concept (Figure 1-2). Capping and stabilization of Inner Waterway shorelines will be accomplished as part of the implementation of this alternative, in a manner consistent with planned land and navigation uses in this area. Alternative 4 therefore achieves net beneficial impacts under

SEPA category 1 (geology, water, environmental health). There are some habitat impacts under Alternative 4, but these are offset by habitat gains through preservation and construction of nearshore habitat (Figure 1-2). Alternative 4 produces a net beneficial impact under SEPA category 2 (fish and wildlife). Under SEPA category 3 (land use, navigation, and shoreline public access), this alternative results in net adverse impacts that cannot be mitigated. The alternative avoids the deep dredging and associated shoreline infrastructure requirements of Alternatives 2 and 3, and hence avoids navigation and land use conflicts in the Inner Whatcom Waterway. However, the capping of the ASB sludges results in direct conflicts with planned aquatic reuse of this area. The land use and navigation impacts of Alternative 4 cannot be mitigated, and are intrinsic to this alternative. Like all of the remediation alternatives, cleanup implementation will result in some adverse impacts under SEPA category 4 (air and noise impacts), though these can be mitigated through compliance with applicable regulatory requirements and best practices. Alternative 4 will involve dredging in the Whatcom Waterway, but dredging at the head of Whatcom Waterway is minimized, increasing protection for potential historical or cultural resources. Potential impacts under SEPA category 5 can be mitigated through appropriate project design and archeological review.

- **Alternative 5:** Alternative 5 is expected to comply with MTCA cleanup requirements, protecting water quality and environmental health. Like Alternative 4, this alternative conducts remediation of the Inner Waterway area consistent with the multi-purpose waterway concept. Dredging, capping and stabilization of Inner Waterway shorelines will be accomplished as part of the implementation of this alternative, in a manner consistent with planned land and navigation uses in this area. Alternative 5 therefore achieves net beneficial impacts under SEPA category 1 (geology, water, environmental health). There are some habitat impacts under Alternative 5, but these are offset by a substantial net gain in the quantity of nearshore habitat. In addition to the habitat improvements included in Alternative 4, Alternative 5 accomplishes remediation of the ASB, and the ASB is reconnected to the surface waters of Bellingham Bay (Figure 1-2). This increases open-water habitat by approximately 28 acres, and introduces nearly 4,500 linear feet of salmonid migration corridor in an area formerly cut off from Bellingham Bay. Alternative 5 produces a substantial net beneficial impact under SEPA category 2 (fish and wildlife). Under SEPA category 3 (land use, navigation, and shoreline public access), this alternative results in significant net beneficial impacts. The alternative accomplishes implementation of the multi-purpose channel concept, including

deep dredging at the Bellingham Shipping Terminal, and dredging, capping and shoreline stabilization in the Inner Waterway. Shorelines in this area are reconstructed in a manner consistent with planned mixed use redevelopment of the Inner Waterway (Figure 1-2). Remediation of the ASB facilitates planned aquatic reuse of this area for construction of a marina with integrated public access and habitat enhancements. Like all of the remediation alternatives, cleanup implementation will result in some adverse impacts under SEPA category 4 (air and noise impacts), though these can be mitigated through compliance with applicable regulatory requirements and best practices. Alternative 5 will involve dredging in the Whatcom Waterway, but dredging at the head of Whatcom Waterway is minimized, increasing protection for potential historical or cultural resources. Potential impacts under SEPA category 5 can be mitigated through appropriate project design and archeological review.

- **Alternative 6:** Most elements of Alternative 6 are identical to those of Alternative 5. Alternative 6 results in net beneficial impacts under the first three of the SEPA categories, and results in mitigated impacts under the fourth and fifth category. The main difference between Alternative 6 and Alternative 5 is the increased use of dredging near the Bellingham Shipping Terminal. This increased dredging is compatible with planned navigation and land uses, and does not result in requirements for new shoreline infrastructure. The deeper dredging does not trigger new habitat impacts, because the dredging is confined to deep-water areas. As a result, the additional dredging does not result in new adverse impacts under SEPA categories. In fact, the additional dredging provides additional benefits under the third SEPA category (land use, navigation, and shoreline public access) by supporting potential future deepening of the Outer Whatcom Waterway, should that be required in the future.
- **Alternative 7:** Alternative 7 is expected to comply with MTCA cleanup requirements, protecting water quality and environmental health. However, the alternative requires deep dredging within the Inner Waterway area, which will destabilize project shorelines. This shoreline destabilization represents a net adverse impact under SEPA category 1 (geology, water, environmental health) that will require mitigation. Mitigation will include the construction of bulkheads and hardened shoreline infrastructure to prevent shoreline collapse and permit use and maintenance of target dredge depths. Probable costs for the construction of this deep draft infrastructure are estimated at \$30 million, not including long-term maintenance. Alternative mitigation strategies could include backfilling of the channel after temporary bulkheading and

