South Kitsap Industrial Area

Draft Planned Action

Environmental Impact Statement

City of Bremerton

June 2011

Department of Community Development
Andrea L. Spencer, AICP
Director
Andrea.Spencer@ci.bremerton.wa.us

Tel 360-473-5283
Fax 360-473-5278
345 6th Street, Suite 600
Bremerton, WA 98337

June 9, 2011

SUBJECT: South Kitsap Industrial Area (SKIA)
Draft Planned Action Environmental Impact Statement & Subarea Plan

Dear Interested Citizen:

The City of Bremerton invites you to comment on the South Kitsap Industrial Area (SKIA) Draft Planned Action Environmental Impact Statement (Draft EIS), prepared in accordance with the Washington State Environmental Policy Act (SEPA). The proposal considered in this Draft EIS is adoption of a new Growth Management Act (GMA) compliant subarea plan and implementing regulations. Funded through a Climate Showcase Communities Grant from the US Environmental Protection Agency, key objectives of the proposal include economic development and job creation, protection of natural systems, reductions in greenhouse gas emissions and more sustainable development patterns and buildings, and development of innovative and sustainable infrastructure.

The City of Bremerton has elected to follow an integrated SEPA/GMA process for the SKIA Subarea Plan and Planned Action EIS. Integration of the environmental analysis with the planning process informs the preparation of the Subarea Plan and facilitates coordination of public involvement activities. The information contained in the Draft EIS will support future decisions in identifying and refining the Subarea Plan and implementing regulations.
Three alternatives are considered in this Draft EIS: Alternative 1 (No Action), Alternative 2 (Reduced Manufacturing Industrial Center (MIC)/Mixed Use Center), and Alternative 3 (Intensive MIC).

- **Alternative 1** assumes future growth consistent with existing trends and continuation of the standard project-by-project environmental review process.
- **Alternative 2** assumes increased industrial development within the MIC and a change to the southern MIC boundary to allow for a mixed use destination center.
- **Alternative 3** assumes the highest level of industrial development and employment in the MIC, with no change to the boundary.

Alternatives 2 and 3 would include adoption of a subarea plan and implementing regulations, including a planned action ordinance. If adopted, the planned action ordinance would establish that further environmental review on future development within the designated planned action area would not be necessary if the proposed development is consistent with the type and amount of development identified in the ordinance.

This Draft EIS identifies specific environmental impacts and ways to mitigate impacts under each alternative. Environmental issues evaluated in this Draft EIS include: natural environment, climate change/greenhouse gas reductions, land use, cultural resources, aesthetics, transportation, public services and utilities.

Agencies, affected tribes and members of the public are invited on this Draft EIS. Comments are also invited on the Draft SKIA Subarea Plan, available at the City of Bremerton Department of Community Development, 345 6th Street, Suite 600, Bremerton or at www.sustainableskia.com. The City of Bremerton will accept written comments from Draft EIS issuance on June 9, 2011 through 5:00 pm, July 11, 2011. Please provide written comments through US mail or electronically as follows:

- US Mail: Andrea Spencer, SEPA Responsible Official, City of Bremerton Department of Community Development, 345 6th Street, Suite 600, Bremerton WA 98337.
- Electronic comments: SKIA@ci.bremerton.wa.us

In addition, the City invites your comments on the Draft EIS and Subarea Plan at a public workshop scheduled for Thursday, June 16, 2001, 5:00 pm at the Norm Dicks Government Center, 345 6th Street, Bremerton.

Your interest in this project is greatly appreciated. If you would like more information on this project, please call Alyce Fierro at 360.473.5269 or see www.sustainableskia.com.

Sincerely,

Andrea L. Spencer, AICP
Director of Community Development
SEPA Responsible Official

SOUTH KITSAP INDUSTRIAL AREA

Draft Planned Action

Environmental Impact Statement

Prepared for:

City of Bremerton

Prepared by:

EA|Blumen
AHBL
Landau
ERCI
Chris Webb & Associates
Fehr & Peers
Community Attributes
Henderson Young & Company
Mithun
Weinman Consulting

June 2011

FACT SHEET

Name of Proposal
South Kitsap Industrial Area (SKIA) Subarea Plan

Proponent
City of Bremerton

Location
SKIA is an area of approximately 3,590 acres in south central Kitsap County, adjoining both the north and south sides of SR 3 and located just northeast of the boundary with Mason County. SKIA lies within the southernmost extent of the City of Bremerton UGA. It is surrounded by unincorporated Kitsap County to the northwest, east and south, and the unincorporated Belfair Subarea of Mason County to the west.

Proposal
The action proposed by the City of Bremerton consists of the following related actions:

1. Adoption of an ordinance designating SKIA as a planned action for the purposes of the State Environmental Policy Act (SEPA) compliance, pursuant to RCW 43.21.031 and WAC 197-11-164. The planned action designation would apply to development of proposed commercial and industrial uses of the type and intensity established in the ordinance and considered in this EIS.
2. Adoption of a SKIA Subarea Plan, consistent with the City's Comprehensive Plan and the Washington Growth Management Act (GMA).
3. Updated development standards to implement the Subarea Plan, including new or revised zoning designations, low impact development standards and other measures that support sustainable economic development and greenhouse gas reduction.

Proposed Alternatives
This EIS evaluates three alternative scenarios for the SKIA subarea generally reflecting different levels of employment growth and emphases on different categories of jobs and development types. The Draft EIS alternatives include:

- **Alternative 1** (No Action) – Assumes continuation of existing development trends, with no new measures to promote sustainable development, economic development or adoption of a

planned action ordinance. Provides the least amount of new development and employment capacity among the alternatives.

- **Alternative 2** (Reduced MIC/Mixed Use Center) – Reduces the size of the MIC slightly to allow for a new mixed use center in the southwest corner of the subarea. Provides for an intermediate level of development and employment capacity.
- **Alternative 3** (Intensive MIC) – Provides for the greatest amount of new development and employment capacity among the three alternatives.

Lead Agency

City of Bremerton
Community Development Department

SEPA Responsible Official

Andrea Spencer, Director
City of Bremerton Community Development Department

EIS Contact Person

Alyce Fierro, Grant Administrator
City of Bremerton Community Development
345 6th Street, Suite 600 Phone: (360) 473-5269
Bremerton, WA 98337 Email: alyce.fierro@ci.bremerton.wa.us

Final Action

Adoption of SKIA Subarea Plan and Planned Action Ordinance

Required Approvals and/or Permits

Approval of SKIA Subarea Plan and Planned Action Ordinance by the Bremerton City Council.

Authors and Principal Contributors to this EIS

The **SKIA Subarea Planned Action EIS** has been prepared under the direction of the City of Bremerton Community Development Department. Research and analysis associated with this EIS were provided by the following consulting firms:

- **EA|Blumen** – lead EIS consultant; document preparation; public services
- **AHBL** – land use
- **Landau** – natural environment
- **ERCI** – cultural resources
- **Chris Webb & Associates** – utilities
- **Fehr & Peers.** – transportation, greenhouse gas analysis
- **Community Attributes –** alternatives development
- **Mithun** – aesthetics
- **Weinman Consulting** – SEPA strategy, alternatives development
- **Henderson Young & Company** – public services

Location of Background Data

City of Bremerton Community Development
Attn: Alyce Fierro Telephone: (360) 473-5269
345 6th Street, Suite 600
Bremerton, WA 98337

Date of Issuance of this Draft EIS

June 9, 2011

Date Draft EIS Comments Are Due

July 11, 2011

Written comments may be submitted to:
City of Bremerton
Community Development Department
Attn: Andrea Spencer, Director
345 6th Street, Suite 600
Bremerton, WA 98337
Or email to SKIA@ci.bremerton.wa.us

Date of Draft EIS Public Meeting

June 16, 2011 at 5:00 PM
Norm Dicks Government Center
345 6th Street
Bremerton, WA

The purpose of the public meeting is to provide an opportunity for agencies, organizations and individuals to review information concerning the Draft EIS and to present oral comments on the Draft EIS – in addition to submittal of written comments

Availability of this Draft EIS

Copies of this Draft EIS have been distributed to agencies, organizations and individuals noted on the Distribution List (Chapter 6).

The Draft EIS can be reviewed at the Bremerton City Hall, 345 6th St, Suite 600, Bremerton.

This Draft EIS is also available online at: www.SustainableSKIA.com

Additional copies may be purchased at the City of Bremerton for the cost of reproduction.

TABLE OF CONTENTS

Appendices

Tables

Figures

Section 1 - Introduction

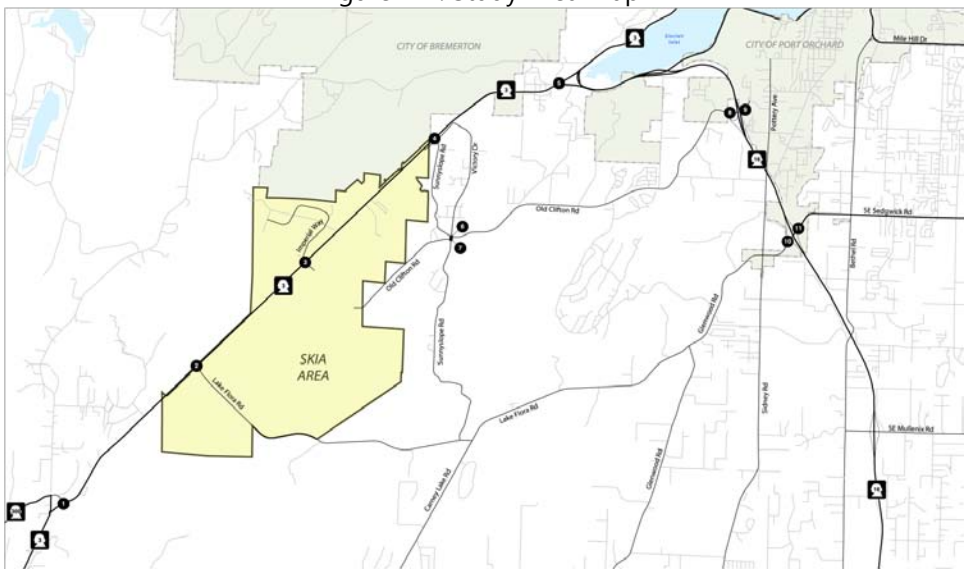
1. SUMMARY

This chapter summarizes environmental impacts, mitigation measures and significant unavoidable adverse impacts for three alternative South Kitsap Industrial Area (SKIA) subarea plan scenarios evaluated in this Environmental Impact Statement (EIS). This summary provides a brief overview of the information considered in this EIS. The reader should consult Chapter 2 for a detailed description of the alternatives and Chapter 3 for more information concerning the affected environment, environmental impacts, and mitigating measures for each alternative.

1.1 Study Area

SKIA is an area of approximately 3,590 acres in south central Kitsap County, adjoining both the north and south sides of SR 3 and located just northeast of the boundary with Mason County. SKIA lies within the southernmost extent of the City of Bremerton UGA. It is surrounded by unincorporated Kitsap County to the northwest, east and south, and the unincorporated Belfair Subarea of Mason County to the west. SKIA is the largest contiguous block of undeveloped Industrial property in Kitsap County. Please see Figure 1-1.

Figure 1-1: Study Area Map



Source: Fehr & Peers, 2010.

1.2 Proposal

Subarea Plan

In 2009, the City of Bremerton was awarded a Climate Showcase Communities grant from the US Environmental Protection Agency to prepare a subarea plan and planned action EIS for SKIA. Sustainable low-impact development and greenhouse gas reductions are fundamental goals that underlie the subarea plan.

A draft Subarea Plan has been prepared in an integrated manner with this EIS and may be viewed at Bremerton City Hall or www.sustainableskia.com. The draft Plan identifies goals and strategies for a range of topics and, in some cases, proposed strategies serve to mitigate impacts identified in this EIS. The draft Plan also defines a preliminary regulatory framework for consideration.

Alternatives Overview

This EIS evaluates three alternative scenarios for the SKIA subarea, but does not identify a preferred alternative. It is anticipated that, following review of this Draft EIS by the City, agencies and interested public, a final preferred alternative will be developed that falls within the range of the alternatives analyzed in this Draft EIS. The alternatives generally reflect different levels of employment growth and emphases on different categories of jobs and development types. The Draft EIS alternatives include:

- **Alternative 1** (No Action) – Assumes continuation of existing development trends, with no new measures to promote sustainable development, economic development or adoption of a planned action ordinance. Provides the least amount of new development and employment capacity among the alternatives.
- **Alternative 2** (Reduced MIC/Mixed Use Center) – Reduces the size of the MIC slightly to allow for a new mixed use center in the southwest corner of the subarea. Provides for an intermediate level of development and employment capacity.
- **Alternative 3** (Intensive MIC) – Provides for the greatest amount of new development and employment capacity among the three alternatives.

Key features associated with each alternative are summarized in Table 1-1 below.

Table 1-1: Alternatives Overview

Features	Alternatives 1 No Action	2 Reduced MIC / Mixed Use Center	3 Intensive MIC
Total new development (square feet)[1]	800,000	3,850,000	5,600,000
Total new employment (jobs)[2]	1,400	6,500	10,000
MIC Boundaries	No change	268 acre reduction	No change
Sustainability Measures	No	Yes	Yes
Planned Action Ordinance	No	Yes	Yes

Source: EA\|Blumen, 2011

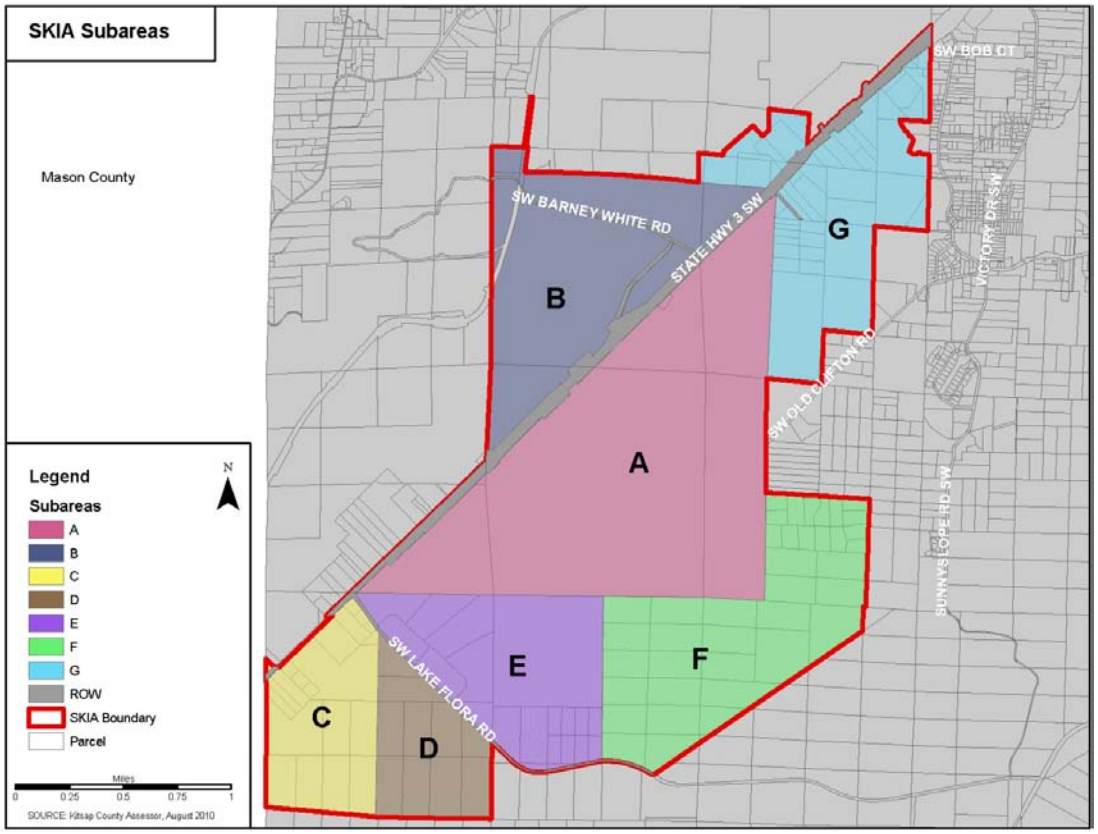
[1] See Appendix C for methodology.

[2] Assumes 20-year planning horizon. Assumes 1 employee/500 sf of building area. See Appendix C for methodology.

Analysis Areas

For the purpose of analysis and discussion in this EIS, SKIA has been divided into seven smaller analysis areas, referred to in this EIS as Areas A through G and shown in Figure 1-2.

Figure 1-2: Analysis Areas



Source: AHBL, 2011

1.3 Summary of Potential Impacts

Table 1-2 Summary of Impacts

Alternative 1 (No Action)	Alternative 2	Alternative 3
Natural Environment		
Earth		
• Overall low risk for landslide, but greatest potential in Areas A, B, and G. • Much of the soils on slopes exceeding 15% are highly susceptible for erosion. • Seismically active area; with potential for moderate to high levels of groundshaking. • Peat deposits in Areas A, B and G could lead to a significant amount of settlement. • No impacts to Areas E and F because no new development.	• Same as Alternative 1, except that development and associated impacts would occur throughout the study area.	• Same as Alternative 2, except that slightly higher development levels would increase the risk of earth impacts.
Aquifer Recharge Areas		
• Greatest potential for impact in Area G, which contains a Category 1 Critical Aquifer Recharge Area (CARA). • Areas B, C and a significant of Area G also contains large areas of Category II CARA, with potential for impacts. • Remainder of study area contains no or limited CARA designations.	• Alternatives 2 and 3 assume extension of public water, sewer and stormwater systems, which would alleviate impacts to CARAs, compared to uncoordinated development under Alternative 1.	

Alternative 1 (No Action)	Alternative 2	Alternative 3
Plants and Animals		
• No listed plant species in SKIA; no significant impacts to plants. • Reduction in habitat area would result in loss of habitat for animals. Alternative 1 would result in the least amount of development and a corresponding least impact to habitat. • If not managed properly, stormwater runoff could impact fish habitat.	• Impacts are generally similar to those described for Alternative 1. Because development levels would be higher, there is potential for greater impacts to habitat. However, development areas under Alternatives 2 and 3 are relatively small when compared to the entire study area and are not anticipated to result in significant impacts.	
Climate Change and Greenhouse Gas Emissions		
• Total estimated GHG emissions is approximately 1,818,877 $MTCO_2e$ [1]over the project lifetime. Assuming 1,400 employees, estimated GHG emissions per employee is 1,299 $MTCO_2e$ over the project lifetime.	• Total estimated GHG emissions is approximately 9,924,951 $MTCO_2e$ over the project lifetime. Assuming 6,500 employees, estimated GHG emissions per employee is 1,527 $MTCO_2e$ over the project lifetime.	• Total estimated GHG emissions is approximately 13,958 $MTCO_2e$ over the project lifetime. Assuming 10,000 employees, estimated GHG emissions per employee is 1,396 $MTCO_2e$ over the project lifetime.
Land Use		
• Lowest level of growth, with new development focused in Areas A and B, and lesser growth in Areas C, D and G. • Potential for land use conflicts with adjacent residential development near Areas A and G. • Existing industrial designation allows a wide variety of uses; some potential for land use conflict within the study area if differing/conflicting uses develop near each other.	• Reduced MIC designation would provide for mixed use development in Area C. • Moderate level of new growth, with new growth focused in Areas B and C, and distributed throughout the study area. • Potential land use compatibility impacts similar to Alternative 1, but with greater potential for impacts. • Relatively less potential for internal land use conflicts due to updated regulatory standards	• HIghest level of new growth, with new growth focused in Areas A, B, E, and F, and distributed throughout the study area. • Potential land use compatibility impacts similar to Alternative 2, but with greater potential for impacts. • Relatively less potential for internal land use conflicts due to updated regulatory standards that strengthen and retain the industrial focus. • Highest amount of employment growth, with

[1] $MTCO_2e$ is defined as Metric Ton Carbon Dioxide Equivalent, and equates to 2204.62 pounds of CO_2. This is a standard measure of amount of equivalent CO_2 emissions.

Alternative 1 (No Action)	Alternative 2	Alternative 3
• Compared to other alternatives, least amount of employment growth, with an estimated 1,400 new employees. • Relatively less consistent with the intent of the MIC designation to achieve concentrated industrial development with a planning target of 20,000 jobs.	that strengthen and retain the industrial focus. • Moderate amount of employment growth, with 6,500 new employees. • Approximately 280 acres would be removed from the MIC designation, with the remaining designated area generally consistent with the intent of the MIC designation.	10,000 new employees.
Cultural Resources		
• No archaeological sites have been recorded in the area to date. Potential for impacts to cultural resources associated with any project that involves ground disturbance under any of the alternatives.		
Aesthetics		
• Change in the visual and aesthetic character would occur incrementally over the 20-year planning period. • Development nearest the Bremerton National Airport would have limited visual impact due to height constraints. • Development in the Olympic Business Park would likely continue the existing industrial character. • Limited or no development in the remaining area would likely result in no significant visual impacts.	• Compared to Alternative 1, development under Alternative 2 would result in significantly greater change in visual character, with industrial development located throughout the study area. However, compared to the overall size of the study area, development levels would remain relatively low. • In Area C, development of a mixed use center would differ from the largely industrial character of adjacent areas.	• Compared to Alternative 2, development under Alternative 2 would result in greater change in visual character, with industrial development located throughout the study area. However, compared to the overall size of the study area, development levels would remain relatively low. • Additional concentration of employment activity in Area E would result in a significant change from current visual character.
Transportation		
• The following intersections are expected to operate at LOS F: o SR 3/Lake Flora Road o SR 3/Sunnyslope Road o SR 3/SR 16/Sam Christopherson Avenue o Old Clifton Road/SR 16 Eastbound Ramps o Old Clifton Road/SR 16 Westbound Ramps	• In addition to the intersections identified in Alternative 1, the intersections of SR 3/Old Clifton Road and SR 3/Imperial Way would operate at LOS F. • The Subarea Plan would include strategies to accommodate and expand transit service to the study area. • The Subarea Plan would include a variety of bicycle and pedestrian elements, such as	• In addition to the intersections identified in Alternatives 1 and 2, the intersection of Sedgewick Road/SR 16 Eastbound Ramps would operate at LOS F. • The Subarea Plan would include strategies to accommodate and expand transit service to the study area. • The Subarea Plan would include a variety of bicycle and pedestrian elements, such as

Alternative 1 (No Action)	Alternative 2	Alternative 3
• No funded transit, pedestrian or bicycle system improvements for the study area.	complete streets roadway design standards. • Increased traffic would travel through the high accident location at SR 3 near the Lake Flora Road intersection.	complete streets roadway design standards. • Increased traffic would travel through the high accident location at SR 3 near the Lake Flora Road intersection.
Public Services		
Fire and Emergency Services • Construction activities associated with potential development under the proposed alternatives could result in an increase in demand for fire services. • Under this alternative, requests for fire department services could result in an increase of approximately 18 percent by 2031.	• Same as Alternative 1. • Under this alternative, requests for fire department services could result in an increase of approximately 17 percent by 2031.	• Same as Alternative 1. • Under this alternative, requests for fire department services could result in an increase of approximately 15 percent by 2031.
Fire and Emergency Services • Alternative 1 would result in a need for an additional 0.6 fire units.	• Alternative 2 would result in a need for an additional 2.7 fire units. If the additional tax revenues are available for fire protection, no significant impacts are expected.	• Alternative 3 would result in a need for an additional 4.1 fire units. If the additional tax revenues are available for fire protection, no significant impacts are expected.
Police Services • Alternative 1 would result in a need for an additional 2.2 police officers.	• Alternative 2 would result in a need for an additional 10.4 police officers. If the additional tax revenues are available for fire protection, no significant impacts are expected.	• Alternative 3 would result in a need for an additional 16 police officers. If the additional tax revenues are available for fire protection, no significant impacts are expected.

Alternative 1 (No Action)	Alternative 2	Alternative 3
Utilities		
Stormwater		
• Development of vacant land would reduce vegetative cover and native soils increasing stormwater runoff. Under Alternative 1 much of the vegetated area would remain undeveloped.	• More development is anticipated than Alternative 1, increasing the stormwater runoff, but much of the vegetated area would remain in forest or other undeveloped state.	• Compared to the other alternatives, Alternative 3 would result in the greatest level of stormwater hydrology impact. However, still much of the vegetated area would remain in forest or other undeveloped state.
Water		
• Water demand is estimated to increase by 0.035 mgd, which is an increase of 100% over 2004 usage.	• Water demand is estimated to increase by 0.6 – 0.8 mgd, which is an increase of 1400– 2200% over current demand. • Water demand could exceed the City's transmission and storage capacity in the study area.	• Water demand is estimated to increase by 0.8 – 1.1 mgd, which is an increase of 2100 – 3000% over current demand. • Water demand would exceed the City's transmission and storage capacity in the study area.
Wastewater		
• Wastewater discharge would be increased by 35,000 gpd.	• Wastewater discharge would be increased by 0.6-0.8 mgd. • Projected wastewater flows under Alternative 2 would exceed the Port's treatment capacity in the study area.	• Wastewater discharge would be increased by 0.8-1.1 mgd. • Projected wastewater flows under Alternative 2 would exceed the Port's treatment capacity in the study area.

1.4 Mitigation Measures

This section lists all of the mitigation strategies listed in this EIS, organized by element of the environment.

Natural Environment

Applicable Regulations and Requirements

Earth

- Specific foundation support systems to be used for onsite improvements will be determined as part of the specific design and permit process for infrastructure and individual buildings associated with future site development.
- Site-specific studies and evaluations would be conducted in accordance with City of Bremerton Municipal Code requirements and the provisions of the most recent version of the IBC.

Landsliding

- If any development occurs adjacent to steeper slopes within SKIA, site-specific slope stability analyses would be conducted during the design and permit process in order to determine the required setback buffer widths. Potential mitigation measures include limiting soil disturbance and vegetation removal, limiting building footprint and impervious surface areas, constructing retaining walls, and revegetating the slopes located within moderate to high geologically hazardous areas.
- During a large seismic event, some sloughing and slope movement would likely occur within loose surficial materials on the steeper slopes present within SKIA. Site-specific analysis of any development planned adjacent to or near these slopes would be completed during the design and permit process to address specific methods to mitigate potential landslide impacts.

Erosion

During construction, temporary erosion and sedimentation control measures and Best Management Practices would be used to control erosion. These measures would be consistent with City regulations, and could include the following:

- Limit areas of exposure
- Schedule earthwork during drier times of the year
- Retain vegetation where possible, especially on the steeper slope areas within SKIA

- Seed or plant appropriate vegetation on exposed areas as soon as earthwork is completed
- Construct stabilized construction entrances with rock pads or truck washing stations to limit excess soil materials from entering the right-of-way
- Route surface water through temporary drainage channels around and away from disturbed soils or exposed slopes
- Use silt fences, temporary sedimentation ponds, or other suitable sedimentation control devices to collect and retain possible eroded material
- Cover exposed soil stockpiles and exposed slopes with plastic sheeting, as appropriate
- Use straw mulch and erosion control matting to stabilize graded areas and reduce erosion and runoff impacts to slopes, where appropriate
- Intercept and drain water from any surface seeps, if encountered
- Incorporate contract provisions allowing temporary cessation of work under certain, limited circumstances, if weather conditions warrant.

Seismic Hazards

With development consistent with the City of Bremerton Municipal Code and IBC, no additional mitigation measures would be required.

Settlement

Impacts associated with potential settlement of buildings, roadways, utilities, or other infrastructure improvements constructed on areas with peat deposits would be mitigated by use of typical design and construction measures that could include: partial to full removal of peat deposits and replacement with structural fill; preloading; use of geosynthetic reinforcing materials to support fill materials; settlement monitoring; use of driven steel pipe or H-piles or rammed aggregate piers for building foundation support.

Construction Excavation

Impacts from temporary construction excavations could be mitigated through the use of properly designed and constructed excavation shoring systems or sloped excavations in accordance with *Safety Standards for Construction Work Part N,* Washington Administrative Code (WAC) 296-155.

Construction Dewatering

Site-specific investigations and analyses during the design and permitting process would determine what structures may require or be influenced by

excavation dewatering. Mitigation measures to control the potential impact of excavation dewatering include site-specific design and control of dewatering systems, minimizing the extent and duration of dewatering, and monitoring for settlement.

Extracted groundwater may contain certain chemical contaminants and/or high turbidity, which might necessitate special handling, treatment, and/or disposal methods. Mitigation measures include monitoring to assess the quality of dewatering discharges and treatment, if needed, to comply with applicable state and local requirements.

Placement of Structural Fill

Ground subsidence impacts could be mitigated by designing the fill to control adjacent settlements, including settlement monitoring and use of geosynthetic reinforcing materials to support fill materials over peat. Adjacent structures/surfaces could be monitored during construction to verify that no adverse settlement occurs.

Placement of structural fill to modify site grades adjacent to high or moderate geologically hazardous areas would require site-specific geotechnical investigations, slope stability analyses, and design and construction of earth retention structures, fill slopes, and drainage and erosion control measures as needed to stabilize the area.

Foundation Construction

Foundation construction impacts could be mitigated by site specific design and construction procedures, including temporary excavation shoring and dewatering, overexcavation of unsuitable materials and replacement with structural fill, use of deep foundations or ground improvement techniques, conducting pre- and post-construction surveys of nearby buildings, monitoring of ground movements, and vibration monitoring during pile installation.

Aquifer Recharge Areas

Groundwater protection strategies to be used for onsite improvements will be determined as part of the specific design and permit process for infrastructure and individual buildings associated with future site development. Site-specific studies and evaluations would be conducted in accordance with City of Bremerton Municipal Code requirements, including conditions set forth by the City's CAO. Methods are available to build out SKIA without resulting in significant unavoidable adverse impacts. Mitigation measures to limit impacts to aquifer recharge areas during each major stage of project are discussed below.

Construction impacts are short-term impacts that could occur during the construction phase of site redevelopment. BMPs to manage site construction and operation activities will be in place to reduce potential impacts to aquifer recharge areas. Environmental monitoring during the construction process will verify that required best management practices are followed.

BMP's required under the City's CAO to control construction-related impacts include, but are not limited to, proper containment and storage of construction materials, proper containment and disposal of waste materials, and appropriate and effective management of stormwater.

BMP's required under the City's CAO to control operational-related impacts include, but are not limited to, spill control plans, waste management plans, and appropriate long-term management of sanitary sewer and stormwater management infrastructure.

Plants and Animals

The following mitigation measures would reduce potential impacts to plants, animals, and their habitat.

- Required stormwater best management practices would attenuate flows and prevent polluted water from entering the stormwater system and ensure that construction and operation activities would not impact the ESA-listed species, critical habitats, or Essential Fish Habitat in Sinclair Inlet, Hood Canal, North Bay, and/or their tributaries in the project vicinity.
- Comply with critical area mitigation sequence requirements in the City of Bremerton critical areas ordinance to avoid, minimize, and mitigate for unavoidable impacts to wetlands, streams, and their buffers.
- Stream mitigation could include improving fish access through redesigned culvert crossings or installation of fish passable culverts associated with new road crossings. Install native plants, as possible, and remove invasive plants, in accordance with Executive Order 13112, to provide habitat for native animals and to reduce future maintenance efforts.
- Nest removal for species protected under MBTA would occur outside of nesting season after birds have fledged.

Proposed Plan Features

Aquifer Recharge Areas

- Incorporate Low Impact Development (LID) stormwater features as a means to infiltrate stormwater and match or improve the hydrologic cycle. Examples of LID stormwater measures include

underground injection control, bioretention cells, bioswales, porous pavement, green roofs, rainwater harvesting, stormwater dispersion, sustainable site planning and layout, and phytoremediation.

Plants and Animals

- Sensitive site design to minimize impact to vegetated habitats not protected under the City's Critical Areas regulations.
- Apply landscape and development standards applicable to tree protection, including, but not limited to:
  - Install fencing around trees/forested areas before mobilization to prevent damage from construction activities
  - Removing or replacing impervious areas adjacent to trees/forests with permeable surfaces to provide more water to root systems
  - Preserve trees and groups of trees (i.e., groves) to the extent practical. Incorporate existing trees into urban design to assist in stormwater retention and microclimate management of buildings (i.e., shading and energy savings associated with heating/cooling)
  - Transplant existing trees intended for removal from construction activities
  - Apply arboricultural practices to the remaining trees to ensure a prolonged and healthy tree life.

- Establish a thorough landscape maintenance program during and after construction to ensure the vegetation remains healthy and free of invasive/undesirable plants. Encourage development to incorporate Integrated Pest Management (IPM) into landscape plans.

Greenhouse Gas Emissions

Proposed Plan Features

Based on the goals and strategies listed in the SKIA Subarea plan, some or all of the following GHG reduction strategies could be implemented at SKIA:

- Adopt green building standards for all new development – examples include the requirement that all buildings meet energy efficiency goals equivalent to a LEED Silver or better rating.
- Adopt comprehensive low impact development (LID) standards for storm water treatment for all public and private areas on the site.

- Require that a portion of the electricity demand be met through the construction of renewable power generation or purchases of renewable electricity.
- Adopt energy efficient outdoor lighting standards that utilize advanced lighting technologies like LED and induction fluorescent where practical.
- Adopt compact development standards that achieve economic development goals while retaining at least 25 percent of the SKIA site as forest land.
- Adopt a mandatory commute trip reduction program for all employers in the SKIA site. This commute trip reduction program will include the establishment of the following:
  - Mode split goals
  - Mode split monitoring program
  - Mode split goal implementation program
  - Transportation management agency which provides resources for employers such as carpool matching, vanpool/transit information, and a guaranteed ride home program.
- In conjunction with a commute trip reduction program, expand transit options such as the Kitsap Transit vanpool program or new fixed route bus service.
- Work with surrounding jurisdictions to provide more housing options near SKIA that do not conflict with airport operations.
- Encourage the development of support retail and service uses within the industrial employment clusters within SKIA.
- Implement efficient transportation design standards including the use of roundabouts and LED lighting where appropriate.
- Encourage the development of locally serving industries that support other major uses in the area such as the US Navy.

Table 1-3 below shows the amount of GHG emissions reductions that could be achieved through each of the strategies listed above. As shown in the table, a variety of the GHG reduction strategies can be used to achieve the 912,000 metric ton of carbon dioxide equivalent goal; however, to achieve a 30 percent reduction of the revised GHG estimates will require that most of the strategies be implemented.

Table 1-3: GHG Emissions Reductions

GHG Reduction Strategy	Alternative 2 Reductions ($MTC0_2e$)	Alternative 3 Reductions ($MTC0_2e$)
Green Building Standards	912,695	1,597,986
Renewable Electricity	305,570	535,006
Energy Efficient Outdoor Lighting Standards	73,016	127,839
Compact Development Standards (with forest retention)	1,887,000	1,887,000
Mandatory Commute Trip Reduction Program	78,078	168,355
Expanded Vanpool/Transit	60,060	129,504
Additional Housing Near SKIA	249,849	299,297
Support Retail and Services	39,039	46,765
Efficient Transportation Design Standards	3,000	3,000
Encourage Locally Serving Industries	19,519	23,383
Total (% reduction)	**3,624,826 (35%)**	**4,815,133 (34%)**

Source: Fehr & Peers, 2011.

Land Use/Plans and Policies

Applicable Regulations and Requirements

Existing zoning and development regulations for SKIA already address many of the key areas where there are potential land use impacts, as previously discussed. SKIA is zoned Industrial. Residential and most retail uses are not allowed. Landscape screening and setback standards help ensure visual impacts to adjacent residential uses are mitigated.

Development within SKIA that occurs within defined areas of the airport zone, which is determined by the FAA, may be subject to FAA evaluation per Federal Aviation Regulation (FAR) Part 77. FAR 77 allows the FAA to conduct an aeronautical study to identify potential aeronautical hazards, thus preventing or minimizing the adverse impacts to the safe and

efficient use of navigable airspace. The FAA may then issue one of three responses: No Objection, Conditional Determination, and Objectionable. Fifty-foot zoning height limits in SKIA in combination with Port control over a significant area immediately surrounding Bremerton National Airport, also help ensure compatibility with aircraft operations.

Required certification of the SKIA Subarea Plan by the Puget Sound Regional Council (PSRC) and continued compliance with related policy direction for Manufacturing Industrial Areas will help ensure that SKIA continues to be a regional asset reserved for industrial development and job creation. As an MIC, SKIA is expected to continue to receive priority for transportation improvement funding.

Proposed Plan Features

Under the two action alternatives (Alternative 2 and Alternative 3), revised zoning and development standards are required as part of the SKIA Subarea Plan. These standards build on the existing regulations and contain additional built in mitigation measures designed to address potential adverse impacts of the action alternatives. Key aspects of the proposed regulations include:

- Site development standards that promote more sustainable industrial development, with fewer environmental impacts. Standards include requirements for Low Impact Development stormwater facilities, clearing limits, impervious surface limits, tree and vegetation conservation standards, native landscaping and other requirements that are expected to make industrial development in SKIA more compatible with adjacent land uses outside of SKIA, including natural areas, low-density single family development and development in the adjacent Belfair UGA.
- Increased structure setbacks (from the 10 to 20 feet currently required to 20 to 50 feet under the proposed regulations) and enhanced landscape buffers where industrial zoned property is adjacent to residentially zoned property.
- Greater restrictions on uses which are potentially incompatible with industrial development. These include restrictions on large unrelated office uses, requiring a conditional use permit for certain uses, such as sport stadiums, and adherence to additional development and performance standards designed to ensure compatibility with industrial uses.
- Adoption of industrial performance standards, which in addition to promoting sustainable development and providing controls on noise, emissions and glare, will improve the compatibility of

industrial operations with airport operations and adjacent development outside of SKIA.

- Revised standards to ensure the compatibility of future development with operations at Bremerton National Airport. Standards include fifty (50) foot height limits for all development in SKIA, a requirement that the City provide notice to Bremerton National Airport and the FAA for all major development proposals in SKIA, and code language that reinforces the City's substantive authority to condition development permits to address concerns related to aircraft operations.
- Under Alternative 2, the creation of a new transition area in Area C with a broader range of non-residential uses may help mitigate potential land use compatibility impacts between more intense industrial development and adjacent areas outside of SKIA in the Belfair Urban Growth Area.

Cultural Resources

The following mitigation measures could be implemented to help manage and avoid significant impacts to cultural resources within SKIA.

- Initiate consultation (letter and follow-up phone call) with Tribes in Washington State to determine which Tribes have an interest in SKIA.
- Establish a team to manage the critical area designation of archaeological sites. The team can be responsible for data management, and consultation with Tribes, agencies, developers and/or investors. Assign a member of the team to search for grants and other funding sources that could begin to collecting data to improve the understanding of pre-contact land use in SKIA.
- Actively seek partners to build a cultural resources information database to identify geographic areas with the highest probability for encountering significant resources.
- Identify ways to use existing agency protocols or plans, and establish relationships that build trust with tribal reviewers.
- Participate in available cultural resources trainings and workshops in the region.
- Consider building a heritage program that helps guide development by incorporating a heritage theme in SKIA.
- Partner with existing businesses/agencies (such as the Port of Bremerton/Airport) which likely have a strong interest in history, and which likely maintain good historical records. Begin documenting buildings in SKIA which are over 50 years old.

- Establish a protocol/checklist for review of projects that includes a form letter for DAHP.
- Consider establishing a historic preservation program that meets applicable federal and state standards to apply for Certified Local Government status.

Aesthetics

Mitigation measures provided below provided include measures that could help retain forested areas, provide for visual screening from public rights-of-way and ensure that view corridors are retained.

- Consolidated driveways to minimize interruptions of remaining forested areas
- Limiting auto circulation & storage areas near to areas and/or points of primary visual access from surrounding areas or travel corridors (such as Route 3 and SW Lake Flora Road)
- Screening new development by maintaining and /or providing sufficiently dense and/or deep landscape buffers adjacent to surrounding areas or travel corridors (such as Route 3 and SW Lake Flora Road)
- Development standards and design guidelines could be established to include standards for building heights, setbacks, modulation, building materials and provisions for implementation of consistent design guidelines over the long-term redevelopment period.
- Provisions for the establishment of a view corridor(s) through the site could be established as part of the Subarea Plan.

