



Spring 2009

Granary Building environmental impact assessment

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GRANARY BUILDING ENVIRONMENTAL IMPACT ASSESSMENT



SPRING, 2009

ENVIRONMENTAL STUDIES 436, "ENVIRONMENTAL IMPACT ASSESSMENT"

HUXLEY COLLEGE OF THE ENVIRONMENT

WESTERN WASHINGTON UNIVERSITY

June 5th, 2009

Dear Concerned Citizen:

Enclosed for your review and comment is the Granary Building Environmental Impact Assessment (EIA). The proposed action is a partial demolition of the Granary Building, in which the north half of the building will be demolished and the remaining south half of the building will be renovated and equipped for “mixed use” purposes with potential for office, retail, rental, or residential activities. Two alternatives are also addressed in this EIA: a full demolition alternative, in which the building is fully demolished, and a “no action” alternative, in which the building remains as-is.

Much of the information included in this EIA was gathered from Port of Bellingham resources, particularly the New Whatcom Redevelopment Draft Environmental Impact Statement (released March 10, 2008) and the New Whatcom Redevelopment Supplemental Draft Environmental Impact Statement (released October 15, 2008 as an appendage to the original document). The Architects’ Evaluation Team Report (released March 4th, 2009) and other work done as a result of the collaborative—albeit sometimes contentious—process between the City of Bellingham and the Port of Bellingham was also used in compiling our Granary Building EIA. Numerous outside sources were used as well.

A public meeting will be held at 10:10 AM on June 5th, 2009 at 921 Cornwall Ave, Bellingham, WA in which, following a PowerPoint presentation, questions and concerns will be addressed regarding this EIA. Furthermore, this EIA will be available to the public through the Wilson Library and the Huxley Map Library, both located on Western Washington University’s campus.

It should be noted that although this EIA addresses a real-life situation and is written with the complete integrity and attempted accuracy, it was not written by the Port of Bellingham, nor does the Port of Bellingham endorse the proposals or findings of the EIA. Rather, this EIA is an academic venture created by Huxley College students as a capstone course required for graduation. Nonetheless, this EIA was written with professionalism and reality in mind and should still be fully critiqued as would any other EIA. Comments and feedback are encouraged.

Sincerely,

Shelby Cooper, Devon Fredericksen, Bora Kim, James White, and Grant Wilson

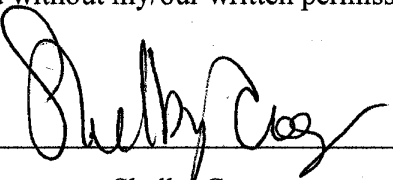
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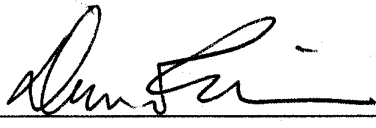
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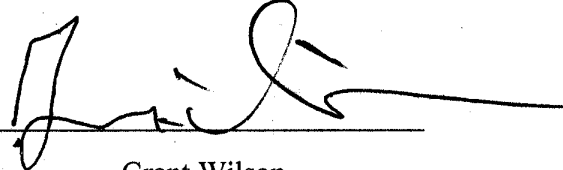
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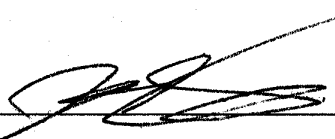
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Shelby Cooper

Signature 
Devon Fredericksen

Signature 
Bora Kim

Signature 
Grant Wilson

Signature 
James White

Date 6/5/09

GRANARY BUILDING ENVIRONMENTAL IMPACT ASSESSMENT

Instructor: Professor Jean O. Melious

Environmental Studies 436, "Environmental Impact Assessment"

Authors: Shelby Cooper, Devon Fredericksen, Bora Kim, James White, Grant Wilson

Huxley College of the Environment

Western Washington University

Disclaimer: This report represents a class project that was carried out by students of Western Washington University, Huxley College of the Environment. It has not been undertaken at the request of any persons representing local governments or private individuals, nor does it necessarily represent the opinion or position of individuals from government or the private sector.

FACT SHEET

TITLE

Granary Building Environmental Impact Assessment

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DESCRIPTION OF PROPOSED ACTION

The Port of Bellingham proposes to partially demolish the Granary Building on the Bellingham New Whatcom redevelopment site located on the downtown waterfront. Partial demolition of the building—removing the northern portion of the building, increasing the distance between the building and the shoreline—is preferable to either complete preservation or total demolition for a number of reasons. Preserving at least some of the original structure would retain historic value within the proposed historic district of the New Whatcom waterfront space. Removing part of the structure would create more of a shoreline buffer to enhance habitat restoration of the adjacent Whatcom Waterway. Partial removal would also increase waterfront access to the former Georgia Pacific site in accordance with the Port’s new proposed straight street grid plan. Moreover, this new street grid creates Bloedel Avenue, a road that connects Central Avenue—where the Granary Building sits—to the innards of the New Whatcom site. In terms of sustainable development, strengthening the structural integrity of the building would require a

certain degree of seismic upgrades and implementation of new sustainable technologies depending on the proposed future use of the building. However, renovating and reusing the current building would be more environmentally sustainable in the long term than the demolition or no action alternatives.

LOCATION

PHYSICAL ADDRESS: 1208 CENTRAL AVENUE
BELLINGHAM, WA 98225

The Granary Building is located on the intersection of Central Avenue and Roeder Avenue in downtown Bellingham. The property sits on the north end of the larger Waterfront redevelopment site, next to the Whatcom Waterway shoreline. The Granary is in close proximity to Bellingham's Central Business District and the Old Town area of the Lettered Streets Neighborhood. (See Appendix D for maps.)

LEGAL DESCRIPTION OF LOCATION

Township: 38
Range: 3E
Section: 30
Year Built: 1928
Owner: WATERFRONT ALLEY LLC
1220 CENTRAL AVE
BELLINGHAM WA 98225-4302

LEAD AGENCY

Washington State Department of Ecology
P.O. Box 47775
Olympia, Washington 98504-7775

PLANS FOR FUTURE ADDITIONS, EXPANSION, OR ACTIVITY

The Granary Building is located within the New Whatcom Development site. Redevelopment plans are currently being considered by the Port of Bellingham and the City of Bellingham. No finalized plans have been made, but it is assumed that activity and development on the site will occur in the future.

Port of Bellingham

- Approval of amendments to Port of Bellingham *Comprehensive Scheme of Harbor Improvements*.
- Development of a proposal to the City of Bellingham for a Master Development Plan (MDP) for the New Whatcom Redevelopment site.
- Approval of a Development Agreement between the Port of Bellingham and City of Bellingham.

City of Bellingham

- Adoption of the New Whatcom Master Development Plan as a Subarea Plan per the Growth Management Act.
- Approval of a Development Agreement between the Port of Bellingham and City of Bellingham.
- Adoption of Development Regulations for the New Whatcom Redevelopment Area.
- Adoption of the New Whatcom Planned Action Ordinance.

Other Local, City, or County Permits include, but are not limited to:

- Grading Permit Approval
- Partial Demolition Permit Approval
- Commercial Electrical Permit Approval
- Mechanical Permit Approval
- Fire System Permit Approval
- Plumbing Permit Approval
- Stormwater Management Plan Approval
- Street and other City Right-of-Way Use Permit Application Approval
- Transportation Concurrency Application Approval
- Asbestos Demolition / Renovation Notification Form
- Shoreline Conditional Use Permit Approval
- Shoreline Variance Permit Approval
- Site Plan Review Approval

Washington State Department of Ecology

- Section 401 Water Quality Certification
- Shoreline Substantial Development Permit Approval
- Coastal Zone Management Certification
- Notice of intent, for demolition

Washington Department of Archaeological and Historical Preservation

- Executive Order 05-05 Consultation and Review
- Archaeological Excavation Permit Approval

Washington Department of Fish and Wildlife

- Fish Habitat Enhancements Projects
- Floodplain Development Permit Approval
- Hydraulic Project Approval
- State Wastewater Discharge Permit Approval

United States Army Corps of Engineers

- Section 401 Water Quality Certification
- Section 10/404 Permit Approval
- Section 402 NPDES Permit Approval
- Section 106 Consultation and Review

DISTRIBUTION LIST

Jean Melious/Ryan Anaka

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Bellingham, Washington 98225-9085

Wilson Library

516 High St
Bellingham, WA 98225

Huxley Map Library

Arntzen Hall, 101
Bellingham, Washington 98225-9085

ACKNOWLEDGMENTS

We would like to thank Brian Gouran of the Port of Bellingham for his continued assistance in researching this topic, as well as Jean Melious for her work in guiding, reviewing, and grading this EIA. We would also like to thank everyone else who took their time to aid our research efforts.

ISSUE DATE

June 05, 2009

PUBLIC PRESENTATION TIME AND DATE

10:10 AM on June 5th, 2009 at 921 Cornwall Ave, Bellingham, WA

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This document was prepared as a requirement of the Environmental Studies 436 class, a Capstone course for Huxley College of the Environment at Western Washington University. Despite its scholastic roots, it is meant to abide by typical Environmental Impact Assessment (EIA) guidelines and was done with professionalism in mind. The EIA process began in April, 2009 and will conclude on June 5th, 2009 with a public PowerPoint presentation of our work.

Background

The Granary Building is located on the New Whatcom site, which was acquired by the Port of Bellingham from Georgia Pacific—a tissue manufacturer that left behind significant pollution issues, including heavy deposits of mercury in Bellingham Bay. The New Whatcom site—220 acres of property on Bellingham’s central waterfront area—is to be re-imagined through a collaboration of the Port of Bellingham, the City of Bellingham, and the public in what has turned out to be a lengthy and contentious process. Despite disagreement over the specifics of the New Whatcom redevelopment project, there is one vision that everyone can agree on: a vibrant mixed-use waterfront.

The Granary Building itself has been an item of much debate. In the Port of Bellingham’s New Whatcom Redevelopment Draft Environmental Impact Statement (released March 10, 2008) and the New Whatcom Redevelopment Supplemental Draft Environmental Impact Statement (released October 15, 2008 as an appendage to the original document), the Granary Building is assumed to be demolished. This sparked much public controversy from the Bellingham public, Bellingham’s Historic Preservation Commission, and the Washington Trust for Historic Preservation—who cites the historical merit of the Granary Building as cause not to demolish it, asserting that it is eligible to be listed under the Federal, State or City Historic Registers. Furthermore, Architects’ Evaluation Team Report, created by a group of local independent architects, also found that preserving the Granary Building is “desirable” and that adaptive reuse opportunities should be explored.

Beginning in 1915, the Granary Building was home to the Washington Cooperative Egg and Poultry Association. Whatcom County’s chicken operations soon became a national success: by 1920, Whatcom County had the second-highest number of chickens of any west-coast county. Those supporting the preservation of the Granary Building cite the iconic silhouette of its concrete structure and wood-framed silo as well as its historic significance as reasons to preserve it.

On April 20th, 2009 the Port commissioners and Bellingham City Council approved a framework plan for the waterfront redevelopment. However, the fate of the Granary Building remains unknown and the debate over the waterfront redevelopment continues to be publicly contentious.

Benefits of Proposed Action: Partial Demolition

Partial demolition of the Granary Building would result in historic preservation of the south side of the structure, keeping the silo intact, which is the part of the building most recognizable along the Bellingham skyline. Although partial demolition has potential to decrease the historic value of the building, total demolition would eliminate any possibility of grants awarded by federal or state historic trust funds. Preserving the part of the building that is most historically significant would increase the overall historic value of the surrounding New Waterfront area and may ensure partial funding for renovation and preservation costs. Implementation of structural and seismic upgrades to the building would benefit the long-term stability of the frame to help withstand earthquakes and other natural disasters, reducing the long-term economic cost required for maintenance. In contrast to the no-action alternative, partial demolition would create room for the proposed extension of Central Avenue that would run parallel to the current shoreline of the Whatcom Waterway (See Appendix D). By removing the part of the structure closest to the shoreline, the current flooding problems in the basement of the building would be mitigated. Clearing more space away from the shoreline would increase the shoreline buffer in the event that an extension of Central Avenue was not constructed, in which case more protection and restoration of wildlife habitat would result, partnered with the proposed removal of creosote pilings and a wharf on the shoreline.

Alternative One: Full Demolition

Alternative one, or full demolition, of the current structure would eliminate the opportunity to nominate the building for National, State, or Local Historic Register status. Gaining one of these levels of status for the building would broaden the possibilities for grant funding and various other incentives to assist in the cost of renovation and preservation. However, removing the building instead of trying to restore it would likely be more cost-efficient in the short-term. Given that total demolition would likely result in the construction of a new building on the site, this alternative would necessitate a longer duration of time in which heavy machinery is being used at or near the site, disturbing the environmental health of the area with noise, increased turbidity in the water and potential spillage of hazardous waste. Total demolition is not the most secure means for obtaining long-term sustainability from the site, as constructing a new building would require more transport of materials to and from the site and more materials needed for construction. In the case that total demolition occurred, the result would have irreversible adverse impacts on the historic significance of the site in the context of attempting to carry over some of the waterfront's historic character into the New Whatcom site.

No-Action Alternative

Leaving the building in its current condition would have no significant impact on the environmental health of the area. Implementing the no-action alternative may increase the possibility of nominating the building for inclusion in the National, State or Local Historic Register, as the entire building would be preserved. However, this plan would not allow for construction of a road on the north side of the building, limiting transportation accessibility to the area. Since the site currently has limited area for wildlife to thrive, given that most of the surrounding land is made of concrete or industrial fill, leaving the site in this state would not benefit the environmental health of the area in the long-term. In the short-term, increased noise, turbidity and potential spillage of hazardous materials from demolition or construction would not be of concern.

Conclusion

Based on the research shown in this document we are issuing a mitigated determination of non-significance for the proposed partial demolition of the Granary Site. While there are many aspects of this project, the potential significant negative impacts can be mitigated to ensure that the new site improves the existing conditions for citizens and the environment. The preservation of historic value is secured with our partial demolition plan. By maintaining the historic value of the building while incorporating new design ideas and technologies the new Granary site will serve as an iconic building of the waterfront, as well as setting an example for forward-thinking long-term historic preservation and incorporation of sustainable technologies in urban design. The successful redevelopment of the site will serve as a portal to the rest of the new Bellingham waterfront and offer opportunities for business and recreation.

DECISION MATRIX

The following is a decision matrix that indicates the priorities of different issues within the proposed action and the alternatives as a method of weighing criteria.

| Study Issues | Preferred Alternative | Alternative 1 | No Action |
|------------------------------------|-----------------------|---------------|-----------|
| Earth | Low | Low | Low |
| Air | Low | Low | Low |
| Water | Medium | Medium | Low |
| Plants | Low | Low | Low |
| Animals | Low | Low | Low |
| Energy and Natural Resources | Low | Low | Low |
| Environmental Health | Low | Low | Low |
| Land and Shoreline Use | Medium | Medium | High |
| Population and Housing | Low | Low | Medium |
| Aesthetic | Low | Medium | Medium |
| Recreation | Low | Low | Medium |
| Historic and Cultural Preservation | Low | High | Medium |
| Transportation | Medium | Medium | Medium |
| Public Services | Low | Low | Low |
| Utilities | Low | Low | Low |

**Units of measurement based on estimated impacts*

3.1 Proposed Action

The applicant is pursuing to partially demolish the current Granary Building located on the historic Georgia Pacific site, future area of New Whatcom; a redevelopment project to create a new, sustainable Bellingham waterfront district.

Built in 1928, the building is mostly comprised of heavy concrete and has a 20,916 square foot floor plan, including three floors and a basement. The building is T-shaped with three main volume floors and a five-story tower, the dimensions of which are 111' x 126 + 55' x 126. The structure has a heavy timber floor and roof framing with a wood tower structure containing grain-storing silos.

The north half of the building has two stories and is the proposed section to be demolished. Removing this portion of the building would mitigate problems with current tidal flooding on the basement level, increase waterfront transportation access, and promote habitat restoration by increasing the shoreline buffer between the shore and the building. The proposed action is to preserve and renovate the remaining five-story tower and three-story main floors. The assessed high floor live load capacity of the current structure should be able to support most anticipated mixed-reuses, such as office, retail, rental, or residential activities. Renovation would require improving the condition to the exterior concrete walls, anchorage of the wood structure to the concrete walls, and overall seismic upgrades.

This proposed action assumes an overall New Whatcom site street grid plan in which a road—assumedly “Bloedel Avenue”—connects Central Avenue (located directly north of the Granary Building) to the rest of the New Whatcom site (See Appendix D).