dredging, though this would prevent future deep-draft uses and would also be very costly. Alternative 7 is likely to produce mitigated adverse impacts under SEPA category 2 (fish & wildlife), through anticipated impacts to existing shallow-water, nearshore habitat. As with Alternatives 5 and 6, nearshore habitat improvements are accomplished as part of the remediation of the ASB, and construction of a sediment cap and habitat bench offshore of the ASB. This additional habitat is expected to offset the destruction of nearshore habitat at the head and along the sides of the Whatcom Waterway. Additional habitat mitigation is not likely to be required under Alternative 7. Under SEPA category 3 (land use, navigation & shoreline public access) Alternative 7 is expected to result in significant net adverse impacts. The deep dredging and associated shoreline infrastructure requirements of this alternative are inconsistent with planned mixed-use redevelopment of the Inner Waterway. The bulkheads and other infrastructure are in direct conflict with planned habitat enhancements in this area, and the construction of deep draft infrastructure will be in conflict with area redevelopment planning. The use restrictions associated with the obsolete federal channel also conflict with local plans for public shoreline access and environmental enhancements in the Inner Waterway areas. These impacts could potentially be mitigated by backfilling the Inner Waterway area after temporary bulkheading and dredging. Like all of the remediation alternatives, cleanup implementation will result in some adverse impacts under SEPA category 4 (air and noise impacts), though these can be mitigated through compliance with applicable regulatory requirements and best practices. Alternative 7 will involve dredging at the head of Whatcom Waterway, raising a potential for disturbance of historical or cultural resources (SEPA category 5). These impacts would need to be mitigated through appropriate planning, archaeological monitoring, and/or other measures.

- **Alternative 8:** Alternative 8 is expected to comply with MTCA cleanup requirements, protecting water quality and environmental health. However, the alternative requires deep dredging within the Inner Waterway area, which will destabilize project shorelines. This shoreline destabilization represents a net adverse impact under SEPA category 1 (geology, water, environmental health) that will require mitigation. Mitigation will include the construction of bulkheads and hardened shoreline infrastructure to prevent shoreline collapse and permit use and maintenance of target dredge depths. Probable costs for the construction of this deep draft infrastructure are estimated at \$30 million, not including long-term maintenance. Alternative mitigation strategies could include backfilling of the channel after temporary bulkheading and

dredging, though this would prevent future deep-draft uses and would also be very costly. Alternative 8 is likely to produce net adverse impacts under SEPA category 2 (fish & wildlife), through anticipated impacts to existing shallow-water, nearshore habitat. As with Alternatives 5 and 6, nearshore habitat improvements are accomplished as part of the remediation of the ASB. However, Alternative 8 converts nearshore habitat to deep-water habitat in areas offshore and adjacent to the ASB. These conversions represent net adverse impacts to juvenile salmonid habitat. In addition to the destruction of nearshore habitat at the head and along the sides of the Whatcom Waterway, Alternative 8 is likely to result in net adverse impacts to fish and wildlife. Additional habitat mitigation is likely to be required under Alternative 8. Inner Waterway habitat impacts could potentially be mitigated by backfilling the Inner Waterway area after temporary bulkheading and dredging. Under SEPA category 3 (land use, navigation & shoreline public access) Alternative 8 is expected to result in significant net adverse impacts. The deep dredging and associated shoreline infrastructure requirements of this alternative are inconsistent with planned mixed-use redevelopment of the Inner Waterway. The bulkheads and other infrastructure is in direct conflict with planned habitat enhancements in this area, and the construction of deep draft infrastructure will be in conflict with area redevelopment planning. The use restrictions associated with the obsolete federal channel also conflict with local plans for public shoreline access and environmental enhancements in the Inner Waterway areas. These impacts could potentially be mitigated by backfilling the Inner Waterway area after temporary bulkheading and dredging. Of the evaluated remediation alternatives, implementation of Alternative 8 will result in the greatest adverse impacts under SEPA category 4 (air and noise impacts), though these can be mitigated through compliance with applicable regulatory requirements and best practices. Alternative 8 will involve dredging at the head of Whatcom Waterway, raising a potential for disturbance of historical or cultural resources (SEPA category 5). These impacts would need to be mitigated through appropriate planning, archaeological monitoring, and/or other measures.

1.6 Pilot Evaluation of Alternatives

The Pilot analysis of alternatives summarized in Section 5 of this FSEIS is different from MTCA or SEPA in that it is not required under existing regulatory authorities. Consistency with the Pilot Comprehensive Strategy and the seven Pilot Goals is voluntary. However, the use of the Pilot goals provides an additional basis by which the qualitative benefits or short-comings of a remedial alternative can be measured.