Transportation

Alternative 1 (No Action)

Traffic Operations Analysis Results

Traffic operations of Alternative 1 were based on 2030 traffic forecasts prepared by combining the results of the trip generation, trip distribution, and background traffic forecasts described above.

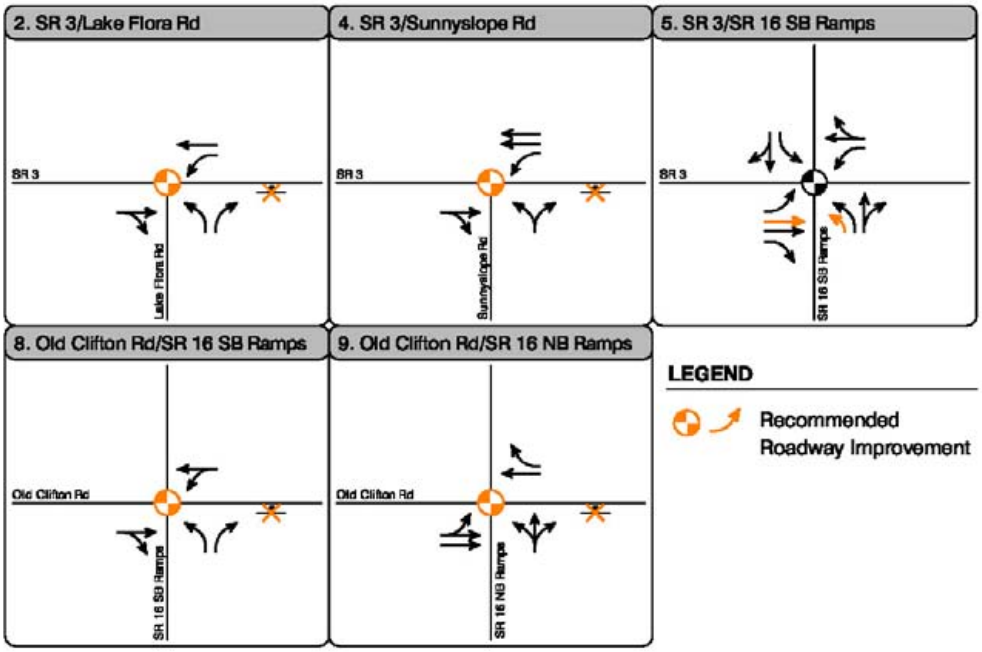
Traffic operations for Alternative 1 were analyzed using the analysis techniques described under the existing conditions section. The results of the traffic operations analysis are presented in Table 3.6-8 within Section 3.6, Transportation. The results are compared to the existing conditions traffic operations analysis results for comparative purposes.

The results indicate that the following five intersections are expected to operate at an undesirable LOS under 2030 Alternative 1 conditions:

- SR 3 / Lake Flora Road
- SR 3 / Sunnyslope Road
- SR 3 / SR 16 / Sam Christopherson Avenue
- Old Clifton Road / SR 16 Eastbound Ramps
- Old Clifton Road / SR 16 Westbound Ramps

While not required for this EIS, recommendations to improve the operations of these five intersections are summarized in Figure 1-3.

Figure 1-3: Recommended Roadway Improvements
2030 No Action



Source: Fehr & Peers, 2010.

There are no planned and funded transit, pedestrian, or bicycle improvements anticipated within the study area under any of the 2030 alternative scenarios. However, it is conceivable that Mason County Transportation or Kitsap Transit could provide bus service to the area as employment grows. It is also possible that some vanpool services serve SKIA under Alternative 1 conditions.

Alternatives 2 and 3

Mitigation measures to address significant traffic operations impacts of Alternatives 2 and 3 are generally based on the recommended improvements described in the WSDOT BEDS report. In some cases the WSDOT improvement recommendations were not sufficient to reduce the impact to a less-than-significant level. In these cases, an alternative improvement is recommended; however, since WSDOT has not

considered or planned for these alternative improvements, they are considered infeasible.

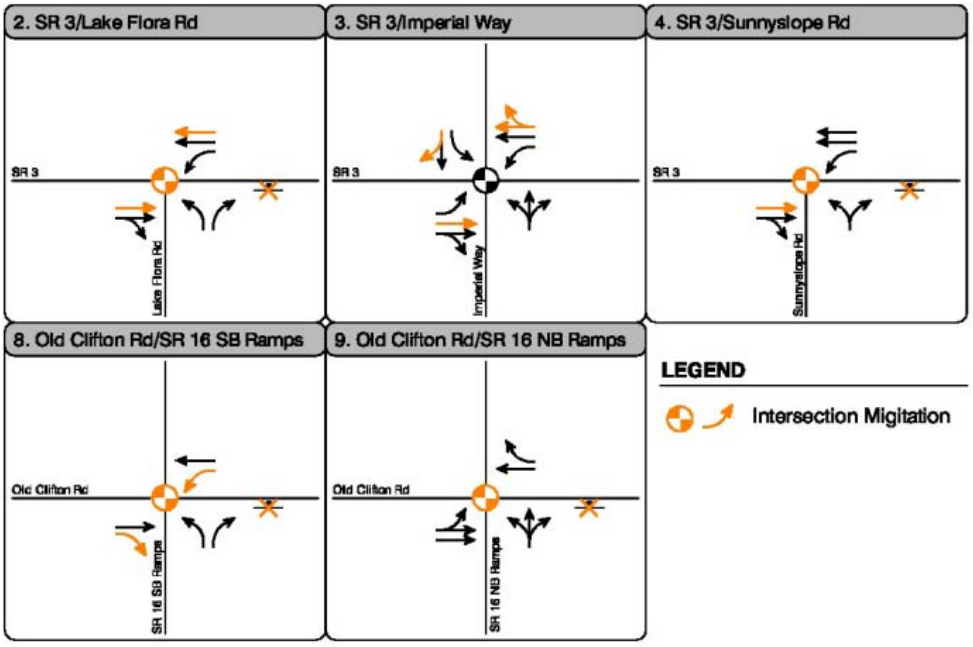
Alternative 2

Poor traffic operations can generally be mitigated if the following improvements are implemented:

- Implement the Belfair Bypass
- Widen SR 3 to four lanes from a point south of Lake Flora Road to SR 16 and install traffic signals at the Lake Flora Road and Sunnyslope Road intersections
- Grade separate the northbound and southbound SR 3 movements at SR 3 / SR 16 / Sam Christopherson Avenue intersection
- Implement minor intersection widening and signalization at the Old Clifton Road / SR 16 ramp intersections

Even with these improvements, the intersection of SR 3 / Old Clifton Road will operate at an unacceptable LOS, which is considered a significant and unavoidable impact.

Figure 1-4: Intersection Mitigations 2030 Alternative 2



Source: Fehr & Peers, 2011

Alternative 3

Mitigation measures for Alternative 3 are similar to those identified for Alternative 2:

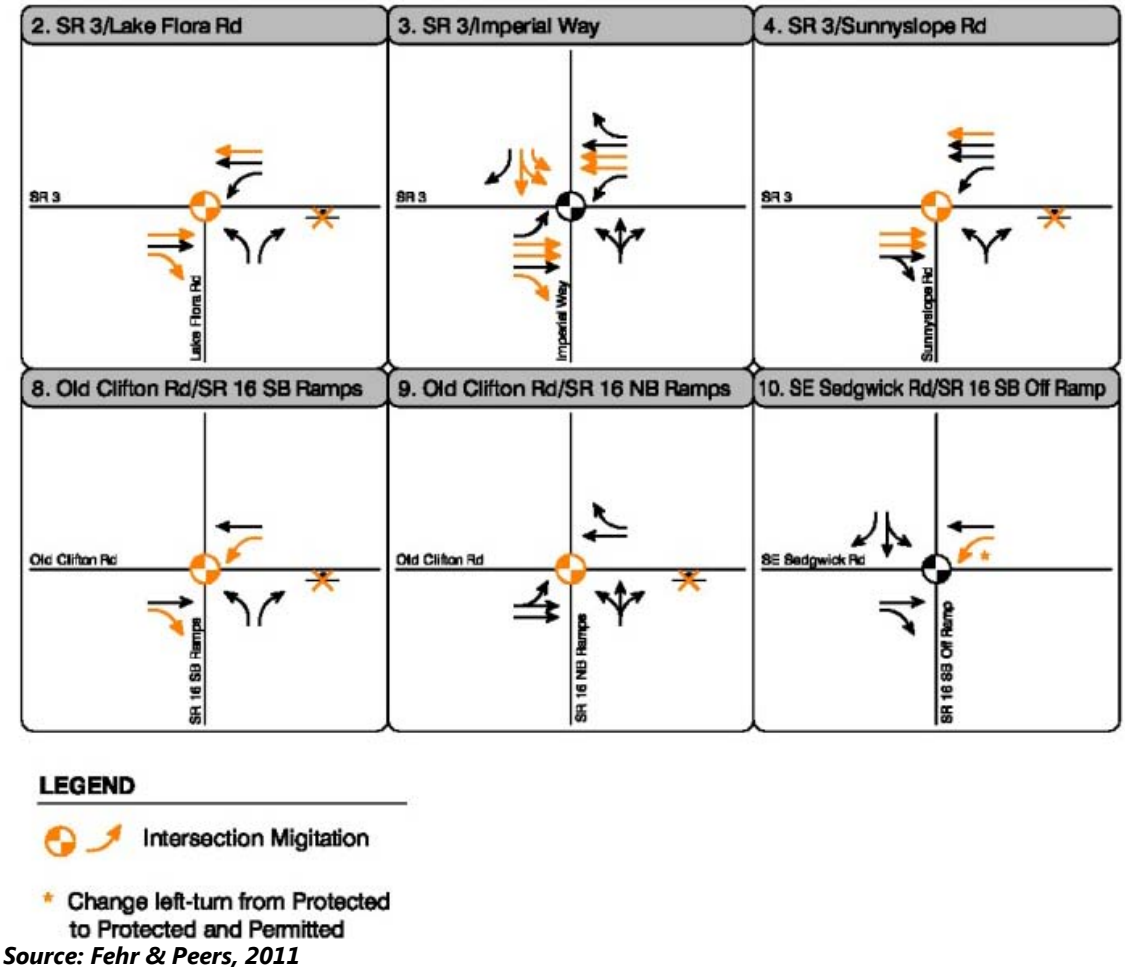
- Implement the Belfair Bypass
- Widen SR 3 to four lanes from a point south of Lake Flora Road to SR 16 and install traffic signals at the Lake Flora Road and Sunnyslope Road intersections
- Grade separate the northbound and southbound SR 3 movements at SR 3 / SR 16 / Sam Christopherson Avenue intersection
- Implement minor intersection widening and signalization at the Old Clifton Road / SR 16 ramp intersections
- Revise the signal phasing at the Sedgwick Road / SR 16 EB Ramps

Even with these improvements, the following intersections will operate unacceptably:

- SR 3 / Old Clifton Road
- SR 3 / Imperial Way
- SR 3 / Sunnyslope Road

Additional widening or grade separation (for the Imperial Way and Sunnyslope Road) intersections could improve operations to an acceptable level. However, these improvements are not in any WSDOT plans and could lead to additional right-of-way, environmental, and cost impacts and are considered infeasible. These intersections are considered to have significant and unavoidable impacts. Mitigation measures are summarized on Figure 1-5.

Figure 1-5: Intersection Mitigations 2030 Alternative 3



Source: Fehr & Peers, 2011

Transit, Bicycle, and Pedestrian Services

Assuming the transit, bicycle, and pedestrian elements of the SKIA Subarea Plan Plan are adopted, no additional mitigation measures are required for these modes of travel.

Traffic Safety Mitigation Measures

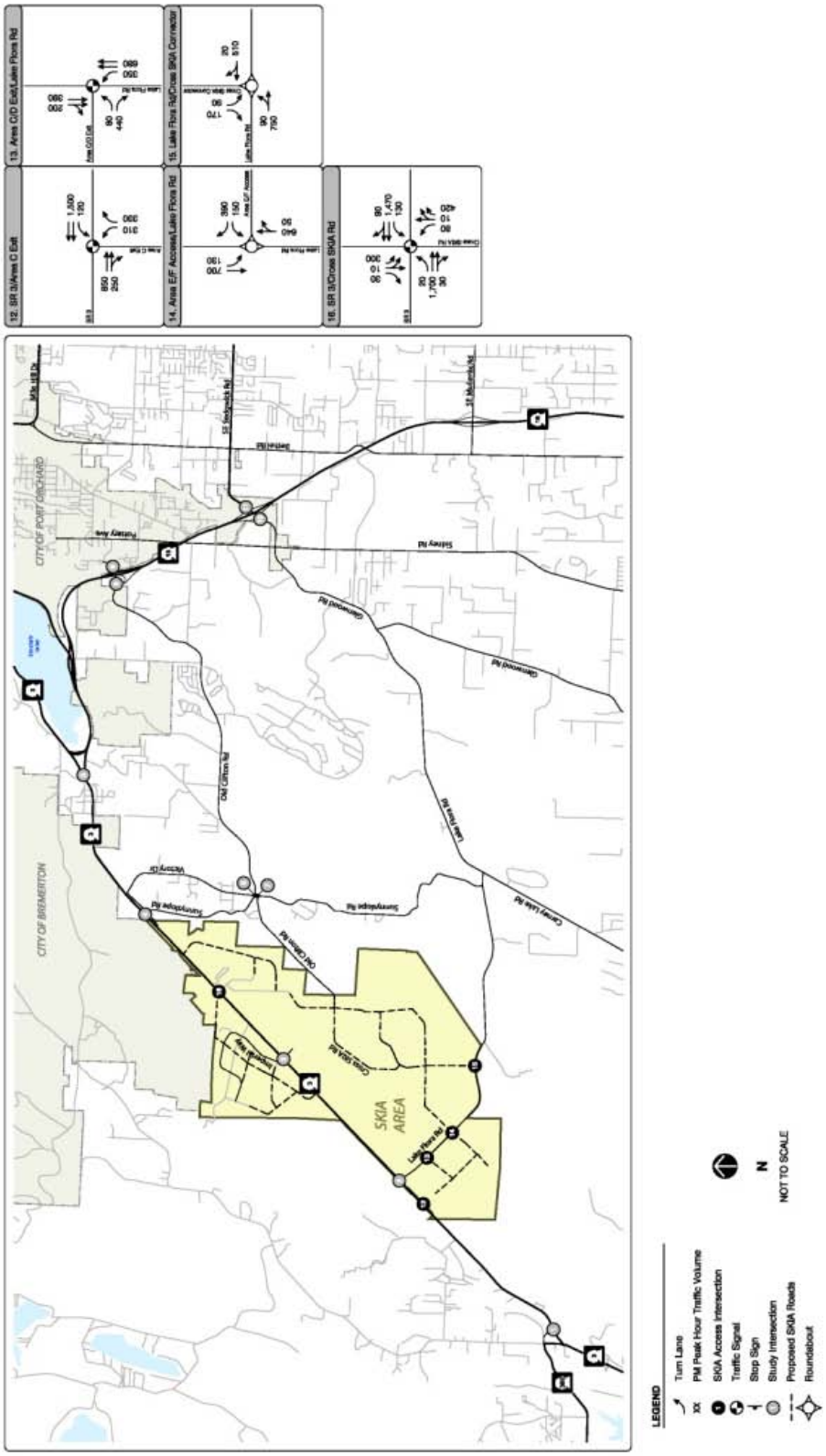
As described in the previous section, the development of Alternatives 2 and 3 lead to additional traffic passing through the Collision Analysis Location (CAL) identified by WSDOT at SR 3 near Lake Flora Road. Implementing the intersection improvements described above to improve traffic operations at the SR 3 / Lake Flora Road intersection should also reduce the number of collisions, particularly those where failure to yield was the primary cause. While this impact is considered less-than-significant with mitigation, continued monitoring of this location should continue after the implementation of any improvements at the intersection.

SKIA Site Access Evaluation

In addition to existing intersections, there are five new access intersections assumed under Alternatives 2 and 3. These new access intersections are shown in Figures 1-6 and 1-7. The list below describes each of the intersections:

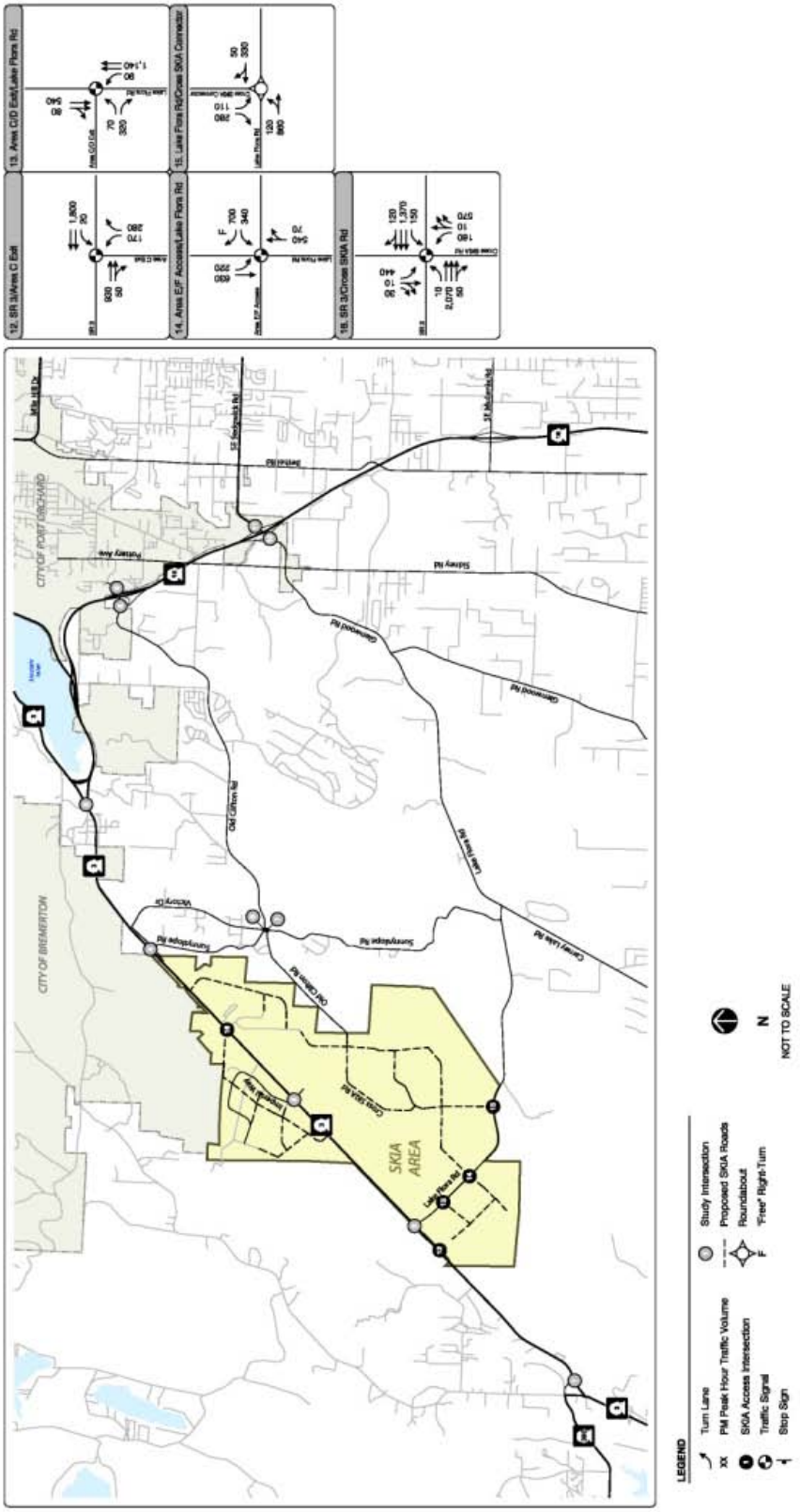
- Intersection 12: Analysis Area C and SR 3. This intersection is necessary to provide access to Analysis Area C and is located southwest of the existing Lake Flora Road / SR 3 intersection.
- Intersection 13: Analysis Area C/D and Lake Flora Road. This intersection is necessary to provide access to parts of Analysis Areas C and D and is located southeast of the existing Lake Flora Road / SR 3 intersection.
- Intersection 14: Analysis Area E/F and Lake Flora Road. This intersection is necessary to provide access to parts of Analysis Areas E and F and is located southeast of the existing Lake Flora Road / SR 3 intersection.
- Intersection 15: Cross-SKIA Connector and Lake Flora Road. This intersection is the southern terminus of the proposed extension of the Cross SKIA Connector. It provides access to Analysis Areas E, F, A, and G.
- Intersection 16: Cross SKIA Connector / Analysis Area B Access / SR 3. This intersection is located at the current northern terminus of the Cross SKIA Connector. It is envisioned that an extension of the Cross SKIA Connector would proceed into Analysis Area B, providing additional access and circulation in the northeast portion of the Olympic View Industrial Park.

Figure 1-6: PM Peak Hour Traffic Volumes and Lane Configurations SKIA Access Intersections – 2030 Alternative 2



Source: Fehr & Peers, 2011

Figure 1-7: PM Peak Hour Traffic Volumes and Lane Configurations SKIA Access Intersections – 2030 Alternative 3



Source: Fehr & Peers, 2011

Roundabout intersections are recommended for the Cross SKIA Connector / Lake Flora Road intersection and the intersection of Analysis Area E/F Access / Lake Flora Road.

Public Services

Impacts to public services from development under the proposal would be the greatest under Alternative 3, but additional revenues from new development would mitigate he impacts by providing additional staffing and facilities. Alternative 2 would have less impact, and its impacts are also expected to be mitigated by additional revenues from the new development. Alternative 1 would have the least impact.

Mitigation measures can be taken to prevent or further minimize environmental consequences to public services. Recommended mitigating measures include:

- Coordinate with South Kitsap Fire and Rescue and Bremerton Police Department during final design, construction, and operation of future development under proposed action to ensure that reliable emergency access is maintained.
- Reduce public safety impacts thru adherence to CPTED design standards.

Utilities

Stormwater

Proposed Plan Features

- All sites developed within SKIA should be required to use LID as its primary stormwater management approach. The emerging practice of LID has the ability to mitigate water quality impacts of development in a more effective manner than conventional stormwater treatment practices. Additionally, LID can address water quantity by reducing run-off and recharging groundwater. In till soils, LID can reduce the size of any required detention and flow control facilities and in outwash soils LID can often be used in place of detention facilities for stormwater flow control.
- LID street standards should be implemented that apply to all new roads in SKIA. Example street sections are shown in Figure 3.8-3.
- The City's stormwater utility fee structure should be used to encourage the use of exceptional uses of LID and impervious surface limitations. The City of Bremerton established its stormwater utility as codified in BMC 15.04. The purpose of the utility is to provide for the operation and maintenance of the

stormwater system for the collection and treatment of surface drainage in the City.
- Green building standards, such as LEED, should be encouraged or required for all new development in SKIA.

Applicable Regulations and Requirements

- Water quality and quantity impacts can be mitigated by the practices required by the City's regulatory process for stormwater (BMC 15.04).

Water and Wastewater

Proposed Plan Features

- Green building standards, such as LEED should be encouraged or required for SKIA. Development to such standards can typically achieve 30% or more conservation for non-process related water consumption for domestic fixtures and irrigation.
- New wastewater treatment should be encouraged to be provided with satellite MBR wastewater plants that can produce effluent with sufficiently high quality as to be re-used as reclaimed water.

Applicable Regulations and Requirements

- Bremerton Municipal Code 15.02 and 15.03 set forth standards for water and wastewater with which all development must comply
- Future development would comply with adopted City policies and regulations in the City's Water System Plan (2005), Wastewater Comprehensive Plan (date), and SKIA Sewer Planning (2008) documents. The City of Bremerton's Water and Wastewater Capital Investment Plans are continually updated. As water demand forecasts are updated, then more detailed evaluation/modeling will be used to plan water and wastewater service to the study area.

Other Mitigation

Alternative 1

- The water system in the Olympic View Industrial Park would be expanded locally to serve new development in Analysis Areas A and B.
- New water mains would be extended into Analysis Area G from the existing 10" main extended to Harry Earl Road.
- Development in Analysis Areas C through F would be expected to rely on individual wells on an interim basis until new water mains

are extended into these areas as part of an overall city capital improvement program.
- The wastewater collection system in the Olympic View Industrial Park would be expanded locally to serve new development in Analysis Area B.
- Development in other areas will be served on an interim basis by private on-site septic systems.

Alternative 2

- Water source, distribution, and storage analysis is needed to determine the extent and nature of improvements needed.
- The water transmission main between the City of Bremerton and SKIA would require expansion and new trunk lines and distribution lines would be required to serve areas of development.
- The amount of water storage in SKIA would need to be increased to account for the new flows.
- The wastewater collection system in the Olympic View Industrial Park (Analysis Area B) would require expansion to serve new development in this area. The wastewater treatment lagoon system would be upgraded to a ±0.2MGD MBR plant.
- A satellite MBR plant with a capacity of ±0.4MGD would be required to serve Analysis Areas C, D, and E.
- New interim on-site septic systems may be required to serve Analysis Areas A and G.
- New interim on-site septic systems and a small satellite community treatment system would be required to serve development in Analysis Area F.

Alternative 3

- Water source, distribution, and storage analysis is needed to determine the extent and nature of improvements needed.
- The water transmission main between the City of Bremerton and SKIA would require expansion and new trunk lines and distribution lines would be required to serve areas of development.
- The amount of water storage in SKIA would need to be increased to account for the new flows.
- New development in SKIA area would be connected to the City of Bremerton Wastewater treatment Plant via a new large force main and pump station(s). New gravity sewers would be installed to serve the developed areas and flow to SR-3 where flows would be pumped to the City of Bremerton.

1.5 Significant Unavoidable Adverse Impacts

There are not significant unavoidable adverse impacts identified for any of the elements of the environment except transportation and utilities. Significant unavoidable adverse impacts associated with transportation and utilities are described below.

Transportation

Under Alternative 2, the intersection of SR 3 / Old Clifton Road experiences a significant and unavoidable impact to traffic operations even with implementation of the Belfair Bypass mitigation measure. Under Alternative 3, there are four intersections that will have significant unavoidable traffic operations impacts. These intersections are listed below:

- SR 3 / Old Clifton Road
- SR 3 / Sunnyslope Road
- SR 3 / Imperial Way
- SR 3 / Cross SKIA Connector

If Alternative 3 is implemented, the operations on SR 3 from Imperial Way to SR 16 are expected to be poor, even if the roadway is widened to four lanes. To avoid this traffic operations impact, SR 3 will have to be widened to six lanes, or the segment will have to be reconstructed as a freeway with grade separated intersections. As described in Section 3.6.9, both of these options are considered infeasible.

Utilities

All of the alternatives cited will result in increased demand for water and wastewater services and impacts to ground and surface waters associated with increased development. The application of the use of advanced sustainable water and wastewater systems, Low-Impact Development (LID), and other green building strategies should minimize these impacts to the greatest extent possible.

1.6 Major Issues to be Resolved

Key issues to be resolved by the City in the decision-making process include the overall magnitude of development that should be planned for in the industrial area, whether the industrial area should be reduced to allow for a future commercial center, and the extent and funding of public improvements that should be provided in SKIA.

Section 2 - Proposed Action and Alternatives

2. DESCRIPTION OF THE PROPOSAL AND ALTERNATIVES

2.1 Introduction

Overview of the Proposed Action

The action proposed by the City of Bremerton consists of the following related actions:

1 Adoption of an ordinance designating the South Kitsap Industrial Area (SKIA), shown in Figure 2-1, as a planned action for the purposes of the State Environmental Policy Act (SEPA) compliance, pursuant to RCE 43.21.031 and WAC 197-11-164. The planned action designation would apply to development of proposed commercial and industrial uses of the type and intensity established in the ordinance and considered in this EIS.

2 Adoption of a SKIA Subarea Plan, consistent with the City's Comprehensive Plan and the Washington Growth Management Act (GMA).

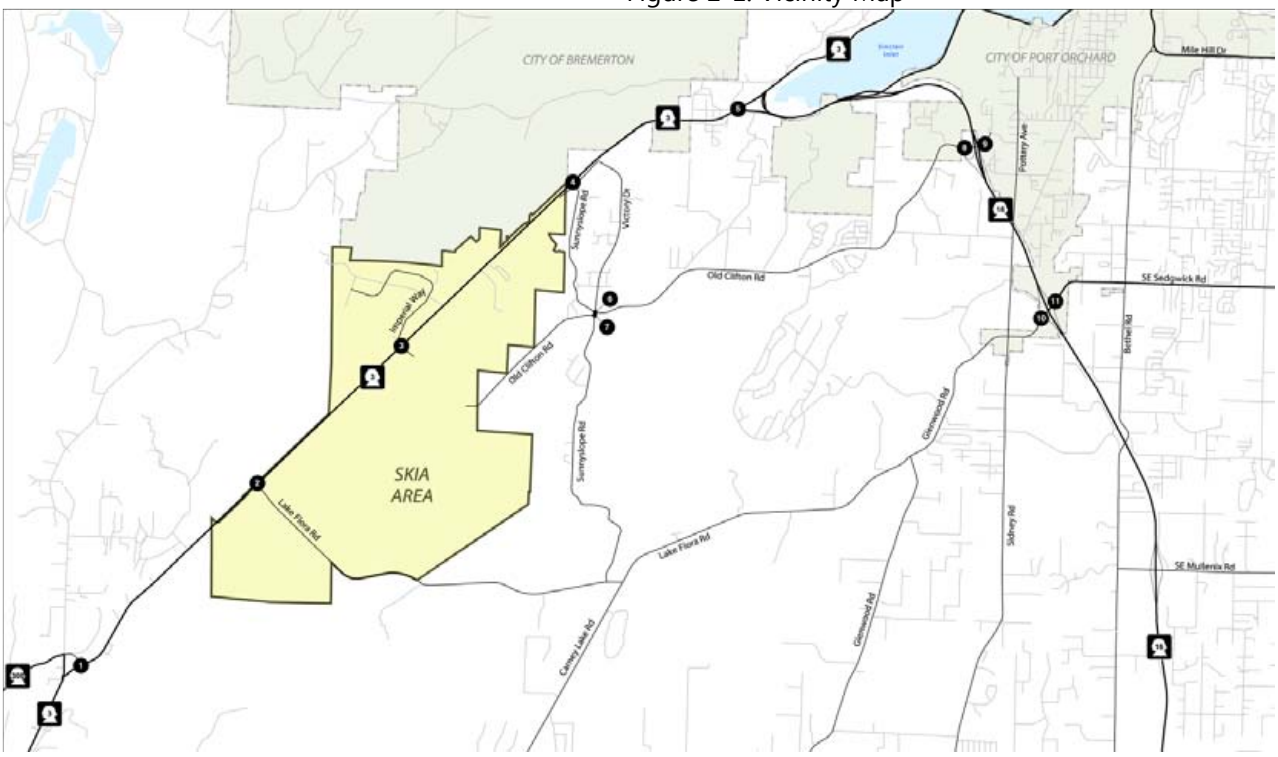
3 Updated development standards to implement the Subarea Plan, including new or revised zoning designations, low impact development standards and other measures that support sustainable economic development and greenhouse gas reduction.

Study Area

The SKIA subarea consists of approximately 3,590 acres[1] located in south central Kitsap County, adjoining both the north and south sides of SR 3 and located just northeast of the boundary with Mason County. It is surrounded by unincorporated Kitsap County to the northwest, east and south, and the unincorporated Belfair Subarea of Mason County to the west. Please see Figure 2-1.

[1] Kitsap County Assessor Parcel Data. August 2010.

Figure 2-1: Vicinity Map



Source: Fehr & Peers, 2010.

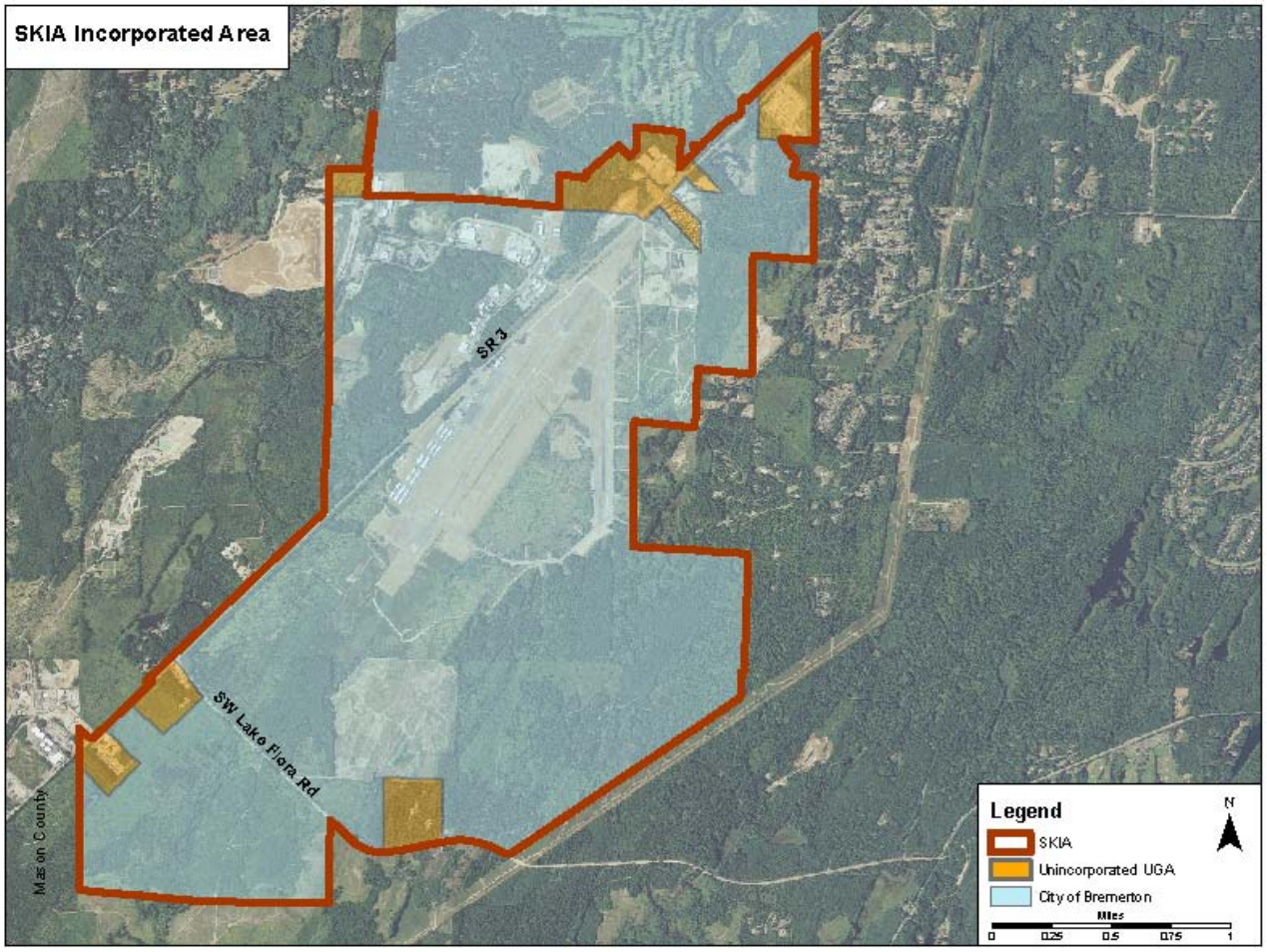
SKIA lies within the southernmost extent of the City of Bremerton UGA. The majority of the subarea is part of the incorporated City of Bremerton, although small areas along the northern and southern boundaries is in unincorporated Kitsap County (See Figure 2-2). Of the approximately 3,590 acres in the subarea, approximately 265 are in the unincorporated area.

Background

In 2008, the City of Bremerton amended the Comprehensive Plan to add a designation for the SKIA Manufacturing/Industrial Center. The Plan describes the SKIA subarea as follows:

> *The South Kitsap Industrial Area (SKIA) has been long established by Kitsap County as an Urban Growth Area (UGA), and is identified in the Vision 2040 Regional Plan by Puget Sound Regional Council as one of eight formally designated "Manufacturing /Industrial Centers."*
>
> *The Port of Bremerton owns a significant portion of the property within SKIA, with their holdings being the Bremerton National Airport and the Olympic View Business and Industrial Parks, each accessed from State Highway 3.*

Figure 2-2: Incorporated/Unincorporated Areas



Source: AHBL, 2011

The SKIA Manufacturing/Industrial Center (SKIA MIC) will retain a different form of urban development than Bremerton's current regional or district centers. The physical size and location of this center allows strategic focused economic growth and it is expected to receive a significant proportion of Kitsap's employment growth in the manufacturing and industrial sectors.

It is expected that following substantial annexation of SKIA that the City will prepare a detailed sub area plan that addresses such items as development standards and permitted uses, provision of urban services and infrastructure, and the protection of essential public facilities such as the Bremerton National Airport (as required by RCW 36.70.547)
Source: City of Bremerton, 2008

In 2009 the City was awarded a Climate Showcase Communities grant from the US Environmental Protection Agency to prepare a subarea plan and Planned Action EIS for SKIA. As described in the grant application, key objectives are to:

- Develop policies and programs to support sustainability and reduce GHG emissions via the State Environmental Policy Act (SEPA) environmental review process;
- Integrate green/low-impact development techniques, storm-/wastewater recycling, and greenhouse gas (GHG) emissions reduction strategies into the City's Comprehensive and Subarea planning processes; and
- Support green economic development and job creation in SKIA for years to come.
- Allow the City to proactively address development and implement carbon emissions reductions techniques while achieving economic development goals.

Objectives of the Proposal

As described above, the Proposed Action is intended to achieve the following objectives:

- Enhance sustainability and reduce greenhouse gas emissions
- Incorporate low impact development techniques
- Promote job creation for the region
- Explore options for clean technology economic development
- Provide environmental stewardship
- Incorporate green and sustainable infrastructure
- Provide regional leadership in sustainable economic development

2.2 Planning Context

Growth Management Act

The Growth Management Act (GMA) sets a framework for the planned and efficient growth of communities and protection of environmental and natural resources, and provides direction for developing comprehensive plans and subarea plans. Cities and counties planning under GMA must prepare and update Comprehensive Plans consistent with the requirements of GMA, and implement them through their capital improvement plans, programs and development regulations. Kitsap County and the City of Bremerton are required to plan under the GMA. Policy direction for SKIA is currently provided by the Bremerton GMA Comprehensive Plan.

Vision 2040

Vision 2040 is a regional plan prepared by the Puget Sound Regional Council (PSRC) that establishes the land use and transportation framework for the four county region encompassing Snohomish, King, Pierce and Kitsap counties. Vision 2040 designates SKIA as one of eight Manufacturing/Industrial Centers (MIC) within the four-county region. The Plan recognizes MICs as important employment locations that serve both current and long-term regional economic objectives.

Vision 2040 calls for the provision of infrastructure and services in MICs necessary to serve intensive manufacturing and industrial activity. MICs are given funding priority both for transportation infrastructure and for economic development.

City of Bremerton Comprehensive Plan

The City of Bremerton's GMA-compliant Comprehensive Plan provides general policy direction for promoting economic growth and attracting new employment opportunities Citywide. While these policies do not address SKIA specifically, they do support the City's efforts to plan for development within SKIA.

In 2008, the City amended the Comprehensive Plan to add the "SKIA Manufacturing/Industrial Center (SKIA MIC)" as a new center type. As stated in the 2008 amendment, the SKIA MIC is "expected to retain a different form of urban development than Bremerton's current regional or district centers. The physical size and location of this center allows strategic focused economic growth and it is expected to receive a significant proportion of Kitsap County's employment growth in the manufacturing and industrial sectors." This policy direction is consistent with direction for Regional Manufacturing/ Industrial Centers provided in *Vision 2040*.

A "MIC (Manufacturing/Industrial Center)" land use designation was also adopted as part of the City's 2008 Comprehensive Plan amendment and applied to SKIA. The MIC designation accommodates large scale and heavy industrial and manufacturing uses that cannot be easily mixed with other activities. Its focus is on providing regional growth opportunities for industrial development.

Development Regulations

The entire SKIA subarea is zoned as Industrial by the City of Bremerton. The intent of the Industrial (I) zone is to accommodate large-scale and/or heavy industries in a manner that reduces impact to the community while

meeting industry's needs for easy access, large sites, and locations that do not cause conflicts with residential and other less intense use areas.