Proposed Action 3-D Model A: Aerial View



Proposed Action 3-D Model B: Facing South



Proposed Action 3-D Model C: Aerial View Facing Northeast



3.2 Alternative 1: Full Demolition

The first alternative to partial demolition of the Granary Building is a full demolition. This includes both pieces of the structure and would remove the pilings on the shoreline as well. Removal of the structure would mean the area could be incorporated into other waterfront redevelopment plans as without any limitations on design or historic considerations.

Full demolition allows for a complete rebuilding of the site. The benefit of this is that the newest and most efficient technologies can be utilized in the construction. In the long term this could prove to be more cost-efficient than partial or no demolition. Full demolition requires longer usage of heavy equipment for both demolition as well as full construction. By completely eliminating the current structure many resources and materials would be wasted as a significant amount would not be recyclable or reusable. The removal of the building would also have cultural impacts as it is eligible to be listed on the National, State or Local Historic Register.

3.3 Alternative 2: “No Action” Alternative

Under a no-action alternative, the proposed action is assumed to have not been approved and the Granary Building site will remain at status quo. It should be noted that although this is indeed a theoretical alternative to the proposed action, it is not a definite plan and is intended primarily to be used for comparative purposes.

Although it is called a “no-action” alternative that does not mean there cannot be any type of future development on or use of the property. Rather, it simply means that any redevelopment must be adherent to current zoning ordinances. Currently, the Granary Building is zoned for “Heavy Industrial” with a clause stating that this will remain so until a Master Development Plan (MDP) is adopted, at which point it would have a “Waterfront Mixed Use” zoning regulation (City of Bellingham Municipal Code, 2008). The same is true for the rest of the proposed New Whatcom site. Assuming in the no-action proposal that the proposed action was not approved, it can be inferred that the Granary Building will remain under “Heavy Industrial” zoning regulations.

Due to the renovations necessary to make the Granary Building meet safety regulations for mixed-use—it is estimated that the Granary Building would require \$7.5 million to be remodeled—it is unlikely that a heavy industry would spend that much when they could get a comparable facility or a Greenfield site somewhere else (Dean Kahn, “Preservation sought for historic building,” 2008). Furthermore, if the Port chose to raze the Granary Building for a new industrial purpose, it would likely receive strong political opposition. Therefore, the no-action alternative will consist of the Granary Building remaining vacant—without the industrialized uses of other New Whatcom site buildings—as it is now. This will entail no construction-related impacts, very few overall impacts, and historic preservation eligibility.

GLOSSARY TERMS

BMP (Best Management Practice): The physical, structural, and/or managerial practices approved by the department that, when used singularly or in combination, prevent or reduce pollutant discharges.

Construction and Demolition (C&D) Materials: Debris and other secondary construction building materials during construction, renovation, and demolition activities.

Disposal: Placing materials in a landfill.

EPA/USEPA: The United States Environmental Protection Agency.

Environmental Impact Assessment/Environmental Impact Statement: An EIA can be both the document and decision-making process that provides a systematic, reproducible, and interdisciplinary evaluation of the potential effects of a proposed action and its practical alternatives on the physical, biological, cultural, and socioeconomic attributes of a particular geographic area. In the United States, the actual document is referred to as the Environmental Impact Statement or EIS.

"Existing uses" means those uses actually attained in fresh or marine waters on or after November 28, 1975, whether or not they are designated uses. Introduced species that are not native to Washington, and put-and-take fisheries comprised of non self-replicating introduced native species, do not need to receive full support as an existing use.

Granary Building Site: Includes the Granary Building itself with property borders north to the shoreline, east to the Burlington Northern Santa Fe (BNSF) railroad tracks, approximately 50 feet to the west, and 150 feet to the south.

New Whatcom Site: The 220 acres of waterfront, including the Granary Building site, owned by the Port of Bellingham on which the redevelopment will occur.

"Nonpoint source" means pollution that enters any waters of the state from any dispersed land-based or water-based activities, including but not limited to atmospheric deposition, surface water runoff from agricultural lands, urban areas, forest lands, subsurface or underground sources, or discharges from boats or marine vessels not otherwise regulated under the National Pollutant Discharge Elimination System (NPDES) program.

Outfall: The place where water exits a storm drain.

Pedestrian Walkway: A sidewalk typically made of impervious pavement, on which pedestrians walk. They can also be made of permeable materials.

Permit: A document issued pursuant to chapter 90.48 RCW specifying the waste treatment and control requirements and waste discharge conditions.

pH: The negative logarithm of the hydrogen ion concentration.

Pollution: The contamination, or other alteration of the physical, chemical, or biological properties, of any waters of the state, including change in temperature, taste, color, turbidity, or odor of the waters, or such discharge of any liquid, gaseous, solid, radioactive, or other substance into any waters of the state as will or is likely to create a nuisance or render such waters harmful, detrimental, or injurious to the public health, safety, or welfare, or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses, or to livestock, wild animals, birds, fish, or other aquatic life.

Recovery: Refers to the reuse and recycling of materials, as well as utilizing materials for energy recovery.

Recycling: Processing a used material, generally through size reduction, to make it usable as an ingredient in a new product. Sorting may be a necessary step for recycling if materials are delivered to a recycler in a mixed load.

Significance of Environmental Impacts: “Significant” as used in SEPA means a reasonable likelihood of more than a moderate adverse impact on environmental quality.

Stormwater: The portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Surface Waters of the State: Includes lakes, rivers, ponds, streams, inland waters, salt waters, wetlands and all other surface waters and water courses within the jurisdiction of the State of Washington.

Wildlife Habitat (Ocean): The waters of the state used by, or that directly or indirectly provide food support to, fish, other aquatic life, and wildlife for any life history stage or activity.

Note: Most definitions acquired from WAC 173-201A-020 of the Washington State Legislature.

CHAPTER 4

AFFECTED ENVIRONMENT, IMPACTS, MITIGATION MEASURES, ALTERNATIVES

4.1 Description

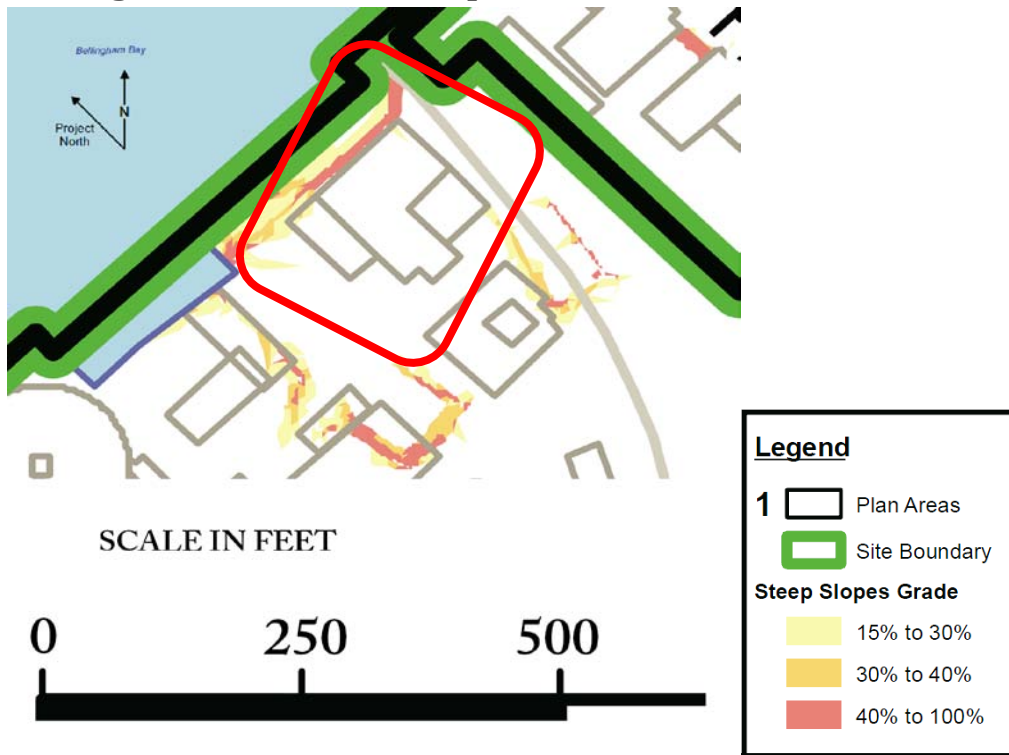
This section describes the existing Granary Building site, general geologic conditions, and incorporates the changes that the proposed partial demolition would have. Information has been gathered from the Port of Bellingham’s Draft Environmental Impact Statement of the waterfront as well as information from the Geology Department at Western Washington University.

Affected Environment

The current Granary Building sits on a flat piece of land, slightly elevated from the rest of the Georgia Pacific Site. It is bordered by the confluence of Whatcom Creek and Bellingham Bay on the northwest (also known as the Whatcom Waterway), Roeder Avenue on the northeast and the rest of the Georgia Pacific Site on the eastern and southern sides.

As with most of the waterfront site, this area is mostly flat due to filling behind bulkheads. The map below indicates the notable slope of the site is on the northwest side adjacent to the Whatcom Waterway. The slope ranges from 15% to 40%. The proposed action will create a more gentle and continuous slope of around 10-15%. The new slope would also be helped anchored by native vegetation.

Bellingham Waterfront Slope Grades



The large majority of the site is located on fill soil. This soil was artificially placed on the site as a means to raise the area above the water. Sand, silt, clay, gravel, sawdust and/or wood fragments and construction debris are all types of materials which compose the fill at the site. While some compaction efforts have been taken little is known about the extent and effectiveness of the compaction.

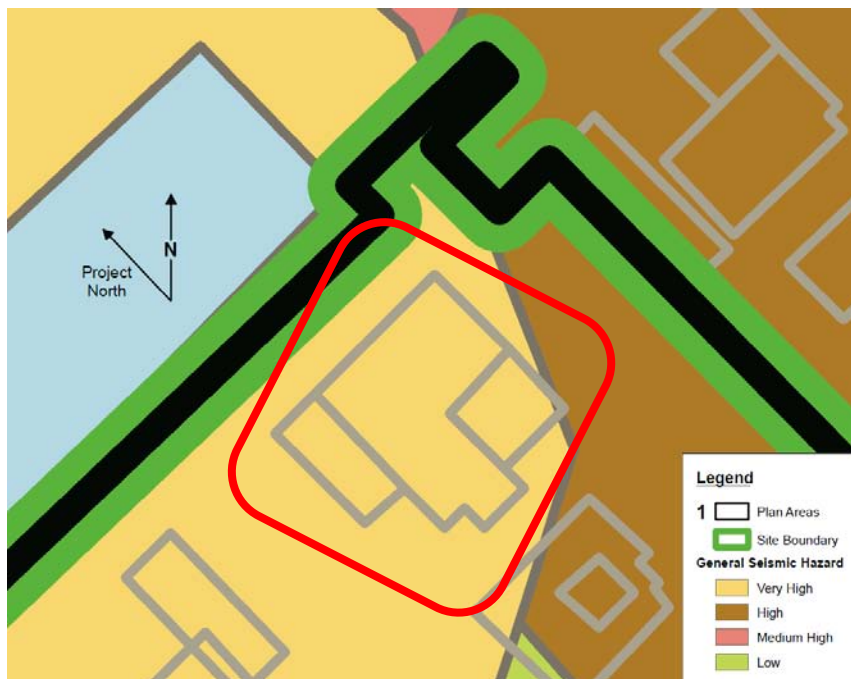
Fill sediments are prone to liquefaction, the process by which soils are turned into a semi-liquid state during an earthquake. In this state, soils lose shear strength and become vulnerable to sinking or landslides. Soils that are heavily saturated are at an increased level of risk. While there has been no site-specific study of the water content of the soils, the site is bordered by water and originally was a shoreline. The magnitude of earthquake required to incur liquefaction varies due to soil variability as well as depth of the seismic event.

Landslides

Construction on fill soil and seismically vulnerable areas should implement mitigation measures to limit or remove potential impacts from such events. Examples of these measures for this site would include ground improvement, use of deep foundations and/or designing for potential soil liquefaction impacts.

Landslides generally need slopes of 40% or more to occur. This site is considered to have a generally moderate to low landslide vulnerability. While a small part of the site does contain this steep of a gradient, the proposed action would reduce the grade to a less significant and less landslide prone gradient.

There is little current visible evidence of landslides, mass wasting or erosion on the site. The current concrete and asphalt show little sign of shifting or sinking, which can be indicators of unstable soils. Erosion can be reduced during construction if work on the earth is done during the drier summer.



General Seismic Hazard Map

Erosion

Vulnerability to erosion directly relates to soil type, topography and the amount of ground water seepage/surface runoff, as well as the built environment. Erosion susceptibility is increased in slopes with a 15% or greater incline. The site is considered to have a relatively low erosion hazard due to the urban environment. The reduction in slope gradient as well as the additional vegetation will decrease the risk of erosion.

New construction on the site could increase the potential of erosion along the waterfront and steeper slope. Action may need to be taken in accordance with Best Management Practices to mitigate erosion impacts during construction.

Impervious Surfaces

Impervious surfaces collect solar heat in their dense mass. When this heat is released it causes air temperatures to rise, leading to a phenomenon known as the “urban heat island.” When water runs over these surfaces it causes significant warming, reducing dissolved oxygen in stream water and causing difficulties for several aquatic species.

The entire site is comprised of impervious concrete and asphalt. The proposed modification will reduce impervious surfaces by incorporating more open green space and permeable concrete on the site. This will reduce storm-water runoff, reducing the pollution into the local watershed. Reducing storm water runoff also places less of a burden on water purification as water is naturally filtered through roots, soil, and permeable concrete. The reduction in impervious surface area will allow for the site to drain better and will increase the aesthetic appeal of the area.

Sea Level rise

Predicted sea level rise should be considered in any project on or near the waterfront. Current estimates for sea level rise from the Washington State Department of Ecology (DOE) and Department of Community Trade and Economic Development (CTED) state that a rise between 4-40 inches is possible by the year 2100. According to the study from the Intergovernmental Panel on Climate Change (IPCC), the northwest coast of the USA could see an additional rise in sea level of up to 12 inches due to changes in global oceanic currents.

The current road on the north side of the building is supported by pilings with a concrete wall to hold back water. By incorporating a graded shoreline to the site with native trees and other vegetation, erosion risk would be reduced. This “soft armoring” is a more sustainable and user-friendly approach to erosion control (opposed to bulkheads or a riprap).

4.1.2 Mitigation Measures

Stabilization of the building and soil is the largest concern regarding the earth section of the EIS. The following are options for common mitigation measures to improve structural integrity in areas of seismic liquefaction potential:

- Ground Improvement via:
 - Stone columns
 - Vibration Compaction
 - Compaction Grouting
 - Deep Soil Mixing
- Deep Soil foundations
- Erosion control during demolition and construction

4.1.3 Impacts

The proposed action will create a more gentle and continuous slope of around 10-15%. The new slope would also be helped anchored by native vegetation. This would help alleviate landslide pressures. Liquefaction and other seismic hazards are a threat that will need mitigating. There is no major earth changes proposed for the demolition/construction of the granary building.

4.1.4 Alternative 1 (Full Demolition)

Full demolition would not significantly affect any of the projected impacts listed above.

4.1.4 Alternative 2 (No Action)

The no-action alternative would not have significant differences than the proposed partial demolition.

4.1.6 Significant Unavoidable Adverse Impacts

With proper mitigation techniques there are no expected significant unavoidable adverse impacts to the site.

This section of the Environmental Impact Assessment (EIA) describes the possible environmental effects of the proposed action—to partially demolish and partially renovate the Granary Building—on air quality, which now includes greenhouse gas emissions (GHGs). Good air quality is essential to human health and welfare: tens of thousands of people die each year because of poor air quality, crops can be devastated, and vistas can be obstructed by manmade haze. The proposed action for the Granary Building reflects consideration of these issues.