As shown in Table 1-1, each of the alternatives was qualitatively ranked in Section 5 under each of the seven Pilot Goals based on the ability of the alternative to further that goal. Qualitative rankings were applied as either “Low,” “Medium,” or “High.” A “high” ranking indicates that the alternative provides better progress toward that Pilot goal than other alternatives ranked as “Low,” or “Medium.” Composite rankings were then applied based on the average results of the seven individual rankings for each alternative.

Based on the Pilot evaluation as documented in Table 1-1, the two alternatives that provide the greatest overall benefits are Alternatives 5 and 6. These two alternatives are roughly equivalent to each other, and both are consistent with the land use planning objectives identified in the New Whatcom Draft Framework Plan, as illustrated in Figure 1-2. Significant findings from the Pilot evaluation for these and the other alternatives are as follows:

- **No Action Alternative:** The Pilot evaluation resulted in very low rankings for the No Action Alternative. That alternative received low rankings under all seven of the individual Pilot Goals. The Pilot analysis suggests that even in the absence of MTCA and SMS requirements (which prevent use of the No Action Alternative at the site), further consideration of the No Action Alternative is not warranted.
- **Alternative 1:** A low Pilot ranking was also identified for Alternative 1. This alternative represents the lowest cost alternative evaluated in the Feasibility Study. Alternative 1 received medium rankings for Goals 1, 2 and 3 (Human Health & Safety, Ecological Health and Habitat Protection & Restoration). However, these modest benefits were offset by low rankings for other Pilot Goals 4 through 7 (Social & Cultural Uses; Resource Management; Faster, Better, Cheaper; and Economic Vitality, Shoreline Land Use).
- **Alternatives 2, 3 & 4:** Alternatives 2, 3 and 4 all ranked medium under the Pilot. These alternatives all ranked medium for Goals 1 and 2 (Human Health & Safety and for Ecological Health). The alternatives all received medium rankings for Goals 5 and 6 (Resource Management and Faster, Better, Cheaper), reflecting the cost-effectiveness of these alternatives relative to some other project alternatives. Alternatives 2 and 3 ranked low for Goals 4 and 7 (Social & Cultural Uses and Economic Vitality & Shoreline Land Use), because these alternatives conflict with planned land uses both within the Inner Waterway and also within the ASB. The greatest differences in rankings between Alternatives 2, 3 and 4 were noted with respect to Goal 3 (Habitat Protection & Restoration). Habitat Protection and Restoration Rankings varied from high (Alternative 2) to low (Alternative 3), reflecting the

significant differences in net environmental impacts/benefits of these alternatives to fish and wildlife habitat.

- **Alternatives 5 & 6:** Alternatives 5 and 6 received the highest rankings against Pilot goals. These alternatives received high rankings under each of the seven Pilot Goals. High rankings under Goals 1 and 2 (Human Health & Safety and Ecological Health) were achieved because cleanup is conducted to the maximum extent practicable as defined under MTCA (see discussion Section 5.3). High rankings under Goal 3 (Habitat Protection and Restoration) were achieved, because these Alternatives provide the greatest restoration benefits of any of the project alternatives. The remedies are specifically tailored to planned waterfront land uses, resulting in high rankings for Goals 4 and 7 (Social & Cultural Uses and Economic Vitality & Shoreline Land Uses). High rankings under goals 5 and 6 (Resource Use and Faster, Better Cheaper) apply to Alternatives 5 and 6. While the probable costs of the remedial alternatives are higher than Alternatives 1-4, these costs are proportionate to environmental, habitat and land use benefits achieved under Alternatives 5 and 6. Furthermore, some of the incremental mitigation costs and resource requirements incurred for Alternatives 2 and 3 are avoided. Finally, Alternatives 5 and 6 provide an opportunity to capture additional funding sources (i.e., moorage revenues) to help offset the costs of remediation.
- **Alternatives 7 & 8:** Alternatives 7 and 8 were the two highest cost alternatives evaluated in the Feasibility Study. Alternative 7 was ranked medium against the Pilot Goals, and Alternative 8 was ranked low. Both of these alternatives ranked high for Goals 1 and 2 (Human Health and Safety and Ecological Health), because they conduct cleanup to at least the level considered permanent to the maximum extent practicable under MTCA, as with Alternatives 5 and 6. However, Alternative 7 received only medium rankings for Goal 3 (Habitat Protection and Restoration). Alternative 7 is considered to roughly balance habitat impacts and benefits. Alternative 8 receives a low ranking under Goal 3, because Alternative 8 appears to produce a net loss of premium nearshore habitat. The two alternatives ranked low for Goals 4 and 7 (Social & Cultural Uses and Economic Vitality, Shoreline Land Use) due to the conflicts between the cleanup alternatives and the planned navigation and land uses. Alternatives 7 and 8 received low rankings for Goals 5 and 6 (Resource Management and Faster, Better, Cheaper) because of the disproportionately high costs of the alternatives relative to the environmental, land use and habitat benefits of the alternatives.