Areas within the City that are adjacent to SKIA to the north are zoned Industrial Park (IP) and City Utility Lands (CUL). The intent of the Industrial Park (IP) zone is to provide an environment for and conducive to a broad range of existing and future light industrial, office and large retail uses. The intent of the City Utility Lands (CUL) zone is to preserve resource-related functions of land, and to protect watersheds and timberlands.

2.3 Planned Action Process

Planned Action Overview

According to WAC 197-11-164, a Planned Action is defined as a project that has the following characteristics:

- is designated a Planned Action by ordinance;
- has had the significant environmental impacts addressed in an EIS;
- has been prepared in conjunction with a comprehensive plan, subarea plan, master planned development, a phased project, or with subsequent or implementing projects of any of these categories;
- is located within an urban growth area;
- is not an essential public facility; and
- is consistent with an adopted comprehensive plan.

The City will follow applicable procedures, described generally below, to review proposed projects within the study area through the land use review process associated with each project to determine their impacts and impose any appropriate development conditions.

Planned Action EIS

The significant environmental impacts of projects designated as Planned Actions must be identified and adequately analyzed in an EIS (WAC 197-11-164). Planned Action projects should only be designated when a city can reasonably analyze the area-specific impacts that would occur as a result of the types of projects designated.

Planned Action Ordinance

WAC 197-11-168 requires the ordinance designating the Planned Action to include the following:

- a description of the type of project action being designated as a Planned Action;

- a finding that the probable significant environmental impacts of the Planned Action have been identified and adequately addressed in an EIS; and
- the identification of mitigation measures that must be applied to a project for it to qualify as a Planned Action.

Following the completion of the EIS process, the City will designate the Planned Action by ordinance (see Appendix A for the draft Planned Action Ordinance). The ordinance will identify mitigation, as described in this EIS, which would be applicable to future site-specific development actions. Mitigation could include requirements that would apply to all development in the study area as well as measures that may apply on a case-by-case basis.

2.4 Environmental Review

Scope of Review

Pursuant to SEPA Rules (WAC 197-11-408 through 410), a Determination of Significance was issued by the City on September 30, 2010 for the subarea plan, proposed zoning regulations and the associated Planned Action level of review. Interested citizens, agencies, organizations, and affected tribes were invited to submit comments on the scope of the Draft EIS during the scoping period, which closed on October 20, 2010. No comments on the EIS scope were received. The Determination of Significance and Scoping notice are included in Appendix B of the Draft EIS.

This EIS addresses the following topics

- **Natural Environment**
  - Earth – hydric soils, critical areas, geologically hazardous areas
  - Water – wetlands, water supply and recharge, waterways
  - Plants and Animals – wildlife, fisheries (anadromous fish passage, rearing habitat in Sinclair Inlet)
- **Air Quality** – Greenhouse gas emissions
- **Land Use/Plans and Policies** – Compatibility with existing and planned development in surrounding area; consistency with Bremerton National Airport operations; relationship to relevant plans, policies and regulations; employment analysis
- **Cultural Resources**
- **Aesthetics** – Quality of urban environment, design and character of existing buildings, building height, bulk and scale, internal and external compatibility

- **Transportation** – Level of service , level of auto/truck traffic generation, rail connections, future traffic flows
- **Public Services** – Police, fire
- **Utilities** – Sanitary sewer, domestic water, stormwater

Other Environmental Review

A portion of the SKIA study area, located along South Lake Flora Road, has been identified as a possible site for a future Washington Department of Corrections Reception Center. This site, together with other sites identified by the Department of Corrections, is scheduled to be studied this year in a separate SEPA process lead by the Department of Corrections. Should property within SKIA be selected for the future Department of Corrections facility, subarea plan goals and land use designations will be modified as needed to recognize this use.

While recognizing this ongoing process, until a decision is made, the site is assumed to be incorporated in the SKIA subarea plan alternatives as described later in this Chapter and analyzed in this EIS.

SEPA/GMA Integration

WAC 197-11-210 authorizes GMA jurisdictions to integrate the requirements of the SEPA and GMA. The goal is to ensure that environmental analysis under SEPA occurs concurrently with, and as an integral part of, the planning and decision-making process under GMA. At a minimum, environmental analysis at each stage of the GMA planning process should address impacts associated with planning decisions. Analysis of environmental impacts in the GMA planning process can result in better-informed GMA planning decision as well as avoid delays and duplication.

WAC 197-11-228 states that the appropriate scope and level of detail of environmental review should be tailored to the GMA action under consideration; jurisdictions may modify SEPA phased review as necessary to track the phasing of GMA actions; and the process of integrating SEPA and GMA should begin at the early stages of plan development.

The City of Bremerton has elected to follow an integrated SEPA/GMA process for the SKIA subarea Plan and Planned Action EIS. Integration of the environmental analysis with the planning process informs the preparation of a GMA compliant subarea plan and facilitates coordination of public involvement activities. The information contained in this EIS will support future decisions in identifying/refining a Preferred Alternative, related Comprehensive Plan amendments, and implementing regulations.

Public Involvement

Public involvement, review, and comment are an important element of the City's SKIA planning and EIS process. The public involvement program is designed to meet the following objectives.

- To obtain input from all interested members of the community through all aspects of plan development.
- To encourage two-way communication between the City, its partner agencies, and community stakeholders.
- To develop a Subarea Plan that will have the support of the community and guide development in SKIA over the next 20 years.
- To provide early opportunities for interested members of the public, agencies and other stakeholders to comment on the Planned Action EIS and ordinance

The following discussion summarizes public involvement activities that have already occurred and those that are planned for the future.

Sustainable SKIA Webpage

The Sustainable SKIA website, located at http://www.SustainableSKIA.com on the City's website, provides information on project status, future meeting dates, published documents and analysis, contact people and other key information.

Stakeholder Meetings

In September 2010, the project team conducted interviews with individual stakeholders, property owners, businesses and special interest group representatives. The interviews provided the project team with an expanded understanding of priorities and concerns in the area as well as an opportunity to provide updated project information to those who were interviewed about the planning process.

Scoping and Vision Public Meeting

A workshop was held on October 13, 2010 to invite comments on the scope of the DEIS and the Comprehensive Plan vision statement. This meeting included an informal open house, with informational displays and staff available to meet one-on-one with participants, as well as a short presentation and question/answer session. Comments on the EIS scope were invited, although no specific comments on the EIS were received.

Advisory Group Meetings

In order to provide input on the planning process, the City created two advisory groups, the Technical Working Group and the Executive Committee. Each is described below:

- Technical Working Group (TWG). The purpose of the TWG is to review technical information, provide input and recommendations, and work collectively to refine components of the Subarea Plan. This group is comprised of senior technical staff from each of the regional jurisdictions, Port of Bremerton, SKIA property owners, Suquamish Tribe, Port Gamble/S'Klallam Tribe, South Kitsap Economic Development Alliance, Sustainable Bremerton, Kitsap Regional Coordinating Council, Hood Canal Coordinating Council, and the Puget Sound Naval Shipyard/Naval Base Kitsap.

  The TWG has met three times over the course of preparation of the subarea plan and EIS to review alternatives and provide technical input on aspects of plan development. Future TWG meetings are planned to obtain additional comment and direction on the subarea plan.

- Executive Committee (EC). The purpose of the EC is to provide policy-level input to the SKIA Subarea Plan project team and City of Bremerton. Relying on the TWG's technical expertise and review of work products before each EC meeting, the EC's focus is to provide input about key decision points, address different views shared by TWG members, and bring EC organizations' interests and concerns to the table. The EC includes elected and appointed officials from the following organizations: Kitsap County Commission, Pt. Orchard City Council, Bremerton City Council, Bremerton Planning Commission, Port of Bremerton Port Commission, Suquamish Tribal Council, Puget Sound Naval Shipyard, and Naval Base Kitsap.

  The EC has met three times over the course of preparation of the subarea plan and EIS to review alternatives and overall plan direction. Future EC meetings are planned to provide for inter-jurisdictional review, discussion and agreement regarding future direction and regional actions to support the subarea plan.

Draft EIS and Subarea Plan Public Meeting

A public meeting on the Draft EIS and Subarea Plan will be held on June 16, 2011. Please see the Fact Sheet for further information.

2.5 Proposed Action and Alternatives

Subarea Plan

As described above, the proposed action includes adoption of a SKIA Subarea Plan. Elements of the subarea plan include the following topics:

- Vision
- Natural Environment
- Economic Development
- Land Use
- Transportation
- Greenhouse Gases
- Infrastructure
- Implementation

A draft Subarea Plan has been prepared in an integrated manner with this EIS. The draft Plan identifies goals and strategies for each topic listed above and, in some cases, proposed strategies serve to mitigate impacts identified in this EIS. The draft Plan also defines a preliminary regulatory framework for consideration.

Following review of the draft Subarea Plan and EIS, the Subarea Plan will be revised and finalized, including revisions to draft goals and strategies, development of a capital facilities plan, and finalization of implementing regulations and other implementing measures.

Sustainability Measures

Sustainable low-impact development is a fundamental goal that underlies the subarea plan. Example actions to support sustainable development measures are listed below. These measures and other specific actions are considered in the subarea plan and this EIS.

- Adopt green building standards for public and private development
- Adopt low impact development standards, such as clearing limits, protection of native soils, tree canopy coverage, native landscaping and limits on effective impervious surfaces
- Provide incentives and standards to promote compact clustered development
- Provide for internal density transfers with SKIA to promote clustering and protect important critical areas
- Establish standards for energy efficient outdoor lighting to reduce light pollution and reduce energy consumption
- Promote green streets with integrated stormwater management via landscape elements
- Develop an off-street trail network that minimizes walking distances within development clusters
- Develop and implement ambitious mode split goals
- Provide low maintenance transportation infrastructure, such as roundabouts and LED lighting

- Require low impact development for stormwater treatment
- Encourage innovative and ultra-high performance water conservation
- Support reclaimed water and rainwater re-use where reclaimed water is not available

Alternatives Overview

This EIS evaluates three alternative scenarios for the SKIA subarea, but does not identify a preferred alternative. It is anticipated that, following review of this Draft EIS by the City, agencies and interested public, a final preferred alternative will be developed that falls within the range of the alternatives analyzed in this Draft EIS. The alternatives generally reflect different levels of employment growth and emphases on different categories of jobs and development types. The Draft EIS alternatives include:

- **Alternative 1** (No Action) – Assumes continuation of existing development trends, with no new measures to promote sustainable development, economic development or adoption of a planned action ordinance. Provides the least amount of new development and employment capacity among the alternatives.
- **Alternative 2** (Reduced MIC/Mixed Use Center) – Reduces the size of the MIC slightly to allow for a new mixed use center in the southwest corner of the subarea. Provides for an intermediate level of development and employment capacity.
- **Alternative 3** (Intensive MIC) – Provides for the greatest amount of new development and employment capacity among the three alternatives.

Key features associated with each alternative are summarized in Table 2-1 below. Each alternative is further described in this section.

Table 2-1: Alternatives Overview

Features	Alternatives 1 No Action	2 Reduced MIC / Mixed Use Center	3 Intensive MIC
Total new development (square feet)[1]	800,000	3,850,000	5,600,000
Total new employment (jobs)[2]	1,400	6,500	10,000
MIC Boundaries	No change	268 acre reduction	No change
Sustainability Measures	No	Yes	Yes
Planned Action Ordinance	No	Yes	Yes

Source: EA|Blumen, 2011

[1] See Appendix C for methodology.

[2] Assumes 20-year planning horizon. Assumes 1 employee/500 sf of building area. See Appendix C for methodology.

Analysis Areas

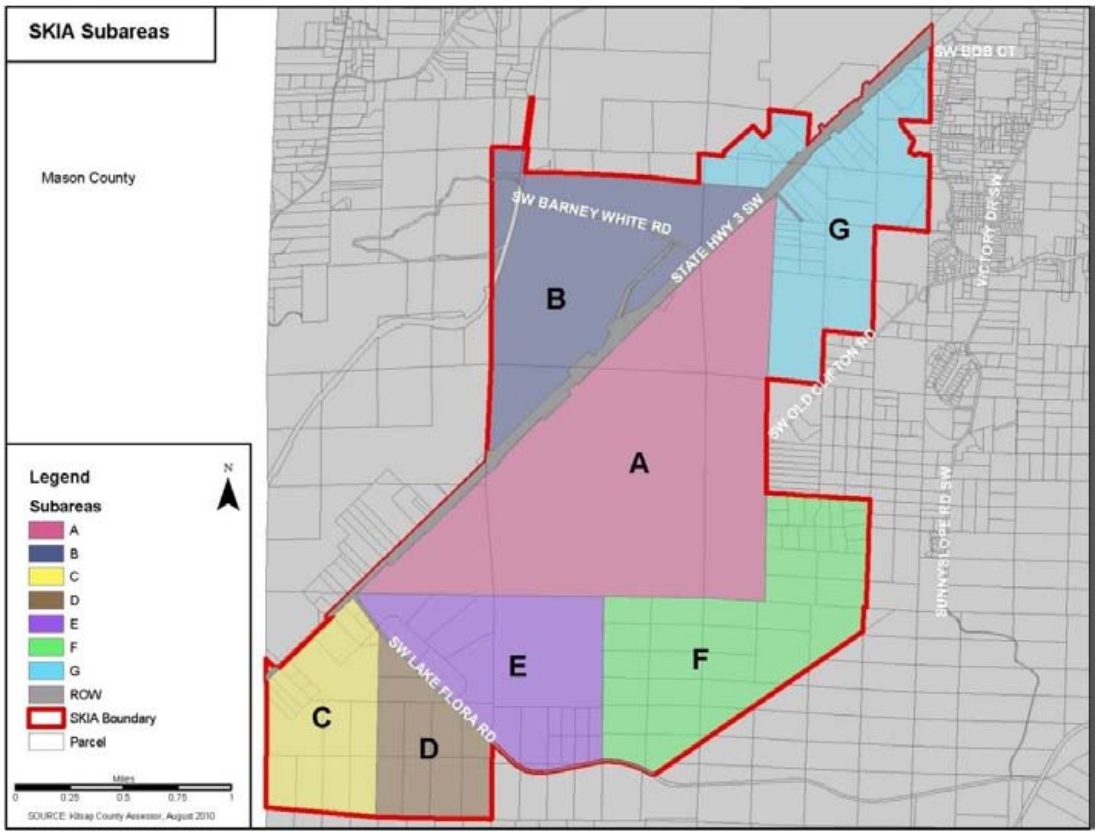
For the purpose of analysis and discussion in this EIS, SKIA has been divided into seven smaller analysis areas, referred to in this EIS as Areas A through G and shown in Figure 2-3. Each analysis area is briefly described in Table 2-2 below.

Table 2-2: SKIA Analysis Areas

Analysis Area	Acres	Existing Development Characteristics
A	1,090	Bremerton National Airport and surrounding property
B	596	Olympic View Business Park
C	280	Primarily undeveloped; scattered development includes warehouse, residences
D	181	Vacant, forest land
E	388	Primarily undeveloped forest land, scattered residences
F	592	Forest and undeveloped
G	464	Primarily undeveloped; scattered development includes warehouse, auto wrecking, residences, and recreational uses.

Source: Kitsap County Assessor's Office, EA|Blumen, 2011

Figure 2-3: Analysis Areas



Source: AHBL, 2011

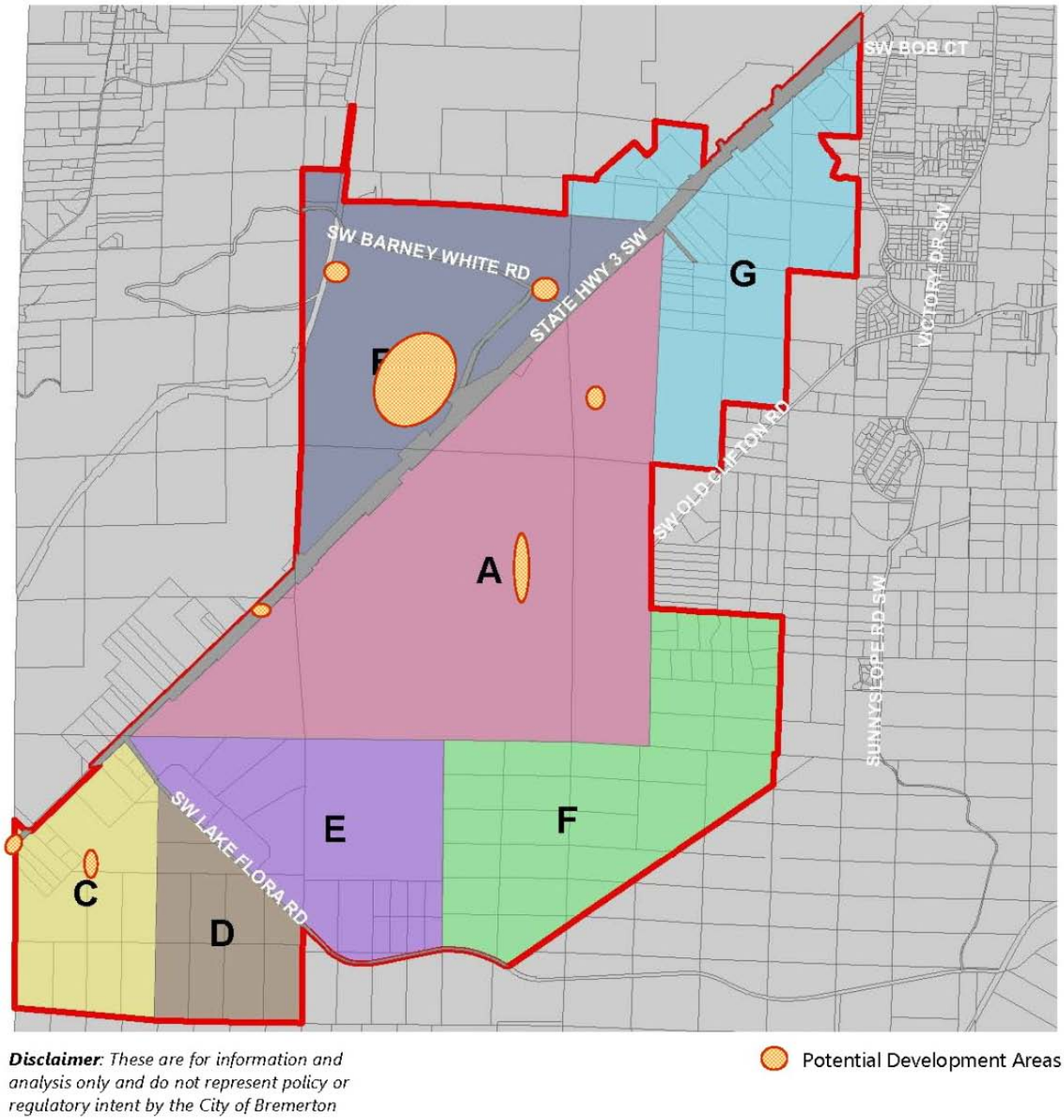
Alternative 1 (No Action)

Alternative 1 assumes limited growth over the 20-year plan horizon, based on a continuation of SKIA's historic average 4.6% share of countywide employment growth. Alternative 1 provides for 800,000 square feet of new industrial development, and capacity for approximately 1,400 additional employees.

The majority of new development is assumed to occur in the existing Olympic Business Park (Analysis area B), in the vicinity of the Bremerton National Airport (Analysis Area A). Additional development is assumed to occur north of the airport (Analysis Area G) and south of SW Lake Flora Road (Analysis Areas C and D), see Figure 2-3.

Figure 2-4 illustrates an estimate of the location and size of potential development area under Alternative 1. In this figure, the potential location of future development is estimated based on past development trends and availability of infrastructure and does not represent policy or regulatory intent by the City of Bremerton.

Figure 2-4: Alternative 1



Source: EA|Blumen, 2011

Infrastructure would be extended as needed to serve new development, but water and sewer service may not be extended to serve the entire area within the 20-year planning horizon. Similarly, the roadway network would not be expanded in a comprehensive manner, but new roadways would be extended to serve new development as it occurs.

Alternative 2

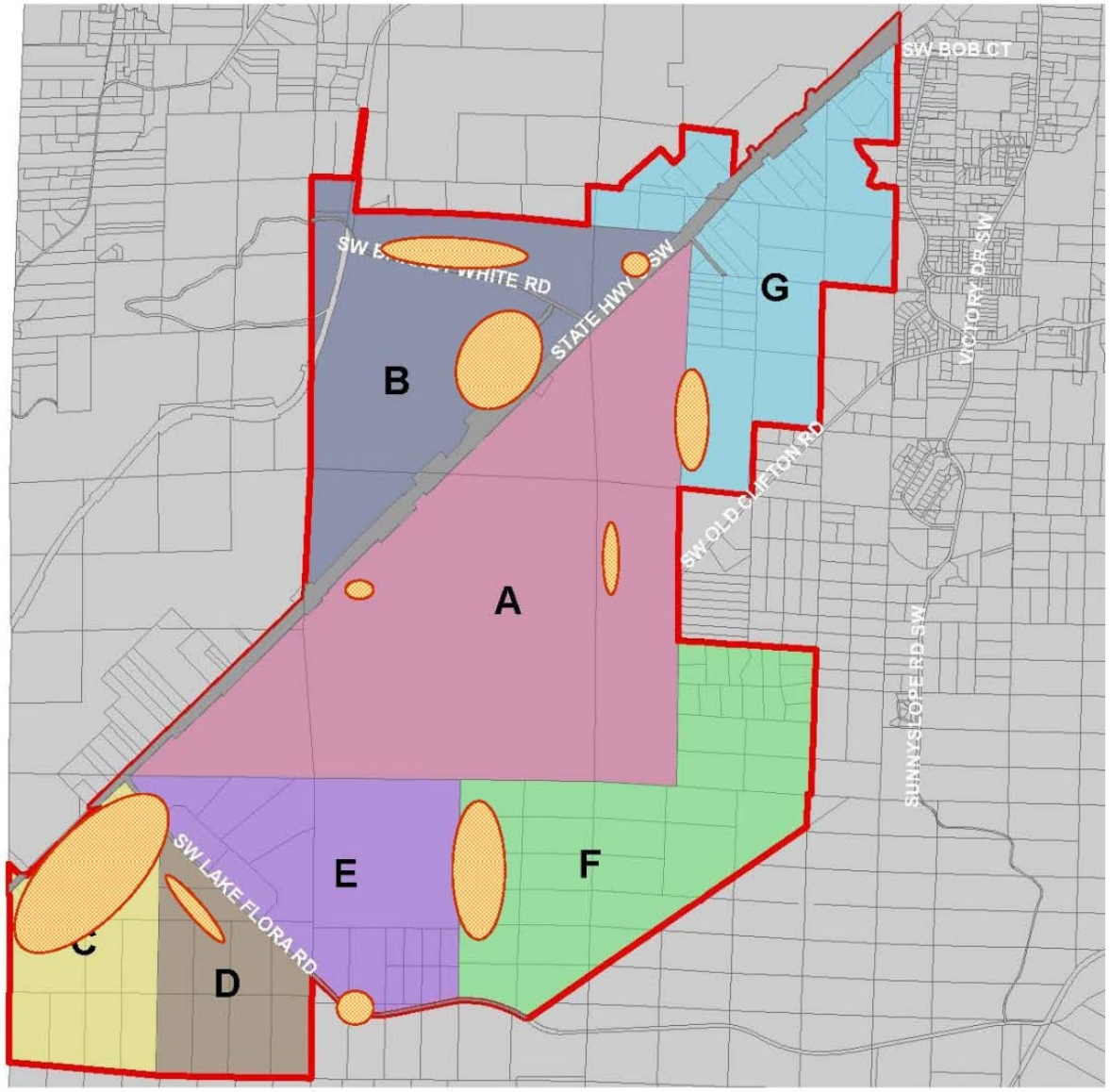
Under Alternative 2, an intermediate level of growth is assumed, providing capacity for an additional 5,000 employees in the MIC and an additional 1,500 new employees in a new mixed use center. The size of the MIC would be reduced by approximately 280 acres to allow for destination/ mixed use development in the southwest corner of the subarea (Analysis Area C). A total of 3,075,000 square feet of new development is assumed in the MIC, supported by an additional 775,000 square feet of new development in the mixed use center.

In the MIC, new development would be concentrated in the Olympic View Business Park, but would also occur throughout the subarea, see Table 2-3. Within the MIC, retail and commercial services to serve new industrial development is assumed. Development in the mixed use center could include retail, office and entertainment/recreational uses.

Figure 2-5 illustrates an estimate of the location and size of potential development area under Alternative 2. In this figure, the potential location of future development is estimated based on past development trends and availability of infrastructure and does not represent policy or regulatory intent by the City of Bremerton.

Infrastructure would be extended to serve the entire subarea, including water, sewer, stormwater facilities and the roadway network.

Figure 2-5: Alternative 2



***Disclaimer**: These are for information and analysis only and do not represent policy or regulatory intent by the City of Bremerton*

Source: EA|Blumen, 2011

Alternative 3

Under Alternative 3, the largest amount of employment capacity in the MIC would be provided, with a total new development of 5.6 million square feet providing employment capacity for 10,000 new employees. New development would be focused in the Olympic View Industrial Park (Analysis Area B) and the Bremerton National Airport (Analysis Area A), with an additional concentration in the areas directly south of the airport (Analysis Areas E and F). As with Alternative 2, additional development is anticipated throughout the subarea. See Table 2-3 for distribution of development capacity.

Figure 2-6 illustrates an estimate of the location and size of potential development area under Alternative 1. In this figure, the potential location of future development is estimated based on past development trends and availability of infrastructure and does not represent policy or regulatory intent by the City of Bremerton.

Infrastructure would be extended to serve the entire subarea, including water, sewer, stormwater facilities and roadway network.

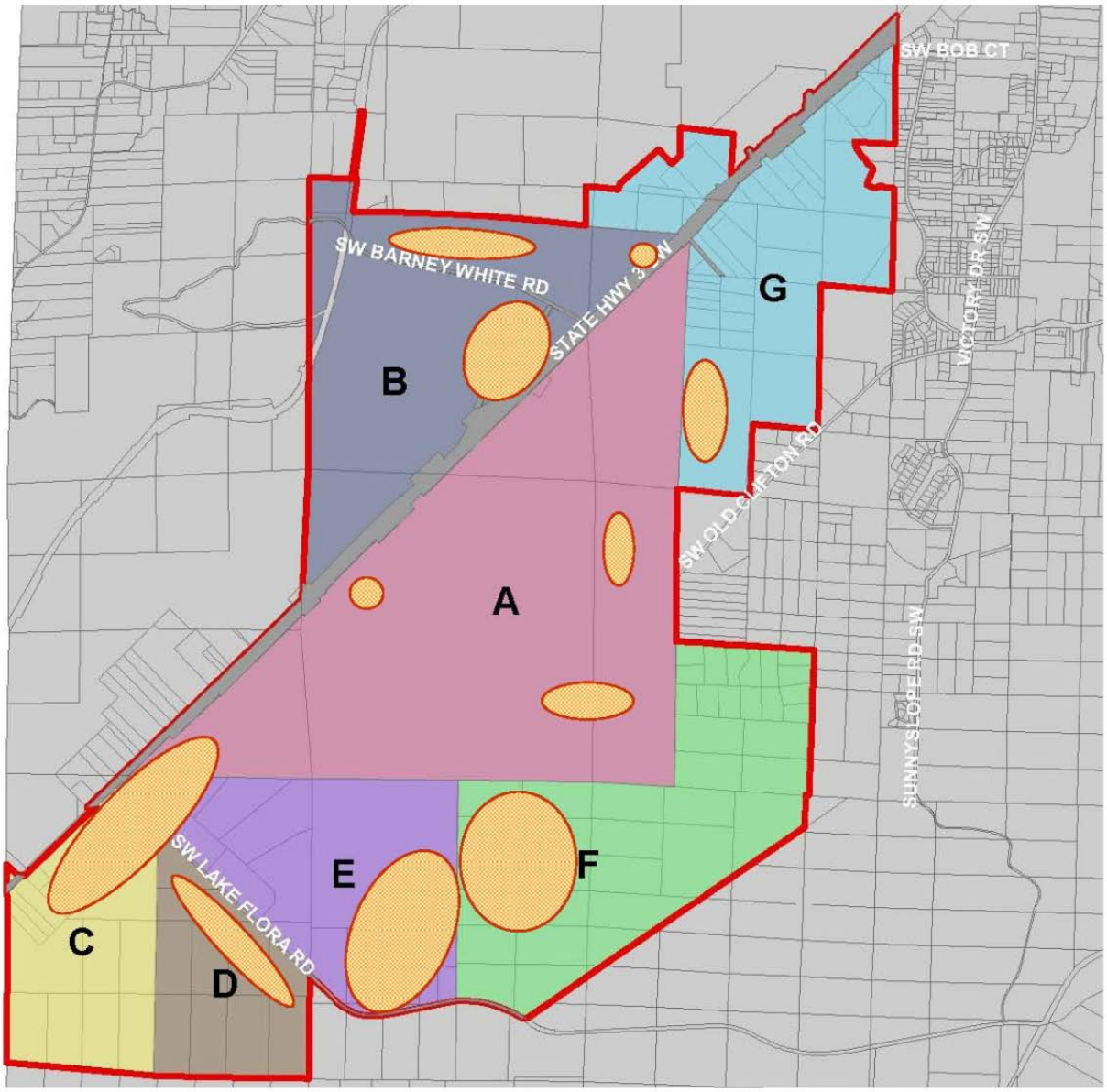
Table 2-3: Development and Employment Capacity by Analysis Area[1]

Analysis Areas	Alternative 1		Alternative 2		Alternative 3	
	Develop-ment Area	Jobs	Development Area	Jobs	Development Area	Jobs
A	300,000	400	350,000	500	800,000	1,400
B	400,000	800	1,175,000	1,500	1,525,000	2,200
C	25,000	50	775,000	1,500	525,000	1,000
D	25,000	50	225,000	400	425,000	800
E	--	--	425,000	850	900,000	1,800
F			575,000	1,150	1,000,000	2,000
G	50,000	100	325,000	600	425,000	800
TOTAL	800,000	1,400	3,850,000	6,500	5,600,000	10,000

Source: EA\|Blumen, 2011

[1] See Appendix C for methodology.

Figure 2-6: Alternative 3



***Disclaimer**: These are for information and analysis only and do not represent policy or regulatory intent by the City of Bremerton*

Source: EA|Blumen, 2011

2.6 Benefits and Disadvantages of Delaying Proposed Action

SEPA requires a discussion of the benefits and disadvantages of reserving, for some future time, the implementation of a proposal compared to possible approval at this time. In other words, the City must consider the possibility of foreclosing future options by implementing the proposal at this time.

Benefits to adoption of the new SKIA Subarea Plan include the following:

- Increased industrial employment opportunities in Bremerton and the region over the next 20 years;
- Updated capital facility plan designed to meet future SKIA growth;
- Standards to support greenhouse gas reduction and sustainable industrial economic development.

Delaying implementation will still allow for growth to occur on the basis of the current Comprehensive Plan and zoning regulations, but would not provide for sustainable development or promotion of economic development within SKIA. Delaying implementation may result in continued low density industrial development of the area, making it more difficult to efficiently provide public infrastructure and to meet the employment goals of the designated Manufacturing Industrial Center.

2.7 Major Issues to be Resolved

Key issues to be resolved by the City in the decision-making process include the overall magnitude of development that should be planned for in the industrial area, whether the industrial area should be reduced to allow for a future commercial center, and the extent and funding of public improvements that should be provided in SKIA.

Section 3 - Environmental Analysis

3.1 NATURAL ENVIRONMENT

3.1.1 Affected Environment

Earth

Earth resources consist of geological and soil features and processes, including slope stability, erosion, seismic events, and settlement. This section provides information about the topography, geology, and geologically hazardous areas in the SKIA study area.

The information summarized in this section is based on a review of geologic maps from the Washington State Department of Natural Resources Division of Geology (WDNR 2005) and the Soil Survey of Kitsap County (Kitsap County Soil Survey) prepared by the U.S. Department of Agriculture (USDA 1977).

Topography

The ground surface elevation within the study area varies between about 250 feet (ft) and 500 ft (above sea level). In the portion of the study area north of State Route 3 (Analysis Area B), the topography generally increases from about 250 ft in the northwest corner of the study area to about 450 ft along State Route 3. In the remaining portion of the study area, the topography gently undulates, with elevations typically ranging from between about 400 ft and 500 ft. Several ravines are scattered throughout the study area. In these areas, the ground surface is generally lower than the ranges provided above.

Geology

The geologic setting of the study area has been largely influenced by advancing and retreating glacial ice. During the Pleistocene Epoch (early Quaternary), 2 million to 10,000 years before the present (ybp), vast continental ice sheets advanced into the Puget Sound region. Evidence indicates that there were at least six advances of the continental ice into the region during the Pleistocene Epoch.

The latest glacial advance, referred to as the Vashon Stade of the Fraser Glaciation, occurred between about 22,000 and 13,000 years ago and had the greatest effect on the present-day landscape. As the continental glacier advanced into Puget Sound, the ice blocked the Strait of Juan de Fuca, forming a large fresh water lake. The lake drained to the south, out through the Black Hills south of Olympia and to the Pacific Ocean through the ancestral Chehalis River. Fine-grained sediments (silt and clay) from the glacier and from rivers and streams flowing from the Cascade and

Olympic mountains were deposited in the lake. As the glacier continued to advance, meltwater streams issuing from the glacier laid down extensive deposits of sand and gravel (advance outwash), filling the lake and burying much of the preglacial topography. The glacier advanced over the lake and outwash deposits, scouring out some areas and depositing glacial till over the surface in other areas. The deposits were highly consolidated by the weight of the overlying ice, resulting in highly compact soils. As the glacier retreated (ablated), recessional deposits of sand and gravel outwash, along with ablation deposits of silt, sand, and gravel, were laid down in some areas. Normal erosional and depositional processes further modified the postglacial landscape.

A general surficial geology map is provided on Figure 3.1-1. Typical descriptions of the geologic units encountered at or in the vicinity of the study area are presented below, ordered from the deepest (oldest) units to the most shallow (youngest) deposits.

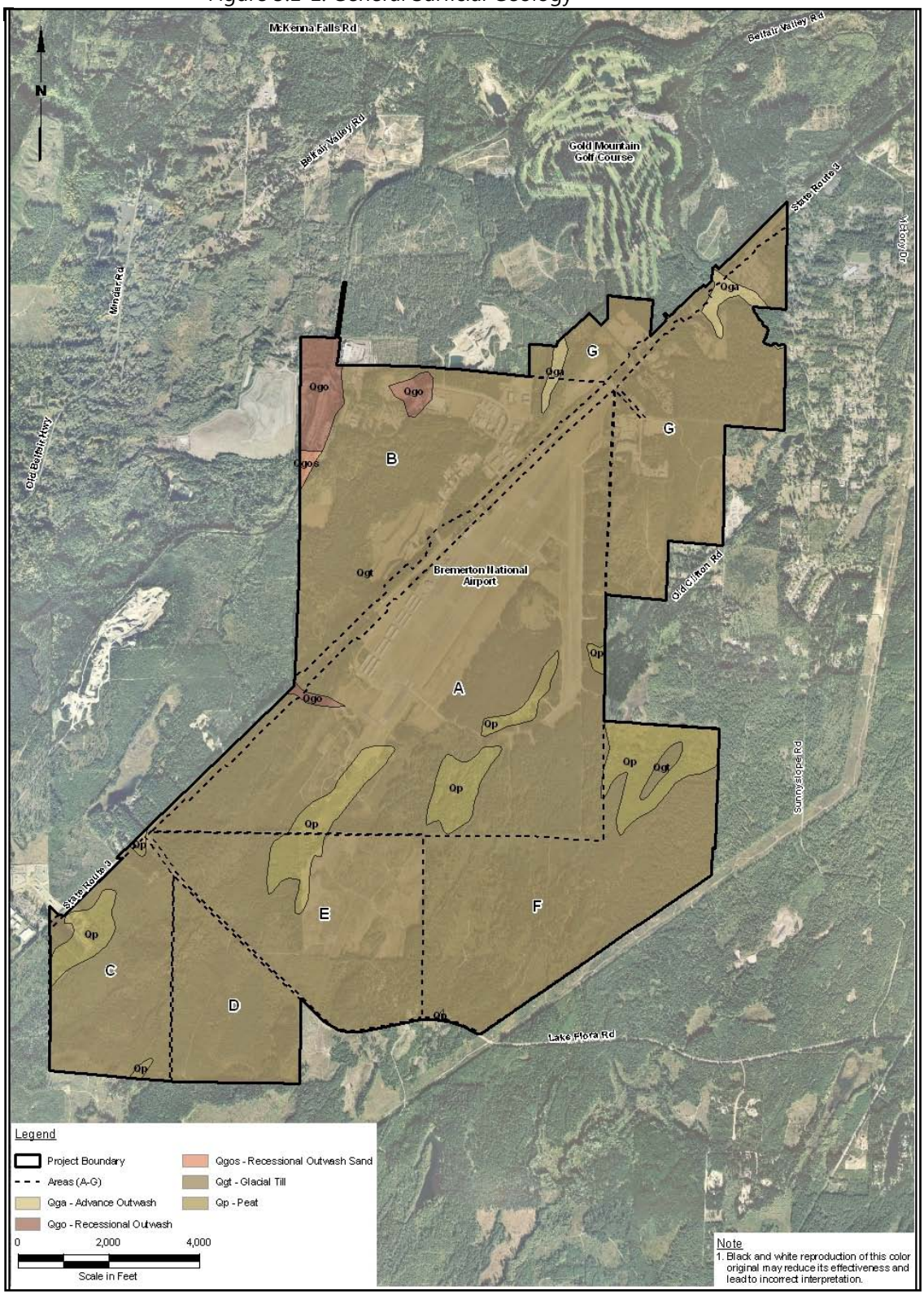
Advance Outwash

As shown on Figure 3.1-1, advance outwash (Qga) is mapped within two ravines located in the northern portion of the study area (one in Analysis Area G and one partially located in Analysis Areas A and G). Advance outwash frequently underlies glacial till and could be encountered in excavations that penetrate through the glacial till. Where till is not present, it may be overlain by recessional outwash or other younger soils. Advance outwash typically consists of dense to very dense, silty fine sand to coarse gravel with cobbles and occasional boulders. Advance outwash typically exhibits moderate to high permeability and high shear strength.

Glacial Till

As shown on Figure 3.1-1, the predominant soil unit mapped within the study area is Vashon glacial till (Qgt). Glacial till typically consists of a heterogeneous mix of gravelly sand with scattered cobbles and boulders in a clay/silt matrix deposited beneath glacial ice. This very dense unit is locally referred to as "hardpan." Glacial till typically exhibits high shear strength and low compressibility characteristics, as well as a low permeability that makes it generally unfavorable for infiltration of stormwater. Pockets and interbeds of coarse material within glacial till may yield significant quantities of groundwater when exposed in excavations. The uppermost several feet may be weathered and are generally less dense than the deeper, unweathered till.

Figure 3.1-1: General Surficial Geology



Source: Washington Department of Natural Resources, Division of Geology and Earth Resources, 2005

Recessional Outwash

Recessional outwash (Qgo and Qgos) is mapped as being present in the northwest corner of the study area (Analysis Area B) and in a ravine located west of the southern portion of the Bremerton National Airport (Analysis Area A). Soil defined as recessional outwash typically consists of stratified sand and gravel, although silt and fine-grained sand (recessional lacustrine deposits) can be common in portions of the unit. The granular portion of the recessional outwash is generally medium dense to dense, exhibits moderate to high shear strength, and has moderate to high permeability. Finer-grained portions of the recessional outwash are generally soft to stiff, exhibit low to moderate shear strength, and low to moderate permeability.

Peat

Significant deposits of peat (Qp) are mapped across much of Analysis Areas A, C, E, and F; but may be present elsewhere across the study area (See Figure 3.1-1). Soil defined as peat typically consists of organic-rich deposits of muck, silt, and clay formed in closed depressions since the Vashon Stade of the Fraser Glaciation. Peat is typically very soft to medium stiff, exhibits low shear strength, and is highly compressible.