4.2.1 Relevant Regulations

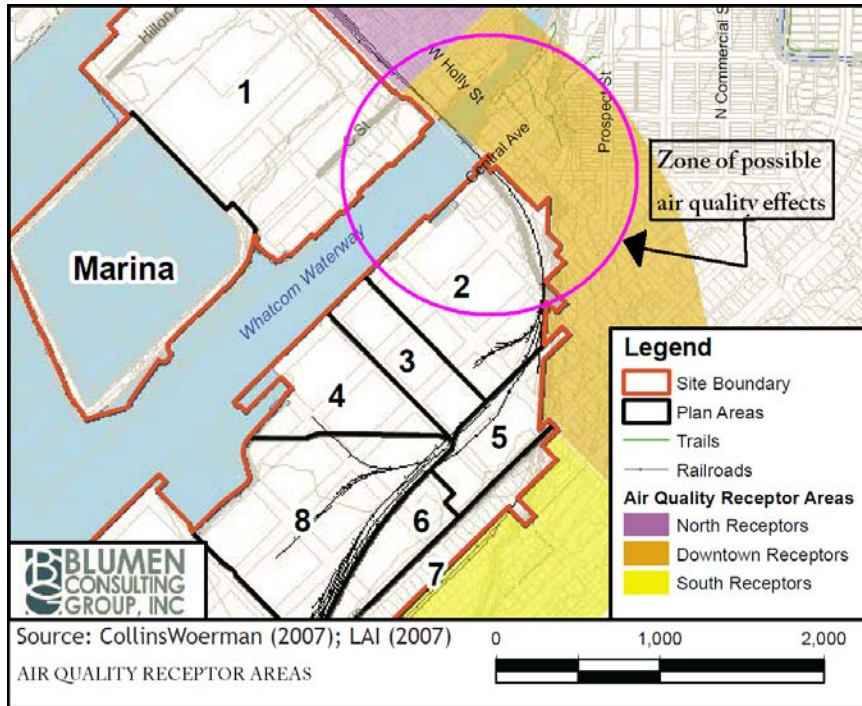
- **[Federal] National Ambient Air Quality Standards (NAAQS) (and other Clean Air Act regulations):** Creates a margin of safety for ambient air quality to protect the public health by creating maximum levels of the following pollutants: ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide, lead, and particulate matter. (See Appendix A for specific regulations)
- **[State] Washington State Department of Ecology (WDOE):** Regulates a variety of pollutants and also delegates authority to the NWCAA. WDOE has a list of Toxic Air Pollutants (TAPs) which is very similar to the NAAQS and NWCAA lists.
- **[Local] The Northwest Clean Air Agency (NWCAA):** Regulates Whatcom County and two other counties. It regulates particulate matter, ammonia, sulfur dioxide, carbon monoxide, mono-nitrogen oxides, and volatile organic compounds. (See Appendix A for specific regulations)

Note: Whatcom County is currently in “attainment” of all NAAQS and state air quality regulations (Port of Bellingham, 2008).

4.2.2 Sensitive Receptors

“Sensitive receptors” are groups of people—e.g. children and the elderly—that may be negatively affected by air quality more so than an average person. However, the effects on air quality will only spread so far because of the proposed action; in fact, according to the Port of Bellingham’s New Whatcom Redevelopment Draft Environmental Impact Statement (DEIS), because of “ambient conditions, dispersion and/or topographical change,” significant air quality impacts will not reach beyond approximately 500 feet from the Granary Building site. Furthermore, almost the entirety of the area with potential air quality issues is within the “Downtown Receptors” area, which includes Maple Street to C Street and includes primarily restaurants, offices, and shopping areas.

Whatcom Site Air Quality



Source: New Whatcom Redevelopment DEIS, 2008

4.2.3 Sources of Air Pollution

Through the partial demolition of the northern part of the Granary Building, the renovation of the remaining 3-story building section and 5-story silo, and other upgrades, the proposed action has the potential to generate harmful indoor emission, harmful outdoor emissions, and/or produce an odor nuisance.

Construction Vehicles

Trucks hauling dirt, rubble, and other materials can disturb soil, kick up dust, and emit tailpipe pollutants, which will add a small level of pollutants and odors to the air shed while in operation.

Granary Building, Partial Demolition and Renovation Debris

According to the EPA, Construction and Demolition (C&D) materials—building debris from construction, renovation, or demolition—are the greatest for demolition and the least for construction (in the short term, at least).

- For demolition of non-residential buildings like the Granary Building, the amount of debris (unused material) produced averages 158 lb/ft².

*The part of Granary Building to be demolished is ~10,916 ft²
(10,916 ft²)(158 lb)= 1,724,728 pounds of debris*

- For renovation of non-residential buildings like the Granary Building, the amount of debris produced averages 10.8 lb/ft².

*The part of the Granary Building to be renovated is ~10,000 ft²
(10,000 ft²)(10.8 lb)= 108,000 pounds of debris*

Total Debris from Granary Building: Approximately 1,832,728 pounds.

Source: EPA, “Construction and Demolition Materials Amounts,” 2003

With an average dump truck, able to carry approximately 20,000 pounds a load, there will be approximately 90 dump truck loads for the demolition and renovation of the Granary Building. With dump trucks often running at about 10 MPG and frequently burning diesel gasoline—which uses up 25 percent more oil, emits 18 percent more greenhouse gases, and contains high amounts of mono-nitrogen oxides (NO_x) and (particulate matter) PM compared to conventional gasoline—these trucks are a major source of air pollution.

Granary Building Materials

The materials that make up the Granary Building include a concrete basement with concrete columns, concrete and terra cotta blocks used for walls, timber with 3” car decking on the upper floor, and a wood frame roof with torch down roofing and metal. These are the primary materials although many other less-occurring materials are used throughout the building.

For the proposed action, air pollution from C&D at the Granary Building—resulting in approximately 1,832,728 pounds of debris—can release dangerous air pollutants like mercury and hydro-chlorofluorocarbons into the air, which can be hazardous to construction workers and the general public. Asbestos can also be found in buildings like the Granary Building.

Increased Vehicular Traffic

The Granary Building will be a desirable location to drive to because of its “mixed use” potential as a building with office, retail, rental, or residential activities; its sloped shoreline with attractive native vegetation and a pedestrian pathway; and the construction of Bloedel Avenue next to the Granary Building as an access road to the rest of the New Whatcom site. Clearly, increased vehicle trips will result from the renovated Granary Building, which will cause increases in greenhouse gases, particle matters, and other types of air pollutions. Vehicular traffic will also increase during the construction period as workers commute to the job site.

4.2.4 Mitigation Measures for Air Pollution

The Granary Building will be checked for any materials that contain hydro-chlorofluorocarbons (HCFCs) and halons (which increase the risk for skin cancer and weaken the immune system), as well as lead and mercury (which are highly toxic and spread quickly), PCBs, asbestos, and other toxic materials before

demolition of the northern part of the building. This will ensure that these harmful substances do not enter any air quality receptor areas.

Although there are some air pollution risks, Whatcom County's most recently-reported maximum detected air pollution levels show them to be between 6 to 10 times lower than that National Ambient Air Quality Standards (NAAQS). If the proposed action correctly follows the local, state, and national air quality regulations, this superb air quality ensures that NAAQS will not be violated. Furthermore, since the site is located directly on Bellingham Bay and is in an "air mixing zone," the chances of emissions and odors posing a significant risk are very unlikely (New Whatcom Redevelopment DEIS, 2008).

Air samples will also be taken on a regular basis throughout the construction process to ensure, as an extra precaution, that all air quality standards are being met. This will also consider possible health conditions of nearby residents, such as asthma and emphysema.

To reduce the amount of emissions that trucks use during construction—particularly for demolition of the northern part of the building—stricter than normal emissions standards can be enforced, non-diesel trucks can be favored, and innovative large truck technologies can be sought after, which have the potential to save money. Mandatory regular maintenance and frequent cleaning should also be enforced. Furthermore, by reusing and recycling materials from the Granary Building around the New Whatcom project, less rubble will need to be transported and thus air quality will improve.

4.2.5 Greenhouse Gases

According to the Washington State Environmental Policy Act (SEPA), since greenhouse gas (GHG) emissions are understood to exacerbate climate change— which science has shown has significant adverse environmental impacts— it is wise to consider GHG emissions in an environmental impact assessment (EIA). Furthermore, although this ruling is still in its evaluation stages, the Environmental Protection Agency (EPA) recently declared that carbon dioxide (CO₂) and other greenhouse gases— methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆)—are "pollutants that threaten public health and welfare."

The City of Bellingham has become a national leader in reducing human impacts on climate change. Bellingham is a signatory of the Mayor's Climate Protection Agreement—launched by Seattle Mayor Greg Nickels in 2005—which strives to reduce municipal GHG emissions to 7 percent below 1990 levels by 2012 (Mayors Climate Protection Center, 2008). Bellingham's *Greenhouse Gas Inventory and Climate Protection* reaffirms this agreement and sets even higher standards—a citywide 28 percent reduction from the year 2000—to be met by the year 2020.

Although GHG evaluations for construction projects are not yet mandatory in Whatcom County, a SEPA Implementation Working Group (IWG) is evaluating how to properly assess GHG emissions through SEPA. Furthermore, King County has already implemented a "GHG emissions worksheet," being the first local government to officially do so in the nation (King County Department of Development and

Environmental Services, 2009). Therefore, considering its imminent mandatory evaluation—perhaps even during the course of Granary Building construction—it should be considered.

GHG emissions worksheet

According to the King County Department of Development and Environmental Services, the sources of GHG emissions during development are the following:

- *The extraction, processing, transportation, construction and disposal of building materials*
- *Landscape disturbance*
- *Energy demands created by the development after it is completed*
- *Transportation demands created by the development after it is completed.*

Although the proposed action for the Granary Building is not a new construction project, which the King County’s GHG emissions worksheet is primarily intended for, it inherently possesses the same essential GHG-causing attributes of a new development as a partial demolition and remodel. Therefore, King County’s GHG emissions worksheet will be used to estimate GHG emissions for the proposed action. Building materials, fuel used during construction, the Granary Building’s energy consumption, new transportation demands, and the new occupancy of the building are all considered in this estimation.

PROPOSED ACTION LAND USE ASSUMPTIONS AND GREENHOUSE GAS EMISSIONS

| Source | Square Feet | Assumed Lifespan | Estimated GHG Lifespan Emissions (MTCO2e)¹ | Estimated Annual GHG Emissions (MTCO2e)¹ |
|-----------------------------|---------------------------------------|-------------------------|--------------------------------------------------------------|------------------------------------------------------------|
| South Half Granary Building | Approx. 10,000 | 62.5 years | 15,742 | 252 |
| Pavement | Approx. 1/3 Acre (14,500 square feet) | 62.5 years | 700 | 11.2 |
| TOTAL | | | 16,422 | 263.2 |

¹ MTCO2e is defined as Metric Tonne Carbon Dioxide Equivalent; equates to 2204.62 pounds of CO2. This is a standard measure of amount of equivalent CO2 emissions.

Source: King County Department of Development and Environmental Services, 2009

4.2.6 Mitigation Measures for GHG Emissions

Although there is no “significance threshold” standard for greenhouse gas emissions in this circumstance, other places—Massachusetts, for example—require mitigation on a case-by-case basis. Marten Law Group PLLC, a group of environmental lawyers in Seattle with an expertise in SEPA, recommends that projects consider “feasible mitigation options” to offset GHG emissions.

Granary Building Proposed Action Mitigation Measures:

- Granary Building can be equipped to be LEED certified.
- Encourage bikers and walkers with green space and pathways.
- Reuse materials from partial demolition in renovation of remaining building.
- Recycle building materials locally and thoroughly.
- Potential to use solar, tidal, wind, and other renewable energies.

4.2.7 Alternative 1 (Full Demolition)

Under a full demolition, the demolition-related causes of air pollution are expected to be about twice as much as those that occur with the proposed action’s partial demolition. It should be noted that although renovation (e.g. that in the proposed alternative) does cause some air pollution, demolition is a more stressful and severe source of air pollution. Construction vehicles such as trucks and tractors will be more numerous and will disturb more soil, kick up more dust, and emit more tailpipe pollutants.

When approximating the amount of debris from the demolition, it is about 80 percent more than the proposed action (3,304,728 pounds versus 1,832,728 pounds), which means that there will be about 80 percent more dump truck loads and a greater chance of harmful substances, like mercury and asbestos that might be within the building, entering the air.

The increase in construction vehicle usage will also mean more greenhouse gases will be emitted during the demolition; however, long-term greenhouse gas emissions depend on the yet-undetermined usage of the Granary Building site post-demolition.

4.2.8 Alternative 2 (No action)

Under the no-action alternative the Granary Building will not be used, meaning there will be no air quality issues of any significance. Furthermore, because the building is not currently using any electricity or other resources that directly or indirectly contribute to greenhouse gases, the no-action alternative will not contribute anything to global climate change.

4.2.9 Significant Unavoidable Adverse Impacts

With proper mitigation techniques there are no expected significant unavoidable adverse impacts to the site.

This section of the Environmental Impact Assessment (EIA) describes the possible environmental effects the proposed action—to partially demolish and partially renovate the Granary Building—has on water quality. Bellingham Bay, on which the Granary Building is located, has outstanding potential as a hub of wildlife, seafood harvest, and recreation, despite the high levels of historic pollution it has received (primarily mercury from Georgia Pacific); salmonid and other fish rearing, spawning, and migration; shellfish rearing and spawning; excellent wildlife habitat; fish and shellfish harvesting opportunities; and boating are only some of what Bellingham Bay offers (New Whatcom Redevelopment Draft Environmental Impact Statement (DEIS), 2008).

4.3.1 Regulations

- **[Federal] Clean Water Act (CWA):** Identifies impaired bodies of water, regulates point sources of pollution, and imposes technology-based standards on a variety of levels.
 - **National Pollutant Discharge Elimination System (NPDES):** Regulates point sources that discharge pollutants into U.S. water. Delegated authority is granted to the Washington State Department of Ecology (WDOE).
- **[State] Washington State Department of Ecology (WDOE):** The water quality standards of surface waters in Washington State, which are to be “consistent with public health and public enjoyment of the waters and the propagation and protection of fish, shellfish, and wildlife” (Chapter 173-201A WAC, 2006). Also controls the federal NPDES.
- **[Local] Bellingham Municipal Code**

4.3.2 Surface Water

Bellingham Bay: Bellingham Bay is a 28 square mile water body adjacent to the City of Bellingham (and the proposed New Whatcom site). Bellingham Bay currently meets the four parameters—dissolved oxygen, Fecal Coliform, pH, and temperature—of Washington State's Water Quality Assessment 303(d) listing (Department of Ecology (DOE), 2009). Some heavy metals—lead, for example—have exceeded limits during the dry season.

Whatcom Waterway: Historic dredging created this relatively deep waterway within Bellingham Bay. The Granary Building is located in its southeastern corner. Whatcom Waterway currently meets the four parameters—dissolved oxygen, Fecal Coliform, pH, and temperature—of Washington State's Water Quality Assessment 303(d) listing (Department of Ecology, 2009).

Whatcom Creek: Begins at Whatcom Lake and flows into Whatcom Waterway. WA DOE lists Whatcom Creek as impaired for temperature, Fecal Coliform, and dissolved oxygen levels; however, it nonetheless has good habitat for Chinook, Coho, chum, steelhead, and resident trout.

Map of surface waters in proximity with Granary Building



Source: New Whatcom Redevelopment DEIS, 2008

4.3.3 Proximity to Surface Water

Partial demolition of the northern half of the Granary Building will occur approximately 50 feet away from Whatcom Waterway and the renovation of the remaining structure will occur approximately 130 feet away from Whatcom Waterway. The replacement of the bulkhead/wharf with a sloped shoreline of native vegetation—above it a pedestrian walkway adjacent to the water—will take place directly next to or in Whatcom Waterway. The removal of the creosote-treated piles will occur directly in Whatcom Waterway. The estuarial area of Whatcom Creek—where Bellingham Bay has a small tidal influence of under 0.2 River Mile (RM)— is approximately 300 feet away from the proposed Granary Building reconstruction site. Whatcom Creek itself (above the waterfall near Whatcom Waterway) is more than 500 feet away and should not be influenced (New Whatcom Redevelopment DEIS, 2008).

4.3.4 Floodplain

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs), the Granary Building site is not located on a floodplain. Currently, the Granary Building site has an elevation of somewhere between 12 feet to 15 feet (New Whatcom Redevelopment DEIS, 2008).

4.3.5 Surface Water Withdrawals and Diversions

There are no plans to withdraw water (even if its use is non-consumptive) or to divert bodies of water (change their flow patterns) for the proposed action.

4.3.6 Stormwater System

Currently, stormwater runoff from the Granary Building site runs through ditches, culverts, and underground pipes to a pump station and is then discharged into the Aerated Stabilization Basin (ASB), which treats the water and then releases it into Bellingham Bay through an 8,000 foot long pipe. However, the ASB will be closed to develop that area into a marina as part of the planned New Whatcom site (New Whatcom Redevelopment DEIS, 2008).