Table 1-1. Summary of EIS Alternatives Analysis

Alternative Number	No Action	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	Alt. 7	Alt. 8
Probable Cost (\$Million)	\$0	\$8	\$34	\$34	\$21	\$42	\$44	\$74	\$146
Alternative Description (Section 4)	Fig 4-1	Fig 4-2	Fig 4-3	Fig 4-4	Fig 4-5	Fig 4-6	Fig 4-7	Fig 4-8	Fig 4-9
Waterway Remedy Waterway Uses Sediment Disposal	Limited-Use None	Limited-Use None	Industrial Cornwall CAD	Industrial ASB Fill	Multi-Purpose Upland	Multi-Purpose Upland	Multi-Purpose Upland	Industrial Upland	Industrial Upland
ASB Area Remedy Future Uses Sediment Disposal	Non-Aquatic Use None	Non-Aquatic Use None	Non-Aquatic Use None	Non-Aquatic Use ASB Fill	Non-Aquatic Use None	Aquatic Reuse Upland	Aquatic Reuse Upland	Aquatic Reuse Upland	Aquatic Reuse Upland
SEPA Analysis of Impacts, Benefits & Mitigation (Section 4)									
Elements of the Environment (see Table 4-2 for detailed analysis) <i>(WAC 197-11-444) [1]</i>									
1 Geology, Water, Environmental Health	Net Adverse Impacts	Net Adverse Impacts	Net Adverse Impacts	Net Adverse Impacts	Net Beneficial Impacts	Net Beneficial Impacts	Net Beneficial Impacts	Net Adverse Impacts	Net Adverse Impacts
2 Fish & Wildlife	Net Adverse Impacts	Net Beneficial Impacts	Net Beneficial Impacts	Net Adverse Impacts	Net Beneficial Impacts	Net Beneficial Impacts	Net Beneficial Impacts	Mitigated Impacts	Net Adverse Impacts
3 Land Use, Navigation & Shoreline Public Access	Net Adverse Impacts	Net Adverse Impacts	Net Adverse Impacts	Net Adverse Impacts	Net Adverse Impacts	Net Beneficial Impacts	Net Beneficial Impacts	Net Adverse Impacts	Net Adverse Impacts
4 Air & Noise	-- No Change	Mitigated Impacts	Mitigated Impacts	Mitigated Impacts	Mitigated Impacts	Mitigated Impacts	Mitigated Impacts	Mitigated Impacts	Mitigated Impacts
5 Historic & Cultural Preservation	-- No Change	-- No Change	Mitigated Impacts	Mitigated Impacts	Mitigated Impacts	Mitigated Impacts	Mitigated Impacts	Mitigated Impacts	Mitigated Impacts
Pilot Comparative Analysis of Alternatives (Section 5)									
Overall Ranking of Alternative Against Pilot Goals <i>(See Section 5.2, Table 5-1)</i>	Low	Low	Medium	Medium	Medium	High	High	Medium	Low
1 Human Health & Safety	Low	Medium	Medium	Medium	Medium	High	High	High	High
2 Ecological Health	Low	Medium	Medium	Medium	Medium	High	High	High	High
3 Habitat Protection & Restoration	Low	Medium	High	Low	Medium	High	High	Medium	Low
4 Social & Cultural Uses	Low	Low	Low	Low	Medium	High	High	Low	Low
5 Resource Management	Low	Low	Medium	Medium	Medium	High	High	Low	Low
6 Faster, Better, Cheaper	Low	Low	Medium	Medium	Medium	High	High	Low	Very Low
7 Economic Vitality, Shoreline Land Use	Low	Low	Low	Low	Medium	High	High	Low	Low
Alternatives Ranking Under MTCA & SMS <i>(See Project MTCA RI/FS Report)</i>	-- Not Evaluated (Not MTCA Compliant)	Low	Medium	Medium	Medium	High (RI/FS Preferred Alt.)	High (RI/FS Preferred Alt.)	Low [2]	Low [2]

Notes:
 1. Consistent with WAC 197-11-444(3), the SEPA environmental elements have been combined to improve readability and to focus on significant issues. Categorization of the environmental elements was performed consistent with the Comprehensive Strategy 2000 FEIS.
 2. Alternatives 7 and 8 were determined to be impracticable based on the MTCA disproportionate cost analysis, resulting in a low overall MTCA alternative ranking.