Fill/Modified Land

Fill/modified land is not mapped within the study area, but is likely present in isolated areas. The term "modified land" is used to describe surficial geologic conditions that have been "modified" by human activities such as, but not limited to, cutting, filling, grading, and leveling. Fill material in the study area is likely composed of glacial soils that have been relocated and reworked, and may consist of silt, sand, and/or gravel mixtures. Dumped rock, construction debris, demolition rubble, abandoned foundations and utility services, and boulders may also be present. Locally, some efforts at compaction may have been made during placement of these fills, whereas in other areas limited efforts at compaction may have been made. Consequently, the relative density of the fill could vary widely and specific engineering properties of the fill materials could be very different from location to location.

Geologic Hazards

Washington State's Growth Management Act (GMA; Chapter 36.70A RCW) requires all cities and counties to identify critical areas within their jurisdictions and to formulate development regulations for their protection. Among the critical areas designated by the GMA are geologically hazardous areas, defined as such because of their potential susceptibility to erosion, landsliding, seismic, or other geologic events, or because of their past uses (i.e., landfills). These areas may not be suited

for development consistent with public health and safety concerns without conducting specific studies during the design and permitting process.

The City of Bremerton (City) defines and identifies geologically hazardous areas in its Critical Areas Ordinance (City of Bremerton Municipal Code Chapter 20.14.600). The City classifies geologically hazardous areas as high or moderate geologically hazardous areas.

Areas that are considered by the City to be high geologically hazardous areas meet either of the following criteria:

- Slopes that rise at an inclination of 40 percent or more (potential landsliding and/or erosion hazard)
- Slopes that rise at an inclination greater than 30 percent with any of the following additional criteria:
    - Unstable soil or shoreline classified as "unstable" (U), "unstable old slides" (UOS), "unstable recent slides" (URS), or "intermediate" by the U.S. Department of Agriculture Soil Conservation Service, U.S. Geological Survey, or the Washington State Department of Ecology Coastal Atlas (potential landsliding hazard).
    - Groundwater seepage or springs present on the slope or areas underlain by impermeable silts or clays (potential landsliding hazard).
    - Areas classified as "highly erodible" or "potentially erodible" by the U.S. Department of Agriculture Soil Conservation Service (potential erosion hazard).
    - Seismic areas subject to liquefaction from earthquakes including areas that have been filled to make a site more suitable (potential landsliding and seismic hazard).

An area is considered by the City to be a moderate geologically hazardous area if it meets any of the following criteria:

- Slopes that rise at an inclination greater than 30 percent *(potential landsliding or erosion hazard)*.
- Slopes between 15 percent and 30 percent with any of the following additional criteria:
    - Unstable soil or shoreline classified as "unstable" (U), "unstable old slides" (UOS), "unstable recent slides" (URS), or "intermediate" by the U.S. Department of Agriculture Soil Conservation Service, U.S. Geological Survey, or the

Washington State Department of Ecology Coastal Atlas *(potential landsliding hazard)*.
    - Groundwater seepage or springs present on the slope or areas underlain by impermeable silts or clays *(potential landsliding hazard)*.
    - Areas classified as "highly erodible" or "potentially erodible" by the U.S. Department of Agriculture Soil Conservation Service *(potential erosion hazard)*.
- Seismic hazard areas subject to liquefaction from earthquakes, areas with hydric soils, or areas of loose fill *(potential seismic hazard area)*.

See Figure 3.1-2 for mapped high and moderate geologic hazard areas.

Landslide Hazards

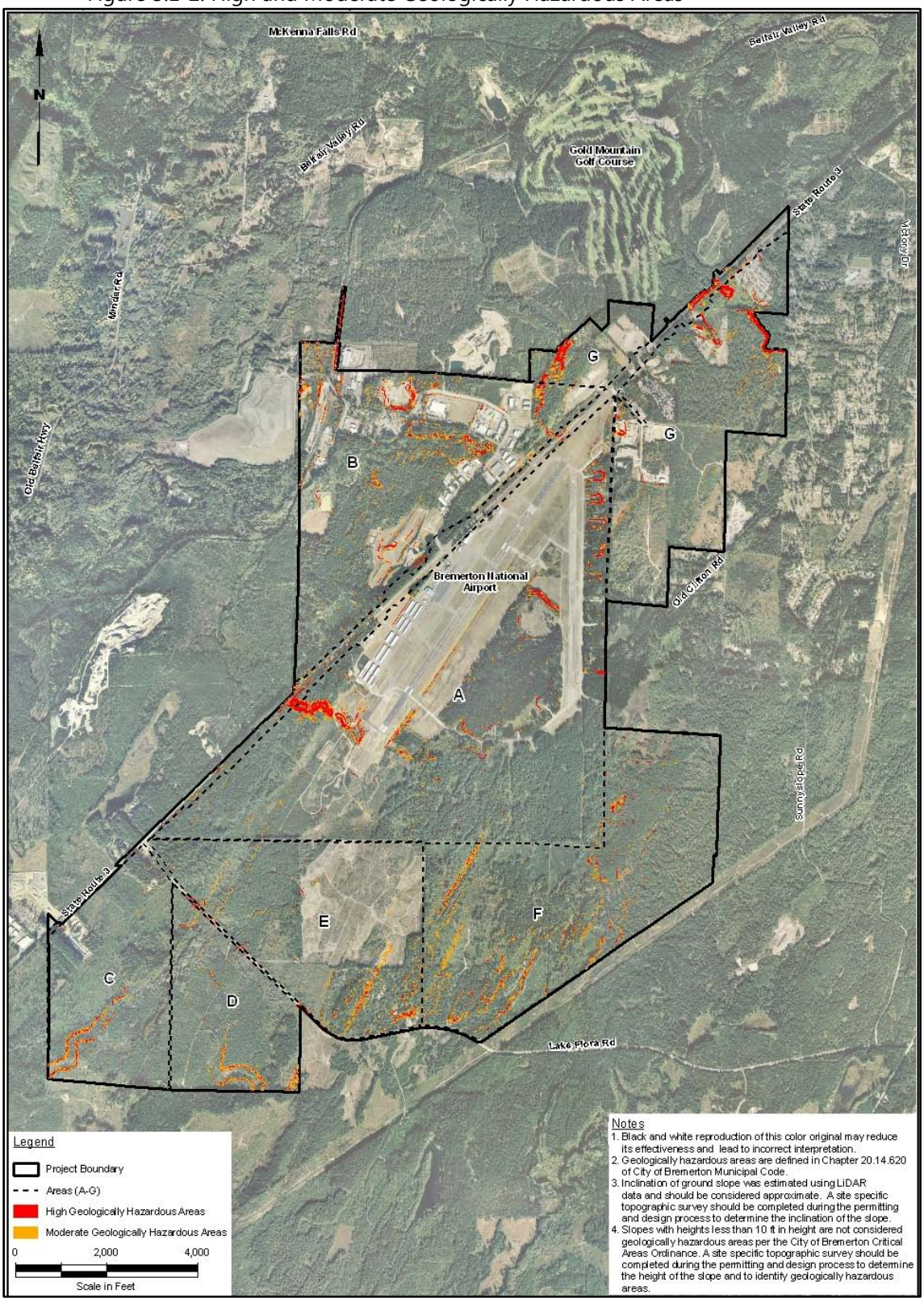
The degree of potential sloughing and sliding varies with the steepness, height, and potential planes of weakness of the slope. Steeper, higher slopes are more likely to create larger slides, whereas shorter slopes tend to produce smaller surficial sloughs. Slopes that are susceptible to movement under non-earthquake (static) conditions also present a hazard under earthquake loading conditions.

No known or potential slide areas are mapped in the study area in the Kitsap County Soil Survey (USDA 1977), published geologic maps (WDNR 2005), or the Washington State Department of Ecology Coastal Atlas (2010). Several locations within the study area have slopes greater than 40 percent, and would be classified as high geologically hazardous areas. The most significant of these high geologically hazardous areas correspond to the ravine located just south of the Bremerton National Airport (Area A) and the ravines located in Analysis Areas B and G. Additional portions of the study area have slopes between 30 and 40 percent, and are classified as moderate geologically hazardous areas. See Figure 3.1-2.

Erosion Hazards

Erosion hazard areas are defined as those areas containing soils that may experience severe to very severe erosion from construction activity. The susceptibility to erosion is generally a function of soil type, topography, occurrence of groundwater seepage or surface runoff, and the built environment. Several locations within the study area have slopes greater than 30 percent and are classified as being highly erodible or potentially erodible by the Kitsap County Soil Survey (USDA 1977), and would be classified as high geologically hazardous areas (See Figure 3.1-2). The portion of the study area with slopes between 15 and 30 percent that are

Figure 3.1-2: High and Moderate Geologically Hazardous Areas



Source: Puget Sound LIDAR Consortium, 2000

also classified as being highly erodible or potentially erodible by the Kitsap County Soil Survey (USDA 1977) would be classified as moderate geologically hazardous areas. Soil located within high or moderate geologically hazardous areas (due to erosion considerations) may be susceptible to erosion when disturbed by construction. However, erosion can be well managed or prevented entirely by proper construction practices and by properly designed and maintained drainage and erosion control measures.

Seismic Hazards

According to the City of Bremerton Critical Areas Ordinance, areas subject to liquefaction are considered to be a seismic hazard area. Areas with hydric soils or areas of loose fill are areas considered to be susceptible to liquefaction per the Critical Areas Ordinance.

In addition to the liquefaction criteria established by the City for being a seismic hazard area, ground shaking, ground motion modification, and ground surface rupture are also seismic hazards that could potentially impact the study area.

Liquefaction. When shaken by an earthquake, certain loose, saturated soil deposits lose strength and temporarily behave as if they were liquid. This phenomenon is known as liquefaction. The seismically-induced loss of strength can result in a loss of bearing capacity for shallow foundations, reduction in vertical and lateral deep foundation capacities, ground surface settlement, embankment instability, sand boils, and lateral spreading. Seismically-induced liquefaction typically occurs in loose, saturated, sandy material commonly associated with recent river, lake, and beach sedimentation. In addition, seismically-induced liquefaction can occur in areas of loose, saturated fill.

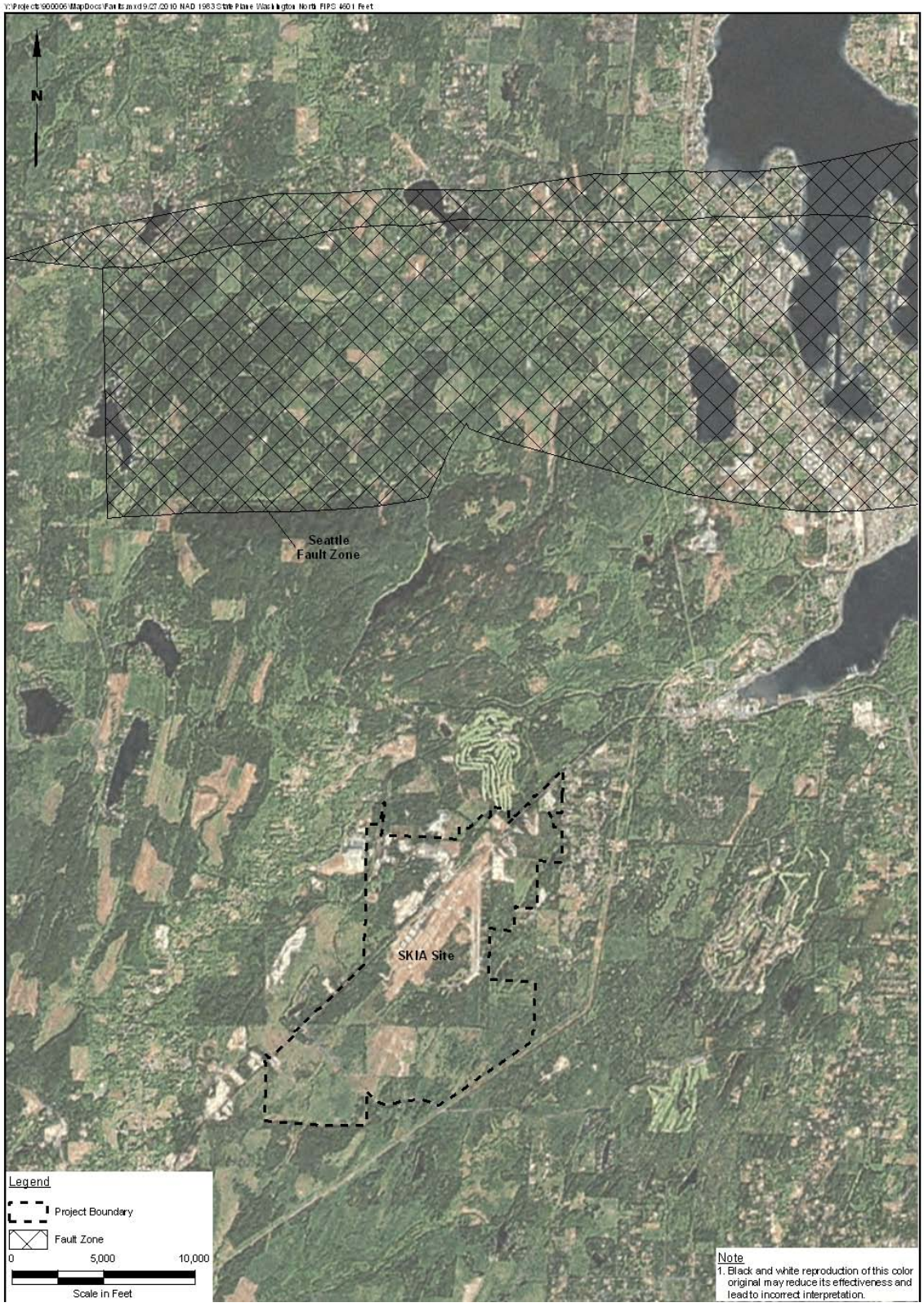
The predominate soil types within the study area include recessional outwash and dense to very dense glacial till and advance outwash. Due to the typically dense nature of these soil types, recessional outwash, glacial till, and advance outwash soils are not generally considered to be susceptible to liquefaction. Soils mapped as being hydric by the Kitsap County Soil Survey (USDA 1977) generally correspond to the peat deposits present within Analysis Areas A, C, E, and F. Peat deposits are not considered to be susceptible to liquefaction, but do present other impediments to infrastructure development. No significant pockets of fill material are mapped within the study area (WDNR 2005). The subsurface conditions reviewed for this EIS-level evaluation do not suggest that liquefaction would present a significant or widespread risk in the study area.

Ground Shaking and Ground Motion Amplification. The entire Puget Sound region lies within a seismically active area, and moderate to high levels of ground shaking should be anticipated during the design life of structures in the study area. Structures in the study area would likely be founded on dense to very dense, glacially overridden soils or medium dense to dense recessional outwash deposits. Ground motion amplification due to soft soil conditions does not present a significant risk within the study area. Seismic design using current design codes and generally accepted engineering standards and practices would be conducted during the design phase of the future site improvements. This includes use of the current version of the International Building Code (IBC), which contains provisions to address life safety issues and incorporates data obtained from recent seismic events in the seismic design standards.

The U.S. Geological Survey (USGS) and other researchers continue to evaluate the presence and potential effects of fault systems in the Pacific Northwest that could affect seismic hazard assessments in the Bremerton area. Accordingly, seismic hazard assessments conducted during the design phase of future site improvements should use seismic hazard maps and data that have been updated to reflect the most current understanding of potential ground shaking at the specific site.

Ground Rupture. The Puget Sound region contains numerous fault zones and the southern edge of the Seattle Fault Zone (USGS 2010) is located about 3 miles north of the northernmost part of the study area (see Figure 3.1-3). Geologic evidence unearthed on Bainbridge Island suggests that the most recent earthquake to rupture the ground surface occurred about 1,100 years ago with about 20 feet of permanent vertical displacement at that location. Future ground rupture may occur within the Seattle Fault Zone; however, the actual risk in the study area posed by such ground rupture is considered to be relatively low given that the return period for large earthquakes on the fault that may rupture the ground surface is on the order of thousands of years. Consequently, design against ground rupture would not likely be a significant part of the site-specific seismic design for future site improvements. Seismic design using current design codes and generally accepted engineering standards and practices would be conducted during the design phase of the future site improvements.

Figure 3.1-3: Seattle Fault Zone



Source: US Geological Service, 2010.

Settlement

Settlement hazardous areas are not included as a geologically hazardous area by the City of Bremerton Municipal Code, but will create an impediment to the proposed improvements. As shown on Figure 3.1-1, portions of Analysis Areas A, C, E, and F are underlain by peat which is highly compressible and will provide poor support for future site improvements, including both buildings and infrastructure. Buildings, roadways, utilities, or other infrastructure improvements constructed on peat may be subjected to a significant amount of settlement over the improvements design life. Such settlement could potentially result in damage to the proposed improvements.

Water Supply and Recharge

Hydrogeologic data encompassing the study area is presented in the Kitsap County Groundwater Management Plan (KCGMP). This plan used existing well log data to designate, on a regional basis, aquifer and aquitard units that are relatively continuous laterally (Kitsap County 1998). The USGS is to begin a five-year groundwater study and model of the Kitsap Peninsula that will update previous work. As they become available, findings from this study should be considered for incorporation with SKIA development plans.

Regional Hydrogeology

In the south Kitsap County area, groundwater is present within deposits of coarse-grained glacial outwash where they occur below the regional groundwater table. Saturated outwash deposits occur within lower portions of the Vashon deposits (refer to "Geology" under Earth above), including advance outwash and sand units, as well as in older drift deposits. Groundwater from the Vashon Drift is used for domestic supply from shallow wells. More productive aquifers, including the Gorst Creek area aquifers developed by the City for municipal water supply, occur within the deeper confined aquifers of the pre-Vashon layers.

Perched groundwater refers to localized zones of saturation that occur above the regional water table. These discrete saturated zones, which may be in response to precipitation patterns, are separated from the main body of groundwater by impermeable materials.

Locally confined areas of perched groundwater occur above the regional water table on top of low-permeability units, including glacial till and fine-grained beds within the outwash deposits. This water is usually limited in extent and used for domestic supply from shallow wells, including several wells within the SKIA vicinity. This perched groundwater is also expressed in some areas as hydric soils, wetlands, ponds, and lakes within topographic depressions.

Kitsap County has mapped two shallow principal aquifers in the Sinclair Inlet drainage, one of which is located along the lower reaches of Gorst Creek and tapped by the City for municipal water supply (Kitsap County

1998). The other is located along the Anderson Creek drainage, which is east of the study area and is not anticipated to be impacted by site activities.

Aquifer Recharge Areas

Critical Aquifer Recharge Areas (CARAs) are those land areas that contain hydrogeologic conditions that facilitate aquifer recharge and/or transmission of contaminants to an underlying aquifer.

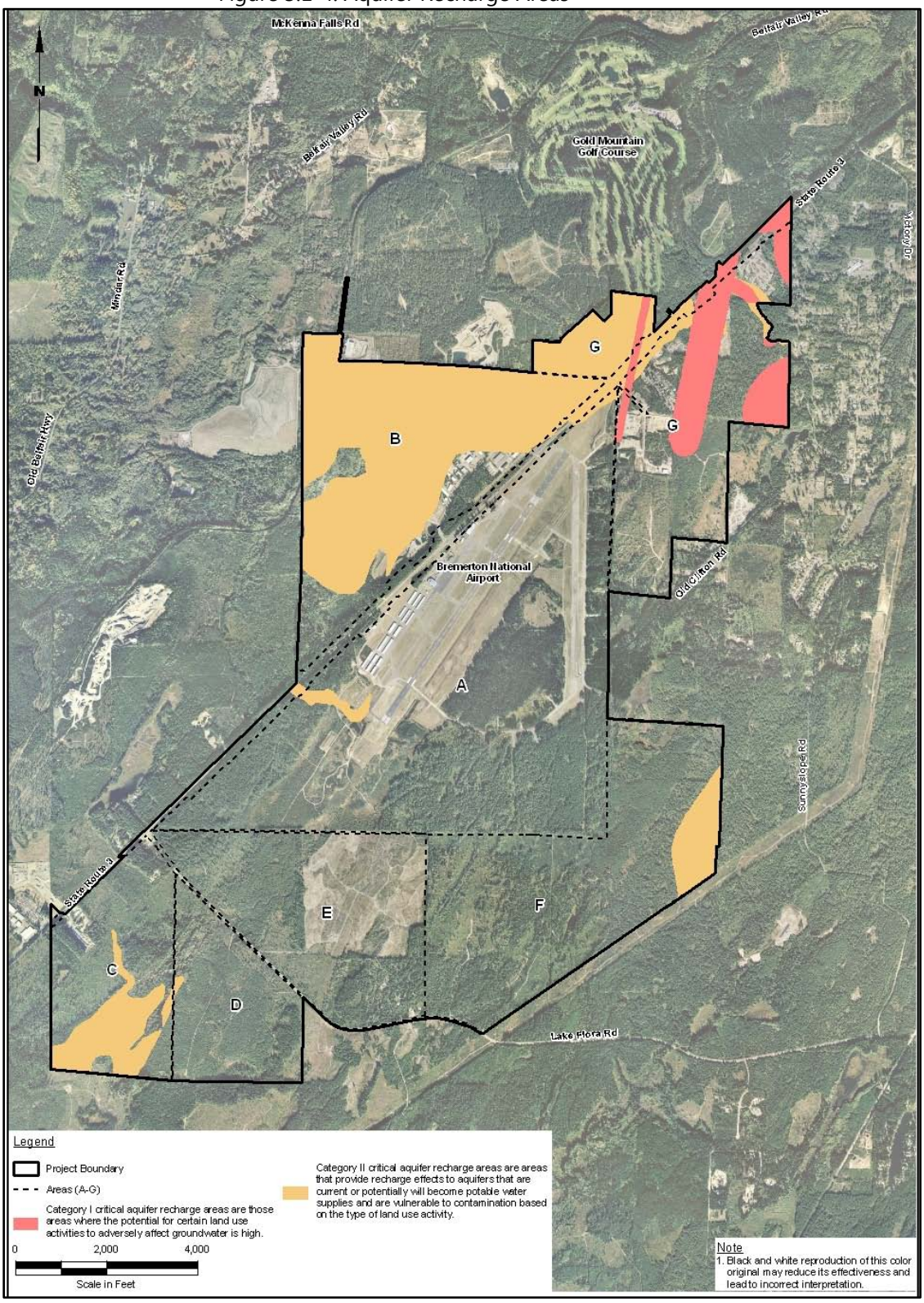
BMC 20.14.420

An aquifer recharge area is defined as the surface area which receives precipitation and passes a portion downward where it replenishes groundwater within an aquifer (aquifer recharge). Areas underlain by soils with high infiltration rates, which link surface and groundwater, are likely to be designated as aquifer recharge areas. The primary aquifer recharge area of a specific aquifer, in particular deep aquifers, may or may not correspond with the surface area directly above the aquifer. The topography and underlying geology of Kitsap County determine where aquifer recharge will occur. Permeable soils, in particular, provide the potential for precipitation to become aquifer recharge.

Both the City of Bremerton Municipal Code, which pertains to incorporated area within the study area, and the Kitsap County Critical Areas Ordinance, which governs unincorporated area in the study area, define Critical Aquifer Recharge Areas (CARAs; Category I) and Aquifer Recharge Areas of Concern (Category II), and both establish regulations and development standards to protect water quality. CARAs can be established in either jurisdiction by using general criteria or specifically designated based on a special study, evaluation, or determination.

Kitsap County has currently designated only one specific CARA, the Hansville Aquifer Recharge Area, which is located in the northern portion of Kitsap County and is not anticipated to be impacted by activities within the study area. The City of Bremerton has designated the Gorst Basin Aquifer recharge area, which encompasses a portion of the northeastern part of the study area, as a CARA. There are also localized areas across the SKIA study area that meet City of Bremerton Municipal Code general criteria, and throughout Kitsap County that meet the Kitsap County Critical Areas Ordinance's General Criteria, for designation as CARAs. CARAs mapped by Kitsap County within the study area boundaries are depicted on Figure 3.1-4.

Figure 3.1-4: Aquifer Recharge Areas



Source: Kitsap County, 2010

Wellhead Protection Areas

A groundwater well draws water from a portion of the aquifer surrounding it, called the area of influence. The boundary of the area of influence for a particular well depends on a number of hydrogeologic characteristics, including hydraulic conductivity, lateral extent of the aquifer, and pumping rate of the well. An area of influence can be environmentally sensitive because contaminants introduced in this area could be drawn into the well, particularly if the area of influence corresponds with an aquifer recharge area.

Wellhead Protection Areas were designated by each water supplier for each of their groundwater sources, based upon hydrogeologic conditions in the vicinity of known groundwater wells and the estimated time it would take for groundwater to be drawn to a well. The northeastern portion of the SKIA study area is located within five-year time-of-travel Wellhead Protection Areas for public water supplies using groundwater wells (Parametrix 2002), and encroaches on a one-year time-of-travel Wellhead Protection Area for a water supply well used by Sunnyslope Water District (Cahall 2011). Although superseded by the City of Bremerton's Wellhead Protection Plan and Critical Area Ordinance, Kitsap County keeps track of the Wellhead Protection Areas and retains the most comprehensive County-wide map of these potential aquifer impact areas. City of Bremerton Municipal Code has specifically designated as CARAs those areas within the five-year time-of-travel zone for Group A water system wells (BMC 20-14-420). Maps of these areas provided by the City of Bremerton are included in Appendix D.

Plants and Animals

This section describes the vegetation, fish and other wildlife species and habitats, including wetlands and waterways, within the study area.

Background information reviewed for this analysis includes:

- U.S. Geological Survey topographic map
- U.S. Fish and Wildlife Service National Wetlands Inventory map
- Washington Department of Fish and Wildlife Priority Habitats and Species (PHS) database (WDFW 2010)
- Washington Department of Fish and Wildlife SalmonScape (WDFW 2010)
- Washington Department of Natural Resources Natural Heritage Program data (WDNR 2009)
- National Oceanic and Atmospheric Administration (NOAA) Fisheries ESA Salmon Listings

- U.S. Fish and Wildlife Service Listed and Proposed Endangered and Threatened Species and Critical Habitat
- Candidate Species and Species of Concern in Kitsap County; Kitsap County Critical Area mapping
- *Wildlife-Habitat Relationships in Oregon and Washington* by Johnson and O'Neil (2001).

Various city, state, and federal regulations regarding plants, animals, and their habitat apply to the study area. Applicable City regulations that pertain to plants, animals, and their habitat include Bremerton Municipal Code (BMC) 20.14, Critical Areas, which provide for the protection of Fish and Wildlife Habitat Conservation Areas and Wetlands. Chapter 20.50 of the BMC establishes landscaping standards for new developments to, in part, contribute to a quality urban environment by connecting open spaces, maintaining native, drought-resistant vegetation, replacing non-native and invasive species, providing habitat for fish and wildlife, retaining significant trees and reducing erosion and storm water runoff while providing onsite filtration to protect groundwater resources from pollutants and flooding. Applicable state regulations include the Water Pollution Control Policy (RCW 90.48), which extends to the protection of wildlife related to water resources of the State. Applicable Federal regulations, including the Endangered Species Act (ESA), Clean Water Act, Migratory Bird Treaty Act (MBTA), and Executive Order 13112, Invasive Species, pertain to the protection of plants, animals, and their habitat.

BMC Chapter 20.14, Critical Areas was established to protect the public health, safety, and welfare by establishing provisions to classify, protect, and preserve Bremerton's critical areas and their functions and values by providing standards for development in critical areas. Critical Areas relating to plants and animals and their habitats include Fish and Wildlife Habitat Conservation Areas and Wetlands.

The pertinent regulations mentioned above are listed in Appendix D.

Plants

Vegetation within the approximate 3,900 acre study area is influenced by the type and intensity of existing land use. Douglas fir and associated species are common within the study area. Additional overstory vegetation in the study area may include, but is not limited to: red alder, western hemlock, western red cedar, various species of spruces, bigleaf maple, and various species of pines. Understory vegetation may include, but is not limited to: salal, vine maple, salmonberry, trailing blackberry, ferns, and snowberry (Johnson and O'Neil 2001; see Table 3.1-1). Developed areas and/or areas adjacent to developed areas in the SKIA

study area may contain invasive species such as reed canary grass, Himalayan blackberry, and Scots broom due to disturbance and infrequent vegetation maintenance in addition to landscape varieties of native and non-native plants.

Plants are a source and sink of carbon dioxide as a result of growth and seasonal cycles. Trees and other vegetation sequester carbon dioxide from the atmosphere. Sequestration occurs during growth, but release of carbon occurs through decomposition of plant material as litter and woody debris and respiration (USDA 2004). As plant materials decay, the stored carbon is released over time as carbon dioxide and methane.

In Kitsap County, the U.S. Fish and Wildlife Service does not identify federally listed threatened or endangered plant species or associated critical habitats regulated under the ESA. Washington State Department of Natural Resources Natural Heritage Program does not identify any rare plant species in the study area (WDNR 2009).

Animals

Within SKIA, approximately 162 to 266 wildlife species are associated with the habitats, as classified by Johnson and O'Neil (2001) (see *Habitats* below). The number and type of species present at any given time in the study area is influenced by seasonal variations and migratory patterns. The following provides a summary of federally listed threatened and endangered animal species, and Washington Department of Fish and Wildlife priority species found in the study area and vicinity.

Fish

The U.S. Fish and Wildlife Service identifies threatened bull trout in marine environments in Kitsap County (see Appendix D). NOAA Fisheries identifies threatened Puget Sound steelhead, Puget Sound Chinook, and Hood Canal Summer-Run Chum salmon in the study area vicinity (see Appendix D).

Washington Department of Fish and Wildlife PHS data (WDFW 2010) identifies:

- Gorst Creek within the SKIA study area containing Coho salmon, fall Chum salmon, resident cutthroat trout, and winter steelhead.
- Coulter Creek, outside of the SKIA study area, containing Coho salmon, fall Chinook salmon, fall chum salmon, and resident cutthroat trout.
- East Fork Union River, outside of the SKIA study area, containing Coho salmon, resident cutthroat trout, and summer chum salmon.

- Union River outside of the SKIA study area, containing Coho salmon, fall Chinook salmon, fall chum salmon, pink salmon, rainbow trout, resident cutthroat trout, summer chum salmon, and winter steelhead.

Washington Department of Fish and Wildlife Salmonscape identifies documented Coho salmon use of Gorst Creek and presumed Coho salmon use of the North East Fork Union River within the SKIA study area (WDFW 2010).

Washington Department of Fish and Wildlife Salmonscape (WDFW 2011) also identifies a variety of fish passage barriers in and adjacent to SKIA. Fish passage barriers include culverts and dams:

- Gorst Creek and tributaries within SKIA (Area G) and downstream are identified with stream segments containing culverts impeding fish passage. SR 3 in the vicinity of Area G is identified as a partial barrier to fish passage, and Landfill Road within Area G south of SR 3 is identified containing a culvert and erosion control feature (i.e. riprap dam) providing total barriers to fish passage. Downstream of Area G, a culvert is identified along Gorst Creek at West Belfair Valley Road as a total barrier to fish passage.
- Northeast Fork Union River within and downstream of SKIA includes stream segments with culverts and dams impeding fish passage. Within Area A, two dams impeding fish passage are identified; one dam is an instream stormwater detention system consisting of two vertical cisterns and the other dam is concrete debris dumped in the channel. A culvert is also identified in the ditch adjacent to the Bremerton National Airport runway, which is a tributary to the Northeast Fork Union River, but barrier to fish passage has not been assessed by WDFW for this culvert. Downstream from Area A, culverts are identified along the Northeast Fork Union River at SR 3 and the Navy railroad which provide total barriers to fish passage.

Fish passage barriers are not identified within SKIA or downstream in the East Fork Union River, Coulter Creek, or their tributaries. The possible connection to a larger body of water has not been documented for the tributary located in Area C (LLID 1228344474579). This stream may be a tributary to Hood Canal or North Bay, and is not identified with any fish passage barriers within SKIA or downstream of SKIA.

Other Wildlife

The U.S. Fish and Wildlife Service identifies threatened marbled murrelet in marine environments in Kitsap County (see Appendix D). No marine

environments occur within the SKIA study area. Washington Department of Fish and Wildlife PHS data (WDFW 2010) does not identify any occurrence of marbled murrelet within the SKIA study area or vicinity (not including marine environments).

Washington Department of Fish and Wildlife PHS data (WDFW 2010) identifies a bald eagle nest site located over ½ mile northeast of the SKIA study area.

National wildlife strike incidents reports at Bremerton National Airport are limited to a single accident in 2004 involving a domestic dog (FAA 2010). As a result, security fencing has been approved (anticipated construction is 2011) to exclude wildlife such as deer that may occur in the study area and vicinity (Pritchett 2010).

Habitats

The SKIA study area is located in a rural area of the City of Bremerton. Habitats in the study area, as classified by Johnson and O'Neil (2001), are summarized below in Table 3.1-1 and on Figure 3.1-5.

Table 3.1-1: Habitats and Associated Vegetation and Wildlife Mapped Within the SKIA Study Area

Habitat Type	Mapped Area within the SKIA Study Area[1]	Common Vegetation[2]	Total Number of Associated Wildlife Species[3]
Urban and Mixed Environs	930.62 acres	Highly variable, non-native plant species are typical; native plants, when present, are represented within a limited range	266
Westside Lowlands Conifer-Hardwood Forest	2,218.37 acres	Western hemlock and Douglas fir are the most characteristic species	233
Westside Oak and Dry Douglas Fir Forest and Woodlands	541.97 acres	Canopy dominant species may include Douglas fir, Oregon white oak, Pacific madrone, shore pine, and California black oak	229
Lakes, Rivers, Ponds, and Reservoirs	4.38 acres	Zones of aquatic habitat that may include wetlands	162
Herbaceous Wetlands	9.67 acres	Cattails, sedges, rushes, and grasses	228
Westside Riparian Wetlands	21.98 acres	Canopy dominant species may include red alder, Pacific willow, black cottonwood, and Oregon ash	256

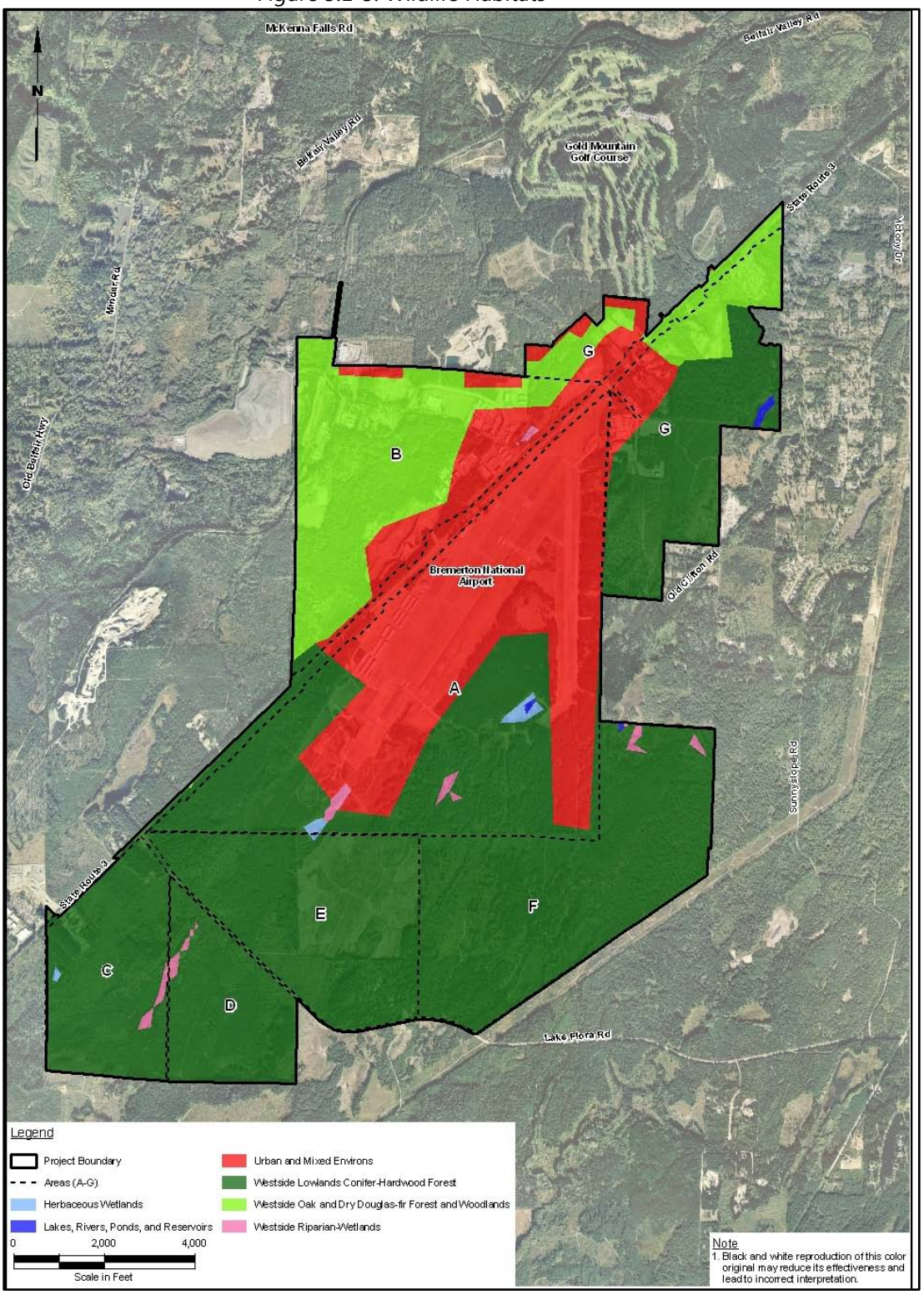
Source: Johnson and O'Neil, 2001

[1] Area does not represent results of field investigation/delineation.

[2] List provided does not represent all known species and stratum of vegetation within the SKIA study area.

[3] Number may vary for SKIA study area.

Figure 3.1-5: Wildlife Habitats



Source: Johnson and O'Neil, 2001

The Urban and Mixed Environs include Bremerton National Airport and Olympic View Industrial Park. Undeveloped portions of the SKIA study area are largely second and third growth forest, with areas of Christmas tree farms (Kitsap County 2003). The Westside Lowlands Conifer-Hardwood Forest is generally located south and east of the airport and includes the Lakes, Rivers, Ponds, and Reservoirs; Herbaceous Wetlands; and Westside Riparian Wetlands. Westside Oak and Dry Douglas Fir Forest and Woodlands are generally located north and west of the airport.

The Washington State Department of Natural Resources Natural Heritage Program does not identify any high quality ecosystems in the study area vicinity (WDNR 2009). Washington Department of Fish and Wildlife PHS data does not identify any priority habitats within the study area.