Temporary Stormwater System

Although a new stormwater control system will be built as part of the New Whatcom site, there will be a period in which the ASB is decommissioned and the new stormwater control system is not yet finished. During this time, the same ditches, culverts, and underground pipes currently being used will direct stormwater runoff to a new stormwater vault with a media filtration cartridge with proven effectiveness at treating stormwater runoff; this will be done with heed to the WA DOE’s Basic Treatment standards and will include the creation of a Stormwater Pollution Prevention Plan (SWPPP) that will explore the best possible options. Currently, almost all stormwater runoff from the Granary Building site is collected through an 8-inch diameter pipe referred to as “outfall 3” (New Whatcom Redevelopment DEIS, 2008).

Areas of Existing Outfalls near Granary Building



Source: New Whatcom Redevelopment DEIS, 2008

New Stormwater System

In accordance with one of the Port of Bellingham’s proposed stormwater systems for the New Whatcom site (many options meet the necessary WA DOE criteria), stormwater runoff from the Granary Building site will be treated with a 50-50 combination of wet vaults (which remove harmful particulars via sedimentation) and bio-retention facilities (a combination of soil, mulch, and vegetation through which water percolates). The new drainage basin, Drainage Basin A, will collect the majority of stormwater runoff from the Granary Building site, although some amount may enter Drainage Basin B. Furthermore, Drainage Basins A and B are both strategically located to minimize damage to fish and other aquatic life (New Whatcom Redevelopment DEIS, 2008).

Water Drainage of Waterfront



Source: New Whatcom Redevelopment DEIS, 2008

4.3.7 Sources and Consequences of Runoff

During construction operations, vehicles and machinery—which will be used especially during the demolition of the northern half of the Granary Building, but also for other construction-related operations—will leak oils, fuels, and other pollutants. There also exists a slight possibility of a larger accidental spill. Additionally, uncured concrete—such as for the pedestrian walkway or the construction of Bloedel Avenue, which will connect to Central Avenue and run south — can cause water (particularly rainwater) to become acidic and increase pH levels. However, marine waters like Whatcom Waterway are somewhat resistant to these effects. Finally, fine sediments from the construction of the sloped shoreline, demolition of the northern half of the Granary Building, and the removal of the piles can

potentially cause erosion that will be aggravated by heavy rainfall (New Whatcom Redevelopment DEIS, 2008).

Negative Effects of Runoff

If unchecked, stormwater runoff can increase sediment, which can wreak havoc on plant growth; add excess nutrients to the bay, which can lead to unsafe, low oxygen levels (eutrophication); carry harmful bacteria and pathogens into the water; drag wildlife-impairing garbage into natural habitats; and carry a variety of highly toxic hazardous wastes into the water (Environmental Protection Agency, "After the Storm", 2003).

4.3.8 Dredging

The Whatcom Waterway will be dredged to clean it of some contaminants, as the Port's New Whatcom Redevelopment Project Draft EIS proposes. This coincides with the green spaces and public beach access on the Granary Building waterfront that indicate a healthy, environmentally-sound New Whatcom site. After the initial dredging, the remaining deepest buried contaminants will be capped, effectively increasing the water quality. Although the dredging operation will perhaps lead to a small amount of water pollution from the machinery (a large crane on a wharf, for example), it will be significantly outweighed by the benefits.

4.3.9 Groundwater

The groundwater at the Granary Building site is not currently used or easily recharged, as the overwhelming amount of impervious surfaces at the New Whatcom site make it difficult for water to percolate into the ground. Groundwater is estimated to be somewhere from 3 to 12 feet below the ground, non-potable, and varies with the tide (New Whatcom Redevelopment DEIS, 2008). The groundwater underneath the Granary Building is likely contaminated. With this in mind, it is doubtful that the groundwater will be used, but regardless, the proposed development will unlikely decrease its quality, especially because of the highly impervious nature of the New Whatcom site.

4.3.10 Mitigation Measures

Water Regulations

The proposed action will follow all of the standards set by local, state, and federal regulatory agencies. For example, spills of harmful pollutants like oil during construction will be minimized by following the stormwater treatment and flow control Best Management Practices (BMPs) of the National Pollutant Discharge Elimination System (NPDES). Overall runoff will be reduced by following the Low Impact Development (LID) techniques (e.g. site design, pervious paving) of the NPDES. NPDES Phase II is even more ambitious: since the Granary Building site is greater than an acre, it must "apply all known,

available and reasonable methods of prevention, control and treatment (AKART) prior to discharge,” with the county being able to “review all stormwater site plans for proposed development activities” (Whatcom County Public Works, 2009). Other measures like these under NPDES are just now taking effect and will be fully implemented in the next few years to ensure the legitimacy of stormwater runoff and other forms of potential water pollution. [See Appendix B for NPDES Phase II regulations and “Marine Water Quality Standards for Bellingham Bay”].

Erosion

More BMPs will be used to remedy the possible effects of erosion. This includes fencing, barriers, berms, plastic, sediment traps, and other mechanisms (New Whatcom Redevelopment DEIS, 2008).

Vegetation

The proposed action involves creating vast amounts of greenery on the site. Approximately 65 percent of the proposed action incorporates vegetation—most of it native—whereas it is currently about 90 percent impervious surface. Even in small amounts, vegetation can weed out organic material, various types of heavy metals, and sediments from runoff. By creating vegetation buffers, such as the sloped shoreline, for example, pollutants can be filtered. This increase of on-site vegetation will also help mitigate possible flood and stormwater surges.

Vehicles

According to the “Montana Water Source” (a governmental education campaign on environmental issues), trucks and cars—the largest source of oil pollution in lakes, streams, and rivers—need to be regularly cleaned, tuned up, leak free, have proper tire pressure, and be parked in the proper areas in order to prevent leak pollutants, like carbon dioxide, nitrogen oxide, and benzene. An onsite mechanic would help remedy the overwhelming nature of managing many industrial and personal vehicles at the site during construction and renovation.

Cement

To mitigate the possible increase in pH caused by exposing uncured concrete to rain, plastic covers will be stockpiled in order to quickly cover uncured concrete; these plastic covers could have a variety of other uses on the Granary Building site to make them versatile, which has been recommended by the Whatcom County Public Works. Careful inspection of cement and abidance to regulatory guidelines will ensure its success. Furthermore, porous cement will be used in many areas to decrease impervious surface area, which as a whole on the New Whatcom Redevelopment comprises 94 percent of the site, including the majority of the Granary Building site (New Whatcom Redevelopment DEIS, 2008).

Other

Fecal coliform can be curbed by discouraging gull feeding and encouraging proper disposal of dog fesces. LEED development guidelines will also be followed whenever possible.

4.3.11 Alternative 1 (Full Demolition)

Under this alternative, in which the entire building will be demolished, similar water issues arrive as the partial demolition, except in many situations they are more severe because of the added stress of increased demolition activity. The extra usage of vehicles and machinery for demolition purposes will leak a greater amount of fuels, oils and other pollutants, and the chances of an accidental spill increases due to increased activity. Since approximately double the building space will be demolished in comparison to the proposed action, pollution from demolition-related sources will approximately double in size. The chances of polluting Bellingham Bay with excess nutrients, harmful bacteria and pathogens, toxins, and sediment would increase as well. However, like the proposed action, Whatcom Creek will likely not be affected.

4.3.12 Alternative 2 (No action)

Although the Granary Building itself does not largely coincide with water issues, except for a possible trace amount of leaching of exterior chemicals such as paint when exposed to rain, the state of its current stormwater system should be noted. Currently, stormwater runoff from the Granary Building site primarily enters “outfall 3,” an 8-inch diameter pipe, is funneled into a pump station, and then enters the Aerated Stabilization Basin (ASB). However, the Port of Bellingham predicts that in a no-action situation the Aerated Stabilization Basin (ASB) will be decommissioned nonetheless and turned into a marina. Therefore, a water system similar to the “temporary stormwater system” of the proposed action will be utilized (the “new stormwater system” that took over for the “temporary water system” was part of the New Whatcom site that likely will not be built) in which runoff from the Granary Building site will be treated with a 50-50 combination of wet vaults and bio-retention facilities. Water pollution concerns remain typical of stormwater runoff. Whatcom Waterway currently meets four out of four parameters: dissolved oxygen, Fecal Coliform, pH, and temperature, according to Washington State's Water Quality Assessment 303(d) listing (Department of Ecology, 2009).

4.3.13 Significant Unavoidable Adverse Impacts

With proper mitigation techniques there are no expected significant unavoidable adverse impacts to the site.

4.4.1 Description

This section describes existing upland and aquatic habitat conditions on and adjacent to the Granary Building site along the southern shore of the Whatcom Waterway. This section is based on the 2008 Draft Environmental Impact Statement prepared by the Port of Bellingham.

Upland Habitat

Upland habitat is made up of small, discontinuous patches of disturbed area, mostly comprised of weedy vegetation, such as Himalayan blackberry (*Rubus armeniacus*), with a narrow band of shoreline vegetation along the south shore of Whatcom Waterway.

Aquatic Habitat

Whatcom Waterway forms an estuary at the mouth of Whatcom Creek where fresh water enters Bellingham Bay, providing habitat for aquatic species such as salmonids, whose migratory path leads up Whatcom Creek. The area includes both intertidal and shallow subtidal aquatic habitat. The shoreline currently consists of over-water pier structures such as creosote-lined pilings, bulkheads and wharfs. Creosote is a toxic material, that is believed to be harmful to aquatic life, and removing it supports the Governor's stated goal of reducing toxics in the Puget Sound by the year 2020. These structures also shade the water, reducing the area to a habitat that is less than optimal for aquatic species to thrive, because they serve as a limiting factor for photosynthesis.

4.4.2 Impacts of Proposed Action

Partial demolition of the building would increase the amount of native vegetation by improving the quality of the shoreline through restorative measures by replacing bulkheads and wharf with new native vegetation. Shoreline vegetation would increase the health of the adjacent aquatic habitat by providing shoreline shading and sources of organic input and food sources. Restoration of the Whatcom Waterway shoreline would include reducing the over-water coverage from the existing bulkhead/wharf along the southern edge, restoration to a sloped shoreline, removal of creosote-treated pilings and extensive riparian and aquatic habitat restoration/enhancement. The net reduction in over-water coverage is projected to be 1.53 acres. This includes removal of 1.59 acres of intertidal/shallow subtidal coverage through the demolition of south shore Whatcom Waterway pier/wharfs and an addition of 0.06 acre of new intertidal/shallow subtidal coverage from ramps associated with transient moorage float ramps. The size of slope or substrate enhanced from restoring the shoreline is projected to be 0.88 acres. Vegetation and trees planted in the upland area surrounding the building would provide necessary habitat for songbirds and other species.

Negative impacts to the area include temporary turbidity caused by machinery removing the old creosote pilings and constructing new transient moorage float ramps to accommodate a potential increase in boat traffic. Also, there is a risk of potential spill of materials from machinery. However, significant impacts are not anticipated as the removal of pilings and resurrection of shoreline would be a temporary procedure and thus not leave long-term effects on the health of the area.

More long-term effects might include an increase in recreational boats utilizing the transient moorage facilities, which would produce wakes upon entering and leaving the Whatcom Waterway. Boat wakes have the potential to displace sediments in intertidal and shallow subtidal areas, possibly causing erosion of the newly restored sloped shoreline. However, wakes from boats are usually smaller than natural wind-made waves and the historic industrial boat traffic would be replaced by smaller recreational boats, thereby creating smaller waves. Thus, significant impacts on the shoreline are not anticipated.

Potential spills of materials from recreational boat traffic would disturb the health of the aquatic habitat. Stormwater runoff of harmful construction materials is also a potential concern. However, with the implementation of the proposed mitigation measures, significant impacts related to spills and stormwater runoff are not anticipated (See Section 4.3 for stormwater mitigation measures).

4.4.3 Mitigation Measures

In reference to the upland habitat, new onsite parkland and shoreline vegetation, including landscaping incorporation of native vegetation would replace and/or improve the vegetation and habitats on the site. No significant adverse impacts to upland habitat, therefore, are anticipated and thus, no additional mitigation measures would be required.

In relation to the aquatic habitat, construction projects would potentially cause minor impacts such as turbidity, noise from machinery and pile driving, and the potential for spill of fuels and and/or other toxic materials. The following mitigation precautions and Best Management Practices (BMPs) could be used to avoid and minimize these potential impacts.

- Precaution would be used to prevent petroleum products, chemicals, or other toxic or deleterious materials from entering the water that could harm aquatic wildlife. Fuel hoses, oil drums, oil or fuel transfer valves and fittings would be monitored regularly to check for drips or leaks and would be maintained and stored in a way to prevent spills.
- The contractor would have on-site access to a spill containment kit, including oil-absorbent materials, to be used in the event of a spill or if any oil product is found in the water.
- In the case of a spill, work would be immediately postponed until the necessary steps are taken to contain the material and notifications to the appropriate agency are made. The contractor would be held responsible for the preparation of spill response and hazardous material control plans to be used during the construction period.

- The installation of a boom around the in-water work area prior to the removal of pilings, piers, and bulkhead would contain and collect debris, which would then be removed from the site and taken to an approved location for disposal.
- Efforts would be made to minimize the release of adhering sediments from the extraction of pilings pulled from the water. In addition, pilings would be placed on a receiving barge or on the adjacent wharf. The receiving barge/wharf would be fitted for control of drainage, containing any sediment or creosote-treated wood fragments present on the piling. The containment basin would be durable enough to serve as the permanent confinement tool.
- A Stormwater Pollution Prevention Plan would be used as required by the DOE, and would include BMPs associated with control measures for temporary erosion of sediments, and would be implemented to prevent significant water quality impacts during construction.

4.4.5 Alternative 1 (Full Demolition)

Anticipated impacts for completely demolishing the building are larger in scale than the proposed action, since demolition (and possible construction of a new building) would require more transport of materials in and out of the site. The noise from machinery, turbidity, and potential spillage of harmful materials would take place over a longer period of time, thereby raising the potential for temporary adverse impacts on plant life.

Alternative 2 (No action)

Implementation of the no-action alternative would not have adverse environmental impacts on the current plant life.

Significant Unavoidable Adverse Impacts

With proper mitigation techniques there are no expected significant unavoidable adverse impacts to the site.

4.5.1 Description

This section describes existing upland and aquatic wildlife on and adjacent to the Granary Building site along the southern shore of Whatcom Waterway. This section is based on the 2008 Draft Environmental Impact Statement prepared by the Port of Bellingham.

Upland Wildlife

The lack of native vegetation, lack of diversity of vegetation and isolated vegetation causes the current habitat value of the area to be low, thereby reducing the ability of wildlife to thrive there. Wildlife in the upland area is limited to species that typically are found in the urban City of Bellingham environment. These species include songbirds, gulls, crows, ravens, raccoon, opossum, black-tailed deer and possibly coyote.

Aquatic Wildlife

The species that potentially inhabit the shoreline area of the site include bald eagle, marbled murrelet, and Chinook salmon.

Species Potentially Utilizing Aquatic Habitat in Site Vicinity

| Fish Species | Birds | Crab | Shrimp | Bivalves | Vegetation |
|---------------------|-------------------|----------------|-------------------|-----------------|-------------------|
| Surf smelt | brant | Purple crab | Pink shrimp | Butter clam | Eelgrass |
| Sand lance | snow goose | Graceful crab | Coonstripe shrimp | Littleneck clam | Macroalgae |
| Chinook salmon* | mallard | Red rock crab | Dock shrimp | Soft-shell clam | Green algae |
| Chum salmon | widgeon | Dungeness crab | Spot shrimp | Cockles | |
| Coho salmon | Green-winged teal | | | Geoducks | |

| | | | | | |
|---------------------|----------------------|--|--|---------|--|
| Pink salmon | pintail | | | Oysters | |
| Cutthroat trout | scoter | | | | |
| Steelhead* | golden eye | | | | |
| Bull trout* | Glaucous-winged gull | | | | |
| Numerous groundfish | Pigeon guillemonts | | | | |
| | Bald eagle | | | | |
| | Peregrine falcon | | | | |

Source: 2008 Port of Bellingham Draft Environmental Impact Assessment (Grette Associates, 2007)

*Federal Threatened or Endangered Species

4.5.2 Impacts

Potential impacts from removal of the pilings on aquatic life include noise from demolition machinery, temporary turbidity, and potential spills of materials from machinery. Implementation of proposed mitigation measures will be completed to minimize potential for water quality impacts during construction. However, significant adverse impacts are not anticipated as the removal of pilings and resurrection of shoreline would be temporary and thus not leave long-term effects on health of the wildlife.