Streams

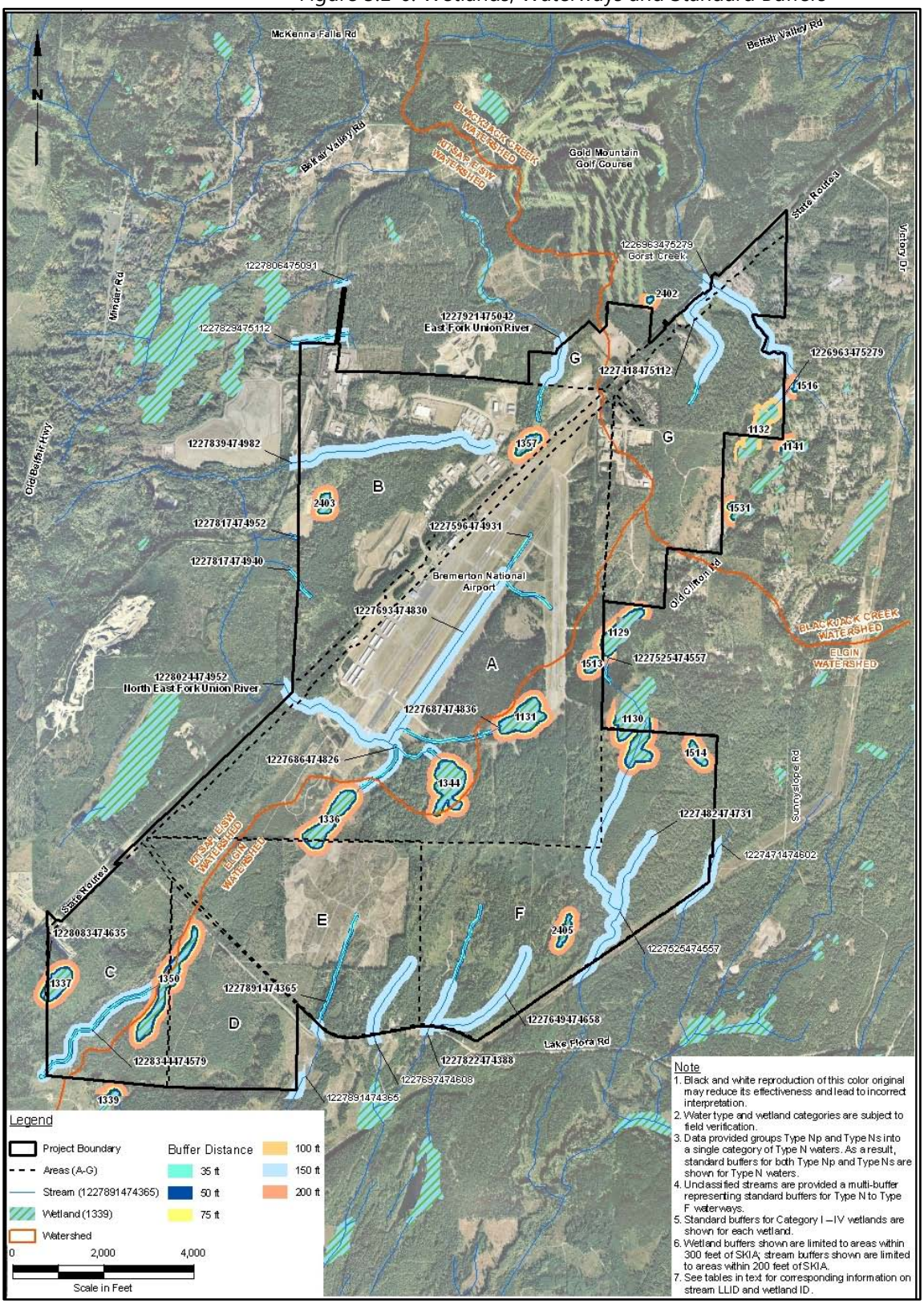
Gorst Creek and tributaries are located in the northeast section of the SKIA study area, within the Blackjack Creek subwatershed. A segment of Gorst Creek was delineated as part of the SKIA Gravel Mine project proposed by the McCormick Land Company, Inc., and identified Gorst Creek as a Type F waterway, which requires a standard buffer of 150 ft. Gorst Creek flows to Sinclair Inlet northeast of the study area.

East Fork Union River, North East Fork Union River, and tributaries are located in the north and west sections of the SKIA study area, within the E/SW Kitsap subwatershed. The Union River flows southwest of the study area to Hood Canal in Mason County.

Tributaries to Coutler Creek are located in the southern portion of the SKIA study area, within the Elgin subwatershed. Coulter Creek flows to North Bay, southwest of the study area in Mason County.

A summary of the waterways identified in the SKIA study area shown in Figure 3.1-6.

Figure 3.1-6: Wetlands, Waterways and Standard Buffers



Source: Kitsap County, 2010

Wetlands

National Wetlands Inventory (NWI) and Kitsap County critical area mapping identify wetland areas within the SKIA study area. A majority of the wetlands identified are associated with the waterways identified above. Wetland delineation efforts associated with the McCormick Land Company, Inc. SKIA Gravel Mine identified a Category 2 wetland in the vicinity of Gorst Creek (GeoEngineers 2008), which requires a standard buffer of 100 ft. Information on additional delineated wetlands (mapped or unmapped by NWI/Kitsap County) within the SKIA study area is not currently available. A summary of wetlands identified by NWI and Kitsap County mapping in the vicinity of the SKIA study area is shown in Figure 3.1-6.

Wetlands can be both sources and sinks of greenhouse gas, depending on age, hydrologic, vegetative, and climate conditions (Kayranli et al. 2009, Bridgham et al. 2006, Hernandez and Mitsch 2006). It is uncertain how global changes affect the source/sink dynamic of wetlands (Bridgham et al. 2006). However, according to published estimates of greenhouse gas fluxes from constructed and natural wetlands, fluxes from constructed wetlands are higher than those from natural wetlands, and natural wetlands have more carbon sequestration capacity (Kayranli et al. 2006).

Critical Habitat and Essential Fish Habitat

No critical habitat listed under the ESA is located in the SKIA study area. Critical habitat for listed species is designated under the ESA by NOAA Fisheries and the U.S. Fish and Wildlife Service. The U.S. Fish and Wildlife Service indicates that listed critical habitat for bull trout and marbled murrelet does not occur in Kitsap County. NOAA Fisheries indicates the presence of critical habitat for the Puget Sound Chinook salmon and a Hood Canal Summer-Run Chum evolutionarily significant unit (ESU) in the study area vicinity. The following provides a summary of listings and occurrences of listed critical habitat in Kitsap County and the study area vicinity:

- Critical habitat for the bull trout has been designated (USFWS 2010), and includes Hood Canal, located approximately 2 miles southwest from the study area.
- Critical habitat for marbled murrelet has been designated (USFWS 1996) and proposed (USFWS 2008), and includes areas approximately 13 miles west of the study area.
- Critical habitat for the Puget Sound Chinook salmon ESU has been designated (NOAA Fisheries 2005), and does not include any freshwater streams or rivers in the study area. Nearshore marine

areas of Port Orchard Bay and Hood Canal, located approximately 6.4 miles northeast and 2 miles southwest, respectively, of the study area, are listed critical habitat for Puget Sound Chinook salmon.

- Critical habitat for the Hood Canal Summer-Run Chum salmon ESU has been designated (NOAA Fisheries 2005), and includes the Union River and tributaries, where the nearest critical habitat occurs in an unnamed tributary located approximately 0.16 miles west from the study area. Nearshore marine areas of Hood Canal, located approximately 2 miles southeast of the study area, are also classified as critical habitat for Hood Canal Summer-Run Chum salmon.

The primary constituent elements for the bull trout, the marbled murrelet, the Puget Sound Chinook, and the Hood Canal Summer-Run Chum salmon are listed in Appendix D.

The Pacific Fisheries Management Council has designated Essential Fish Habitat for the Pacific salmon fishery, and for federally managed groundfish and coastal pelagic fisheries (PFMC 1999). Groundfish are associated with the ocean bottom and coastal pelagics are schooling species not associated with the ocean bottom that migrate in coastal waters. Neither groundfish or coastal pelagic species or EFH occur within the SKIA study area. The study area is located within U.S. Geological Survey HUC 17110018 (Hood Canal) and 17110019 (Puget Sound), which includes Chinook, coho, and pink salmon of the Pacific salmon fishery (PFMC 2009). As discussed above in Animals, these species have not been documented within the SKIA study area.

3.1.2 Significant Impacts

This section evaluates the potential effects that the existing natural environment within the study area may have on development in SKIA. These impacts include both short-term construction impacts and long-term operational impacts.

Impacts Common to All Alternatives

Under Alternatives 1 through 3, varying levels of development would occur in Analysis Areas A, B, C, D, and G (Figures 2.4, 2.5 and 2.6).

Earth

This section describes the potential effects of the existing earth environment, within the study area and vicinity, common to all alternatives.

For Alternative 1 (No Action), no new development is assumed in Analysis Areas E and F. In each of the remaining Analysis Areas, some development is assumed for each alternative. As such, potential impacts in these areas would be similar for each of the alternatives, although the magnitude of potential impact would be anticipated to increase as the amount of development increases.

Impacts evaluated include those due to the effect of the earth environment on the improvements (i.e., Geologic Hazards), as well as the effect of construction, operation, and maintenance on the earth environment. An impact such as potential liquefaction of existing soils is an example of an impact associated with the existing environment. An example of a construction-related impact is temporary excavation dewatering during construction. Long-term operational impacts would be those associated with the specific land use and are likely to be negligible and indistinguishable for the earth environment.

Geologic Hazard Impacts

Landsliding

The most significant slopes in SKIA correspond to the ravines located within Analysis Areas A, B, and G (see Figure 3.1-2). There is a low to moderate potential for landsliding of portions of these steeper slopes with or without site development. Other steep slopes, also with a low to moderate potential for landsliding, are present elsewhere within SKIA. Landsliding could potentially be triggered by a seismic event; the natural process of stabilization of a steep slope to a flatter profile; an increase in porewater pressure from excessive rainfall that could destabilize a portion of the slope; or construction that traverses or cuts into a steep slope.

The City of Bremerton Municipal Code specifies that a 50-ft building and impervious surface buffer be established from within 50 ft of the top and the toe of high geologic hazard areas. A 25-ft building and impervious surface buffer from the top and toe of moderate geologic hazard areas has been established by the City of Bremerton. These buffers could reduce the available developable space in Analysis Areas A, B, and G as well as other high and moderate geologically hazardous areas within the study area.

Slopes can also experience slope failures as the dynamic shear stresses produced by earthquake shaking increase the load along a potential failure plane. Although the potential for deep-seated, earthquake-induced landslides along some of the steeper, unsupported slopes is considered relatively low, some sloughing and slope movement could occur within loose surficial materials on a slope during a large seismic event.

The impact of landsliding within SKIA for each Alternative is considered low given the relatively flat topography and the dense nature of the surficial soils. The impact could be further reduced by completion of site-specific analyses of moderate or high geologically hazardous areas during the design and permit approval process. The code-specified setback buffer could reduce the space available for development under any alternative and may be most noticeable under Alternative 3, especially in Analysis Areas A, B and G.

Erosion

When disturbed, much of the near-surface soil located on slopes exceeding 15 percent are considered to be highly susceptible to erosion. Site grading and construction associated with development could cause erosion of exposed soil and soil stockpiles, which could potentially result in onsite and offsite transport of sediment.

Seismic Hazards

The entire Puget Sound region lies within a seismically active area, and moderate to high levels of ground shaking should be anticipated during the specific design and permit process for future development.

Settlement

Buildings, roadways, utilities, or other infrastructure improvements constructed on peat will be subjected to a significant amount of settlement over the design life of the improvements. Such settlement could potentially result in damage to structures and utilities. As discussed above, significant deposits of peat are present across Analysis Areas A, C, E, and F and may be present elsewhere within SKIA.

Construction Impacts

Construction impacts are short-term impacts that could occur during the construction phase of site redevelopment. The potential construction impacts related to the earth environment can be mitigated by implementing effective design and construction techniques and selecting appropriate foundation and earth retention systems.

Erosion during Construction

Construction associated with development could have erosion impacts on exposed soil and soil stockpiles, which could cause onsite and offsite transport of sediment.

Construction Excavations

Some amount of temporary excavation will likely be required for the construction of future structures, underground utilities, and other

infrastructure. Without mitigation, these excavations could have a potentially adverse effect on immediately adjacent existing and future structures (i.e., structures within a distance equal to about the depth of the excavation), utilities, and other improvements. These adverse effects could include settlement and/or the undermining of foundations of the adjacent structures or improvements.

Construction Dewatering

Temporary excavation dewatering may be required to control groundwater flow into certain excavations, particularly during the winter and spring months. The process of excavation dewatering could cause some ground settlement and potentially damage to adjacent utilities and structures if peat is present (i.e., Analysis Areas A, C, E, and F). The potential for dewatering-induced settlement and damage to adjacent utilities and structures is unlikely in areas underlain by glacial soil. For the majority of relatively shallow excavations, temporary dewatering would probably be limited in scope and could likely be completed with conventional methods, such as grading to sumps and pumping of excavation water. In low areas or near the existing peat deposits, more extensive temporary dewatering design and implementation efforts may be required.

The impact associated with temporary excavation dewatering depends on the required drawdown of the water table present at a specific location and the soil conditions in the affected area. Site-specific investigations and analyses during the design and permitting process would determine what structures may require or be influenced by temporary excavation dewatering. Extracted groundwater could contain high turbidity (and potentially certain chemical constituents), which might necessitate special handling, treatment, and/or disposal methods.

Placement of Structural Fill

It is anticipated that cuts and fills will be associated with construction/modification of access roads, installation of utilities, construction of earth retention structures, local raising of site grades, etc. Structural fill and backfill material placed as part of future site improvements should be densely compacted, which could cause ground vibrations in the immediate vicinity of the construction work. However, placement of structural fill would not typically be expected to cause significant settlement/ground subsidence that could impact existing or future structures (on site or off site) in the immediate area of the fill unless peat is present.

Prior to placing structural fill in areas underlain by peat (especially evident in Analysis Areas A, C, E, and F), the installation of geosynthetic reinforcing material over the peat may be required. Placement of structural fill over the peat will lead to consolidation settlement of the peat. Settlement of the peat should be monitored and construction of access roads, parking lots, and utilities should not occur until after most of the settlement due to fill placement has occurred.

Foundation Construction

Based on the presence of generally competent soil conditions over most of the study area, it is anticipated that foundation support for most structures would be provided by conventional spread footings and/or mat foundations. Where peat is present, conventional spread foundations could still be utilized if the peat is excavated and replaced with structural fill material. Alternatively, if peat is present, the use of deep foundations or ground improvement may be necessary to support structures. Foundation construction may require temporary excavation shoring and may require excavation dewatering, which could result in the settlement and/or undermining of adjacent structures or improvements.

Aquifer Recharge Areas

Bremerton's Critical Area Ordinance (CAO) specifically outlines the types of activities allowed in CARA areas, and requires use of Best Management Practices (BMPs). Project planning during the design stage can reduce potential impacts to CARAs by considering such factors as site suitability, utility availability, construction management techniques, and operational procedures applicable to the intended site use. Requirements under the existing regulatory framework for site-specific studies and assessments include provisions for development of BMPs to protect groundwater resources.

SKIA development plans would conform to the CAO, including applicable utility codes referenced therein. Based on Kitsap County's CARA designations (as depicted on Figure 3.1-4 above), several of the analysis areas would require special development conditions under the CAO. The most stringent development restrictions will apply to analysis areas that contain Category I CARAs. In these areas, most allowed uses (except those specifically allowed or prohibited by BMC 20.14.430) will require a hydrogeologic assessment to verify that groundwater will be protected. Development restrictions for operational areas with Category II CARAs are specified in the CAO, and depending on the extent of the Category II area and nature of the proposed development these areas may also warrant a detailed hydrogeologic evaluation to verify that groundwater resources will be protected.

Each analysis area is discussed separately below, in consideration of the differing levels of CARA present.

- Analysis Area A – This analysis area contains a single small area of Category II CARA southeast of the existing airport facility.
- Analysis Area B – This analysis area is comprised almost entirely of Category II CARA.
- Analysis Area C – A significant portion of this analysis area contains Category II CARA.
- Analysis Area D – There is a small portion of this analysis area classified as Category II CARA, extending from the Category II CARA that occurs in Analysis Area C.
- Analysis Area E – There are no identified CARAs within this analysis area. Alternative 1 assumes no development would occur in this area.
- Analysis Area F – The eastern portion of this analysis area contains Category II CARA. Alternative 1 assumes no development would occur in this area.
- Analysis Area G – A significant portion of this analysis area contains Category I CARA, including part of the one-year time-of-travel area for a municipal water supply well used by Sunnyslope Water District.

Plants and Animals

Plants

Construction

The amount of vegetated area, including trees/forest, would be expected to decrease and the amount of built environment would be expected to increase relative to existing conditions (see discussion of Habitats below). Release of carbon sequestered by vegetation prior to removal would be released as the material decays. Conversion of trees removed to lumber for construction use, either on or off site, or other wood products would abate carbon release associated with decay.

No listed plant species are mapped within SKIA, and no impact is anticipated to sensitive plant species as a result of construction activities in SKIA.

Operation

Existing vegetation to be maintained and landscaping installed as part of development would sequester carbon as a result of growth; release of

carbon would also result from decomposition of plant litter and woody debris.

No listed plant species are mapped within SKIA, and no impact is anticipated to sensitive plant species as a result of operations within SKIA.

Animals

Construction

Existing animal species within the study area have adapted to rural and urban environment, specifically noise associated with the airport and existing facilities adjacent to the airport and SR 3. Construction impacts due to habitat removal would result in their relocation to other locations within the study area or to adjacent areas until construction activities were completed and new landscaping installed.

Noise impacts due to construction activities could temporarily cause animals to relocate; however, once construction activities were completed, displaced animals would likely return to the study area.

Migratory birds likely nest within SKIA and project development could potentially impact nests. Any nest destruction that results in take of any migratory bird is a violation of the MBTA (e.g., where juveniles still depend on the nest for survival).

If not managed properly, stormwater runoff could potentially impact water quality and water quantity of wetlands and waterways within and connected to SKIA. Effects of stormwater runoff are not limited to areas within SKIA. Untreated stormwater runoff could impact the ESA-listed species in Sinclair Inlet, Hood Canal, North Bay, and/or their tributaries in the project vicinity. Without stormwater best management practices, untreated runoff during construction could impact the ESA-listed species in Sinclair Inlet, Hood Canal, North Bay, and/or their tributaries in the project vicinity.

Operation

The reduction in vegetated area that would occur under Alternatives 1-3 would result in a reduction of potential habitat for animals and, therefore, could result in fewer animals within the study area; however, due to the small reduction and the general ability for animals in this area to adapt to urban/rural environments, this impact is not considered significant.

Improperly managed stormwater runoff from developments within SKIA could impact water quality and water quantity of wetlands and waterways within and connected to SKIA. Without stormwater best management

practices, untreated stormwater runoff could impact the ESA-listed species in Sinclair Inlet, Hood Canal, North Bay, and/or their tributaries in the vicinity.

Habitats

Construction

As discussed above, under all alternatives, the amount of vegetated area within the study area, including forested areas, would be expected to decrease. Under Alternatives 1-3, the amount of forested habitat within SKIA could decrease between 0.7% to 4.8%, depending on the alternative.

There are relatively small amounts of forested areas potentially impacted under Alternative 1 (see Table 3.1-2). Approximately 0.2% to 2.3 % of existing forested area could be impacted by development in each analysis areas, or approximately 0.7% for the entirety of SKIA under Alternative 1.

Table 3.1-2: Alternative 1 - Development Capacity and Forest/Undeveloped Area by Analysis Area[1]

Analysis Areas	Total Area (acres)	Area of Forested[1] (acres)	Alternative Development Area[2] (acres)	Alternative Development Area Percent of Total Area	Alternative Development Area Percent of Forested
A	1,090	463	6.9	0.6%	1.5%
B	596	398	9.2	1.5%	2.3%
C	280	274	0.6	0.2%	0.2%
D	181	208	0.6	0.3%	0.3%
E	388	404	0.0	0.0%	0.0%
F	592	566	0.0	0.0%	0.0%
G	464	396	1.1	0.2%	0.3%
TOTAL	3,591	2,706	18.4	0.5%	0.7%

[1] Forested consists of areas mapped by Johnson and O'Neil (2001) as Westside Lowlands Conifer-Hardwood Forest, Westside Oak and Dry Douglas Fir Forest and Woodlands, and Westside Riparian Wetlands

[2] Alternative development areas are acreage conversions from Table 2-3.

There are relatively small amounts of forested areas potentially impacted under Alternative 2 in all analysis areas (see Table 3.1-3). Approximately 1.9% to 6.8 % of existing forested area could be impacted by development in each analysis area, or approximately 3.3% for the entirety of SKIA under Alternative 2.

Table 3.1-3: Alternative 2 - Development Capacity and Forest/Undeveloped Area by Analysis Area[1]

Analysis Areas	Total Area (acres)	Area of Forested[1] (acres)	Alternative Development Area[2] (acres)	Alternative Development Area Percent of Total Area	Alternative Development Area Percent of Forested
A	1,090	463	8.0	0.7%	1.7%
B	596	398	27.0	4.5%	6.8%
C	280	274	17.8	6.4%	6.5%
D	181	208	5.2	2.9%	2.5%
E	388	404	9.8	2.5%	2.4%
F	592	566	13.2	2.2%	2.3%
G	464	396	7.5	1.6%	1.9%
TOTAL	3,591	2,706	88.4	2.5%	3.3%

[1] Forested consists of areas mapped by Johnson and O'Neil (2001) as Westside Lowlands Conifer-Hardwood Forest, Westside Oak and Dry Douglas Fir Forest and Woodlands, and Westside Riparian Wetlands

[2] Alternative development areas are acreage conversions from Table 2-3.

There are relatively small amounts of forested areas potentially impacted under Alternative 3 in all analysis areas (see Table 3.1-4). Approximately 2.5% to 8.8 % of existing forested area could be impacted by development in each area, or approximately 4.8% for the entirety of SKIA under Alternative 3.

Table 3.1-4: Alternative 3 - Development Capacity and Forest/Undeveloped Area by Analysis Area[1]

Analysis Areas	Total Area (acres)	Area of Forested[1] (acres)	Alternative Development Area[2] (acres)	Alternative Development Area Percent of Total Area	Alternative Development Area Percent of Forested
A	1,090	463	18.4	1.7%	4.0%
B	596	398	35.0	5.9%	8.8%
C	280	274	12.1	4.3%	4.4%
D	181	208	9.8	5.4%	4.7%
E	388	404	20.7	5.3%	5.1%
F	592	566	23.0	3.9%	4.1%
G	464	396	9.8	2.1%	2.5%
TOTAL	3,591	2,706	128.6	3.6%	4.8%

[1] Forested consists of areas mapped by Johnson and O'Neil (2001) as Westside Lowlands Conifer-Hardwood Forest, Westside Oak and Dry Douglas Fir Forest and Woodlands, and Westside Riparian Wetlands

[2] Alternative development areas are acreage conversions from Table 2-3.

The reduction in forested area that would occur under Alternatives 1 through 3 would result in a reduction of potential habitat for animals and, therefore, may result in fewer individuals of existing species within the study area; however, due to the small reduction and the general ability for existing animals in this area to adapt to urban/rural environments, this impact is not anticipated to be significant. Furthermore, since the study area currently contains Urban Mixed Environ, which would be expanded under the alternatives, no new species are anticipated to colonize the study area as a result of redevelopment.

Wetlands and streams are present in all analysis areas of SKIA and impacts could occur to these resources as a result of development within SKIA. As part of development, mitigation sequencing would occur in compliance with City critical areas ordinance, involving assessment of impact avoidance, minimization, and mitigation for unavoidable impacts (refer to 3.1.3 Mitigation Measures).

Operation

If not managed properly, stormwater runoff could potentially impact water quality and water quantity of wetlands and waterways within and connected to SKIA. Effects of stormwater runoff are not limited to areas within SKIA. Untreated stormwater runoff could impact federally listed

critical habitat or Essential Fish Habitat, including rearing habitat in Sinclair Inlet.

Alternative 1

Earth

In Alternative 1, no new development will occur in Analysis Areas E and F, and no impacts to the earth environment would occur in these analysis areas

The impacts described above in *Impacts Common to All Alternatives* apply to Analysis Areas A through D and G under Alternative 1.

Aquifer Recharge Areas

Under Alternative 1, each individual project with potential to impact a CARA would be evaluated independently at the time of development proposal to verify conformance with CAO requirements to protect groundwater. Continued reliance on individual project development has potential for proliferation of exempt wells and small septic systems. While each individual well or septic system might have minimal impact on the underlying aquifer, the aggregate effects of a number of such small systems could result in future water availability or water quality issues.

The impacts described above in *Impacts Common to All Alternatives* apply to Analysis Areas A through D and G under Alternative 1.

Plants and Animals

In Alternative 1, no new development will occur in Analysis Areas E and F, and no impacts to natural environment would occur in these areas. Any project with potential to impact the natural environment in the remaining Analysis Areas would be evaluated independently at the time of development proposal to verify conformance with CAO requirements.

The impacts described above in *Impacts Common to All Alternatives* apply to Analysis Areas A through D and G under Alternative 1.

Alternative 2 and 3

The potential for impacts to Alternatives 2 and 3 are similar in character and magnitude and are described together here.

Earth

Refer to *Impacts Common to all Alternatives* above.

Aquifer Recharge Areas

Alternatives 2 and 3 both assume extension of adequate utility service to support new development. Use of municipal water, sanitary sewer, and stormwater utilities would alleviate the potential impact to CARAs posed by uncoordinated development under Alternative 1. Development plans coordinated by analysis area with CAO requirements under Alternative 2 or 3 would assess potential impacts to the municipal water supply in a more comprehensive manner than practicable under Alternative 1, allowing more informed decisions regarding long-term management of the groundwater resource.

Consistent with impacts common to all alternatives, no impact is anticipated to plants and animals as a result of construction or operation activities in SKIA under Alternative 2 or 3.

Plants and Animals

Refer to *Impacts Common to all Alternatives* above.

3.1.3 Mitigation Measures

Applicable Regulations and Requirements

Earth

- Specific foundation support systems to be used for onsite improvements will be determined as part of the specific design and permit process for infrastructure and individual buildings associated with future site development.
- Site-specific studies and evaluations would be conducted in accordance with City of Bremerton Municipal Code requirements and the provisions of the most recent version of the IBC.

Landsliding

- If any development occurs adjacent to steeper slopes within SKIA, site-specific slope stability analyses would be conducted during the design and permit process in order to determine the required setback buffer widths. Potential mitigation measures include limiting soil disturbance and vegetation removal, limiting building footprint and impervious surface areas, constructing retaining walls, and revegetating the slopes located within moderate to high geologically hazardous areas.
- During a large seismic event, some sloughing and slope movement would likely occur within loose surficial materials on the steeper slopes present within SKIA. Site-specific analysis of any development planned adjacent to or near these slopes would be

completed during the design and permit process to address specific methods to mitigate potential landslide impacts.

Erosion

During construction, temporary erosion and sedimentation control measures and Best Management Practices would be used to control erosion. These measures would be consistent with City regulations, and could include the following:

- Limit areas of exposure
- Schedule earthwork during drier times of the year
- Retain vegetation where possible, especially on the steeper slope areas within SKIA
- Seed or plant appropriate vegetation on exposed areas as soon as earthwork is completed
- Construct stabilized construction entrances with rock pads or truck washing stations to limit excess soil materials from entering the right-of-way
- Route surface water through temporary drainage channels around and away from disturbed soils or exposed slopes
- Use silt fences, temporary sedimentation ponds, or other suitable sedimentation control devices to collect and retain possible eroded material
- Cover exposed soil stockpiles and exposed slopes with plastic sheeting, as appropriate
- Use straw mulch and erosion control matting to stabilize graded areas and reduce erosion and runoff impacts to slopes, where appropriate
- Intercept and drain water from any surface seeps, if encountered
- Incorporate contract provisions allowing temporary cessation of work under certain, limited circumstances, if weather conditions warrant.

Seismic Hazards

With development consistent with the City of Bremerton Municipal Code and IBC, no additional mitigation measures would be required.

Settlement

Impacts associated with potential settlement of buildings, roadways, utilities, or other infrastructure improvements constructed on areas with peat deposits would be mitigated by use of typical design and construction measures that could include: partial to full removal of peat deposits and replacement with structural fill; preloading; use of geosynthetic reinforcing materials to support fill materials; settlement

monitoring; use of driven steel pipe or H-piles or rammed aggregate piers for building foundation support.

Construction Excavation

Impacts from temporary construction excavations could be mitigated through the use of properly designed and constructed excavation shoring systems or sloped excavations in accordance with *Safety Standards for Construction Work Part N,* Washington Administrative Code (WAC) 296-155.

Construction Dewatering

Site-specific investigations and analyses during the design and permitting process would determine what structures may require or be influenced by excavation dewatering. Mitigation measures to control the potential impact of excavation dewatering include site-specific design and control of dewatering systems, minimizing the extent and duration of dewatering, and monitoring for settlement.

Extracted groundwater may contain certain chemical contaminants and/or high turbidity, which might necessitate special handling, treatment, and/or disposal methods. Mitigation measures include monitoring to assess the quality of dewatering discharges and treatment, if needed, to comply with applicable state and local requirements.

Placement of Structural Fill

Ground subsidence impacts could be mitigated by designing the fill to control adjacent settlements, including settlement monitoring and use of geosynthetic reinforcing materials to support fill materials over peat. Adjacent structures/surfaces could be monitored during construction to verify that no adverse settlement occurs.

Placement of structural fill to modify site grades adjacent to high or moderate geologically hazardous areas would require site-specific geotechnical investigations, slope stability analyses, and design and construction of earth retention structures, fill slopes, and drainage and erosion control measures as needed to stabilize the area.

Foundation Construction

Foundation construction impacts could be mitigated by site specific design and construction procedures, including temporary excavation shoring and dewatering, overexcavation of unsuitable materials and replacement with structural fill, use of deep foundations or ground improvement techniques, conducting pre- and post-construction surveys of nearby buildings, monitoring of ground movements, and vibration monitoring during pile installation.

Aquifer Recharge Areas

Groundwater protection strategies to be used for onsite improvements will be determined as part of the specific design and permit process for infrastructure and individual buildings associated with future site development. Site-specific studies and evaluations would be conducted in accordance with City of Bremerton Municipal Code requirements, including conditions set forth by the City's CAO. Methods are available to build out SKIA without resulting in significant unavoidable adverse impacts. Mitigation measures to limit impacts to aquifer recharge areas during each major stage of project are discussed below.

Construction impacts are short-term impacts that could occur during the construction phase of site redevelopment. BMPs to manage site construction and operation activities will be in place to reduce potential impacts to aquifer recharge areas. Environmental monitoring during the construction process will verify that required best management practices are followed.

BMP's required under the City's CAO to control construction-related impacts include, but are not limited to, proper containment and storage of construction materials, proper containment and disposal of waste materials, and appropriate and effective management of stormwater.

BMP's required under the City's CAO to control operational-related impacts include, but are not limited to, spill control plans, waste management plans, and appropriate long-term management of sanitary sewer and stormwater management infrastructure.

Plants and Animals

The following mitigation measures would reduce potential impacts to plants, animals, and their habitat.

- Required stormwater best management practices would attenuate flows and prevent polluted water from entering the stormwater system and ensure that construction and operation activities would not impact the ESA-listed species, critical habitats, or Essential Fish Habitat in Sinclair Inlet, Hood Canal, North Bay, and/or their tributaries in the project vicinity.
- Comply with critical area mitigation sequence requirements in the City of Bremerton critical areas ordinance to avoid, minimize, and mitigate for unavoidable impacts to wetlands, streams, and their buffers.
- Stream mitigation could include improving fish access through redesigned culvert crossings or installation of fish passable culverts associated with new road crossings. Install native plants,

as possible, and remove invasive plants, in accordance with Executive Order 13112, to provide habitat for native animals and to reduce future maintenance efforts.

- Nest removal for species protected under MBTA would occur outside of nesting season after birds have fledged.

Proposed Plan Features

Aquifer Recharge Areas

- Incorporate Low Impact Development (LID) stormwater features as a means to infiltrate stormwater and match or improve the hydrologic cycle. Examples of LID stormwater measures include underground injection control, bioretention cells, bioswales, porous pavement, green roofs, rainwater harvesting, stormwater dispersion, sustainable site planning and layout, and phytoremediation.

Plants and Animals

- Sensitive site design to minimize impact to vegetated habitats not protected under the City's Critical Areas regulations.
- Apply landscape and development standards applicable to tree protection, including, but not limited to:
  - Install fencing around trees/forested areas before mobilization to prevent damage from construction activities
  - Removing or replacing impervious areas adjacent to trees/forests with permeable surfaces to provide more water to root systems
  - Preserve trees and groups of trees (i.e., groves) to the extent practical. Incorporate existing trees into urban design to assist in stormwater retention and microclimate management of buildings (i.e., shading and energy savings associated with heating/cooling)
  - Transplant existing trees intended for removal from construction activities
  - Apply arboricultural practices to the remaining trees to ensure a prolonged and healthy tree life.

- Establish a thorough landscape maintenance program during and after construction to ensure the vegetation remains healthy and free of invasive/undesirable plants. Encourage development to incorporate Integrated Pest Management (IPM) into landscape plans.

3.1.4 Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts are anticipated to the natural environment.

3.2 CLIMATE CHANGE AND GREENHOUSE GAS EMISSIONS

3.2.1 Affected Environment

In 2008[1], the Department of Ecology issued a memorandum stating that climate change and greenhouse gas emissions should be included in all State Environmental Policy Act (SEPA) analyses. Please see Appendix E for background information on climate change and greenhouse gas emissions, federal and state legislation and guidance regarding greenhouse gas emissions, as well as calculation worksheets for greenhouse gas emissions from the SKIA study area.

Greenhouse gases (GHG), such as carbon dioxide, methane, and nitrous oxide, are emitted by both natural processes and human activities and trap heat in the atmosphere. The accumulation of GHG in the atmosphere affects the earth's temperature.

City of Bremerton

The City of Bremerton has received EPA Climate Showcase Communities Grant Program funds that will assist the City in developing plans, conducting demonstrations, and implementing projects that reduce greenhouse gas emissions while achieving additional environmental, economic, public health, and/or community benefits. The overall goal of the Climate Showcase Communities program is to create replicable models of sustainable community action that generate cost-effective and persistent greenhouse gas reductions while improving the environmental, economic, public health, or social conditions in a community. This is the goal of this SKIA planning process.

As described above, reduction of greenhouse gas (GHG) emissions in the designated SKIA Manufacturing Industrial Center (MIC) is a key goal of this project. As described in Section 3.3, Land Use, the MIC designation emphasizes industrial and manufacturing uses that cannot be easily mixed with other activities, such as residential uses. For this reason, mixed use development within the SKIA subarea is not a GHG reduction strategy for this project. A variety of other strategies that could implemented and are consistent with the MIC designation are discussed later in this section.

The City of Bremerton has not yet established greenhouse gas (GHG) analysis requirements as part of its SEPA process for development projects. As outlined in Appendix E, King County and the City of Seattle are among the first jurisdictions to have developed policies that consider

[1] Manning, Jay. RE: Climate Change - SEPA Environmental Review of Proposals, April 30, 2008.

the impacts of GHG emissions during the SEPA process and a spreadsheet tool to support these processes. Therefore, the City of Bremerton plans to work with the City of Seattle and King County to adapt their spreadsheet tool and their existing policies into its jurisdictional SEPA environmental review process as part of this SKIA Master Planning Process.

Methodologies

Calculating Greenhouse Gas Emissions using the King County SEPA GHG Spreadsheet

Tabulation of existing greenhouse gas emissions within the SKIA subarea was based on the SEPA Greenhouse Gas Emissions spreadsheet tool developed by King County[2]. The King County spreadsheet is a comprehensive spreadsheet tool that encompasses a variety of emissions categories that estimates GHG emissions related to the building materials, energy consumed at the development, and transportation to and from the development. In accordance with findings regarding the primary sources of greenhouse gas emissions, this tabulation focused on three areas/sources of emissions as described below.

- **Building materials and processes (Embodied emissions)**. This portion of the calculation considered both the "upstream" (i.e., mining, harvest, manufacturing, and transport) and the "downstream" (i.e., subsequent, "in place" use and maintenance) of building materials. The King County spreadsheet lifespan of the buildings is projected to be 62.5 years for Industrial uses.

- **Post-development energy usage (Energy)**. This element considered energy consumption such as heating and electrical usage. No consideration was made to whether or not the buildings would incorporate Built Green or Energy Star ratings, or LEED® ratings. Some studies suggest that these ratings could represent at least 20 percent reductions in overall energy usage.

- **Transportation (Transport)**. This component considered GHG emissions related to vehicle travel of residences and employees. The King County default calculation was used to calculate existing conditions in Table 3.2-1, which includes annual miles traveled and mileage assumptions for residents.

[2] http://www.kingcounty.gov/property/permits/publications/~/media/property/permits/documents/forms/SEPA_GHG_EmissionsWorksheet_Bulletin26PDF.ashx

To estimate the GHG emissions of the existing development within the SKIA subarea, the City of Bremerton provided the following existing land use information:

- 1,016 industrial jobs located in 521,700 square feet of building space;
- 26 restaurant jobs located in 5,500 square feet of building space; and
- single family homes

Other uses that do not generate a substantial amount of traffic, such as forest land, were not included in the GHG emissions estimate.

Table 3.2-1 provides greenhouse gas emissions estimates from the existing development within the SKIA subarea based upon the *King County Greenhouse Gas Emissions Inventory Worksheets*.

Table 3.2-1: Greenhouse Gas Emissions

Methodology	Embodied Emissions ($MTC0_2e$)	Energy Emissions ($MTC0_2e$)	Transportation Emissions ($MTC0_2e$)	Total Estimated Existing GHG Emissions ($MTC0_2e$)*
King County SEPA GHG Emissions Worksheet	20,953	680,388	140,330	841,761

**** Total may differ than sum due to rounding during calculation.***

Based upon the calculations from the King County SEPA GHG Emissions worksheet, the SKIA subarea currently generates roughly 841,761 $MTCO_2e$[3] GHG emissions.

On-Road Transportation Greenhouse Gas Emissions

Greenhouse gas (GHG) emissions analyses for land use developments in the Puget Sound Region are typically prepared using a spreadsheet tool developed by King County (discussed above). While the spreadsheet tool encompasses a variety of emissions categories, it is designed for high-level planning and lacks the detail necessary to prepare an accurate estimate of GHG emissions for a project like SKIA. The lack of detail is particularly pronounced when it comes to estimating transportation related GHG emissions.

[3] $MTCO_2e$ is defined as Metric Ton Carbon Dioxide Equivalent; equates to 2204.62 pounds of CO_2. This is a standard measure of amount of equivalent CO2 emissions

To provide a more accurate estimate of the transportation related GHG emissions of the SKIA site, a more detailed tool developed by Fehr & Peers was used. In the Fehr & Peers tool, land use information, such as the number of residents, employees, and square footage of building space is entered to estimate the number of vehicle trips generated by the study area. This trip generation estimate is then adjusted to account for factors like short vehicle and non-motorized trips that remain internal to the study area, trips made by other modes, and "pass-by" retail trips[4].

Based on this trip generation estimate, the tool then calculates the total amount of vehicle-miles traveled (VMT) using trip length survey results from the Puget Sound Regional Council and the US Census Bureau. The trip length data account for different distances that employees and residents travel for commute, shopping, and other types of travel. Most importantly for an industrial area like SKIA, a separate trip length factor is also included to account for delivery and shipment of goods to and from industrial areas. Table 3.2-2 compares the average trip lengths for the SKIA study area and for the City of Bremerton as a whole. As shown in the table, the average trip lengths for SKIA are longer than those in the City of Bremerton, reflecting the isolated nature of the site.

Table 3.2-2: Average Trip Length (in miles)

Type of Trip	SKIA Study Area	City of Bremerton
Work commute	17	11
Shopping/services	15*	6
Truck deliveries	38	33

Source: Puget Sound Regional Council, 2010, US Census Bureau, 2009.
Note: *Small sample

The land use information discussed above was entered into the Fehr & Peers VMT-GHG analysis tool, along with the detailed trip length information described above. Note that while the VMT-GHG tool is based on trip generation rates from the Institute of Transportation Engineers (ITE) Trip Generation document, traffic counts collected at the SKIA site indicate that the actual trip generation of the industrial and airport uses

4 Pass-by trips are defined by ITE as vehicle trips that visit a land use solely because it is already on the traveler's primary route. In other words, the driver will make the trip along the road even if the land use was not there, but a trip to the land use is made because it is in the way to the primary destination. Pass-by trips are only valid for retail uses and constitute a substantial portion of trips to uses like gas stations, fast food restaurants, and supermarkets.

on the SKIA site is approximately half of the observed ITE rate. Therefore, based on the recommendation in Trip Generation, the locally observed trip generation information was used for the industrial and airport portions of SKIA.

The VMT-GHG tool estimates average weekday and annual GHG emissions in the form of "metric tons of carbon dioxide equivalent (CO2e)[5]." To develop "lifetime" GHG emissions estimates that are similar to those produced by the King County GHG spreadsheet tool, the average building lifespan defined in the King County tool was used to factor up the annual GHG emissions estimates described above. The results of the transportation GHG emissions estimates are presented in Table 3.2-3.

Table 3.2-3: SKIA Existing Conditions Transportation GHG Emissions

Time Period	GHG Emissions in Metric Tons of CO2e
Average Weekday	32.5
Annual	11,443
Lifetime	715,182

Source: Fehr & Peers, 2010.