4.5.3 Mitigation Measures

In reference to the upland wildlife, new onsite parkland and shoreline vegetation would restore habitat for use by native wildlife on the site, creating an area where possibly more species could thrive. No significant adverse impacts to upland wildlife, therefore, are anticipated and thus, no additional mitigation measures would be required.

Construction projects would potentially cause minor impacts such as turbidity, noise from machinery and pile driving, and the potential for spill of fuels and and/or other toxic materials. The following mitigation precautions and Best Management Practices (BMPs) could be used to avoid and minimize these potential impacts on aquatic wildlife.

- The removal of pilings and restoration of shoreline would be timed to not coincide with the peak migration period for salmonids using the Whatcom Waterway.
- Any conditions resulting in distressed or dying fish would result in work being stopped immediately and would be reported to Ecology Northwest Regional Spill Response Office, the Washington State Departments of Fish and Wildlife and Ecology, and other applicable agencies. Work would not resume until further official notice and approval was given.
- A bubble curtain would be installed to shield noise away from the construction area when steel piles are driven with an impact hammer, minimizing noise impacts on aquatic life.

4.5.4 Alternative 1 (Full Demolition)

Demolition of the building is anticipated to have more potential adverse impacts on the site than the proposed action, due to the probable increase in time for completion of total demolition. Completely deconstructing the building would cause the potential impacts listed for the proposed action, though over a longer period of time. Increased transportation of materials out of the site would occur. Constructing an entirely new building on the site would also cause a greater potential for adverse impacts on wildlife.

4.5.6 Alternative 2 (No action)

Implementation of the no-action alternative is not anticipated to have adverse environmental impacts.

4.5.7 Significant Unavoidable Adverse Impacts

With proper mitigation techniques there are no expected significant unavoidable adverse impacts to the site.

4.6.1 Description

The energy needs of the new Granary Building are highly dependent on the new use of the building. However, it is safe to assume that it will be using substantially more energy than it is now. The building has high potential for utilizing solar power due to its height relative to the surrounding buildings. Energy generation will likely be natural gas and electricity. The proposed action would not affect the solar power capacity of surrounding buildings since no shading differences would take place, other than the gaining of a nominal amount of sunlight from the demolition of the west wing of the building.

Sustainable practices are an important aspect to the entire waterfront redevelopment project. The use of solar energy would not reduce consumption. However, it would supplement energy usage and potentially could store energy on the grid. Other energy-efficient building practices are also possibilities, such as utilizing natural lighting and energy-efficient electronics and appliances. Use of water-efficient toilets and appliances would decrease the demand for water. Other practices can be adopted to reduce city water consumption such as reuse of rainfall or grey water, where appropriate.

4.6.2 Alternative 1 (Full Demolition)

Although a higher initial use of demolition and reconstruction these would be temporary. There is potential for higher energy efficiency depending on technology and designs chosen. No significant unavoidable impacts.

4.6.3 Alternative 2 (No Action)

In the short term there would be a significant amount of energy saving due to no destruction or construction. This is mainly in regards to the heavy industrial vehicles needed for such a project. In the long term there is a potential for a less energy efficient site, however with sufficient renovations there is no significant unavoidable impacts.

4.6.4 Significant Unavoidable Adverse Impacts

There are no expected significant unavoidable adverse impacts to the site.

4.7.1 Description

This section describes environmental health issues as related to the area in and surrounding the Granary Building site. This section is based on the 2008 Draft Environmental Impact Statement prepared by the Port of Bellingham.

The Whatcom Waterway includes some areas that have been historically contaminated by industrial waterfront activities, including mercury discharges from the former GP Chlor-Alkali plant. The Chlor-Alkali plant was in use during the 1960s and 1970s, discharging mercury-containing wastewater into the Whatcom Waterway. Initial environmental investigations of the areas surrounding the Granary site found mercury levels and other contaminants in the sediment that exceed concentration standards.

Although the Granary Building site is not known to be a contaminated site, it is worth taking into the consideration the possibility of the existence of contaminated sediments in the surrounding area. In an extensive soil and groundwater assessment conducted in 2004, petroleum contamination was found in the surrounding area. Levels of soil contaminants found in the area were intermediate, meaning they exceeded cleanup levels for residential areas, but not for levels applicable to industrial uses. The Draft Cleanup Action Plan for Whatcom Waterway proposes a combination of dredging, capping and monitored natural recovery of contaminated sediments. Institutional control and monitoring are incorporated into the plan to provide long-term compliance with site cleanup levels.

4.7.2 Impacts

During demolition, grading, construction and development could disturb contaminated soils from the site, and improper management of these materials could lead to adverse exposure to humans, the surrounding upland habitat and the Whatcom Waterway. Construction activities could also lead to contaminated soils becoming part of stormwater runoff from the site, which could possibly contaminate available groundwater.

4.7.3 Mitigation Measures

Measures to mitigate exposure of human health and environmental receptors to contaminated soil materials would include testing, segregation and proper on-site and off-site management of materials. Also, workers would be required to adhere to state and federal worker safety regulations, requiring specific training, monitoring and work practices on the site in the case of subsurface construction that could lead to exposure of workers to contaminated soils or soil vapors.

The risk of creating stormwater runoff that includes contaminated sediments would be reduced by maintaining cover soil over contaminated soils where possible, and/or the implementation of stormwater treatment and monitoring. Cleanup activities will include various measures to contain, treat, divert and monitor groundwater in order to comply with applicable cleanup levels and associated requirements. (See section 4.3 for more information).

For demolition activities relating to the building, completion of pre-demolition surveys and applicable asbestos and/or lead abatement activities where required by local, state and federal air quality or worker safety regulations. (See section 4.2 for more information).

4.7.4 Alternative 1 (Full Demolition)

The environmental health of the area would be temporarily disturbed by the demolition and potential construction of a new building on the site. It cannot be determined whether the potential use would benefit the environmental health of the surrounding area.

4.7.5 Alternative 2 (No Action)

Implementing the no-action alternative would not improve the environmental health of the site. Leaving the site in its current state, however, would result in potential long-term environmental health impacts from the mercury-contaminated sediments, which may leach into the groundwater and adjacent Whatcom Waterway if left unmitigated.

4.7.6 Significant Unavoidable Adverse Impacts

With proper mitigation techniques there are no expected significant unavoidable adverse impacts to the site.

4.8.1 Impacts

Recreation in the area is expected to increase with the implementation of the proposed action. The public is expected to visit and use the public park and recreation facilities referred to in the proposed action. People are also anticipated to use recreation opportunities such as the new shoreline park landscape. The on-site recreation opportunities include a trail running parallel to the shoreline, a staircase providing shoreline access, and bike lanes that run along both sides of the proposed extension of Central Avenue leading into the New Waterfront site. The installation of new transient moorage facilities may increase the amount small boat traffic in the adjacent Whatcom Waterway. The exact increase in use of park area on the site and recreation facilities as a result of the proposed plan cannot be accurately determined. Public access to the shoreline may cause some stress on the natural habitat and wildlife in the area.

4.8.2 Mitigation Measures

The trails may meet some of the community's need for recreation sites, which may accommodate the area's growing population and influx of visitors to the area. Environmental stress from the increased public access to the area would be reduced by limiting the area accessible to the public and protecting some of the habitat from disruption by human visitors. Signs could also be placed strategically to warn people against disturbing the wildlife and staying within the designated park space. In combination with the new shoreline restoration plan, however, the projected human effect on the area is predicted to be low.

4.8.3 Alternative 1 (Full Demolition)

The impacts on recreation cannot be determined for the potential complete demolition of the building because the future use of the building and surrounding area is not yet decided.

4.8.4 Alternative 2 (No action)

The current site of the Granary Building is closed off to the public, and thus no significant adverse impacts are anticipated in regards to recreation.

4.8.5 Significant Unavoidable Adverse Impacts

With proper mitigation techniques there are no expected significant unavoidable adverse impacts to the site.

4.9.1 Description

This section assesses the pattern of existing land uses onsite and evaluates how the Alternatives would affect these land uses. Primary sources of information are the Port of Bellingham Draft Environmental Impact Statement and the City of Bellingham website.

The Granary Building site is post-industrial in character, although the Granary is not an industrial building. Most of the buildings in and around the site, including the Granary, are currently vacant and unused. The Port owns the majority of the property with a small portion in the east owned by Burlington Northern Santa Fe (BNSF) and used as a railway corridor that is still in operation. Besides its historical usage as part of the Whatcom Egg Cooperative it was also used as a storage building when Georgia Pacific was in operation.

Land Use

The current zoning of Industrial/Waterfront Mixed Use in this area will remain in effect until the Master Development Plan is adopted. At that time, the Granary Building site will be rezoned Waterfront Mixed Use and converted to a mixed-use residential neighborhood as part of the Port of Bellingham's proposed zoning map. Although this will reduce the industrially zoned land in the City, it will not create any significant impacts as there is an adequate amount of industrial land currently available for future development. Redeveloping this area would add significant connectivity to the New Whatcom site and the surrounding city. New auto and transit connections at Central Avenue and pedestrian, bike and trail connections along the Whatcom Waterway will increase public access and usage of the waterfront and the site. Trail connections from the Whatcom Waterway to Maritime Heritage Park and the Whatcom Creek Trail may increase usage of existing trails. Increased residential, commercial and retail development in the area as well as park and habitat restoration areas along the Whatcom Waterway would result in increased pedestrian, auto and bike traffic in the area. These changes would lead to increased noise, air pollution, traffic and movement in the downtown area. The Central Business District (CBD) is not likely to be significantly impacted by increased activity in the area due to a similarity in uses.

Shoreline Use

The shoreline uses described below are concurrent with the City of Bellingham 2004 Shoreline Characterization and Inventory. The Granary Building is located on the southern edge of the Whatcom Waterway, although natural shoreline features are largely absent from this area and provide only low quality aquatic habitat. Much of the Whatcom Waterway is obstructed by over-water structures such as bulkhead/wharf features and over-water piers. Over 50% of the approximately 900 feet of shoreline near the Granary Building is creosote timber pile-supported over-water pier structures over bulkhead and/or riprap. A vertical concrete bulkhead comprises 30% of the shoreline and the remaining 20% is

sloped shoreline with cut pile stubs that lead up to a bulkhead. The shoreline environment is not pedestrian accessible or available for public enjoyment as its current usages are a remnant of its industrial character. Redevelopment of the New Whatcom site assumes dedication of the majority of the shoreline and waterfront to public access, mainly parks, trails and open space.

4.9.2 Preferred Action

The preferred action would remove the northern part of the Granary Building, retaining the tallest part of the building, which adds to the city skyline. This alternative would increase shoreline access while also allowing transportation improvements and connections to the New Whatcom site. Adaptive reuse of the remaining structure would fit well with the Waterfront Mixed Use zoning designation while still maintaining the historic character of the structure and area.

4.9.3 Mitigation Measures

It is assumed that adoption and implementation of the Master Development plan, the Development Agreement between the Port and the City as well as the Planned Action Ordinance will help guide growth and development in the area encompassing the Granary Building. These plans, regulations and policies will help mitigate any significant land use impacts that may occur. Planning measures in the master planning process include, but are not limited to:

- Compatibility between land uses to complement existing development in the City.
- Providing a wide mix of uses to foster a live-work-play environment as well as a large amount of parks, open space and trails.
- Dedication of the shoreline and waterfront to public access.
- Automotive, pedestrian and bike connections to the site and surrounding CBD.
- Establish specific regulations and design provisions to ensure that future land uses are compatible with the retained portion of the Granary Building.

4.9.4 Alternative 1 (Full Demolition)

This alternative would destroy the Granary Building, providing the area with a blank slate from which to develop a variety of uses under the Waterfront Mixed Use zoning designation. Removal of the building may ease transportation and connectivity to the site, as the Granary Building is currently located near a main access point to the New Whatcom Site. Demolishing the Granary Building would increase the available area within the shoreline (200 feet from the High Water Mark) for these uses.

4.9.5 Alternative 2 (No action)

No Action on the site would result in the Granary Building and surrounding area remaining unchanged. No transportation connections, shoreline improvements or land use changes would be made. Indirect significant impacts to the shoreline would be due to lack of restoration to a natural shoreline. Public use and enjoyment of the area would remain extremely limited.

4.9.6 Significant Unavoidable Adverse Impacts

With proper mitigation techniques there are no expected significant unavoidable adverse impacts to the site.

4.10.1 Description

This section defines the existing and projected housing of the New Whatcom site and the City of Bellingham and looks at the impacts on the New Whatcom site and the Granary Building in particular to accommodate future growth. Primary sources of information for this section include the 2006 City of Bellingham Comprehensive Plan and the Port of Bellingham Draft Environmental Impact Statement. The 20-year growth forecasts were adopted by the City Council in December 2003 and are the established population targets for the City.

Housing

The New Whatcom site, which includes the Granary Building, does not contain any residential housing units and therefore has no population. The numbers of housing units in the City of Bellingham by type from 1980 to 2000 are shown in Table 3. In 2000, City of Bellingham had 14,786 single-family homes and 13,810 multifamily units. Approximately 48 percent of the housing units were owner-occupied. The average household size in the City at that time was 2.24 persons per household, including single and multifamily units (2006 Bellingham Comprehensive Plan).

Housing Types and Figures for City of Bellingham

| Housing Type for the City of Bellingham | 1980 | 1990 | 2000 |
|--------------------------------------------|--------|--------|--------|
| Single-Family | 12,146 | 12,808 | 14,786 |
| Multifamily | 7,110 | 8,379 | 13,810 |
| Mobile Homes | 520 | 732 | 814 |
| Other (Recreational Vehicles, Boats, Etc.) | N/A | 195 | 15 |
| Total Housing Units | 19,776 | 22,114 | 29,425 |

Source: 2006 Bellingham Comprehensive Plan

Housing supply targets identified in the City of Bellingham’s 2006 Comprehensive Plan were based on the projected increase of 31,600 new residents and an average of 2.1 persons per household (including single and multifamily units) with an average vacancy rate of 5.8 percent by 2022. Based on these estimates, the City anticipates the need for approximately 15,900 new housing units by 2022, of which, approximately 2,130 were provided between 2002 and 2005 and approximately 13,770 would be provided between 2005 and 2022 (2006 Bellingham Comprehensive Plan).

A land supply analysis conducted by the City between 2003 and 2005 concluded that the net supply of land in the City currently zoned for residential uses is not likely to meet the forecasted need for additional residential units through the year 2022 (2006 City of Bellingham Comprehensive Plan).

Neighborhood

The New Whatcom site is located within the Central Waterfront District Urban Village and the CBD Core Village, which comprise the overall Central Business District neighborhood. The Central Business District neighborhood as a whole is projected to accommodate approximately 2,546 total housing units by 2022. Currently, the CBD has 804 residents as opposed to adjacent neighborhoods that have over 2,000 residents. The CBD neighborhood is projected to accommodate more housing units than any other neighborhood in the City of Bellingham and would account for approximately 18 percent of the projected housing units in the City by 2022 (2006 City of Bellingham Comprehensive Plan).

Approval of the Master Development Plan for the New Whatcom site with rezoning of the Granary Building site to Waterfront Mixed Use would allow for a range of institutional, retail and residential uses in the vicinity of the Granary Building. The additional housing and employment options would create incremental impacts to the area and the CBD as the site develops.

4.10.2 Preferred Alternative

Partial Demolition would not change the square footage available for development, as the Granary Building already has infrastructure in place for renovation and redevelopment. The portion being demolished would allow for transportation improvements and increased connectivity to the New Whatcom site. The remainder of the building could be utilized as civic, institutional, residential, private or public space depending on market forces. This is concurrent with the proposed rezoning under the Master Development Plan. The historic character of the Granary would also lead to a unique neighborhood identity within the New Whatcom site.

4.10.3 Mitigation Measures

Mitigation measures that can be taken to ensure housing options that help accommodate future growth in the City and the New Whatcom site include, but are not limited to:

- Zoning of the New Whatcom site will provide for residential development at high to medium densities.
- Provisions for affordable housing would be written into the Development Regulations for the New Whatcom site. The responsible agencies would work together to provide affordable housing options within the site.

- A broad mix of uses will generate housing needs depending on a variety of factors, including wage levels, housing costs, as well as social, demographic and economic issues.

4.10.4 Alternative 1 (Full Demolition)

This alternative would provide a clean slate for development of the Granary Building site. The cleared land would provide connectivity to the New Whatcom site as well as some mixed-use development, primarily medium to high density residential. This is concurrent with the proposed rezoning under the Master Development Plan.

4.10.5 Alternative 2 (No action)

This alternative would result in the Granary Building remaining as it is, with no future development where the Granary Building currently stands. The No Action Alternative would result in no residential units being constructed and therefore would not help accommodate future growth in the City or provide affordable, low-income, or live-work housing opportunities.

4.10.6 Significant Unavoidable Adverse Impacts

With proper mitigation techniques there are no expected significant unavoidable adverse impacts to the site.

4.11.1 Description

The total cost (initial cost when the construction is implemented) of partial demolition of the Granary Building is higher than that of total demolition. According to the fact sheet in the Feasibility Study of the Granary Building on August 19, 2004, the total cost would be \$5,543,525, which includes structural/seismic upgrades as described in the structural engineer report and exterior/interior remodeling. The costs for the installation of new, sustainable technologies such as solar panels, energy-saving light fixtures, water and heat-efficient public utilities would need to be factored in upon design of the proposed renovated building. However, partial demolition is based on the historical preservation and thus, it can be considered a more long-term cost-effective alternative than either the no-action or complete demolition plans in terms of saving and maintaining historical heritage. Direct/indirect effects of historical preservation and registry of the Granary Building are also valuable to overcome the large initial expenditure.

Economic analysis of partial demolition considers the relationship of three main factors of economics: activities, benefits, and the effects caused by historical preservation. However, the Port of Bellingham has not suggested any specific use for the building if it is preserved. For this reason, this economic analysis is based on potential general public use of the building, such as a historical museum or public library (in addition to new recreation space).

Activities

Future activities on the Granary Building site will be determined by its potential future use. The proposed action would increase the likelihood that historical revitalization, heritage tourism, or other operations of a historic place will occur. In addition, a new site that incorporates advanced sustainable technologies into historic preservation may increase potential for attracting tourists from surrounding cities and Canada. Most of all, this new building would be a convenient location for a mixed-use neighborhood—a large force of economic growth.

Benefits

Overall, the projected long-term economic gains of the proposed action would pay for the initial investment costs. The potential creation of jobs on the mixed-use site also creates economic incentive for implementing the proposed action. Moreover, the real property value of the surrounding area of the building will increase. This increased real property value will increase tax benefits directed toward the local government.

4.11.2 Alternative 1 (Full Demolition)

The mixed-use neighborhood economic benefits would be similar to that of the proposed action, but the economic gains of historic preservation would be lost.

4.11.3 Alternative 2 (No action)

Economic benefits of historic preservation are similar to that of the proposed action, but the no-action alternative does not have the economic benefits of a mixed-use neighborhood.

4.12 AESTHETICS

4.12.1 Description

Given that the Granary Building is historically significant, partial demolition is an action intended to preserve the aesthetic appeal of historic elements in the New Whatcom Site. The proposed action incorporates new green architecture and sustainable design based on projected environmental impacts of the building, while simultaneously minimizing negative effects on the local community. The most important design issue to address is implementing renovation measures that minimize long-term environmental impacts while also providing an aesthetic piece of architecture and open space that meets the approval of the public.

The new Granary Building will be a welcoming icon of the waterfront entrance at Central Avenue. Detailed building design can be changed according to the potential use. To reduce the unappealing appearance of the box-like concrete structure, the proposed action has large windows on the bay-facing wall to provide a larger panoramic view of the bay and active streetscape.

Granary Building Model of Proposed Action



Bloedel Avenue, a new, two-lane traffic way continuing south from Central Avenue, would be constructed in front of the building (northwest side of building) with sidewalks, bike lanes and a vegetative buffer area between automobiles and pedestrians. Another buffer area between the street and the bay will replace the existing dock. This new streetscape in the model is scaled to human size and meets safety regulations, and also gives a more attractive site view.

An improved space behind the Granary Building (east side), inclusion of bike racks, planting of native vegetation, potential recreational use of open space—such as a fountain, playground, outdoor sculptures—and the new, improved shoreline (north side) would provide local residents and visitors with more open recreation space and options for recreation.

Granary Building Model of Proposed Action, Reverse Angle



4.12.2 Significant Unavoidable Adverse Impacts

There are no expected significant unavoidable adverse impacts to the site.

4.13.1 Description

This section looks at the existing historic and cultural conditions of the Granary Building and its surrounding area, and identifies the potential impacts to these resources under the different alternatives. This section is based on the December 2007 Historic Property Resources Technical Report, the December 2007 Cultural Resource Assessment, the Port of Bellingham Draft Environmental Impact Assessment and the Bellingham Historic Preservation Commission website.

Registers

The National Register of Historic Places (NHRP) is the federal list of districts, sites, buildings, structures and objects significant in American history, architecture, archaeology, engineering and culture. Eligible properties must be at least 50 years old, possess integrity of physical characteristics, and meet at least one of four criteria of significance. Within Washington State the Department of Archaeology and Historic Preservation (DAHP) is responsible for the conservation, preservation and protection of Washington's historic and archaeological resources. Properties listed on the National Register are automatically added to the Washington State Heritage Register (WHR), the official state list of historic places. Within the City of Bellingham, Chapter 17.90 of the Bellingham Municipal Code provides legislation to establish and regulate landmarks, landmark sites, historic special review districts, and conservation districts and identifies criteria for description of sites, objects, buildings and districts for preservation. Sites meeting any or all of the designation criteria would be considered by the Bellingham Historic Preservation Commission (BHPC). A site must be reviewed and recommended to the City Council by the BHPC to be registered and is achieved by resolution.

Surrounding Area

Despite the high level of development that has occurred on the site, the tidal flats, beaches and bluffs that border the area the Granary Building is presumed to have a moderate to high probability of containing historic archaeological potential in the form of artifacts from early hunter-gather tribes and post-contact Native American tribes. Development in this area has the potential to directly impact existing but as yet undetermined archaeological resources. Further studies of the area would need to be undertaken to determine the specific impacts and mitigation measures necessary to preserve these resources.

Eligibility

Although the Granary Building is not listed on a Federal, State or City Historic Register, it is eligible for all three levels of listing. The Granary Building is a testament to the growth and development of Whatcom County as an agricultural county as well as an industrialized waterfront city. The building was once home to the Whatcom Egg and Poultry Cooperative as well as being used by GP as a storage

building. The Granary Building's outline on the Bellingham skyline is also of more modern cultural significance. A total of 13 buildings, including the Granary Building, have been identified within the New Whatcom site as potentially eligible to be saved or adaptively reused in their current location or at different locations within the site. Removal of all or most of these buildings will effectively change the character of the waterfront from one of historic and cultural significance to a primarily modern, urban neighborhood. If all or some of the buildings are retained, direct impacts to historic resources would be lessened and the historic character of the New Whatcom site would be maintained to a large degree.

The Whatcom Waterway still maintains the character of a working industrial waterfront. Restoration of a natural shoreline would modify its characteristic industrial features, such as bulkheads and wharfs, as well as dismantle sections of its delineating edges.

4.13.2 Proposed Action

Partial Demolition of the Granary Building would still remove some of its historic significance but would retain the tallest part of the building and make the entire building available for adaptive reuse opportunities. The building's image on the City skyline would not be affected by the removal of the lower section of the building and the most significant portion of the structure would be retained. Potential archaeological resources would not be as heavily impacted as in the Demolition Alternative because construction and removal impacts would not be as significant. Shoreline impacts would be similar to the Demolition Alternative.

4.13.3 Mitigation Measures

- Avoidance of the Granary Building and surrounding area in redevelopment plans.
- Restoring the integrity of the Granary Building to the extent possible, this could possibly be accomplished through listing on the Bellingham Local Landmark Registry (BLLR). Registered buildings at the local level are eligible for preservation incentives to offset the cost of rehabilitation. Incentives include:
 - Special Valuation Tax Relief
 - Adaptive Use Permits
 - Building Code Flexibility
- Federal listing would make the Granary Building eligible for historic preservation grants, when available.
- The Port would explore opportunities for adaptive reuse of the Granary Building with consideration of structural, economic, market, and land use factors.
- Historic American Building Survey (HABS) and Historic American Engineering Record (HAER) documentation for the Granary Building and structures onsite.
- Building materials salvage and reuse strategies could be developed for the Granary Building and structures onsite that are scheduled for removal and demolition.

- The Port could develop a management plan for the period of construction of the New Whatcom site, with agreed-upon measures involving local, state and tribal agencies. The plan could include:
 - Description of actions to minimize disturbances if any significant resources are discovered.
 - List of chains of authority and contacts for decision-making regarding discovery of archaeological resources during construction.
 - Identification of specific areas where archaeological monitoring could be conducted.

4.13.4 Alternative 1 (Full Demolition)

Under the Demolition Alternative, the historic and cultural significance of the Granary Building would be destroyed. Removal of the building and its materials from the site would significantly decrease the historic presence of the waterfront as well as impacting possible archaeological resources through demolition activities. The redevelopment of the shoreline area adjacent to the Granary Building would also decrease the historic industrial aspects of the existing shoreline.

4.13.5 Alternative 2 (No action)

With the No Action Alternative, historic and culturally significant shoreline, archaeological and building resources would remain as they are. Over time, the Granary Building would likely fall into disrepair due to lack of use and renovation. Any archaeological resources would not experience significant impacts.

4.13.6 Significant Unavoidable Adverse Impacts

No final decisions have been made by the responsible agencies as to the future of the Granary Building. Restructuring of the Whatcom Waterway to a natural shoreline will likely reduce the industrial characteristics of the existing waterfront. If the Granary is demolished, it would mean a complete loss of certain historic aspects unique to the area and building. Implementation of the identified mitigation measures would help address these impacts, but significant unavoidable adverse impacts are likely to occur if the Granary is demolished. Partial Demolition and mitigation measures would lessen impacts to a considerable degree and no significant impacts would occur.

4.14.1 Description

This section looks at the existing and proposed transportation connections as well as future transportation needs of the City of Bellingham in connection to Area 2 of the New Whatcom site, with a focus on current and future impacts to the Granary Building (see Appendix D for maps). This section is based on the Port of Bellingham Draft Environmental Impact Statement. Data was collected by several agencies, including the City of Bellingham, Washington State Department of Transportation (WSDOT), Whatcom County Transit Authority and Port of Bellingham.

The Granary Building is located at one of the only access points to the New Whatcom site. The current intersection of Roeder Avenue/Central Avenue provides limited access to Area 2 of the New Whatcom site and is controlled by side-street stops. Public transit, bike and pedestrian access and parking are all nonexistent within the Granary Building site. A transit center is located within one-half mile from the site on Railroad Avenue. The BNSF Railroad has tracks in use that run north-south on the eastern side of the Granary Building.

Improvements to this area would be an upgrade of Roeder Avenue/Central Avenue to a signalized stop as well as turning Central Avenue between East Holly Street and Roeder Avenue into a pedestrian-only zone. Central Avenue west of Roeder Avenue would be relocated to the south and extended in the New Whatcom site to Bloedel Avenue. Central Avenue would also be upgraded to two travel lanes that would accommodate bike traffic as well as sidewalks on both sides and on-street parking on one side of the street. These improvements would allow for increased connectivity and pedestrian accessibility to the site as well as allow for shoreline improvements, trail systems and habitat restoration.

Currently there is a nominal amount of traffic relating to the Granary Building as well as the waterfront as a whole. Increased trip generation through improved connections to the site would require the transportation infrastructure to accommodate 120-230 trips per day along Central Avenue, Roeder Avenue would need to accommodate 500-950 trips per day by 2016 (these are peak PM traffic volumes). The proposed action would keep Central Avenue adjacent to the building and would keep pedestrian access easily available with a sidewalk as well as a bicycle lane.

There is no plan for parking specifically for the Granary Building site. For much of the waterfront site underground parking is expected, however due to the flooding of the foundation of the current site, onsite parking is not planned. Future usage demand would need to be considered for offsite parking.

The proposed bicycle lane runs parallel to Roeder Avenue on the north side of the building. To encourage alternative use of cars there is a need for bicycle locking stations. The proposal has a large area in the front main entrance of the building on the west side to accommodate bicyclists.

Use of the site would be both from the public as well as those employed at the site. The public access to the water is expected to increase pedestrian foot traffic. The water access can also be a landing spot for small water crafts such as kayaks and small sailboats. Such usages will likely necessitate vehicle access in close proximity to allow for watercrafts to be loaded and unloaded.

The current nearest bus line is the Birchwood Line approximately a quarter mile away. With the expected large increase in traffic, more public transportation hubs would be necessary. Public buses are a key way to reduce vehicle traffic and lessen the need for parking. Placing a bus stop on the intersection of Roeder and Central Avenue would create an optimal access point to the Granary Building and it would act as a portal to the entire waterfront site.

The Granary Building sits adjacent to the railroad. While the railroad is not expected to be a source of incoming or outgoing pedestrian transit, it is necessary to note that it will have a crossing in close proximity to the building, increasing noise and vibrations.

4.14.2 Preferred Alternative

Partial demolition would result in no changes to future transportation and connection upgrades or improvements.

4.14.3 Mitigation Measures

Mitigation measures taken to ensure efficient transportation as the New Whatcom site develops include:

- Phasing of off-site and on-site improvements to limit traffic congestion during construction and accommodate increased vehicle trips as the site develops.
- Providing adequate bike and pedestrian access as well as highly visible signage and barriers for vehicles to increase safety and reduce vehicle trips.

4.14.4 Alternative 1 (Full Demolition)

Demolition would result in no changes to proposed or future transportation and connection upgrades or improvements.

4.14.5 Alternative 2 (No action)

The No Action Alternative would result in the Granary Building remaining as it is and any road or transportation improvements to Area 2 would accommodate the buildings existence. Due to the proximity of the Granary Building to the shoreline, reduced on-street parking and shoreline improvements may result.

4.14.6 Significant Unavoidable Adverse Impacts

Both the Demolition and Partial Demolition Alternatives would result in future redevelopment of the New Whatcom site while accommodating various transportation and connection needs on-site and off-site. Traffic congestion and demand would increase as the site develops in the future. Increases in bike and pedestrian traffic may lead to more conflict points and a decrease in safety. Mitigation measures identified will help prevent and lessen significant unavoidable adverse impacts.

The No Action Alternative would result in an overall decrease in connectivity, bike and pedestrian access to the New Whatcom site as it is developed and mitigation measures would lessen impacts but not prevent them.

4.15.1 Description

This section describes the current services provided to the Granary site and evaluates the impacts of added demand from the proposed partial demolition and redevelopment of the site. Services included are fire, emergency services, police, schools, parks and recreation and street maintenance.

Fire

The Bellingham Fire Department (BFD) provides fire protection, basic life support and advanced life support throughout the city of Bellingham, including the Granary site. The BFD headquarters is located on 1800 Broadway. This station is also the primary service to the site. Station 3 (1111 Indian Street), Station 5 (Northwest Avenue), and Station 6 (4060 Deemer Road) are also servicers to the area. Due to the current minimal activity in the area, however, there are minimal calls for service.

The Bellingham Comprehensive Plan of 2006 shows that replacement of the existing facilities will be needed by 2022 to maintain the current level of service. The department also foresees the need to replace the department's fire fighting boat within three years. Part of the funding for this is being negotiated with the Port of Bellingham.

There is no current fire impact mitigation fee or ordinance required by the City, thus no payment of fees associated with the new development is required at this time.

Increased service by the fire department is expected to begin at the time of construction. According to a study done by the Port, it is expected that the entire new waterfront redevelopment would generate approximately 265 fire service incidences annually by 2016. The current fire facilities do have the capabilities to meet such demand and it is expected that the department would need to add an additional engine company unit by 2016.

Police Service

The City of Bellingham Police Department headquarters is located on 505 Grand Avenue, approximately 1 mile away from the Granary site. The Department is organized into four major units, the Patrol Unit, the K9 Unit, the Investigations Unit and the Traffic Unit. A minimum of five officers are on duty at all times with a maximum of 14 on duty at any given time.

According to the Comprehensive Plan of 2006 the Department needs to hire an additional 14 patrol officers and five investigative officers for projected growth and level of service standards. While projected growth shows that more will be needed in the next 20 years, the Department does not anticipate this will be possible.

The Port conducted a study similar to the fire study mentioned above to estimate the increase in Police services by the new Waterfront site as a whole. It is projected that the entire site would generate an

additional 2,756 calls for services annually by 2016. The Police Department estimates that to meet such demand four patrol units would need to be added (each unit consisting of one vehicle and one officer).