The numbers above can be difficult to interpret since there are no common frames of reference to compare total GHG emissions for a developed area. However, since transportation GHG emissions are closely related to VMT, the data in Table 3.2-3 indicates that the SKIA development will generate more GHG emissions per job than a comparable development located closer to the center of Bremerton. If the average Bremerton VMT data were substituted into the SKIA analysis, the average transportation GHG emissions would be about 43 percent less.

Table 3.3-4 provides greenhouse gas emissions estimates from the existing development within the SKIA subarea based partly upon the *King County Greenhouse Gas Emissions Inventory Worksheets*; lifetime transportation GHG Emissions from Table 3.2-4 were substituted for the transportation estimates included in the King County worksheets.

[5] CO_2e is commonly used in GHG analyses since it simplifies the reporting of GHG emissions to a single number. For transportation, over 95 percent of all GHG emissions are in the form of carbon dioxide.

Table 3.2-4: Greenhouse Gas Emissions Adjusted for Transportation

Methodology	Embodied Emissions ($MTC0_2e$)	Energy Emissions ($MTC0_2e$)	Transportation Emissions ($MTC0_2e$)	Total Estimated Existing GHG Emissions ($MTC0_2e$)
King County Spreadsheet w/VMT-GHG Transportation Emissions	20,953	680,388	715,182	1,416,576

Based upon the calculations from the table above, the SKIA subarea currently generates roughly 1,416,576 $MTCO_2e$[6] GHG emissions.

Calculating In-Air Transportation GHG Emissions using the Airport Cooperative Research Program (ACRP) Report 11: Guidebook on Preparing Airport Greenhouse Gas Emissions Inventories

The SKIA site contains the Bremerton National airport, an important facility that serves general aviation as well as air freight uses. While the methodology described in the previous section accounts for the GHG emissions of the on-road vehicles that access the airport, it does not address other transportation related GHG emissions associated with the airport. According to the Airport Cooperative Research Program (ACRP) Report 11: Guidebook on Preparing Airport Greenhouse Gas Emissions Inventories (Transportation Research Board, 2009), GHG emissions from aircraft operations (take off, taxi, landing, travel to the airport) typically far exceed the GHG emissions of all other transportation sources (travel to the airport by cars, trucks, and busses, and tarmac vehicle activities like airplane tugs, baggage vehicles, and fuel tankers).

For the purposes of this analysis, the GHG emissions of aircraft operations were calculated consistent with the methodologies suggested by the ACRP Report. However, the emissions of tarmac vehicle operations were not calculated since there is not sufficient data about these types of vehicles and because these activities do not substantially contribute to the emissions of the airport.

The ACRP Report recommends that in-air GHG emissions associated with an airport be calculated for departure flights only. The reason behind this

[6] $MTCO_2e$ is defined as Metric Ton Carbon Dioxide Equivalent; equates to 2204.62 pounds of CO_2. This is a standard measure of amount of equivalent CO2 emissions

methodology is to avoid double-counting GHG emissions between departure and arrival airports. This methodology is widely recognized and has been adopted by other airports in the region like the Seattle-Tacoma International Airport and Boeing Field. Since it can be difficult to determine the exact flight patterns (destination, route, speed, etc) of all departing aircraft, the ACRP Report suggests that fuel consumption at the airport be used to estimate GHG emissions.

The Port of Bremerton supplied annual fuel sales for 2008 and 2009 (see Table 3.2-5). Average annual GHG emissions were calculated by using average annual fuel sales, CO_2 emissions factors from the US Department of Energy, and a CO_2e conversion factor from the US EPA. Lastly, to report GHG emissions consistent with other land uses in the King County spreadsheet, a lifetime GHG emissions estimate was calculated. This lifespan GHG calculation may be less meaningful than the other lifespan GHG estimates in the King County spreadsheet since it assumes no increase or decrease in aircraft operations over the long-term. Consistent with other industrial and service uses, the lifespan of the Bremerton National Airport was assumed at 62.5 years. Table 3.2-6 presents the airport's average annual and lifetime GHG emissions estimates for in-air travel.

Table 3.2-5: Bremerton National Airport Aviation Fuel Sales

Fuel Type	2008 Fuel Sales in Gallons	2009 Fuel Sales in Gallons
Aviation Gasoline	202,149	194,290
Jet Fuel	71,490	70,000

Source: Port of Bremerton, 2010.

Table 3.2-6: Bremerton National Airport In-Air GHG Emissions

Time Period	GHG Emissions in Metric Tons of CO2e
Annual	2,443
Lifetime	152,658

Source: Fehr & Peers, 2010.

Table 3.2-7 provides greenhouse gas emissions estimates from the existing development within the SKIA subarea based partly upon the *King County Greenhouse Gas Emissions Inventory Worksheets.* Lifetime transportation GHG Emissions from Table 3.2-7 were substituted for the transportation estimates included in the King County worksheets, and estimated ACRP airport GHG emissions were added to the total estimate of lifetime GHG emissions in the worksheet.

Table 3.2-7: Greenhouse Gas Emissions including Airport Emissions

Methodology	Embodied Emissions ($MTC0_2e$)	Energy Emissions ($MTC0_2e$)	Transportation Emissions ($MTC0_2e$)	In-Air Emissions ($MTC0_2e$)	Total Estimated Existing GHG Emissions ($MTC0_2e$)
King County Spreadsheet w/VMT-GHG Tool + ACRP Report	20,953	680,388	715,182	152,658	1,569,234

Based upon the calculations from the table above, the SKIA subarea currently generates roughly 1,569,234 $MTCO_2e$[7] GHG emissions.

Conclusions

Table 3.2-8 summarizes greenhouse gas emissions estimates from the existing development within the SKIA subarea based upon the different methodologies discussed in this section. The estimates provided are based upon the best methodology available at this time. The completed SEPA Greenhouse Gas Emissions Worksheets, as well as an explanation of the methodology employed to create the formulas, are included in Appendix E.

Table 3.2-8: Existing Greenhouse Gas Emissions

Methodology	Estimated Existing GHG Emissions ($MTC0_2e$)
King County Spreadsheet	841,761
King County Spreadsheet w/VMT-GHG Tool	1,416,576
King County Spreadsheet w/VMT-GHG Tool + ACRP Report	1,569,234

The results above indicate that the isolated location of SKIA increases the GHG intensity of traveling to the site. In other words, most people would drive to destinations within SKIA as opposed to using alternative modes of transportation that might have lower GHG Emissions per trip (i.e., walking, bicycling, using transit). However, this same isolation provides opportunities that are not available in more developed areas, such as large tracts of open land and access to rail and airport facilities. As part of the planning process, the project team has identified potential site design and operations measures to reduce the GHG emissions of the site.

[7] $MTCO_2e$ is defined as Metric Ton Carbon Dioxide Equivalent; equates to 2204.62 pounds of CO_2. This is a standard measure of amount of equivalent CO2 emissions

3.2.2 Significant Impacts

GHG emissions under 2030 conditions for the three alternatives were estimated using a similar approach as described above. Below are some key assumptions related to each of the alternative scenarios:

Alternative 1 – No Action

This option represents the no action alternative. It assumes no zoning changes in the SKIA area and that employment growth will continue at its historic rate of about 4.6 percent per year. This level of growth will add approximately 1,400 new industrial jobs in 700,000 square feet of building space to the area, concentrated primarily in the Olympic View Industrial Park area. As part of this new development, approximately 1.6 lane miles of new roadway is assumed to be constructed to serve the new land uses.

Alternative 2 – Moderate Growth with Retail

This alternative includes an intermediate level of industrial growth throughout much of the SKIA site. All the industrial areas are assumed to have a limited amount of locally-serving retail and service uses which will reduce the need for industrial employees to travel off-site for activities like lunch, dry cleaning, and banking. This scenario also assumes a mixed-use development area near the intersection of SR 3 and Lake Flora Road that will contain regional retail and office, but no residential uses. Under Alternative 2 it is assumed that a total of 6,500 new jobs, including 1,200 retail/commercial jobs will occur throughout the SKIA site. This equates to approximately 2,500,000 square feet of new industrial buildings, 600,000 square feet of new retail buildings, 150,000 square feet of new office buildings, and 37.2 lane miles of new roadway, including completion of the Cross SKIA Road to Lake Flora Road and widening of SR 3 to include the Belfair Bypass and a total of four lanes between Lake Flora Road and SR 16.

Alternative 3 – High Growth

This alternative assumes the highest level of growth. Under this alternative, the majority of the new employment will be industrial in nature; however, limited locally-serving retail and services uses are assumed to be located within the industrial developments. This alternative assumes that about 10,000 new jobs will be added to the SKIA area. This level of development equates to approximately 5,000,000 square feet of new industrial building space and 44.2 lane miles of new roadway, including completion of the Cross SKIA Road to Lake Flora Road and the SR 3 improvements recommended in the mitigation section of the Transportation chapter.

Travel Characteristics to the SKIA Site

While the SKIA proposals envision substantial growth in employment under Alternatives 2 and 3 by 2030, much of the balance of Kitsap and Mason Counties will experience only moderate growth. Therefore, for the purposes of this analysis, the travel characteristics (i.e., average trip lengths) are generally not assumed to change between 2010 and 2030 conditions. This is a conservative assumption since historic trends indicate as land development intensifies, trip lengths tend to decline over time.

The exception to the average trip length assumption relates to shopping/service trips under the Alternative 2 scenario. Based on information provided by the City of Bremerton, the retail portion of Alternative 2 is envisioned as a mixed use development with a blend of outlet center, entertainment center, and office uses. The retail development would serve populations in a 25 to 75 mile trade area. This regional destination use is likely to draw longer shopping trips than occur under existing conditions. For this analysis, it is assumed that the average shopping trip increases in length from 15 miles under existing conditions to 20 miles under 2030 Alternative 2 conditions. For reference, the following list summarizes the distance from SKIA to several major communities in the area:

- Shelton: 28 miles
- Bremerton City Center: 9 miles
- Silverdale: 13 miles
- Poulsbo: 22 miles
- Gig Harbor: 21 miles

Bremerton National Airport

While Bremerton National Airport is situated in the Center of the SKIA site, Alternatives 2 and 3 do not specifically seek to expand the number of take-offs and landings at the airport. Therefore, under all alternatives, airport activity is anticipated to grow consistent with overall county population and employment, at about 4.6 percent per year, based on 2009 levels. It is important to note that fuel usage showed a slight decrease in 2009 from 2008 levels. Assuming constant growth in this sector may potentially overstate the future emissions from the air transportation sector.

Future Year Emissions Calculations

This section summarizes the results of the future year GHG emissions calculations for each of the alternatives. Since the emissions from the Bremerton National Airport is the same under all circumstances, the calculation of airport-related GHG emissions is handled separately.

Airport GHG Emissions

The method for calculating GHG emissions for the air transportation sector was discussed in the existing conditions section. Assuming an average annual growth in fuel sales that is equal to background Kitsap/Mason County growth rates, fuel sales in 2030 were calculated below.

Table 3.2-9: Bremerton National Airport Aviation Fuel Sales, 2009 and 2030

Fuel Type	2009 Fuel Sales in Gallons	2030 Fuel Sales in Gallons
Aviation Gasoline	194,290	381,970
Jet Fuel	70,000	137,620

Source: Port of Bremerton, 2010, Fehr & Peers, 2011.

Based on the volume of fuel sales estimated in 2030, Table 3.2-10 summarizes the GHG emissions related to those fuel sales. As was the case under existing conditions, the "lifetime" GHG emissions are calculated to be consistent with the methodology in the King County SEPA worksheet. This lifetime calculation is based on a 62.5 year lifespan of the airport.

Table 3.2-10: Bremerton National Airport In-Air GHG Emissions, 2030

Time Period	GHG Emissions in Metric Tons of CO2e
Annual	4,719
Lifetime	294,985

Source: Fehr & Peers, 2011.

Future Alternative Emissions

GHG emissions for 2030 scenarios were calculated using the methods described in the Methodologies section above. The King County SEPA GHG Emissions worksheet was used to calculate embodied and energy emissions and the Fehr & Peers VMT-GHG Analysis Tool calculated the transportation emissions. The results from the in-air emissions for the Bremerton National Airport for 2030 were also added. Table 3.2-11 shows the results for each alternative.

Table 3.2-11: Total Greenhouse Gas Emissions, 2030 Alternatives

Scenario	Embodied Emissions ($MTC0_2e$)	Energy Emissions ($MTC0_2e$)	Transportation Emissions ($MTC0_2e$)	In-Air Emissions ($MTC0_2e$)	Total Estimated 2030 GHG Emissions ($MTC0_2e$)
Alternative 1	35,151	894,872	888,854	294,985	2,113,862
Alternative 2	268,176	3,650,778	6,005,997	294,985	10,219,936
Alternative 3	371,278	6,391,942	7,194,642	294,985	14,252,847

Source: Fehr & Peers, 2011.

Comparison of Results

The results in Table 3.2-11 are reasonable given the growth projections described above. While it is expected that the highest level of development will add the highest level of total new GHG emissions, it is important to place those new emissions in context by looking at them in terms of GHG per job added.

Alternatives 1-3 vary in employment density and, in the case of Alternative 2, vary in the types of employment. Table 3.2-12, below, shows the total estimated lifespan GHG emissions (not including the Bremerton Airport) per employee for each development alternative.

Table 3.2-12: GHG Emissions per Employee

Alternative	Total Lifetime Development GHG ($MTC0_2e$)	Total Employees	Lifetime GHG Emissions per Employee ($MTC0_2e$)
Alternative 1 – No Action	1,818,877	1,400	1,299
Alternative 2	9,924,951	6,500	1,527
Alternative 3	13,957,862	10,000	1,396

Source: Fehr & Peers, 2011.

As Table 3.2-19 shows, the GHG emissions per employee emissions are highest in Alternative 2. This is not surprising since the large destination retail component of this alternative leads to an increase in both the number of trips and the overall average distance of trips.

Alternative 1 and Alternative 3 have very similar employment types, but Alternative 3 requires construction of new roads in the SKIA project area. In addition, the based on the City of Bremerton, it is assumed that the intensity of the land uses under Alternative 3 will be slightly higher than under Alternative 1 (e.g., Alternative 1 is more limited industrial in nature, while Alternative 3 has more intensive industrial uses with limited office and retail space).

Summary of Significant Impacts

As described above, Alternatives 2 and 3 lead to higher total GHG emissions levels and higher per-employee GHG emissions rates. While the City of Bremerton does not have significance thresholds regarding GHG emissions impacts, for the purposes of this analysis, both Alternative 2 and Alternative 3 are said to have significant GHG emissions impacts.

3.2.3 Mitigation Measures

In its application for the US EPA Climate Showcase Communities Grant, the City of Bremerton identified a goal to reduce the lifetime GHG emissions of the SKIA project by 912,000 metric tons of carbon dioxide equivalent, or about 30 percent of the initial estimate of GHG emissions.

This section describes mitigation measures that could be implemented at the SKIA site to help reduce the carbon footprint of future development.

Proposed Plan Features

Based on the goals and strategies listed in the SKIA Subarea plan, some or all of the following GHG reduction strategies could be implemented at SKIA:

- Adopt green building standards for all new development – examples include the requirement that all buildings meet energy efficiency goals equivalent to a LEED Silver or better rating.
- Adopt comprehensive low impact development (LID) standards for storm water treatment for all public and private areas on the site.
- Require that a portion of the electricity demand be met through the construction of renewable power generation or purchases of renewable electricity.

- Adopt energy efficient outdoor lighting standards that utilize advanced lighting technologies like LED and induction fluorescent where practical.
- Adopt compact development standards that achieve economic development goals while retaining at least 25 percent of the SKIA site as forest land.
- Adopt a mandatory commute trip reduction program for all employers in the SKIA site. This commute trip reduction program will include the establishment of the following:
  - Mode split goals
  - Mode split monitoring program
  - Mode split goal implementation program
  - Transportation management agency which provides resources for employers such as carpool matching, vanpool/transit information, and a guaranteed ride home program.
- In conjunction with a commute trip reduction program, expand transit options such as the Kitsap Transit vanpool program or new fixed route bus service.
- Work with surrounding jurisdictions to provide more housing options near SKIA that do not conflict with airport operations.
- Encourage the development of support retail and service uses within the industrial employment clusters within SKIA.
- Implement efficient transportation design standards including the use of roundabouts and LED lighting where appropriate.
- Encourage the development of locally serving industries that support other major uses in the area such as the US Navy.

Table 3.2-13 below shows the amount of GHG emissions reductions that could be achieved through each of the strategies listed above. It is assumed that the strategies will only be implemented under Alternatives 2 and 3, since Alternative 1 represents the No Action alternative. The level of GHG emissions reduction varies for the two action alternatives since the total GHG emissions is different, as described in the previous section. See Appendix E for assumptions related to the GHG emissions reductions and the literature sources.

As shown in the table, a variety of the GHG reduction strategies can be used to achieve the 912,000 metric ton of carbon dioxide equivalent goal; however, to achieve a 30 percent reduction of the revised GHG estimates will require that most of the strategies be implemented.

Table 3.2-13: GHG Emissions Reductions

GHG Reduction Strategy	Alternative 2 Reductions ($MTC0_2e$)	Alternative 3 Reductions ($MTC0_2e$)
Green Building Standards	912,695	1,597,986
Renewable Electricity	305,570	535,006
Energy Efficient Outdoor Lighting Standards	73,016	127,839
Compact Development Standards (with forest retention)	1,887,000	1,887,000
Mandatory Commute Trip Reduction Program	78,078	168,355
Expanded Vanpool/Transit	60,060	129,504
Additional Housing Near SKIA	249,849	299,297
Support Retail and Services	39,039	46,765
Efficient Transportation Design Standards	3,000	3,000
Encourage Locally Serving Industries	19,519	23,383
Total (% reduction)	**3,624,826 (35%)**	**4,815,133 (34%)**

Source: Fehr & Peers, 2011.

3.2.4 Significant Unavoidable Adverse Impacts

The data in Table 3.2-13 indicates that a variety of GHG reduction strategies taken in combination can reduce SKIA's GHG emissions by the stated goal of 912,000 metric tons of carbon dioxide equivalent or 30 percent of the sites total GHG emissions. Therefore with some or all of these strategies implemented, there would be no significant unavoidable adverse impacts to greenhouse gas emissions.

3.3 LAND USE/PLAN AND POLICIES

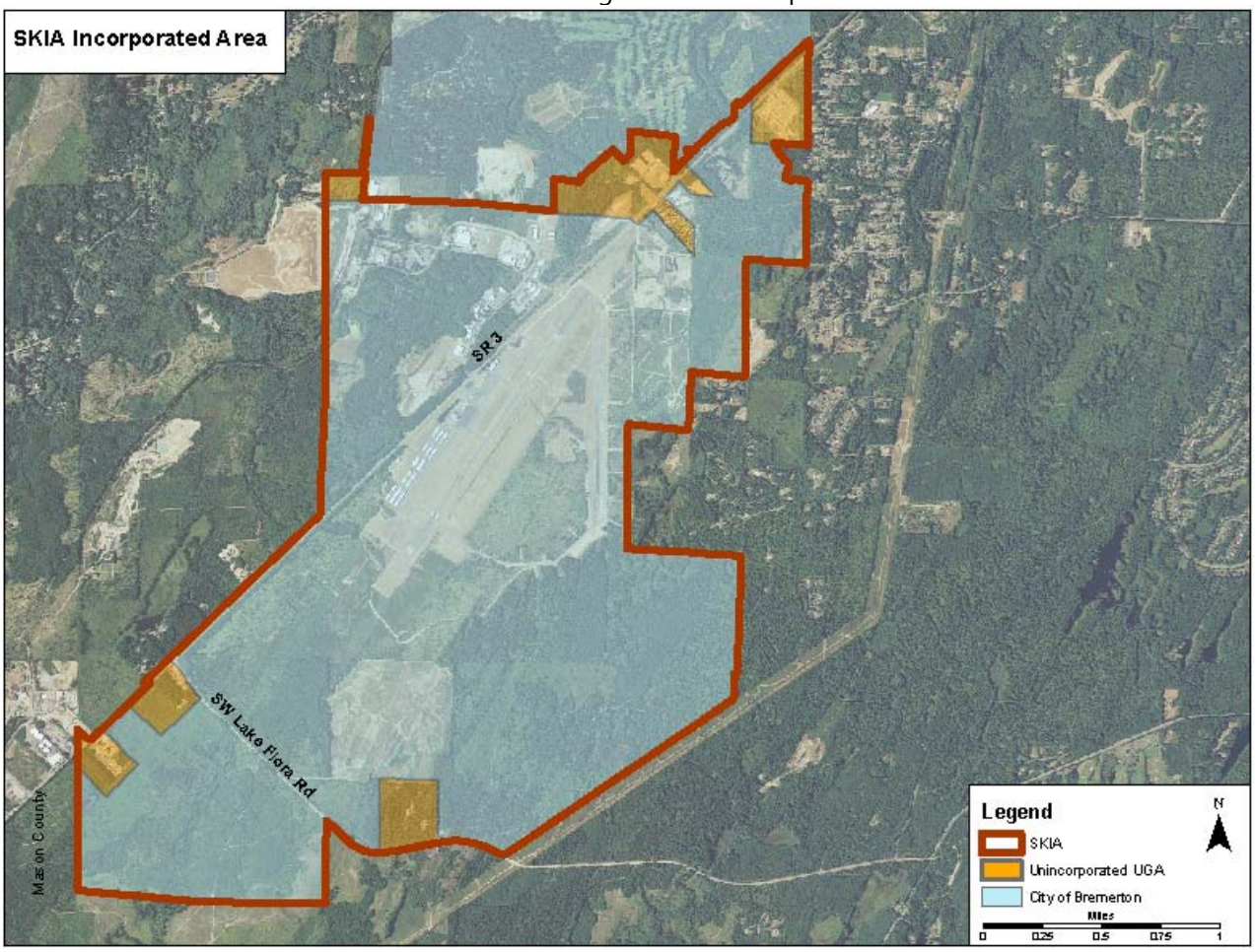
3.3.1 Affected Environment

The following discussion is based on a review of existing land use patterns, using aerial photos and data provided by the City of Bremerton and Kitsap County. The City of Bremerton Comprehensive Plan and Bremerton Municipal Code were reviewed for applicable planning policies and zoning requirements for the South Kitsap Industrial Area (SKIA). Also reviewed were related plans, policies and zoning for surrounding jurisdictions and agencies that have played a role in the planning for SKIA. These include Kitsap County, City of Port Orchard, Port of Bremerton, Mason County, and the Puget Sound Regional Council (PSRC).

Existing Land Use

The majority of the SKIA study area (93%) now lies within the City of Bremerton as result of several recent annexations totaling approximately 3,590 acres. Approximately 265 acres within SKIA is unincorporated, but is located within the City of Bremerton's UGA. See Figure 3.3-1. A key feature of SKIA is the large amount of unimproved land, which comprises approximately 50% of the total land area. Unimproved land includes areas classified by the Kitsap County Assessor as forest land (43%) and areas classified as undeveloped (8%) by the Kitsap County Assessor. Land classified as forest land by the Assessor includes parcels of 20 or more contiguous acres primarily dedicated to timber production. Forest land within SKIA is not designated as Forest Resource Lands by Kitsap County under the Growth Management Act (GMA). The second largest land use within SKIA is the Bremerton National Airport, which comprises approximately 30% of the total land area. Other land use classifications that occur within the SKIA include general warehousing, auto wrecking yards, mobile homes, single family residential, and miscellaneous services.

Figure 3.3-1: Incorporated Area



Source: AHBL, 2010

According to Kitsap County Assessor land use classification data, the unincorporated portion of SKIA is comprised of a mix of land use classifications, including forest land, undeveloped land, single-family residential , mobile homes, auto wrecking yards, commercial timber, recreation, mini-warehouses, and sheds and garages. See Figure 3.3-2.

Table 3.3-1 provides a summary of land use classifications and percent land area.

Table 3.3-1: SKIA Land Use Classifications

Land Use Classification	Total Area (acres)	Percent of Total Area
Forest Land[1]	1,573	43%
Aircraft Transport	1,090	30%
General Warehouse	573	16%
Undeveloped	278	8%
Auto Wrecking Yard	27	<1%
Recreation	27	<1%
Single-Family Residential	24	<1%
Commercial (CU) Timber	23	<1%
Mobile Home2	20	<1%
Misc. Services	13	<1%
Mini-warehouse	7	<1%
Sheds and Garages3	5	<1%

Source: Kitsap County Assessor, August 2010

[1] Forest Land is land of 20 or more contiguous acres primarily devoted to and used for growing and harvesting timber (Designated Forest Land, Kitsap County Assessor), and is not designated as Forest Resource Land by Kitsap County or the City of Bremerton.

[2] Two categories, MH-Real Property and MH-Community, were combined

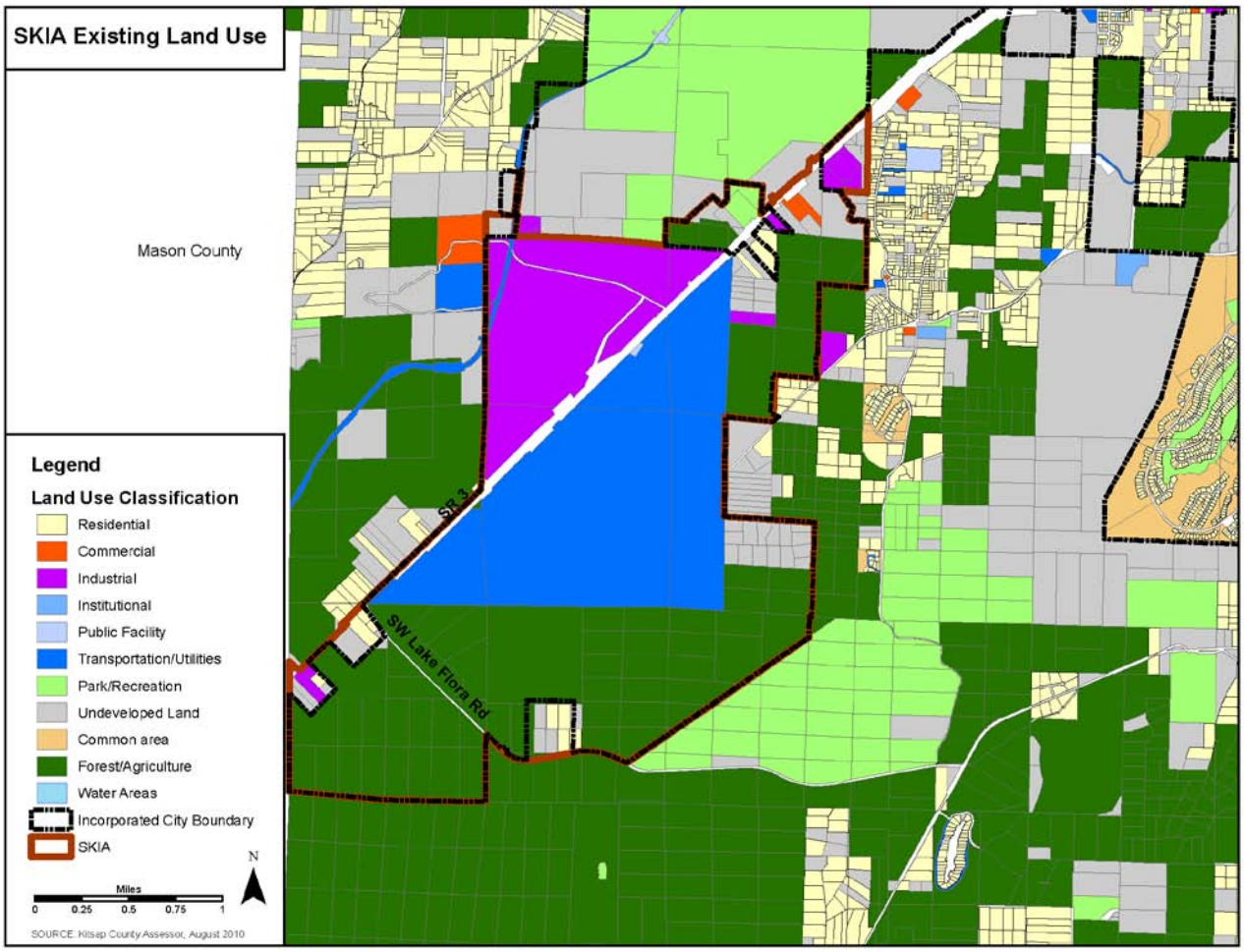
[3] Appears to be an accessory use to single family residences or mobile homes.

The Port of Bremerton owns and manages the Bremerton National Airport and the Olympic View Industrial Park, which are both located within the SKIA boundary. The airport property consists of 1,118 acres with approximately 36,672 square feet of buildings owned by the Port and 22,400 square feet of buildings that are privately owned.

The Olympic View Industrial Park is approximately 561 acres, contains industrial and related office uses and is located in the northwest corner of SKIA. Within this office/industrial park there is approximately 468,152 total square feet of buildings, which are occupied by a variety of light industrial and manufacturing uses, as well as warehouse and distribution uses. As of August 2010, 9% of the 166,462 square feet of buildings owned by the Port were vacant.

Non-residential development outside of the Port properties is limited to auto wrecking yards, a mini-warehouse, and a general warehouse use. No data was available for determining building square footage on these properties. Based on aerial photographs, it is assumed that the amount of building square footage on non-Port properties is limited.

Figure 3.3-2: SKIA Existing Land Use

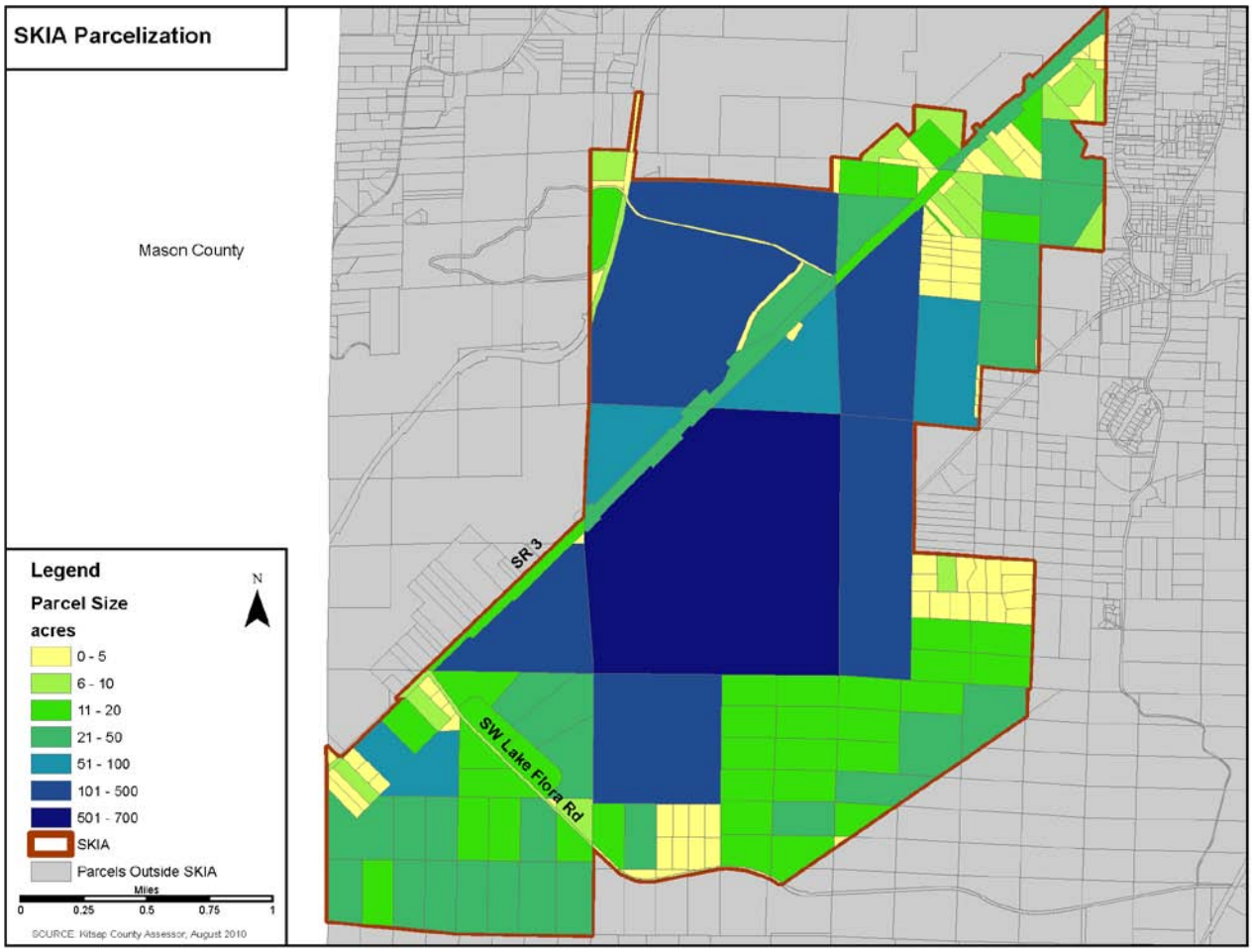


Source: Kitsap County Assessor, 2010

Parcel Size and Distribution

SKIA contains 143 parcels that range in size from 0.34 acres to 1,090 acres with a median parcel size of 7.5 acres and an average parcel size of 25.6 acres. The largest parcels are associated with the Port of Bremerton properties, in the central portion of SKIA. Large parcels also occur in the northeast and south central portion of SKIA. A large number of parcels south of the airport are uniform in size (approximately 20 acres) and shape with a smaller number of parcels that are in the 30 to 40 acre range. Directly adjacent to the airport to the northeast there is a cluster of parcels that are in the two to five acre size range and classified as undeveloped. Further to the northeast there are five large parcels (25 to 78 acres) that are classified as forest land by the Kitsap County Assessor. There are a number of parcels located along SR 3 at the northeast and southwest ends of SKIA that are less than 10 acres in size. See Figure 3-3.

Figure 3.3-3: SKIA Parcel Size and Distribution



Source: Kitsap County Assessor, 2010

Land Use Characteristics of Surrounding Area

According to Kitsap County Assessor land use classification data and aerial photos, Gold Mountain Golf Course, owned by the City of Bremerton, is located north of SKIA. Undeveloped forest land and undeveloped land is also located north of SKIA. Single-family residential uses at suburban densities occur adjacent to the northeast boundary of SKIA, along Sunnyslope Road SW. Larger lot residential uses are mixed with forest land and undeveloped land along the eastern boundary. A large area of parks and recreation use (i.e. Coulter Creek Heritage Park) is located southeast of SKIA. Land uses to the south consist primarily of undeveloped forest land, with a small pocket of undeveloped land and residential land uses. There are a number of parcels on the west side of SR 3, opposite SW Lake Flora Road, outside of SKIA that are classified as single-family residential, mobile home or undeveloped. Land uses west of SKIA primarily contain a mix of undeveloped land and forest land. There are two large adjacent parcels located west of SKIA that are classified by

the Assessor as commercial and transportation/utility uses, respectively. However, aerial photos appear to indicate that this area has been recently cleared and graded. See Figure 3.3-2 for a map of Existing Land Use.

Areas adjacent to SKIA to the west and southwest within Mason County contain a mix of industrial land uses and undeveloped forest land. Areas south of SR 3 and immediately adjacent to the southwest corner of SKIA contain forest land, some of which has been recently harvested, according to aerial photos. Based on aerial photos, areas north of SR 3 contain a mix of industrial land uses, including construction materials storage, an auto wrecking yard and a warehouse distribution facility. One site north of SR 3 that straddles the county line appears to be under construction at the time the most current aerial photo was taken.

Land Use Compatibility

Factors that influence the degree to which different land uses in an area are compatible include: development intensity; specific impacts associated with a use or development, such as traffic, noise, air emissions or odor, light and glare, building form and height, aesthetics, and public safety; and the sensitivity of a given land use to those impacts. Land uses with significantly different intensities, impacts or sensitivities can pose compatibility issues when located in close proximity because they can each negatively impact the continued viability of adjoining uses.

SKIA has been designated as a Regional Manufacturing/Industrial Center (MIC) by the Puget Sound Regional Council (PSRC). Large retail uses, concentrations of housing, and non-related office uses are generally incompatible with the manufacturing and industrial uses envisioned in an MIC according to PSRC policy direction and criteria for MIC designation. See Section 3.3.3 for further discussion of SKIA's MIC designation and related PSRC policy direction. Some land uses, such as aviation, also require specific planning considerations for surrounding areas to assure public safety and continued viability.

Airport

The Bremerton National Airport is considered a public-use general aviation regional service airport. There are a number of land uses that pose compatibility concerns when located near airports. Residential uses, schools and noise-sensitive indoor and outdoor uses are generally

considered to be incompatible with airports due to the adverse effects of noise on these uses.[1]

Other uses that may be incompatible because they pose safety concerns to aircraft and airport operations include:

- Tall structures such as buildings wind farms, and antenna,
- Uses and natural features that attract birds,
- Power plants and other facilities that generate stream or thermal plumes,
- Uses that create smoke, dust or glare,
- Lighting that can be confused with airport lights, and
- Uses that can generate electronic interference with aircraft communications or navigation.[2]

Airports can also impact surrounding land uses because of the potential for damage to property and injury to people on the ground in the event of an accident. Generally, uses that concentrate large numbers of people, schools, hospitals, and critical community infrastructure, including power plants and emergency communications facilities, should not be located in close proximity to the airport runway.[3] Existing residential uses within SKIA may be considered incompatible with airport operations because of the adverse effects of noise on these uses. However, the total area of residential properties constitutes approximately 1% of SKIA and therefore this concern is limited to handful of properties, none of which are located in immediate proximity to aircraft operations.

Airport-related compatibility concerns can be addressed through comprehensive plan policies, development standards and/or performance standards. The *Washington State Airports and Compatible Land Use Guidebook* contains guidance on how local jurisdictions can address airports and land use compatibility in comprehensive plans, zoning ordinances, and with other tools that address specific airport compatibility factors.

Development within SKIA that occurs within defined areas of the airport zone, which is determined by the FAA, may be subject to FAA evaluation

[1] *Washington State Airports and Compatible Land Use Guidebook,* May, 2010. Prepared by Mead & Hunt for Washington Department of Transportation.
[2] Ibid.
[3] Ibid

per Federal Aviation Regulation (FAR) Part 77. FAR 77 allows the FAA to conduct an aeronautical study to identify potential aeronautical hazards, thus preventing or minimizing the adverse impacts to the safe and efficient use of navigable airspace. The FAA may then issue one of three responses: No Objection, Conditional Determination, and Objectionable. Federal law preempts local regulations in the area of aircraft safety, navigable airspace, flight operations and noise control. The federal preemption doctrine does not affect local government's ability to use its police powers, particularly land use controls, to anticipate, abate, mitigate and otherwise respond to other land use concerns provided they are reasonable permitting and mitigation requirements, which includes restricting incompatible land uses. [4]

Compatibility of Other Uses within SKIA

As mentioned above, there are a limited number of parcels within SKIA with single-family residential and mobile home uses which would generally be considered incompatible with industrial development due to the difference in land use intensity between the two uses and potential for impacts associated with industrial development (e.g. noise, odor, vibration, light, hours of operation, etc.). Other existing uses, i.e. timber production and general warehouse, are generally compatible with industrial development and do not have the potential to significantly impact the continued viability of existing uses. Some practices associated with timber harvest, including slash burning, site preparation using chemicals and heavy truck traffic, may cause limited short term impacts to adjoining uses. However, industrial uses are not particularly sensitive to these impacts.

Compatibility with Surrounding Land Uses

As stated above, existing land uses surrounding SKIA largely consist of forest land, which is generally compatible with planned industrial uses. In the surrounding area, the closest established residential area is located immediately adjacent to the northeast and eastern SKIA boundary. Residential densities appear to be highest along the northeast boundary of SKIA along Sunnyslope Road SW. In this area, potential land use compatibility associated with future industrial uses should be considered. Outside of this area, existing residential is primarily large lots. In addition the location of existing industrial development and significant undeveloped areas around the airport currently provide significant space

[4] Airport Land Use Compatibility Program, WSDOT

between residential and industrial uses, thereby minimizing the potential for negative impacts. Buffering industrial uses from these residential uses with setbacks, vegetative screening and other methods would help address potential incompatibilities between existing residential uses, future residential uses and any future industrial development occurring in adjacent portions of SKIA.