The proposed open spaces as well as adequate night time lighting is expected to help alleviate some demand; however an increase is inevitable.

Schools

The Granary site is located within the Bellingham School District, the largest district in Whatcom County. The redevelopment of the Granary site will be in a mixed-use area. Although it is possible it will be designated as residential it is unlikely for the site to be used residentially, thus it is unlikely that this project will significantly impact local schools.

Parks and Recreation

The City of Bellingham presently owns 111 properties for parks, open space and recreation activities, which includes about 1,490 acres of park land, 295 acres of trails/greenways and 376 acres of fresh/salt water natural areas.

The proposed partial demolition of the Granary site would allow for several recreation opportunities. The access to the Whatcom Waterway would allow for recreation both on foot and allow small watercrafts the ability to launch and land from the site. The property behind the current building is proposed for a small park, including a children's play area as well as a small fountain/pond. This area will also be augmented by the addition of native trees and other plants to increase the aesthetic appeal of the site.

4.15.2 Alternative 1 (Full Demolition)

A full demolition of the site would not significantly impact the demand for public services. The increase in demolition and construction time could necessitate an additional amount of fire services to the site, but the increase would be minimal. Full demolition of the site could allow for more park spaces and greater access to the Whatcom Waterway.

4.15.3 Alternative 2 (No action)

By leaving the current building as is, public services would not be significantly impacted. The current site however has no green space or park areas. The site also does not allow for pedestrian access to or from the waterfront. With no demolition of the site there could be a small decrease in fire services for the area.

4.15.4 Mitigation Measures

- Taxes from future uses (such as sales, constructions, business property utilities etc) would generate funds for the City of Bellingham to help address the increased demands on services such as fire and police.
- By incorporating public green and park space, recreational opportunities are created thus limiting the affect on current Bellingham Parks.
- Ensure proper fire flow for the redevelopment.

4.15.5 Significant Unavoidable Adverse Impacts

With proper mitigation techniques there are no expected significant unavoidable adverse impacts to the site.

4.16.1 Description

This section analyzes potential impacts to water, sanitary sewer, electrical and natural gas service to the Granary Building.

Bellingham Public Works provides water service to the site as well as the rest of Bellingham. The city expects an increase in 17 million gallons of water per day by 2022. Due to the very low elevation of the site, it requires a high amount of water pressure for adequate water usage.

There are two water mains that provide potable and raw water service to the current Granary Building site. The previous user of the site (Georgia Pacific) used chlorinated water, though this is not treated to drinkable levels. The usage of the new building would necessitate increased water treatment to make it potable.

Sanitary sewage, also provided by Bellingham Public works, is routed to the site through small gravity systems to onsite pump stations.

Puget Sound Energy provides electricity to the area, although onsite solar power is expected to augment the usage from grid power. The nearest electrical substation is located on Roeder Avenue between F Street and E Street.

Natural gas to the site is provided by Cascade Natural Gas via a 16 inch high pressure natural gas line, running along Roeder Avenue.

All utility usage is expected to increase significantly with the proposed action as well as all alternatives. Existing electrical lines are expected to be replaced during construction and infrastructure would be located in an underground conduit. Natural gas infrastructure is also likely to be replaced during construction, with new lines being placed underneath roadways on the site as well as the waterfront as a whole.

4.16.2 Alternative 1 (Full Demolition)

Demolition would not significantly alter utility usage on the site. Removal of old infrastructure is expected in all scenarios. Replacing the building with modern design and materials could reduce demands on water, electricity and gas.

4.16.3 Alternative 2 (No action)

The no action alternative would still require old infrastructure to be replaced. Without significant renovations to the building, the demand for all utilities could be higher than with more modern techniques.

4.16.4 Mitigation Measures

Water

- Insure all infrastructure design and location is consistent with current City system.
- Create incentives to encourage water conservation.

Sanitary Services

- Ensure all new infrastructure design and locations are consistent with current Public Works and City of Bellingham standards.

Electric Power

- New electrical lines to be placed underground to limit impact on surrounding aesthetics and environment.
- Encourage electricity conservation with energy efficient designs and appliances.

Natural Gas

- Ensure design is adequate to handle growth projections of the future.

4.16.5 Significant Unavoidable Adverse Impacts

With proper mitigation techniques there are no expected significant unavoidable adverse impacts to the site.

APPENDIX A: AIR

I. National Ambient Air Quality Standards

National Ambient Air Quality Standards

| Pollutant | Primary Standards | | Secondary Standards | |
|-----------------------------------------|--------------------------------------------|---------------------------------------------------------------|--------------------------------------|----------------------------|
| | Level | Averaging Time | Level | Averaging Time |
| Carbon Monoxide | 9 ppm (10 mg/m ³) | 8-hour (1) | None | |
| | 35 ppm (40 mg/m ³) | 1-hour (1) | | |
| Lead | 0.15 µg/m ³ (2) | Rolling 3-Month Average | Same as Primary | |
| | 1.5 µg/m ³ | Quarterly Average | Same as Primary | |
| Nitrogen Dioxide | 0.053 ppm (100 µg/m ³) | Annual (Arithmetic Mean) | Same as Primary | |
| Particulate Matter (PM ₁₀) | 150 µg/m ³ | 24-hour (3) | Same as Primary | |
| Particulate Matter (PM _{2.5}) | 15.0 µg/m ³ | Annual (4) (Arithmetic Mean) | Same as Primary | |
| | 35 µg/m ³ | 24-hour (5) | Same as Primary | |
| Ozone | 0.075 ppm (2008 std) | 8-hour (6) | Same as Primary | |
| | 0.08 ppm (1997 std) | 8-hour (7) | Same as Primary | |
| | 0.12 ppm | 1-hour (8) (Applies only in limited areas) | Same as Primary | |
| Sulfur Dioxide | 0.03 ppm | Annual (Arithmetic Mean) | 0.5 ppm (1300 µg/m ³) | 3-hour (1) |
| | 0.14 ppm | 24-hour (1) | | |

Source: New Whatcom Redevelopment Draft Environmental Impact Statement, 2008

I. Marine Water Quality Standards for Bellingham Bay

Table 2- 1
Marine Water Quality Standards for Bellingham Bay
(Chapter 173-201A-210 WAC)

| Excellent Use Designation for Marine Waters <i>(see the WAC for details beyond those summarized here)</i> | |
|------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dissolved oxygen | The lowest 1-day minimum is 6.0 mg/L as the lowest 1-day minimum, measured to represent the dominant aquatic habitat of the monitoring site. When a water body's dissolved oxygen is lower than 6.0 mg/L or within 0.2 mg/L of the criterion, and that condition is due to natural conditions, then human actions considered cumulatively may not cause the dissolved oxygen of that water body to decrease more than 0.2 mg/L. Concentrations of dissolved oxygen are not to fall below the criterion at a probability frequency of more than once every ten years on average. |
| Temperature | Shall not exceed 16°C (60.8°F) measured as a 1-day maximum temperature (1-DMax). When a water body's temperature is warmer than 16°C or within 0.3°C of the criterion, and that condition is due to natural conditions, then human actions considered cumulatively may not cause the 7-DADMax temperature of that water body to increase more than 0.3°C. |
| pH | Shall be within the range of 7.0 to 8.5 with a human-caused variation within a range of less than 0.5 units. |
| Turbidity | Shall not exceed 5 nephelometric turbidity units (NTU) over background turbidity when the background turbidity is 50 NTU or less, or have more than a 10 percent increase in turbidity when the background turbidity is more than 50 NTU. |
| Toxic substances | Shall not be introduced above natural background levels in waters of the state that have the potential either singularly or cumulatively to adversely affect characteristic water uses, cause acute or chronic toxicity of the most sensitive biota dependent upon those waters, or adversely affect public health, as determined by the department. (Toxic substances include dissolved metals and ammonia-nitrogen). |
| Shellfish Harvest and Primary Contact Recreation | |
| Fecal coliforms | Fecal coliform organism levels must not exceed a geometric mean value of 14 colonies/100 mL, with not more than 10 percent of all samples (or any single sample when less than 10 sample points exist) obtained for calculating the geometric mean value exceeding 43 colonies/100 mL. |

Source: Ecology (2006)

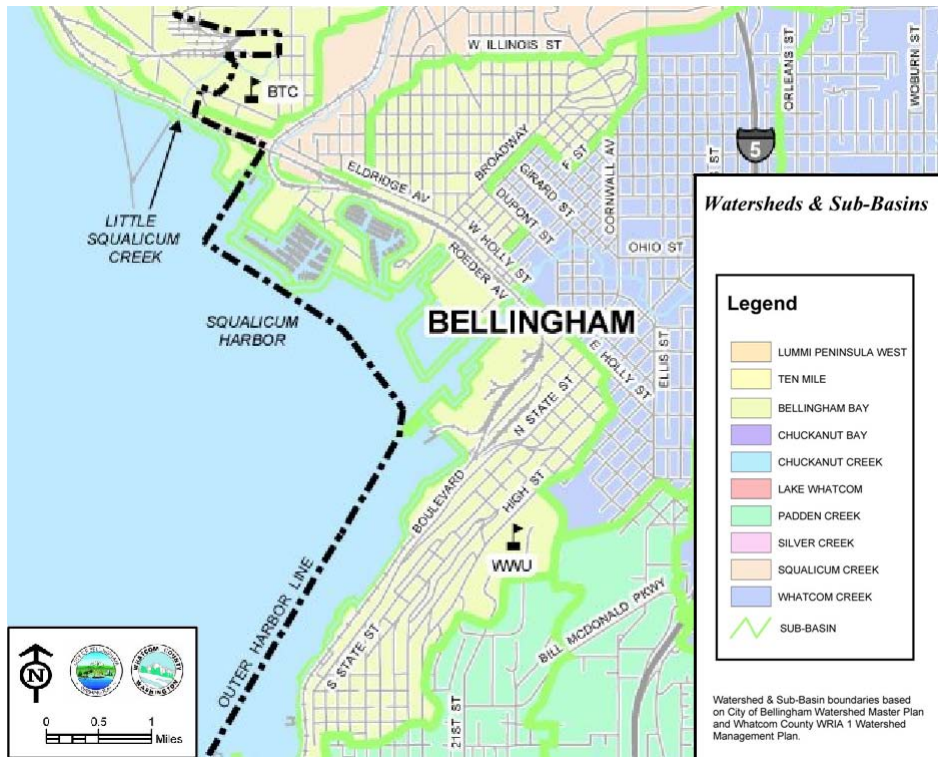
Source: Department of Ecology

II. National Ambient Air Quality Standards

| Permit Reference | Stormwater Management Program (SWMP) Component | Requirement | County Response | Date to begin | Date for initial completion |
|------------------|-------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------------------|
| S5.C.2.a | Public Involvement and Participation | Develop and implement a process for consideration of public comments on the County's SWMP | Integrate public input into decision making processes | 1/1/2008 | 2/16/2008 |
| S5.C.2.b | Public Involvement and Participation | Make SWMP and all required submittals available to the public | SWM to provide a copy of the SWMP and other submittals to PIE? for inclusion on website | 1/1/2008 | 2/16/2008 |
| S5.C.5.d | Pollution Prevention from County Infrastructure | Inspection and cleaning of catch basins and inlets at least once during the 5 year permit term | Schedule to be developed, data to be gathered for annual report | 1/1/2008 | 8/16/2011 |
| S8.B.1 | Monitoring | Provide description of monitoring activities to DOE | Create process to track surface water studies conducted in the Whatcom County (developer studies, clean-up sites, etc.) | 1/1/2008 | 3/31/2008 |
| S8.B.2 | Monitoring | BMP appropriateness assessment | Prepare BMP assessments of BMP appropriateness, document any changes in BMPs selected | 1/1/2008 | 3/31/2008 |
| S9.E.2.a | Reporting Requirements | Submittal of annual report | Develop status report for each component of the SWMP | 1/1/2008 | 3/31/2008 |
| S9.E.2.b | Reporting Requirements | Submittal of annual report | Assess the County's progress in meeting the minimum performance standards established for each of the components of the SWMP | 1/1/2008 | 3/31/2008 |
| S9.E.2.c | Reporting Requirements | Submittal of annual report | Develop written description of activities being implemented to comply with each component of the SWMP | 1/1/2008 | 3/31/2008 |
| S9.E.2.d | Reporting Requirements | Submittal of annual report | Develop detailed SWMP implementation schedule and a plan for meeting Permit deadlines | 1/1/2008 | 3/31/2008 |
| S9.E.2.e | Reporting Requirements | Submittal of annual report | Develop evaluation of County's compliance/noncompliance with the permit | 1/1/2008 | 3/31/2008 |
| S9.E.3 | Reporting Requirements | Submittal of annual report | Prepare notification of any annexations and determine implications for the SWMP | 1/1/2008 | 3/31/2008 |
| S5.C.3.c | IDD&E | Develop and implement an ongoing IDD&E program | Develop and implement an on-going IDD&E program to detect, remove, and prevent illicit connections, discharges, and improper disposal, including spills, into the County's storm system | 2/15/2008 | 8/16/2011 |
| S5.C.3.d.i | IDD&E | Distribution of information to targeted audiences regarding IDD&E | Information to be distributed to public employees, businesses, and the general public | 2/15/2008 | 2/15/2009 |
| S5.C.3.d.ii | IDD&E | Publicly list and publicize hotline | WHO? makes a record of all calls and actions taken, information is included in the annual report. | 2/15/2008 | 2/15/2009 |
| S9.E.2.a | Reporting Requirements | Submittal of annual report | Develop status report for each component of the SWMP | 1/1/2008 | 3/31/2009 |
| S9.E.2.b | Reporting Requirements | Submittal of annual report | Assess the County's progress in meeting the minimum performance standards established for each of the components of the SWMP | 1/1/2008 | 3/31/2009 |
| S9.E.2.c | Reporting Requirements | Submittal of annual report | Develop written description of activities being implemented to comply with each component of the SWMP | 1/1/2008 | 3/31/2009 |
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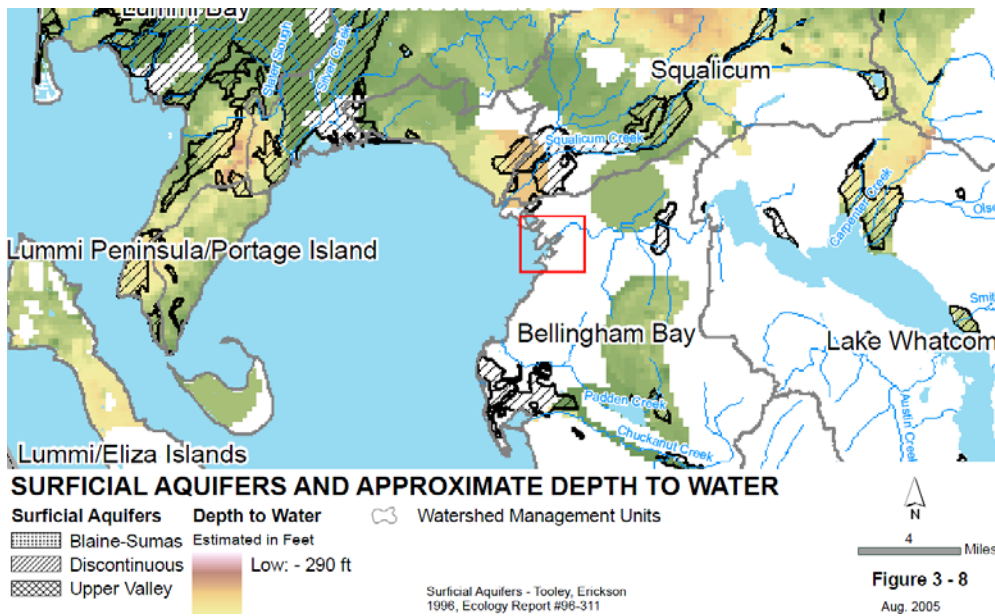
Source: City of Bellingham Stormwater Management Program

III. Bellingham Watersheds



Source: New Whatcom Redevelopment Draft Environmental Impact Statement, 2008

IV. National Ambient Air Quality Standards



Source: Department of Ecology, 1996

V. ENC Emissions Quantities

| ENC Emissions Quantities: Maximum Allowable & Actual | | | | | | |
|------------------------------------------------------|-----------------------------|---------------------------------|------|------|------|------|
| | | Actual Emissions Inventory Data | | | | |
| Pollutant | Maximum Allowable (Tons/Yr) | 2001 | 2002 | 2003 | 2004 | 2005 |
| PM ₁₀ | 32.85 | 11 | 16 | 9 | 6 | 6 |
| NH ₃ | 79.75 | 36 | 33 | 28 | 13 | -- |
| SO ₂ | 18.25 | 12 | 8 | 7 | 4 | 5 |
| CO | 131.04 | 38 | 26 | 22 | 13 | 14 |
| NO _x | 175 | 144 | 100 | 82 | 51 | 51 |
| VOCs | 66.07 | 3 | 1 | 1 | 1 | 0 |
| Formaldehyde* | -- | 1.4 | 0.9 | 0.8 | 0.5 | -- |

* Formaldehyde is not regulated under the air operating permit; however, it is reported for the purposes of maintaining a regional emissions inventory.

Source: NWCAA 2007.

I. GP Site Study Feasibility Study

**PORT OF BELLINGHAM GP SITE STUDY
FEASIBILITY STUDY
AUGUST 19, 2004
OLD GRANERY BUILDING**

| | | | |
|--------------------------------------------------|-----------|------------------|---------------|
| Foundation | \$ | 15,000 | 0.40 |
| Substructure | \$ | 88,075 | 2.35 |
| Superstructure | \$ | 476,475 | 12.74 |
| Exterior Closure | \$ | 794,882 | 21.25 |
| Roofing | \$ | 145,371 | 3.89 |
| Interior Construction | \$ | 748,685 | 20.02 |
| Conveying | \$ | 188,250 | 5.03 |
| Mechanical | \$ | 997,700 | 26.68 |
| Electrical | \$ | 629,750 | 16.84 |
| Equipment | \$ | 37,400 | 1.00 |
| Demolition/Building Sitework | \$ | 241,675 | 6.46 |
| Sub-Total | \$ | 4,363,263 | 116.66 |
| General Conditions/General Contractor OH&P 15.5% | \$ | 676,306 | 18.08 |
| Sub-Total | \$ | 5,039,568 | 134.75 |
| Estimating Contingency @ 10% | \$ | 503,957 | 13.47 |
| Sub-Total | \$ | 5,543,525 | 148.22 |
| Escalation to August 2004 @ 3% | | - | - |
| TOTAL | \$ | 5,543,525 | 148.22 |

REFER TO PROJECT SUMMARY SHEET FOR LIST OF EXCLUSIONS AND PROJECT DEVELOPMENT COSTS

Source: New Whatcom Redevelopment Draft Environmental Impact Statement, 2008

II. Comparison of Economic Factors of Washington State's Historical Preservation

| Economic Sector | Jobs (per \$1 million of Final Demand) | Labor Income (\$ per \$ of Final Demand) |
|--------------------------------|-----------------------------------------------|-------------------------------------------------|
| Health Services | 36.31 | 1.185 |
| Retail Trades | 33.87 | 0.962 |
| Heritage Tourism | 31.66 | 0.807 |
| Historic Rehabilitation | 27.50 | 1.026 |
| Finance and Insurance | 26.73 | 0.978 |
| Construction | 26.45 | 0.908 |
| Wood Products Manufacturing | 26.39 | 0.920 |
| Food Products Manufacturing | 21.72 | 0.705 |
| Aerospace Manufacturing | 10.60 | 0.452 |

Source: New Whatcom Redevelopment Draft Environmental Impact Statement, 2008

III. Historic Rehabilitation Spending and Economic Impacts

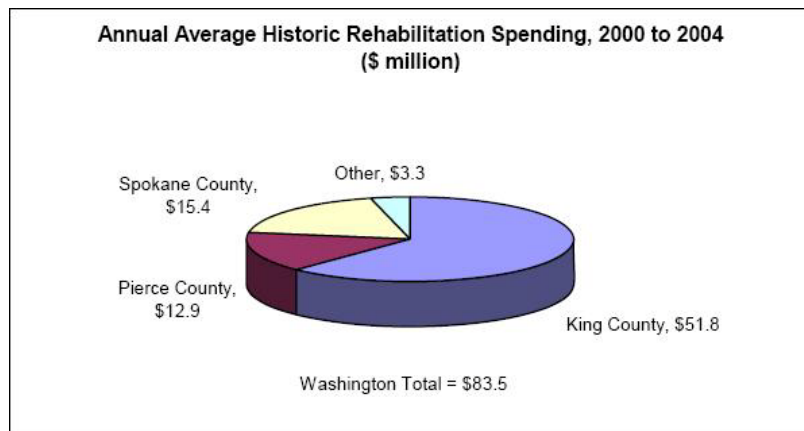
Historic Rehabilitation Spending and Economic Impacts

| County/State | Average Annual Spending (\$million) | Average Annual Impacts 2000 to 2004 | | | |
|-------------------|-------------------------------------|-------------------------------------|-------------------|--------------------|---------------------------------|
| | | Output (Sales) (\$million) | Employment (Jobs) | Income (\$million) | Taxes (\$million) ^{1/} |
| King | 51.8 | 105.6 | 1,230 | 43.1 | 4.9 |
| Pierce | 12.9 | 28.7 | 325 | 11.1 | 1.3 |
| Spokane | 15.4 | 34.0 | 400 | 13.7 | 1.5 |
| Washington | 83.5 | 220.8 | 2,323 | 86.8 | 8.9 |

Note:
^{1/}These tax revenue estimates include state sales and Business and Occupation (B&O) taxes. They do not include revenues generated by local sales taxes, which range from 0.5 percent to 1.7 percent of the state base rate of 6.5 percent and vary by jurisdiction.

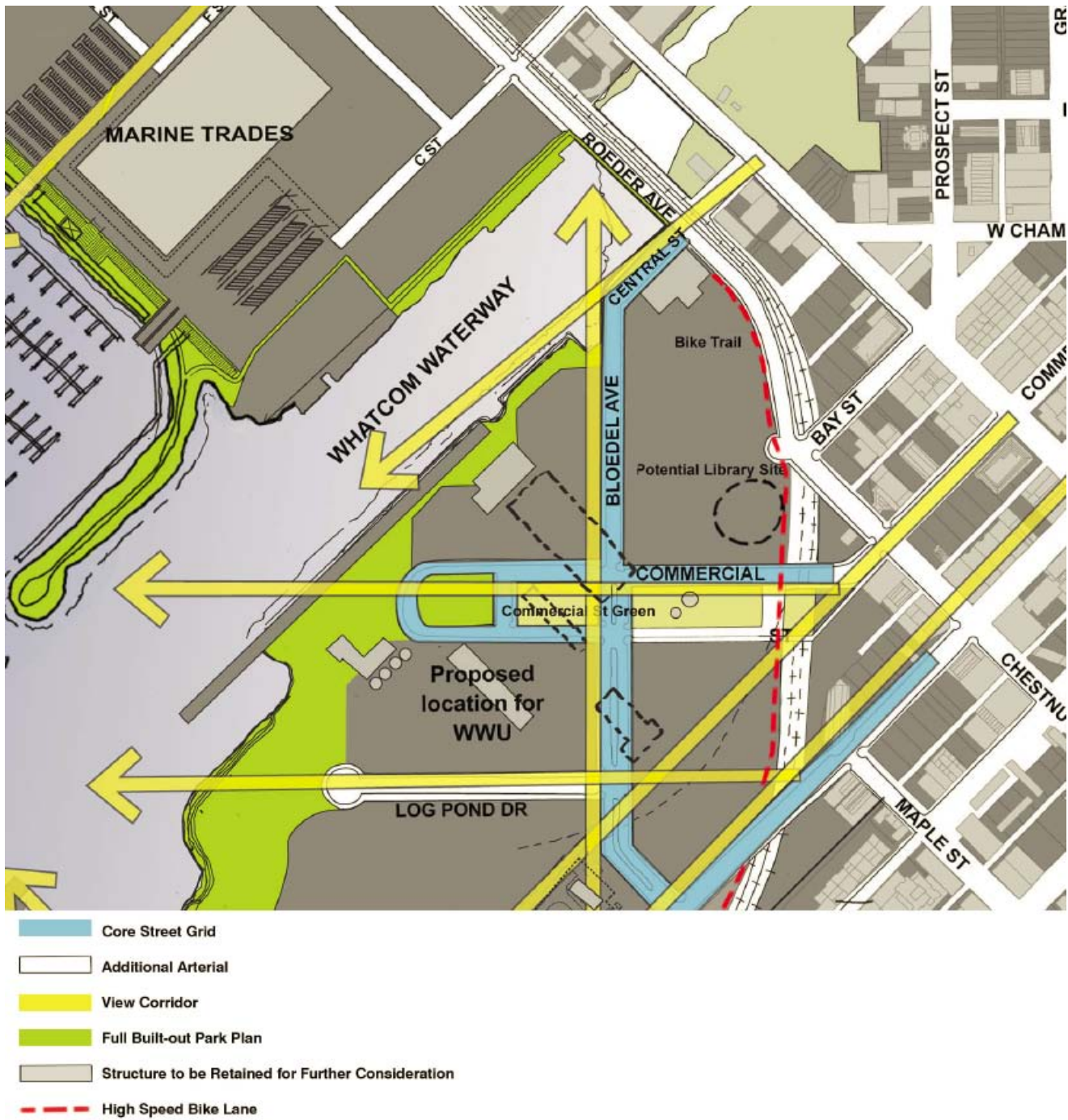
Source: New Whatcom Redevelopment Draft Environmental Impact Statement, 2008

IV. Annual Average Historic Rehabilitation Spending, 2000 to 2004



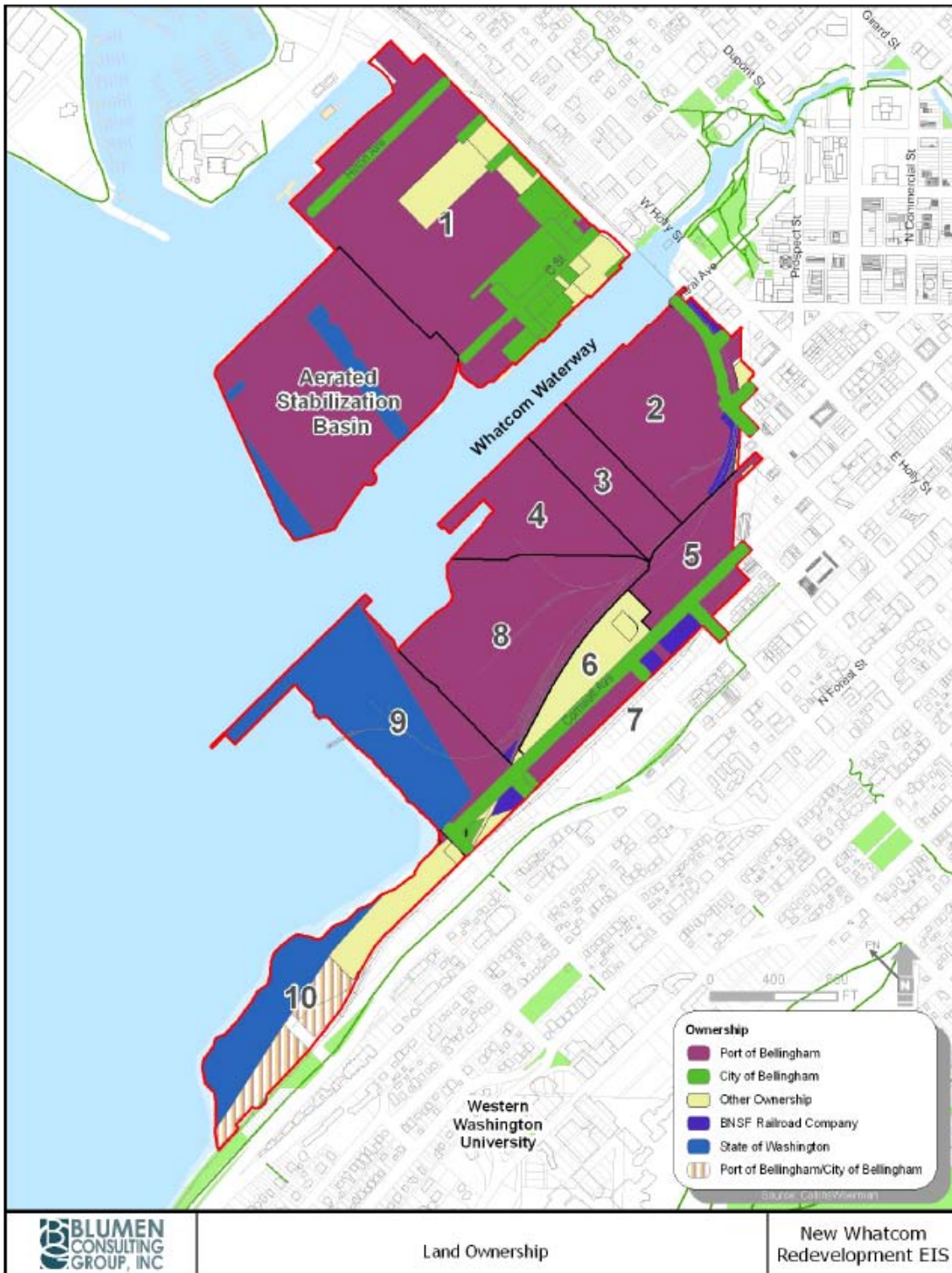
Source: New Whatcom Redevelopment Draft Environmental Impact Statement, 2008

I. GP Site Feasibility Study



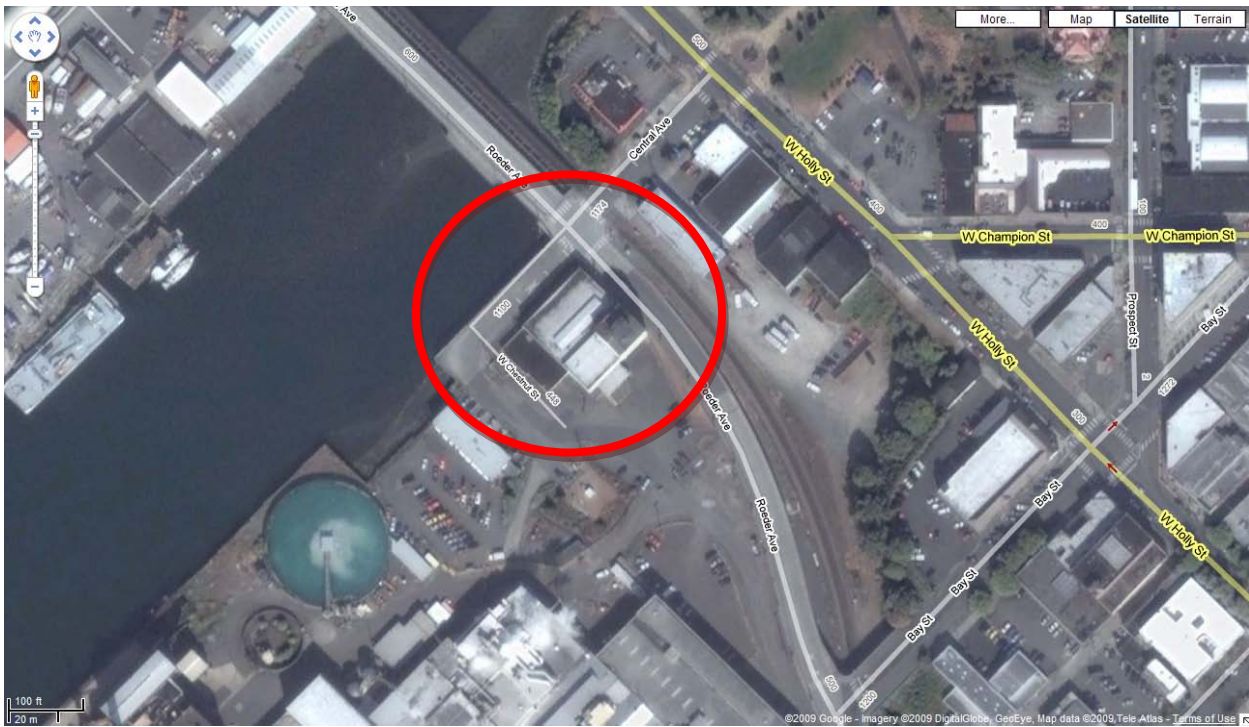
Source: Proposed Planning Framework and Planning Assumptions from the “Waterfront Planning Framework” presented to the Bellingham City Council on April 20th, 2009

II. New Whatcom Site Area Numbers and Ownership



Source: New Whatcom Redevelopment Draft Environmental Impact Statement, 2008

III. Location of Granary Building



Source: Google Maps, 2009