Plans and Policies

The Puget Sound Regional Council (PSRC) is a regional planning organization that develops policies and makes decisions about transportation planning, economic development and growth management in the four-county (King, Kitsap, Pierce, and Snohomish) Seattle metropolitan area surrounding Puget Sound. It is a forum for local governments, special districts, Native American tribes and state agencies to address common regional issues. The PSRC is a designated Metropolitan Planning Organization (MPO), and its duties include prioritizing and distributing federal transportation funds.

SKIA is one of eight Manufacturing/Industrial Centers (MIC) designated by the Puget Sound Regional Council (PSRC) within the four-county region. PSRC's *Vision 2040* Plan, which establishes a land use and transportation framework for the region for a 30-year planning period, recognizes MICs as important employment locations that serve both current and long-term regional economic objectives. *Vision 2040* calls for the provision of infrastructure and services in MICs necessary to serve intensive manufacturing and industrial activity. MICs are given funding priority both for transportation infrastructure and for economic development.

The Puget Sound Regional Council is required to certify that the transportation provisions in locally adopted comprehensive plans meet transportation planning requirements in GMA and are consistent with *Transportation 2040* (the Metropolitan Transportation Plan). In Vision 2040, page 98, the PSRC "asks" that the local jurisdictions prepare a subarea plan for each MIC within 4 years of designation and a compliance report that addresses conformity with requirements in the GMA for subarea plans, as well as regionally established criteria for center planning. This report will be the primary tool for developing the certification recommendation for the PSRC's boards to consider.

City of Bremerton Comprehensive Plan

The Growth Management Act (GMA) sets a framework for the planned and efficient growth of communities and protection of environmental and natural resources, and provides direction for developing comprehensive plans and subarea plans. Cities and counties planning under GMA must

prepare and update comprehensive plans consistent with the requirements of GMA, and implement them through their capital improvement plans, programs and development regulations. Policy direction for SKIA is currently provided by the Bremerton Comprehensive Plan.

The City of Bremerton's Comprehensive Plan provides general policy direction for promoting economic growth and attracting new employment opportunities citywide.

In 2008, the City amended the Comprehensive Plan to add the "SKIA Manufacturing/Industrial Center (SKIA MIC)" as a new center type. As stated in the 2008 amendment, the SKIA MIC is "expected to retain a different form of urban development than Bremerton's current regional or district centers. The physical size and location of this center allows strategic focused economic growth and it is expected to receive a significant proportion of Kitsap County's employment growth in the manufacturing and industrial sectors." This policy direction is consistent with direction for Regional Manufacturing/ Industrial Centers provided in *Vision 2040*.

A "MIC (Manufacturing/Industrial Center)" land use designation was also adopted as part of the City's 2008 Comprehensive Plan amendment and applied to SKIA. The MIC designation accommodates large scale and heavy industrial and manufacturing uses that cannot be easily mixed with other activities. Its focus is on providing regional growth opportunities for industrial development.

Kitsap County SKIA Subarea Plan and Comprehensive Plan

Kitsap County established a number of planning policies for SKIA as part of the SKIA Subarea Plan adopted in 2003. The Kitsap County Comprehensive Plan, which was updated in 2006, incorporated goals and policies from the 2003 SKIA Subarea Plan. These goals and policies provide direction for how development is to occur within SKIA, including the form and type of development, land use compatibility, emphasizing industrial uses, prioritizing economic growth and other issues. Since annexation, to the City of Bremerton, the County's goals and policies are no longer directly applicable to the incorporated portion of the study area, but do provide useful context and background for the area. County land use designations for SKIA and relevant goals and policies are included in Appendix F.

City of Port Orchard Comprehensive Plan

The City of Port Orchard is located east of SKIA and is not contiguous to any part of SKIA. The Port Orchard Comprehensive Plan includes the following planning policies that refer to SKIA:

> *ECON-26: Encourage economic development opportunities utilizing new and the existing development infrastructure, as well as aviation, rail, marine, and transportation infrastructure connecting Port Orchard and the South Kitsap Industrial Area.*
>
> *CF-57: Provide coordination efforts to the Port of Bremerton and adjacent jurisdictions for wastewater infrastructure improvements within South Kitsap Industrial Area.*

Following the 2009 annexation, the City of Bremerton has assumed responsibility for sanitary sewer service to the SKIA study area.

Mason County Comprehensive Plan

The western boundary of SKIA is adjacent to a portion of unincorporated Mason County which is designated Urban Growth Area and is part of the Belfair Subarea. The Belfair Subarea is one of three unincorporated urban growth areas in the County and is the primary commercial center in the northeast corner of Mason County. The portion of the Belfair Subarea directly adjacent to the boundary with SKIA (and south of SR 3) is designated *General Commercial.* Areas located near SKIA to the southwest are designated *Multi-family Residential* and *Medium Density Residential,* but these areas are not immediately adjacent to SKIA. Areas north of SR 3 near SKIA (but not immediately adjacent) are designated *Business-Industrial* and *General Commercial – Business Industrial.*

Currently, forestry represents the primary land use within the Belfair Subarea, accounting for 40% of the area's total land. The area directly adjacent to SKIA is currently forested. Areas west of SKIA and north of SR 3 are expected to continue to develop with a mix of industrial and commercial uses based on the Belfair Subarea land use designations. Areas south of SR 3 that are designated and zoned *General Commercial* should provide a buffer for other areas further to the south and east that are zoned residential uses, depending on the specific uses and design of development. Future development in and adjacent to the Belfair Subarea should be monitored because it could potentially result in compatibility issues with future industrial uses planned for SKIA.

Zoning

City of Bremerton Zoning

The SKIA study area is zoned as *Industrial* (See Figure 3.3-4) by the City of Bremerton. The intent of the Industrial (I) zone is to accommodate large-scale and/or heavy industries in a manner that reduces impact to the community while meeting industry's needs for easy access, large sites, and locations that do not cause conflicts with residential and other less intense use areas.

Areas within the City that are adjacent to SKIA to the north are zoned Industrial Park (IP) and City Utility Lands (CUL). The intent of the Industrial Park (IP) zone is to provide an environment for and conducive to a broad range of existing and future light industrial, office and large retail uses. The intent of the City Utility Lands (CUL) zone is to preserve resource-related functions of land, and to protect watersheds and timberlands.

Kitsap County Zoning

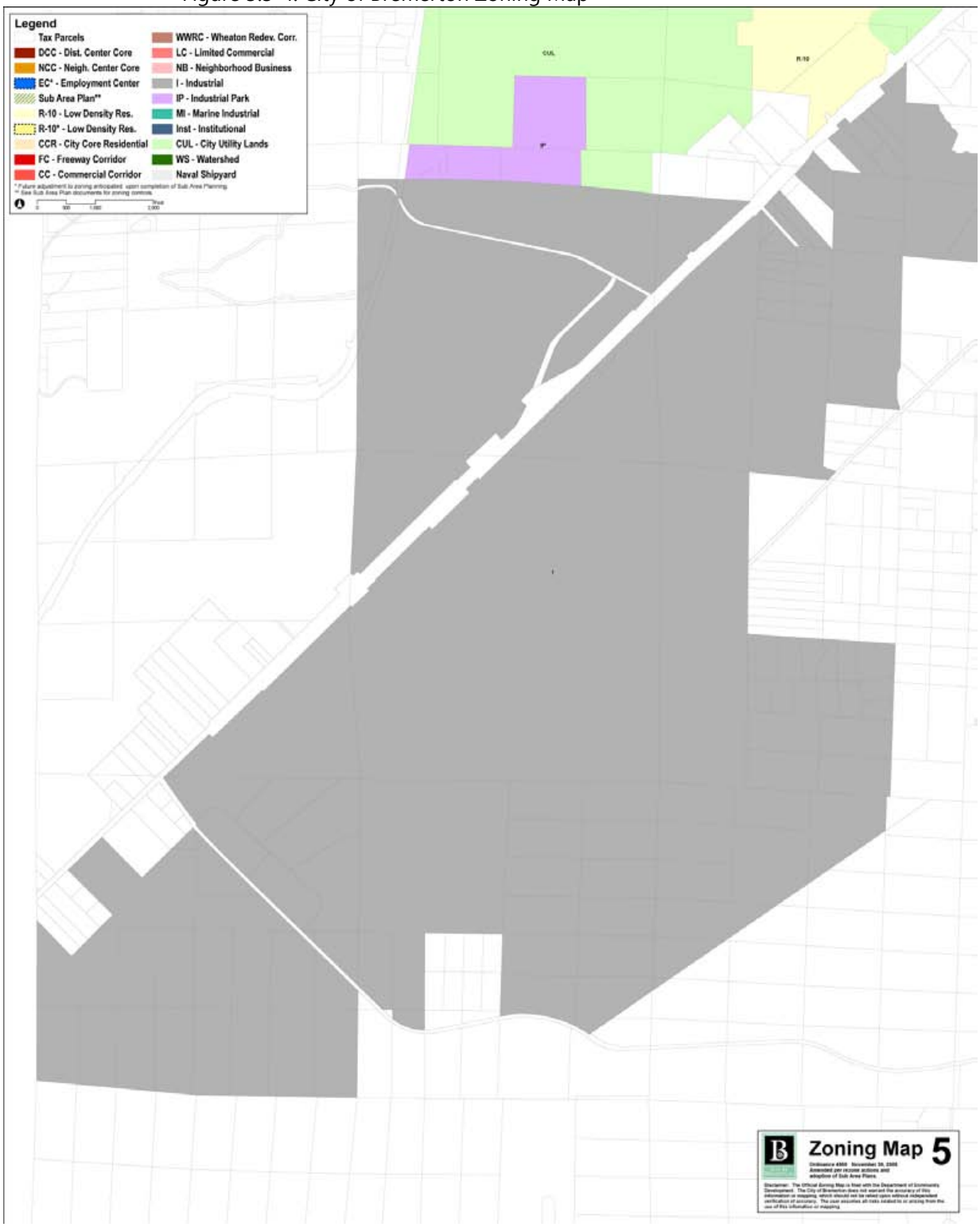
Zoning of unincorporated areas surrounding SKIA generally allows less intensive uses than what are planned and zoned for within SKIA. County zoning is shown in Figure 3.3-5. County zoning includes:

Rural Residential – The Rural Residential zone occurs adjacent to the northeastern portion of SKIA. *This zone promotes low-density residential development (1 DU/5 Ac) consistent with rural character. It is applied to areas that are relatively unconstrained by environmentally sensitive areas or other significant landscape features. These areas are provided with limited public services.*

Rural Protection – The Rural Protection zone occurs adjacent to the western boundary of SKIA. *This zone promotes low-density rural development (1 dwelling unit per 10 acres) that is consistent with rural character and protects environmental features such as significant visual, historical, natural features, wildlife corridors, steep slopes, wetlands, streams and adjacent critical areas.*

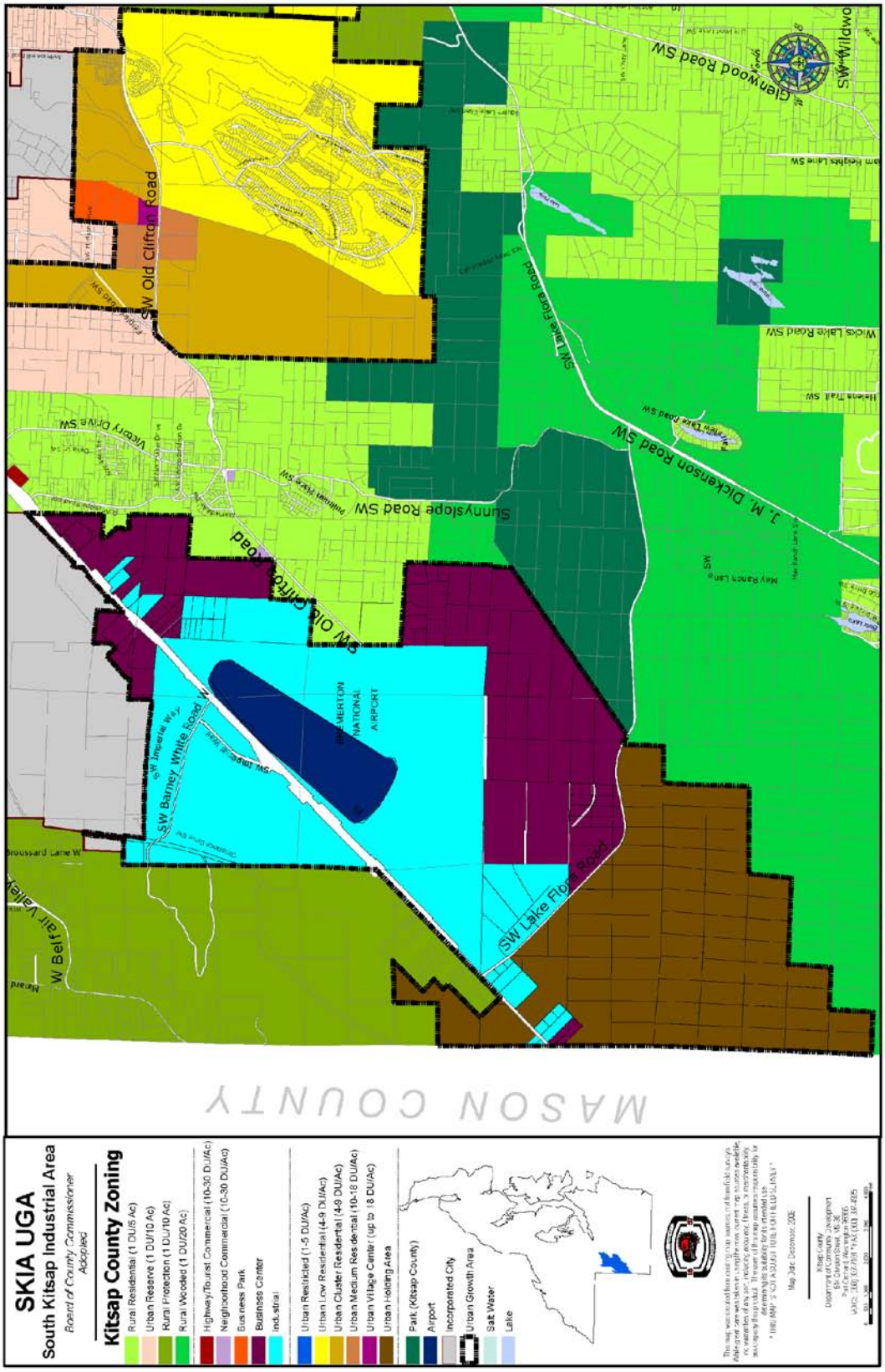
Rural Wooded – The Rural Wooded zone occurs adjacent to the southern portion of SKIA. *This zone is intended to encourage the preservation of forest uses, retain an area's rural character and conserve the natural resources while providing for some rural residential use (1 DU/20 Ac). This zone is further intended to discourage activities and facilities that can be considered detrimental to the maintenance of timber production.*

Figure 3.3-4: City of Bremerton Zoning Map



Source: City of Bremerton, 2010

Figure 3.3-5: Kitsap County Zoning Map



Source: Kitsap County, 2006

Park – The Park zone is applied to a large unincorporated area along the eastern boundary of SKIA. *The intent of this zone is to create long-term consistency between the purpose for the purchase of parks and open space properties and the zoning regulations that apply to their development. Parks properties are intended for the development of parks, open space areas and recreational facilities for the benefit of the citizens of Kitsap County. Uses for these properties should be limited to those serving this purpose.*

Mason County Zoning

The western boundary of SKIA is adjacent to unincorporated Mason County, which is designated as the Belfair Subarea. Zoning within the Belfair Subarea matches the current Mason County Comprehensive Plan Land Use Designations and includes *General Commercial* (adjacent to SKIA and south of SR 3), *Business-Industrial* (near SKIA and north of SR 3), and *Multi-family Residential* and *Medium Density Residential* (near SKIA but located south of the *General Commercial* area). See the previous discussion under Mason County Comprehensive Plan.

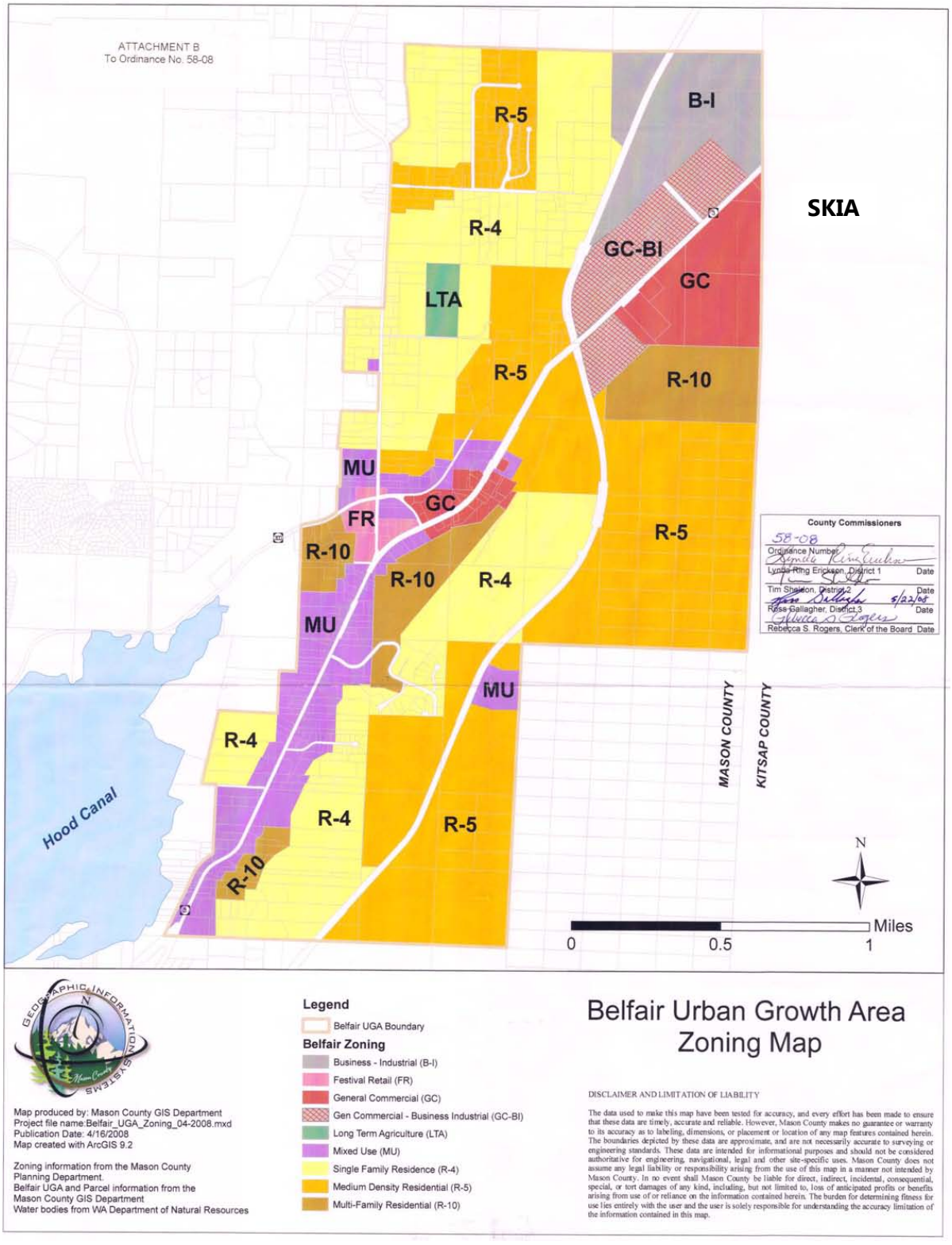
As stated previously, the area directly adjacent to SKIA is currently forest land, according to aerial photographs. Areas near SKIA north SR 3 are a mix of industrial land uses. Given the zoning in this area, it is anticipated that land uses will change over time to include industrial and commercial uses adjacent to SKIA and residential uses in the general vicinity. Commercial uses may pose potential compatibility issues with industrial uses unless adequate buffering is provided. Commercial uses may also result in customer traffic that may result in additional conflicts with freight access and mobility. Figure 3.3-6 shows zoning for the Belfair subarea, west of SKIA.

Existing and Planned Employment and Population

The Port of Bremerton properties, including the Bremerton National Airport the Olympic View Industrial Park, comprise the major employment area within SKIA. Within this area are both Port-owned and Port-leased properties that together contain businesses and operations that employ approximately 1,040 persons.[5]

[5] Port-owned properties only. Port of Bremerton Lease Report, August 9, 2010.

Figure 3.3-6: Belfair Subarea Zoning



Source: Mason County, 2010

Alternative 1 assumes limited growth over the 20-year plan horizon, based on a continuation of SKIA's historic average 4.6% share of countywide employment growth. Alternative 1 provides for 800,000 square feet of new industrial development, and capacity for approximately 1,400 additional employees.

Under Alternative 2, an intermediate level of growth is assumed, providing capacity for an additional 5,000 employees in the MIC and an additional 1,500 new employees in a new mixed use center.

Under Alternative 3, the largest amount of employment capacity in the MIC would be provided, with a total new development of 5.6 million square feet providing employment capacity for 10,000 new employees.

No housing is assumed for any of the growth scenarios discussed above. Existing residential uses located within SKIA, i.e. mobile homes, and a handful of single-family residences, are limited, and are expected to diminish over time under current policy direction and zoning as industrial development occurs.

3.3.2 Significant Impacts

Impacts Common to All Alternatives

This section addresses the impacts common to the analyzed alternatives.

Land Use Patterns

Under all alternatives, the study area is expected to experience growth, primarily in industrial uses and airport related development, as well as business services that support this development. The alternatives differ primarily in the intensity and location of this development and subsequent impacts on land use patterns, as well as in the form that development takes. All alternatives assume some level of development in Analysis Area A, B, C, D and G. All alternatives will replace some existing vacant land, forest land and underdeveloped land with industrial uses and supporting development. For the most part, most of the area will remain undeveloped under any alternative, although to a lesser degree under Alternatives 2 and 3. The proposed development of a sand and gravel quarry is assumed in Analysis Area G, east of and away from SR 3, under each alternative.

Under all alternatives, construction of the cross SKIA Connector would also continue. This new roadway would likely continue to shape development patterns and spur development in previously underutilized portions of the study area, including near the north end of SKIA near the intersection with Highway 3, along the eastern portion of the Bremerton

National Airport Property and in the southeast portion of SKIA north of the intersection with Lake Flora Road.

Land Use Compatibility

Under all alternatives, development is expected to primarily consist of industrial development and compatible, supporting uses, such as related office uses, gas stations, equipment repair, etc. Bremerton National Airport would continue to be reserved for airport compatible development. Residential development and most large retail uses would be prohibited; zoning standards would emphasize primarily industrial uses and require setbacks and landscape buffers where industrial development is adjacent to residential development.

Employment and Population

Under all alternatives, employment would increase and residential development would not be permitted in SKIA. Population increase in SKIA would therefore be negligible under all alternatives. The alternatives differ in the amount of employment expected, percentage of increase in SKIA compared to overall growth in Bremerton, allocation of growth to specific subareas of SKIA and in the mix of employment uses.

Relationship to Plans and Policies

Under all of the alternatives, the majority of the current SKIA area would continue to be a designated as a Manufacturing Industrial Center in the City's Comprehensive Plan and by the Puget Sound Regional Council. With the exception of Analysis Area C in Alternative 2, development under all alternatives would generally be consistent with the City's Comprehensive Plan, Kitsap County Countywide Planning Policies and Puget Sound Regional Council policy direction for MICs established in *Vision 2040* (the regional growth and transportation plan) and related guidance. These plans and policies emphasize SKIA as a regional center for industrial and manufacturing development and job growth.

Alternative 1

Alternative 1, or the No Action Alternative, assumes a continuation of recent development trends for SKIA and would result in the lowest level of growth of any of the alternatives. A total of 750,000 square feet of new development is assumed in the MIC, with approximately 1,400 new employees. Under the No Action Alternative, growth would continue to be guided by the City's existing Comprehensive Plan and regulations in the Bremerton Municipal Code for the Industrial Zone. Although construction of the Cross SKIA Connector would continue, development would not benefit from the detailed policy direction, zoning regulations and other aspects of the Master Plan. No new measures would occur to

promote sustainable development, economic development or to recruit specific types of industrial business. In addition, development would not be spurred by the implementation of a Planned Action Ordinance. Development would require project-level review under the State Environmental Policy Act (SEPA) and would be subject to City permit procedures and development standards contained in the Bremerton Municipal Code at the time of application.

Land Use Patterns

Under No Action, the future land use pattern for SKIA would be less certain because it would not be guided by a subarea plan or aided by a planned action ordinance. Development would be expected to occur in a less coordinated fashion and at relatively low intensities, particularly outside of Port owned properties. SKIA would continue to see limited incremental new development, primarily industrial uses and supporting business services (e.g. equipment rentals, sales and service, construction materials, gas stations, etc.). More than half of the expected industrial and manufacturing development would be expected to occur at the existing Port of Bremerton Olympic View Industrial Park (SKIA Analysis Area B) which has an existing roadway network and available sites served by water and sewer. The large majority of the remaining development under this alternative would occur at Bremerton National Airport (Analysis Area A), primarily focused in the southeast 177-acre parcel and in areas designated as aviation reserve in the Airport Master Plan. Employment density in Analysis Area A would be less than in Analysis Area B because of the constraints associated with the airport. Development is expected to occur in underutilized areas south and east of the airport where access is improved as a result of the ongoing construction of the SKIA Connector.

The majority of new development within the Olympic View Industrial Park (Analysis Area B) is expected to continue in a similar pattern as the current park, with primarily one story buildings, landscaping, surface parking and other features common in a business park setting. The pattern of future development in Analysis Area A is less certain, but could be expected to include one or two story aircraft related businesses, transportation, shipping and other airport compatible development. Development would likely take a business park form south of the airport and perhaps aircraft related hangers and buildings east of the airport.

A limited amount of development would also occur on privately held parcels at the north and south ends of SKIA, primarily near Highway 3 and existing road intersections (Analysis Area s C, D and G). A proposed sand and gravel quarry is assumed in Analysis Area G east of and away from Highway 3. Other development in Area G would be limited based on

existing development, small parcels and recent trends. Development patterns along Highway 3 in Analysis Areas G and C will likely feature business serves with a broader mix of supporting products and services, with development on smaller parcels that are more oriented to drive-by traffic in terms of signage, parking and visibility. Development in Analysis Area D would be limited due to lack of water and sewer service, limited access and the availability of fully served sites in Analysis Area B nearby. Development in Analysis Area D is likely to be smaller in scale and clustered along SW Lake Flora Road. No development is expected in Analysis Area E or Analysis Area F under the No Action Alternative, due to lack of sewer and water.

The following table provides information on new development in each SKIA Subarea under this Alternative.

Table 3.3-2: New Development Area - Alternative 1

Analysis Area	Buildable Acres*	New Development Area
A	763	300,000
B	417	400,000
C	196	25,000
D	163	25,000
E	285	0
F	414	0
G	324	0*
Total	**2563**	**750,000**

Source: EA\|Blumen, City of Bremerton, 2011

**Job growth would occur under this alternative primarily as a result of the proposed gravel mine, with negligible development of permanent structures.*

Land Use Compatibility

Factors that influence the degree to which different land uses in an area are compatible include: development intensity; specific impacts associated with a use or development, such as traffic, noise, air emissions or odor, light and glare, building form and height, aesthetics, and public safety; and the sensitivity of a given land use to those impacts. Land uses with significantly different intensities, impacts or sensitivities can pose compatibility issues when located in close proximity because they can each negatively impact the continued viability of adjoining uses. For example, residential development on small lots immediately adjacent to cement manufacturing facility would represent a significant land use compatibility concern.

There are three comparisons of compatibility that are relevant to this evaluation: 1) generally between land uses within SKIA, 2) specifically

between Bremerton National Airport and land uses within SKIA and immediately adjacent to it, and 3) between land uses within SKIA and those adjacent to SKIA.

Under Alternative 1, the existing regulations for the *Industrial* zone would continue to regulate allowed uses and development standards within SKIA. The intent of the Industrial zone is to "accommodate light and heavy industrial uses in locations where there is limited interaction with residential uses. Uses include large-scale and/or heavy industries in a manner that reduces impact to the community while meeting industry's needs for easy access, large sites, and locations that do not cause conflicts with residential and other less intense use areas".

In addition to allowing light industrial, heavy industrial, recycling, outdoor storage, warehousing and transportation facilities, a variety of other uses are allowed in SKIA. These include: *automobile service and repair, car wash, drive-through facility, gas station, general office and business services over five thousand gross square feet, kennel, nursery and greenhouse, public administration, outdoor athletic fields, stadiums and sports complexes, veterinary clinics* and *wireless communication facilities*. At least three of these pose potential incompatibilities or conflicts with industrial uses anticipated for SKIA. *General office*, *public administration and stadiums and sports complexes* raise potential compatibility concerns when located near industrial uses. "Un-related office uses" are specifically identified in the current PSRC MIC *Designation Criteria* as a concern. Although not called out by the PSRC in their policy or administrative documents, recreation uses, such as sports stadiums could pose potential compatibility issues with industrial uses if located in close proximity.

Impacts could include traffic associated with sporting events disrupting the movement of goods. Notably, the Industrial zone in Bremerton does not allow general retail or residential as permitted uses, consistent with PSRC policies. Group Residential Facilities are allowed with a Conditional Use Permit "only if the facility will not create an operational conflict with the efficiency of large-scale industrial uses".

While new residential development is not allowed in SKIA under existing regulations, there are some small areas that are currently developed with residential uses (See Figure 3.3-2). These include small parcels in Analysis Area G south east of SR3, approximately 8 parcels at the south end of Analysis Area E, and parcels south east of SR3 in Analysis Area C. Under Alternative 1, additional industrial development in Analysis Area G and Analysis Area C would result in increase compatibility issues and impacts with existing residential development in these areas.

The existing Industrial zone contains basic standards regulating height, bulk, scale and intensity. Specific standards related to Industrial Development are limited. Key standards in the Industrial zone include:

Table 3.3-3: Industrial Zone standards

Maximum Height*	Minimum Front Yard	Minimum Side and Rear Yard	Maximum Building and Development Coverage
50 feet for structures intended for human occupancy, no height limit for unoccupied industrial structures	10 feet; 20 feet where abutting or across ROW from residential zone	0 feet, except 10 to 20 feet visual screen where adjacent to low density residential	None, provided all setbacks and landscaping standards are met

Source: City of Bremerton Municipal Code, 2011

**In addition, when abutting a residential zone, all structures shall be set back one additional foot for each additional foot of height above 35 feet.*

The current development standards provide significant flexibility in terms of allowed industrial uses, while ensuring a physical and visual separation from residential uses outside of SKIA. However, no setbacks or landscaping are required where industrial development abuts residential uses within SKIA.

A key issue for SKIA is compatibility with operations at Bremerton National Airport. As noted in Section 3.1.3 there are several types of land uses that pose compatibility concerns when located near airports. Residential uses and schools are generally considered to be incompatible with airports, and are not allowed in SKIA. Residential uses east of SKIA do not appear to currently pose a significant compatibility concerns with regards to aircraft operations because of the relatively low residential density, distance from the runway and configuration of the runway. Based on our review of allowed uses, sports stadiums and outdoor lighted sports fields (two uses currently allowed in SKIA) could pose potential concerns related to compatibility with airport operations, particularly because of lighting associated with them. Additional uses that may be incompatible include: tall structures; uses that attract birds, power plants or other uses that generate steam, smoke, dust or glare; lighting that can be confused with airport lights and uses that can generate electronic interference with aircraft communication or navigation.

Certain industrial uses are currently allowed in SKIA, such as power plants and cement manufacture could pose potential compatibility issues.

Development within SKIA that occurs within defined areas of the airport zone as determined by the Federal Aeronautical Administration (FAA), may be subject to FAA evaluation. The FAA may then issue one of three responses: No Objection, Conditional Determination and Objectionable. The absence of a height limit for unoccupied structures could pose potential compatibility concerns with airport operations, depending on the location of the structure.

Existing land uses surrounding SKIA largely consist of forest land, which is generally compatible with planned industrial uses. In the surrounding area, the closest significant established residential area is located immediately adjacent to the northeast and eastern SKIA boundary, adjacent to Analysis Area G. Residential densities appear to be highest along the northeast boundary of SKIA along Sunnyslope Road SW. Potential compatibility issues and impacts are highest in Analysis Area G because of the proximity of existing residential uses. Outside of this area, existing residential development is located primarily on larger lots, which tend to provide significant physical separation between development areas on adjacent properties. The area within SKIA adjacent to residential uses outside SKIA is currently largely undeveloped.

Development in Analysis Area A along the SKIA Connector could result in compatibility impacts if residential development also occurs on adjacent vacant property east of SKIA. Undeveloped areas in Analysis Area A (east of the developed airport) and Analysis Area G, currently provide significant space between residential and industrial uses, however if these areas were developed under Alternative 1, potential land use incompatibilities would increase. If residential density significantly increases outside of SKIA east of the airport, this could raise potential compatibility issues, particularly if aircraft operations where expanded.

Development in Analysis Area B is not expected to result in significant compatibility impacts. Vacant areas within the City of Bremerton north of Analysis Area B are either City owned utility lands or areas that are zoned Industrial Park. Vacant land, as well as commercial, transportation, and forest land uses are located west of SKIA in Kitsap County in an area currently zoned for one dwelling unit per 10 acres. While some potential exists for incompatibilities between land uses in this area, the large lot size would allow for physical separation between uses on adjoining properties and could be expected to largely mitigate these impacts.

Development in Analysis Area C would be physically separated from adjacent forest land and residential uses (which are zoned for one dwelling unit per 10 acres) in Kitsap County to the north by SR 3. Properties to the west of Analysis Area C in Mason County are zoned

Business-Industrial. Therefore development in this area is expected to be largely similar and compatible. Properties south of Analysis Area C and Analysis Area D, and east of Analysis Area D consist of undeveloped forest land zoned for one dwelling unit per 5 acres. No significant compatibility impacts are expected in these areas.

No new development is expected in Analysis Area E and F under the No Action Alternative. Analysis Area F is currently undeveloped forestland and Area E is undeveloped forest land and vacant land, except for four residential parcels. Properties adjacent to Analysis Area E and F outside of SKIA are undeveloped forest land zoned for one unit per 10 acres and 1 unit per 20 acres, or publicly owned open space.

Buffering future industrial uses, particularly in Analysis Area A and G, from residential uses with setbacks, vegetative screening and other methods would help mitigate potential incompatibilities between existing and future residential uses as discussed in Section 3.3.3.

Employment and Population

Only limited employment growth would occur under Alternative 1, with 1,400 new jobs created, the lowest of any alternative. No additional housing would be allowed in SKIA and therefore any population increase would be negligible. The area would accommodate approximately 4.6% of the employment growth in Kitsap County. Development and employment in SKIA Subarea is expected under this alternative as shown in the table below.

Table 3.3-4 Employment Density - Alternative 1

Analysis Area	Buildable Acres	New Employment (Existing Employment)
A	763	400 (200)
B	417	800 (850)
C	196	50 (50)
D	163	50 (50)
E	285	0 (0)
F	414	0 (0)
G	324	100 (50)
Total	**2563**	**1400 (1200)**

Source: EA\|Blumen, City of Bremerton, 2011

Relationship to Plans and Policies

Development under this alternative would generally be consistent with the Bremerton Comprehensive Plan in terms of promoting industrial development of SKIA. However, the lower levels of growth under this alternative would be arguably less consistent with the 2008

Comprehensive Plan Amendments which adopted the Manufacturing/ Industrial Center (MIC) designation. The MIC Center description envisions the area as "accommodate a significant amount or regional employment" with "intensive, concentrated manufacturing and industrial land uses".

The absence of a Subarea Plan for SKIA under the No Action alternative would also be less consistent with the MIC designation which notes that:

Protecting these centers from incompatible uses, as well as providing them with adequate public facilities and services will require deliberate and careful planning.

Under the current standards for the Industrial zone in the Bremerton Municipal Code, unrelated general office uses over 5,000 gross square feet, would continue to be allowed in SKIA and could potentially eventually displace industrial users if land values increased in response to market forces which generally allow office development to command higher land rent than industrial development.

The lower level of development under the No Action Alternative would be less consistent with policy direction established by the Puget Sound Regional Council in the Vision 2040 regional plan and related MIC Designation Procedures and Criteria that identify MICs as regional centers that are expected to accommodate a large portion of the planned regional industrial and manufacturing job growth. MIC Criteria include establishing a planning target of 20,000 jobs and requirements for restrictions on un-related office uses, as well as large retail and residential development (which is already restricted in SKIA).

Alternative 2

Development under this alternative would be guided by the SKIA Master Plan which promotes more sustainable industrial development and operations, and aided by the SEPA Planned Action. Alternative 2 would provide for an intermediate level of development and employment capacity. This alternative would reduce the size of the MIC by 268 gross acres (approximately 196 buildable acres) to allow for a new mixed use center in Area C at the southwest corner of the subarea at the intersection of Lake Flora Road and Highway 3. A total of 3,075,000 square feet of new development is assumed in the MIC, with approximately 5,000 employees. An additional 775,000 square feet of new development and 1,500 employees would be accommodated in the new mixed use center, outside of the MIC.

Land Use Patterns

Under the Alternative 2, future development would occur at a faster rate and would occur over a larger geographic area than under the No Action Alternative. Development would occur in each of the seven identified SKIA subareas. The largest amount of development would occur in Area B, followed by Analysis Area C, Analysis Area F, Analysis Area E, Analysis Area A and Analysis Area D as noted in Table 3.3-5. Construction of the cross SKIA Connector would continue. This new roadway would likely continue to spur development in the study area, including near the north end of SKIA at the intersection with Highway 3, along the eastern portion of the Bremerton National Airport Property and potentially near the intersection with Lake Flora Road.

Overall development intensity would be higher than under the No Action Alternative. With the exception of Analysis Area C, where development and job densities would be higher in Alternative 2 than in any other alternative, overall development and employment densities SKIA-wide would be lower than under Alternative 3. The following table provides information on new development in each SKIA Subarea under this Alternative.

Table 3.3-5: New Development Area – Alternative 2

Analysis Area	Buildable Acres*	New Development Area
A	763	350,000
B	417	1,175,000
C	196	775,000
D	163	225,000
E	285	425,000
F	414	575,000
G	324	325,000
Total	**2563**	**3,850,000**

Source: EA\|Blumen, City of Bremerton, 2011

Land Use Compatibility

Refined zoning and development standards under the Master Plan would be expected to provide higher levels of internal land use compatibility under this alternative when compared with the No Action Alternative, both in terms of ensuring general compatibility with industrial uses and specifically with operations at Bremerton National Airport. Development would occur in all SKIA Analysis Areas under this alternative. Potential land use compatibility impacts would be similar to Alternative 1, except that higher levels of growth overall would increase the potential for external compatibility impacts. However, standards adopted under the

Master Plan would also be expected to include greater setbacks and landscape buffers between SKIA and adjacent development outside SKIA, thereby resulting in an equal or greater level of external land use compatibility under this alternative compared to Alternative 1.

Industrial uses would be retained and strengthened in all SKIA Subareas except Analysis Area C, where a broader mix of retail, office and other commercial uses would be allowed. Analysis Area C would be removed from the SKIA MIC. Although there would be the potential for some impacts to industrial uses from potentially incompatible uses in portions of Analysis Area C near SKIA, such as increased retail traffic and land uses that are somewhat more sensitive to industrial area impacts such as noise, these would be largely mitigated. Development standards adopted under the Subarea Plan, including required setbacks and buffers, height limits to avoid conflicts with airport operations, and the physical location of this mixed use Area C separate from and south of SKIA, would address most impacts associated with commercial development in this area.

Employment and Population

This alternative represents an intermediate level of employment growth. Capacity for an additional 5,000 employees is assumed in the MIC, with an additional 1,500 new employees in a new mixed use center, located outside the revised SKIA boundary in Analysis Area C. No additional housing would be allowed in SKIA and therefore any population increase would be negligible. The area would accommodate approximately 21.81% of the employment growth in Kitsap County forecasted over the next 20 years. Development and employment in SKIA Subarea is expected under this alternative as follows:

Table 3.3-6: Employment Density – Alternative 2

Analysis Area	Buildable Acres*	New Jobs (Existing Jobs)	Net Employment Density
A	763	500 (200)	0.92
B	417	1500 (850)	5.63
C	196	1500 (50)	7.92
D	163	400 (50)	2.76
E	285	850 (0)	2.98
F	414	1150 (0)	2.78
G	324	600 (50)	2.00
Total	**2563**	**6500 (1200)**	**3.00**

Source: EA\|Blumen, City of Bremerton, 2011

**Gross acres less 10% for critical areas and 20% for roads/infrastructure*

Relationship to Plans and Policies

Under Alternative 2, a 280 acre area (196 buildable acres) would be removed from the SKIA MIC. Development in the majority of SKIA under

this alternative would generally be consistent with the Bremerton Comprehensive Plan in terms of both the amount and the (industrial) type of growth.

Alternative 3

Similar to Alternative 2, development under Alternative 3 would be guided by the SKIA Master Plan which promotes more sustainable industrial development and operations, and aided by the SEPA Planned Action. Alternative 3 includes the largest amount of new development and employment of any of the alternatives, with a total of 5.6 million square feet of new buildings providing employment capacity for 10,000 new employees

Land Use Patterns

Significant development would occur in each of the seven identified subareas under this alternative, with the highest concentrations focused in the Olympic View Industrial Park (Analysis Area B). The next highest concentrations would occur in the areas directly south of the Airport (Analysis Area F and E) and at Bremerton National Airport (Analysis Area A). This would be followed by areas at the south end of SKIA (Analysis Area C and D) and the north end of SKIA (Analysis Area G). Infrastructure would be extended to serve the entire subarea, including water, sewer, stormwater facilities and roadway network. The new SKIA Connector would likely continue to spur development in the study area, including areas near the north end of SKIA at the intersection with Highway 3, along the eastern portion of the Bremerton National Airport Property, south of the airport and near the intersection with Lake Flora Road.

Overall development intensity would be highest under this alternative, with roughly half of the developable land in SKIA utilized. With the exception of Analysis Area C in Alternative 2, development intensity in each of the subareas would be highest under this alternative. However, because of the large land area of SKIA, overall building intensities for new development would remain relatively low. Development intensities would be highest in Analysis Area B, where the current Olympic View Industrial Park is located. The table below breaks down development intensities by SKIA Subarea under this alternative.

Table 3.3-7: New Development Area – Alternative 3

Analysis Area	Buildable Acres*	New Development Area
A	763	800,000
B	417	1,525,000
C	196	525,000
D	163	425,000
E	285	900,000
F	414	1,000,000
G	324	425,000
Total	**2563**	**5,600,000**

Source: EA\|Blumen, City of Bremerton, 2011

**Gross acres less 10% for critical areas and 20% for roads/infrastructure*

Land Use Compatibility

Land use compatibility impacts would be similar in type and location to Alternative 2, but higher levels of growth would be expected to result in the potential for increased impacts to adjacent areas outside of SKIA. Refined zoning and development standards under the Master Plan would be expected to provide high levels of internal land use compatibility under this alternative, both in terms of ensuring compatibility with industrial uses and operations at Bremerton National Airport. Retention and refinement of industrial zoning in all areas of SKIA, including Analysis Area C, would be expected to ensure the highest levels of internal land use compatibility under this alternative. Standards adopted under the Master Plan would also be expected to include significant setbacks and landscape buffers between SKIA and adjacent development outside SKIA, thereby resulting in an equal or greater level of external land use compatibility under this alternative compared to Alternative 1.

Employment and Population

This alternative represents the highest level of employment growth and the highest employment densities. Development accommodating an additional 10,000 employees is assumed in the MIC under this alternative. Some new employment would be expected to concentrate in more flex-tech style buildings at higher job densities and development intensities than in the MICs that would otherwise be SKIA's peers, using only half of the developable area within SKIA. No additional housing would be allowed in SKIA and therefore any population increase would be negligible. The area would accommodate approximately 33.56% of the employment growth in Kitsap County forecasted over the next 20 years. Development and employment in SKIA Subarea is expected under this alternative as show in the table below.

Flex-tech, a building designed to be versatile and may be used in combination with office, research and development, quasi-retail sales, industrial processing or high tech.

Table 3.3-8: Employment Density – Alternative 3

Analysis Area	Buildable Acres*	New Jobs (Existing Jobs)	Net Employment Density
A	763	1400 (200)	2.10
B	417	2200 (850)	7.31
C	196	1,000 (50)	5.36
D	163	800 (50)	5.22
E	285	1800 (0)	6.32
F	414	2,000 (0)	4.83
G	324	800 (50)	2.62
Total	**2563**	**10000 (1200)**	**4.37**

Source: EA\|Blumen, City of Bremerton, 2011
**Gross acres less 10% for critical areas and 20% for roads/infrastructure*

As with Alternative 2, Alternative 3 would include Clean Tech industrial development in the mix of possible industrial uses. Clean Tech is defined by the PSRC's Prosperity Partnership as an economic cluster comprising six major business activities:

1. Clean Energy
2. Green Building
3. Smart Electrical Grid
4. Transportation Vehicles and Alternative Fuels
5. Advanced Materials and Environmental Products
6. Environmental Remediation and Pollution Prevention

Relationship to Plans and Policies

Development in SKIA under this alternative would have a high level of consistency with the Bremerton Comprehensive Plan, in terms of the amount of growth, the total acreage retained for industrial development and the (industrial) type of growth. Development under this Alternative would also be consistent with policy direction established by the Puget Sound Regional Council in the Vision 2040 regional plan and related MIC Designation Procedures that identify MICs as regional centers that are expected to accommodate a large portion of the planned regional industrial and manufacturing job growth.

3.3.3 Mitigation Measures

Applicable Regulations and Requirements

Existing zoning and development regulations for SKIA already address many of the key areas where there are potential land use impacts, as previously discussed. SKIA is zoned Industrial. Residential and most retail uses are not allowed. Landscape screening and setback standards help ensure visual impacts to adjacent residential uses are mitigated.

Development within SKIA that occurs within defined areas of the airport zone, which is determined by the FAA, may be subject to FAA evaluation per Federal Aviation Regulation (FAR) Part 77. FAR 77 allows the FAA to conduct an aeronautical study to identify potential aeronautical hazards, thus preventing or minimizing the adverse impacts to the safe and efficient use of navigable airspace. The FAA may then issue one of three responses: No Objection, Conditional Determination, and Objectionable. Fifty-foot zoning height limits in SKIA in combination with Port control over a significant area immediately surrounding Bremerton National Airport, also help ensure compatibility with aircraft operations.

Required certification of the SKIA Subarea Plan by the Puget Sound Regional Council (PSRC) and continued compliance with related policy direction for Manufacturing Industrial Areas will help ensure that SKIA continues to be a regional asset reserved for industrial development and job creation. As an MIC, SKIA is expected to continue to receive priority for transportation improvement funding.

Proposed Plan Features

Under the two action alternatives (Alternative 2 and Alternative 3), revised zoning and development standards are required as part of the SKIA Subarea Plan. These standards build on the existing regulations and contain additional built in mitigation measures designed to address potential adverse impacts of the action alternatives. Key aspects of the proposed regulations include:

- Site development standards that promote more sustainable industrial development, with fewer environmental impacts. Standards include requirements for Low Impact Development stormwater facilities, clearing limits, impervious surface limits, tree and vegetation conservation standards, native landscaping and other requirements that are expected to make industrial development in SKIA more compatible with adjacent land uses outside of SKIA, including natural areas, low-density single family development and development in the adjacent Belfair UGA.
- Increased structure setbacks (from the 10 to 20 feet currently required to 20 to 50 feet under the proposed regulations) and enhanced landscape buffers where industrial zoned property is adjacent to residentially zoned property.
- Greater restrictions on uses which are potentially incompatible with industrial development. These include restrictions on large unrelated office uses, requiring a conditional use permit for certain uses and adherence to additional development and performance standards designed to ensure compatibility with industrial uses.

- Adoption of industrial performance standards, which in addition to promoting sustainable development and providing controls on noise, emissions and glare, will improve the compatibility of industrial operations with airport operations and adjacent development outside of SKIA.
- Revised standards to ensure the compatibility of future development with operations at Bremerton National Airport. Standards include fifty (50) foot height limits for all development in SKIA, a requirement that the City provide notice to Bremerton National Airport and the FAA for all major development proposals in SKIA, and code language that reinforces the City's substantive authority to condition development permits to address concerns related to aircraft operations.
- Under Alternative 2, the creation of a new transition area in Area C with a broader range of non-residential uses may help mitigate potential land use compatibility impacts between more intense industrial development and adjacent areas outside of SKIA in the Belfair Urban Growth Area.

3.3.4 Significant Unavoidable Adverse Impacts

No probable significant unavoidable adverse impacts on land use plans and policies are anticipated under any alternative.

3.4 CULTURAL RESOURCES

3.4.1 Affected Environment

This section provides a summary of cultural resource findings in the SKIA study area. Please refer to Appendix G for the complete cultural resources report, including discussion of background, methods, regulatory context, results and recommendations.

This section is based on an archival review of the following:

1 Review of site forms and previous reports on file at the Department of Archaeology and Historic Preservation in Olympia, Washington.

2 Review of published and unpublished information on the prehistory or traditional native use of the area.

3 Review of archaeological site location maps for Kitsap County.

Regulatory Framework

The federal, state, and local laws and policies that govern protection and preservation of archaeological sites are described below.

Federal Laws

- The Archaeological Resource Protection Act of 1979 helps secure the protection of archaeological resources and sites that are on public and Indian lands and assists in sharing of information among entities seeking to preserve these resources.
- The National Historic Preservation Act establishes national standards for designation of historic and culturally significant properties, including archaeological sites. In addition, this Act of Congress establishes the office of the State Historic Preservation Officer. Section 106 USC 470(a)(d) of this law establishes a program to assist Indian Tribes in preserving their particular historic properties.
- The Archaeological and Historic Preservation Act of 1974 governs archaeological and other historic and cultural resources found in federal construction activities, including the construction of dams.
- The Native American Graves and Repatriation Act governs protection, preservation, and repatriation of Native American remains and cultural artifacts found in Native American burial sites.

State Laws

- Governor's Executive Order 05-05 requires State agencies with capital improvement projects to integrate the Department of Archaeology and Historic Preservation, the Governor's Office of Indian Affairs, and concerned Tribes into their capital project planning process. This Executive Order affects any capital construction projects and any land acquisitions for purposes of capital construction.
- RCW 27.44 Indian Graves and Records provides protection for Indian graves and burial grounds, encourages voluntary reporting of said sites when they are discovered, and mandates a penalty for disturbance or desecration of such sites.
- RCW 27.53 Archaeological Sites and Resources governs the protection and preservation of archaeological sites and resources and establishes the Department of Archaeology and Historic Preservation as the administering agency for these regulations.
- RCW 68.60 Abandoned and Historic Cemeteries and Historic Graves provides for the protection and preservation of abandoned and historic cemeteries and historic graves.

Local Regulations

The City of Bremerton governs preservation and protection of valued historic and archaeological resources through its SEPA authority, Bremerton Municipal Code, Section 20.04.

Cultural Setting

The southern Northwest Coast Salish peoples that traditionally inhabited the project area prior to European settlement lived a highly adapted lifestyle in this west coast environment. They excelled at resource extraction, processing, and tool and structure manufacture. Their lives followed a seasonal round that included both permanent and temporary summer camps along the coast for fishing and shellfish and plant gathering. In pre-contact times the bays and inlets that make up the Puget Sound, including Sinclair Inlet, Hood Canal and Case Inlet, were likely popular year round gathering spots for at least as long as sea levels have been stable, which is approximately 5000 years (Wessen 1988: 14). The shellfish and other ocean resources available traditionally in these bays and inlets could have easily supported the larger populations of people estimated for this area near the time of contact with Europeans. There were also the terrestrial and wetland resources including mammals and the harvest of plant resources that were carefully maintained and utilized at the time of early contact with Europeans. There may have been groups that used Sinclair Inlet, Hood Canal and Case Inlet year round, including the possibility of larger aggregate village use.

Much of the evidence of this history has been lost due to development of the last two hundred years. However, descriptions, culture history, linguistic analysis, archaeological investigation and interpretation have been presented in books, journals, reports, museum displays, art galleries, cultural festivals and slide talks.

Previous Archaeology

Archaeological sites are those properties that provide the physical evidence or material remains of previous human activities. Areas or landscape occurrences associated with oral history, origin narratives or accounts of traditional cultural use with or without corroborating (physical) evidence may also be determined eligible to the National Register of Historic Places.

Of the approximately 3,900 acres of the SKIA project area, between 100 and 150 acres, or less than 4%, have been surveyed. Seven archaeological surveys have been conducted in SKIA and there are no identified archaeological sites in the study area.

As a result of the lack of data from within the study area, data available from within seven miles of the study area was also reviewed. Eleven sites were found, see Table 3.4-1.

It is likely that the low number of sites in the study area and surrounding vicinity is directly related to the relatively low number of surveys conducted in this area. In general, the highest densities of archaeological sites in the Puget Sound region are currently recorded on shorelines, terraces and adjacent to existing or extinct aquatic features. These landforms are common in the study area and surrounding vicinity.

This means that any projects within the study area that involve ground disturbance would decrease their jeopardy of encountering a buried archaeological site by having an archaeological survey that involves sub surface testing implemented during the planning process. Ground disturbance includes but is not limited to: trenching or building for infrastructure (water, sewer, power and telecom), transportation corridor construction and maintenance, building foundations, storm water management, grading, filling, grubbing with machines, planting, channelizing, levee removal or construction, residential construction, docks, wharves, shoreline stabilization or timber harvesting.

Table 3.4-1: Recorded Archaeological Sites Located Within Seven Miles of the Project Area

Smithsonian Number[1]	Distance from Study Area	Date Recorded	Site Type Name
45KP00109	~ 2 miles	12/24/1992	Pre Contact Camp, Pre Contact Shell Midden
45MS00106	~ 5.5 miles	2/26/1992	Pre Contact Camp, Pre Contact Feature, Pre Contact Lithic Material
45MS00158	~ 6.5 miles	7/1/2007	Historic Agriculture
45MS00161	~ 5.5 miles	6/20/2008	Historic Logging Properties
45MS00112	~ 5.5 miles	7/10/1995	Pre Contact Camp, Pre Contact Feature, Pre Contact Lithic Material, Pre Contact Shell Midden
45MS00052	~ 6.5 miles	8/9/1963	Pre Contact Shell Midden
45MS00146	~ 6.5 miles	8/22/2006	Historic Logging Properties, Historic
45MS00159	~ 6 miles	7/1/2007	Historic Agriculture
45MS00160	~ 6 miles	6/20/2008	Historic Homestead, Historic Refuse Scatter/Dump
45MS00047	~ 7 miles	5/12/1952	Pre Contact Shell Midden
45MS00007	~ 7 miles	9/3/1948	Pre Contact Lithic Material, Pre Contact

Source: ERCI, 2010.

1. Uniform inventory numbering system for cultural resource sites developed by the Smithsonian Institute.

Potential Site Types

A wide range of site types may be found within the study area. Potential archaeological site types for the Kitsap Peninsula, including the SKIA study area, are shown in Table 3.4-2.

Table 3.4-2: Potential Archaeological Site Types

Site Types	Activity
Precontact or Historic Shell Middens	Living; gathering and processing shellfish for storage for winter
Lithic Scatters or isolates	Stone tools or weapons or the waste material from their production or maintenance Remnants of discarded or misplaced stone tools
Fish Weirs, Traps, Nets or other stone or post alignments for fishing	Fishing and the activities associated with gathering the material required to build catch and process fish and other salt water creatures.
Cultural Depressions	Depressions from the prior construction and use of subterranean houses, cache pits or other roasting or processing pits-these include hot rock cookery pits Any other depression constructed by humans during traditional activities
Culturally Modified Trees (CMTs)	Bark-stripped trees Planked trees or other Aboriginally-logged trees
Rock Art	Pictographs (painted rock art) Petroglyphs (pecked or carved rock art)
Cultural Earthworks	Burial mounds Fortifications Burial cairns Foundations
Petroforms	Rock blinds or some types of rock art Navigational cairns or Canoe runs Any other alignment or arrangement of rocks during the pursuance of traditional cultural activities
Shell midden	Culture rich shell deposits that may be from processing or eating or the waste products from either of these
Human Remains	Articulated or scattered human remains, secondary burial that can be associated with box burial or tree burial
Burial	Cemetery individual (opportunistic and ritual)
Historic features or buildings	Logging or homesteading features such as camps, transportation, docks, cache pits, hunting blinds or cubbies
Historic site related to Industry, settlement or missionary work	Homesteader's features, refuse dumps or other activity areas Sites or features related to the development of industry in and around the cities of Anacortes or La Conner Artifacts or features related to the establishment of missions in and around the Swinomish Reservation

Source: ERCI, 2010

In contrast to archaeological sites, areas or landscape occurrences associated with oral history, origin narratives or accounts of traditional cultural use with or without corroborating (physical) evidence may be determined eligible to the National Register as Traditional Cultural Properties (TCP). Some of the aforementioned archaeological site types could also be considered a TCP, if they exhibited any of the three criteria listed below (from Parker and King 1983):

1 A location associated with the traditional beliefs of a group about its origins, its culture history, or the nature of the world;
2 A location where religious practitioners have historically gone and are known or thought to go today to perform ceremonial activities in accordance with traditional cultural rules of practice; and
3 A location where a community has traditionally carried out economic, artistic or other cultural practices important to maintaining its historic identity.

3.4.2 Significant Impacts

Impacts Common to All Alternatives

As discussed above under Section 3.4.1, limited archaeological surveys have been conducted within SKIA, and no archaeological sites have been recorded within the area to date. Research indicates that the highest densities of archaeological sites in the Puget Sound region are recorded on shorelines, terraces and adjacent to existing or extinct aquatic features. These landforms are common in SKIA. Traditional Cultural Properties (TCPs) and a wide range of archaeological site types (see Table 3.4-2) could be expected to be present within the SKIA site.

Archaeological resources could be encountered during any projects within SKIA that involve ground disturbance. Ground disturbance may include but is not limited to: trenching or building for infrastructure (water, sewer, power and telecom), transportation corridor construction and maintenance, building foundations, stormwater management, grading, filling, grubbing with machines, planting, channelizing, levee removal or construction, residential, dock and wharf construction, shoreline stabilization, and timber harvesting. Development in SKIA also has the potential to encounter TCP sites, although no such sites have been documented to date.

Due to the limited data within the study area, no significant differences can be determined between the impacts of the three alternatives.

3.4.3 Mitigation Measures

The following mitigation measures could be implemented to help manage and avoid significant impacts to cultural resources within SKIA.

- Initiate consultation (letter and follow-up phone call) with Tribes in Washington State to determine which Tribes have an interest in SKIA.
- Establish a team to manage the critical area designation of archaeological sites. The team can be responsible for data management, and consultation with Tribes, agencies, developers and/or investors. Assign a member of the team to search for grants and other funding sources that could begin to collecting data to improve the understanding of pre-contact land use in SKIA.
- Actively seek partners to build a cultural resources information database to identify geographic areas with the highest probability for encountering significant resources.
- Identify ways to use existing agency protocols or plans, and establish relationships that build trust with tribal reviewers.
- Participate in available cultural resources trainings and workshops in the region.
- Consider building a heritage program that helps guide development by incorporating a heritage theme in SKIA.
- Partner with existing businesses/agencies (such as the Port of Bremerton/Airport) which likely have a strong interest in history, and which likely maintain good historical records. Begin documenting buildings in SKIA which are over 50 years old.
- Establish a protocol/checklist for review of projects that includes a form letter for DAHP.
- Consider establishing a historic preservation program that meets applicable federal and state standards to apply for Certified Local Government status.

3.4.4 Significant Unavoidable Adverse Impacts

With the implementation of a protocol for review of projects, and establishment of a cultural resources management program, no significant unavoidable impacts would be anticipated.

3.5 AESTHETICS

3.5.1 Affected Environment

This section describes the topographic, land cover and constructed elements that contribute significantly to the visual character of the study area. Then, discussion of significant regional views is linked to specific locations within several of the identified visual character areas.

Visual Character

The study area's visual character is defined by natural topographic features and associated regional view relationships, land cover types, as well as a range of constructed elements including road and power transmission corridors and a range of built structures.

The visual character is presented according to the analysis areas delineated for this EIS:

- Analysis Area A – Airport
- Analysis Area B – Port of Bremerton Commercial-Industrial Area
- Analysis Area C – Route 3 Roadside Development southwest of Lake Flora Road
- Analysis Area D – Forested Area South of Lake Flora Rd
- Analysis Area E – Partially Forested Area South of Airport
- Analysis Area F – Forested Area Southeast of Airport
- Analysis Area G – Forested Area Northeast of Airport

Other Visual Character Areas and Features of Note:

- Route 3 Frontage
- SW Lake Flora Road
- Power Transmission Corridor
- Regional Views

See below for a full description of the visual character of these analysis areas.

<u>Analysis Area A – Airport</u>

Consistent with the dominant land use of aviation and access to the airport activities, this area is open, with unobstructed local views and virtually flat. A wooded ridge to the southeast provides a backdrop to the airfield itself as viewed from the publicly accessible northeast/southwest side of the airport, with Route 3 providing a parallel visual delineation. A wooded ridge southeast of the airfield partly obscures the southern

portion of the raceway from the west (See Figure 3.5-1). A wooded area interspersed with ponded standing water, small stream courses, and low density residential development define the northeastern corner of the airport/speedway area.

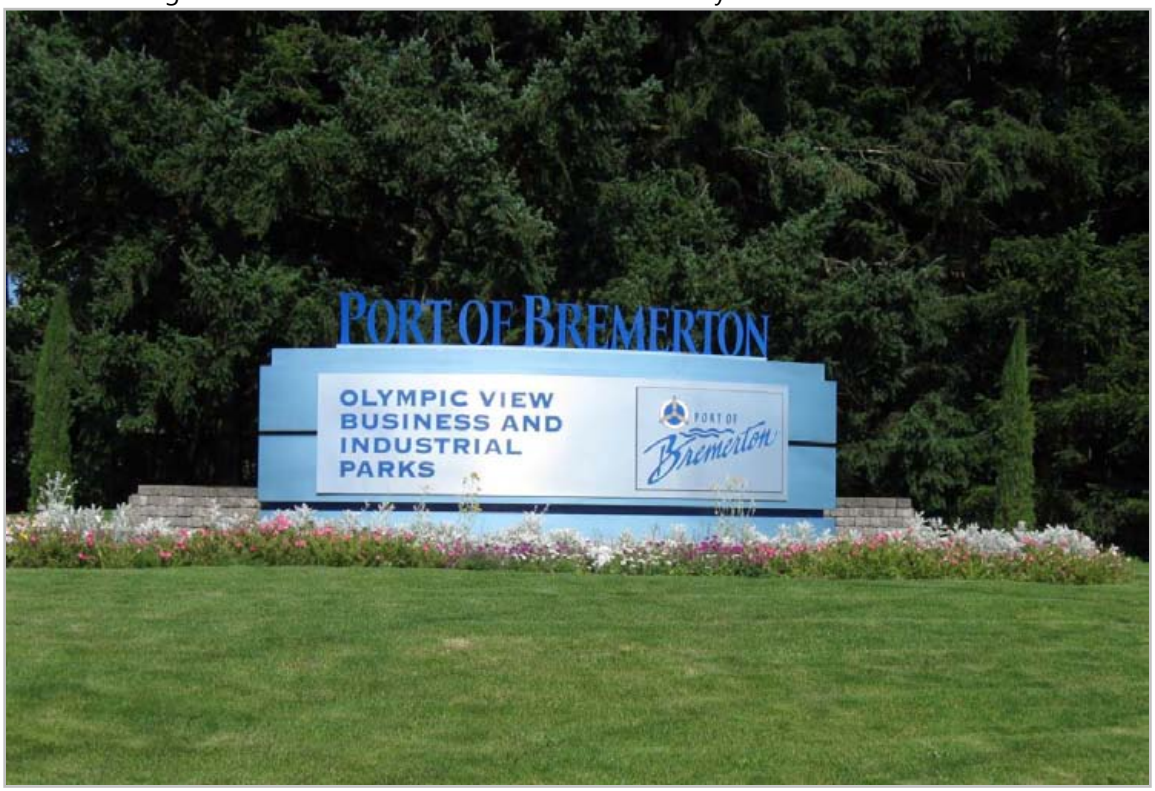
Figure 3.5-1: Airport Runway

Source: EA|Blumen, 2010.

Analysis Area B – Port of Bremerton Commercial-Industrial Area

This relatively small area of distinctive visual character is clearly defined by a strong entry gateway marker (see Figure 3.5-2) and strong cues of internal organization with a roadway system that controls the viewing experience. On a relatively flat rise above the entry gateway, the area contains a somewhat equally distributed array of similarly scaled commercial structures and industrial activities constructed within a relatively recent and limited timeframe. Several newer structures (e.g. Public Works Annex) are notable exceptions. The managed landscape quality presented by cut lawns and ornamental plantings contrasts strongly with the forested surroundings from which this area was carved.

Figure 3.5-2: Commercial-Industrial Area Gateway Marker



Source: EA|Blumen, 2010.

Analysis Area C – Route 3 Roadside Development southwest of Lake Flora Road

Analysis Area C is the southwestern most part of the study area. Significant portion of perimeter is dominated by frontage onto Route 3. Distinguished by its modest level of development oriented to Route 3 and limited amount of frontage along SW Lake Flora Rd, this subarea's character is predominantly characterized as forested with limited rural development pattern.

Analysis Area D – Forested Area South of Lake Flora Road

Comprising the southernmost portion of the study area, the forested area southwest of SW Lake Flora Road is previously disturbed and re-forested (See Figure 3.5-3). This contiguous, forested area is visually coherent and relatively large in size. Lacking interruptions and/or breaks the area is visually simple as experienced along SW Lake Flora Road.

Analysis Area E – Partially Forested Area South of Airport

Comprising a transition between Analysis Area A and SW Lake Flora Road, Analysis Area E is previously disturbed and partially re-forested. Rolling topography includes south-to southwest-draining stream corridors in lower elevations. This analysis area includes a contiguous forested areas

that is visually coherent and prominent by its relatively large size and abruptly distinguished from the cleared area associated with the Airport, (Analysis Area A).

Figure 3.5-3: Forested Area

Source: EA|Blumen, 2010.

Analysis Area F – Forested Area Southeast of Airport

Comprising one o f the largest portions of the study area, this forested area is previously disturbed and re-forested. Rolling topography includes several south-to southwest-draining stream corridors in lower elevations. The contiguous forested areas are visually coherent and prominent by their relatively large size. Many edges, infrequent interruptions and/or breaks (such as the power transmission corridor) are abrupt and themselves are, relative to the scale and homogeneous visual character of the forested area, visually simple as well.

Analysis Area G – Forested Area Northeast of Airport

Comprising the a transition portion at the northeastern edge of the study area, Analysis Area G is partly forested, previously disturbed and re-forested and also includes rural residential and industrial excavation activities. The contiguous forested portion of the subarea is visually coherent and prominent in contrast to the open, excavated areas. Route 3 edges are abrupt.

Other Visual Character Areas and Features of Note:

Route 3 Frontage

This corridor is adjacent to Analysis Areas A, B, C and G and is limited to and organized around signage responding to this high-speed experience (See Figure 3.5-4). Land uses are limited to those compatible with the impacts of the highway traffic and limited access pattern. The interface between this corridor and the airport and forest area is strongly discontinuous, providing dramatic segmentation of the corridor as traveled along the diagonal length of the study area.

Figure 3.5-4: Route 3

Source: EA|Blumen, 2010.

Lake Flora/ Power Transmission Corridor

This corridor is adjacent to Analysis Areas C, D and E and is a function of two linear rights of way, a rural arterial route and a regional electrical power transmission corridor. Both of these linear segments cut through

the forested area of the study area's southern portion, providing visual relief from the dense forested canopy and revealing the varied topography (See Figure 3.5-5).

Figure 3.5-5: Lake Flora Right-of-Way

Source: EA|Blumen, 2010.

Regional Views

Mount Rainier to the southeast is visible as a terminal view when traveling southeast along Lake Flora Road as it rises to the southern tip of the study area and the road turns east and drops to a lower elevation (the southern boundary of Analysis Area E).

The Olympic Range to the northwest is visible from the rise at the new roundabout and roadway at the north edge of the airport within Analysis Area A. The same view is accessible as well at the study area's northwest corner in Analysis Area B (see Figure 3.5-6), and thereabouts largely because of the line of sight over the grass-covered landfill and lower elevations to the north and west.

Figure 3.5-6: Olympic Range

Source: EA|Blumen, 2010.

3.5.2 Significant Impacts

Impacts Common to All Alternatives

Changes in the visual and aesthetic character of the site would occur incrementally over the 20-year period. The character of the area would substantially change under the EIS alternatives. Depending on the individual perspective of the viewer, this may or may not be an adverse impact.

Elements of the proposed road network identified as part of each action alternative would have similar impacts on the visual character subareas. Coherent and homogeneous forested areas would be interrupted. Some new view corridors would be created. The addition of new points of

access would likely result in additional de-forestation/land clearing and/or grading as part of new development sites.

Subsequently, new construction along the new roadways would introduce changes to the overall visual character of the study area. This could include, but not be limited to, change from disturbed forest/natural character to auto-oriented strip commercial, small scale residential and/or industrial character.

Alternative 1 (No Action)

Impacts to Analysis Area A – Airport

Constrained by (height) consideration of airport operations, new development in closest proximity to the airport itself would likely have limited visual impact. Some visual connections between Route 3 and the airfield itself might be reduced by new development located close to Route 3.

Impacts to Analysis Area B – Olympic Business Park

As the identified focus of most new development in this Alternative, visual impacts would not vary significantly from the existing industrial character. Existing industrial operations might expand, activity might become more intensive, yet in a manner consistent with the type of development prevalent in that subarea.

Impacts to Analysis Areas C & D – south of SW Lake Flora Road

Of the areas identified for growth in this Alternative, a relatively small amount of development here would have proportionately greater impacts to visual character. More specifically, the largely undeveloped area with access frontage along SW Lake Flora Road (D) would be impacted by interruptions to the continuous forested character (by roads, drives, cleared and/or graded areas, and new structures). Visual impacts to area C along Route 3 anticipated by this Alternative would not result in significant changes to the existing rural roadside development character.

Alternative 2

The visual impacts under Alternative 2 would be similar to Alternative 1 in Analysis Areas A and B.

In Analysis Area C, development of a destination mixed-use center would represent a significant departure from current visual character, and would contrast dramatically with the surrounding context as well as the character of the area's other prominent visual element, the open expanse of the airport.

Alternative 3

The visual impacts under Alternative 3 would be similar to Alternatives 1 and 2 in Analysis Areas A and B.

In Analysis Area E, development of additional concentration of employment activity would represent a significant departure from current visual character. This would contrast dramatically with the surrounding rural and un developed forested context to the east (in Analysis Area F) and along SW Lake Flora Road.

3.5.3 Mitigation Measures

SKIA has historically been, and will continue to be, planned for industrial development. The expectation of current property and business owners and residents is for development with industrial character and uses. Consequently, future industrial development under any of the alternatives would be consistent with public expectations and unlikely to result in significant adverse visual impacts. However, visual screening and measures to retain vegetation could help improve the overall character of future industrial development.

Mitigation measures provided below provided include measures that could help retain forested areas, provide for visual screening from public rights-of-way and ensure that view corridors are retained.

- Consolidated driveways to minimize interruptions of remaining forested areas
- Limiting auto circulation & storage areas near to areas and/or points of primary visual access from surrounding areas or travel corridors (such as Route 3 and SW Lake Flora Road)
- Screening new development by maintaining and /or providing sufficiently dense and/or deep landscape buffers adjacent to surrounding areas or travel corridors (such as Route 3 and SW Lake Flora Road)
- Development standards and design guidelines could be established to include standards for building heights, setbacks, modulation, building materials and provisions for implementation of consistent design guidelines over the long-term redevelopment period.
- Provisions for the establishment of a view corridor(s) through the site could be established as part of the Subarea Plan.

3.5.4 Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts to visual character are anticipated, with implementation of mitigation measures set forth above.

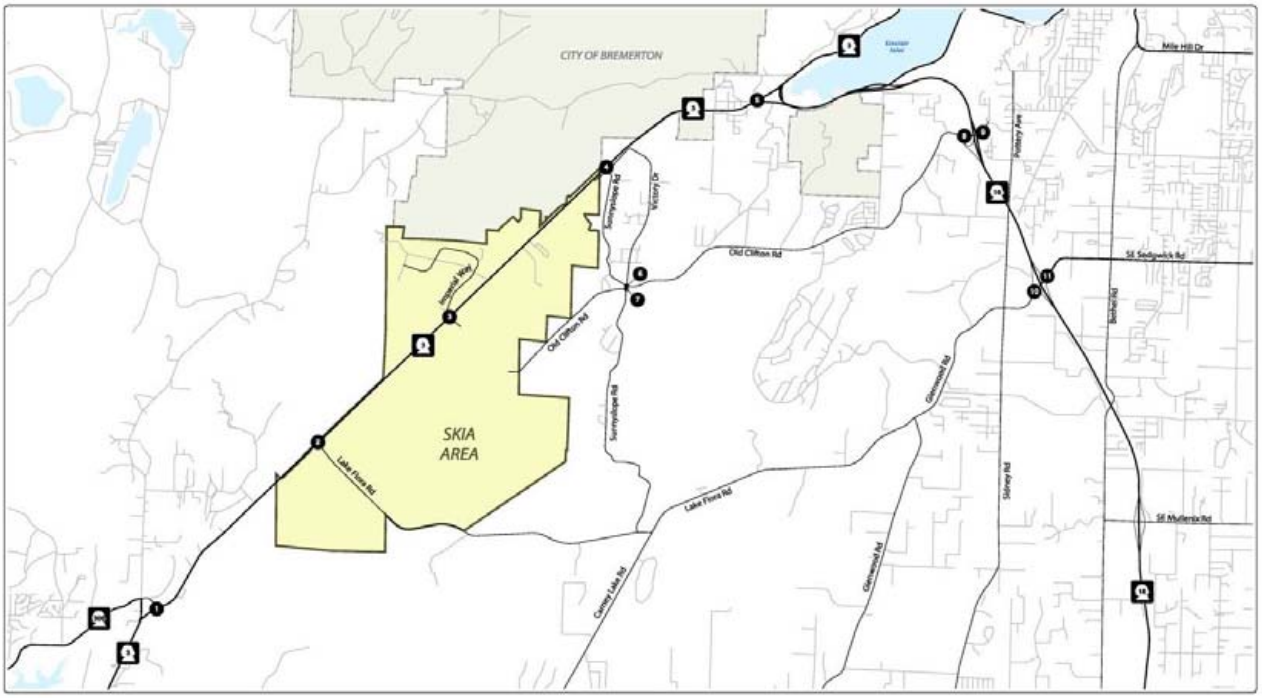
3.6 TRANSPORTATION

3.6.1 Affected Environment

Roadway System

The majority of travel in the area is on the state highway system, although there are several important county and City roads, as described below.

Figure 3.6-1: Transportation Facilities



Source: Fehr & Peers, 2010

State Route (SR) 3 is the principal north/south roadway on the Kitsap Peninsula and links US 101 near Shelton to SR 104 at the Hood Canal Bridge. Within the study area, SR 3 is generally a two-lane limited access highway with additional turning lanes at key intersections. A truck climbing lane is provided between the Gorst community and Sunnyslope Road. SR 3 features six-to-eight foot wide shoulders and a speed limit between 40 and 55 miles per hour. North of the SR 16 junction, SR 3 is a four lane freeway.

SR 16 is a major freeway that connects the Bremerton area with Tacoma and I-5 to the east. Near the study area, SR 16 is six lanes between SR 3 and SR 166 and four lanes to the east. The posted speed limit is 40 miles per hour near Gorst and 60 miles per hour for the remainder of the route.

SR 3 and SR 16 feature a complex interchange design in Gorst and many of the movements come together at a signalized intersection with SR 16, SR 3, and Sam Christopherson Avenue. As described later in this section, this intersection has substantial congestion during peak hours and there are several project concepts being considered to reduce congestion at this location.

Lake Flora Road is a two-lane county road that extends between SR 3 at the southern end of the SKIA site to SR 16, approximately eight miles east of the SKIA site. Lake Flora Road changes names to Glenwood Road and Sedgwick Road prior to its intersection with SR 16. In the segment between SR 3 and Glenwood Road, Lake Flora Road has eight foot shoulders, limited access points, and has a speed limit between 40 and 50 miles per hour. At its eastern end, where the road is known as Sedgwick Road, the development pattern is more suburban in nature with several large retail developments. The interchange area with SR 16 is within the City of Port Orchard. Sedgwick Road features traffic signals and sporadic sidewalk coverage.

Imperial Way serves as the primary access roadway for Bremerton National Airport and the Olympic View Industrial Park. West of SR 3, Imperial Way is a four lane road with no turn lanes, no sidewalks, and a 35 mile per hour speed limit. Imperial Way serves the industrial land uses within the Olympic View Industrial Park. East of SR 3, Imperial Way extends only about 100 feet and provides direct access to the airport.

Sunnyslope Road is a two lane county road that primarily serves the rural residential area located to the northeast of the Bremerton National Airport. Sunnyslope Road has narrow shoulders, no sidewalks and a posted speed limit of 30 miles per hour.

Old Clifton Road is a two lane road that extends from the eastern edge of the Bremerton National Airport to SR 16 at an interchange located about 2 miles south of the SR 3 interchange. The western terminus of Old Clifton Road provides access to the Bremerton Raceway and the road is narrow, hilly, has very narrow shoulders, and has a speed limit of 30 miles per hour. East of its intersection with Sunnyslope Road, Old Clifton Road is built to county standards and features six-to-eight foot shoulders and a speed limit of 45 miles per hour. The eastern portion of this road is within the City of Port Orchard.

Cross SKIA Connector is a new two lane road that is that extends south from SR 3 to the property line at Bremerton National Airport. Ultimately, this road is planned to extend to Old Clifton Road and Lake Flora Road to the south. The currently constructed portion of the road features three-

foot wide shoulders that can accommodate bicycle travel and a separated five foot multi-use path on the west side of the road.

Transit, Bicycle, and Pedestrian System

The transit, bicycle, and pedestrian systems are very limited within the study area. Mason County Transit provides fixed route transit service between Belfair and the Bremerton Ferry terminal; however, the transit route travels along Old Belfair Highway and does not provide any transit service to the SKIA site. Kitsap Transit does not have any bus routes near the site.

Kitsap Transit operates a large vanpool program; however, there are no vanpools with any destinations within the SKIA area.

As described above, there are very few pedestrian facilities near the SKIA site and virtually no pedestrian travel was observed outside of the Gorst area.

Kitsap County designates Lake Flora Road and Glenwood Road as bike routes between SR 3 and Lider Road. As described above, these roads have wide shoulders, which can comfortably accommodate bicycle travel.

Freight Rail

There is a freight railroad that parallels the west side of SR 3 through the study area. According to the *Draft Bremerton Economic Development Study* (WSDOT 2010), the majority of the rail traffic on this route serves the military installations at Bremerton and Bangor.

Policy Context

State Policies

Growth Management Act

The Washington Growth Management Act (GMA) has concurrency provisions to ensure sufficient public facilities are available for new development. Developers may assume that funded projects that are to be completed within six years are in place at the time of development. To evaluate the effect of proposed development on transportation facilities, local jurisdictions must set level of service (LOS) standards. If the trips generated by the development will cause a facility to fall below the LOS standard established by the jurisdiction, the local government may deny permits for the project or change the LOS standard to allow the development. Changes may be made to the development to meet the concurrency requirements, such as reducing the size or employing travel demand management to reduce the number of trips generated.

The GMA authorizes a financing option for roadway improvements in the form of impact fees. Local jurisdictions may impose these fees on developers based upon the number of trips generated by a proposed development. These fees contribute funding to specific projects identified in the local Transportation Master Plan that offset the expected traffic impacts of the development. The City of Bremerton does not have a mandatory impact fee program.

State Greenhouse Gas Emission Reduction

In 2008, Washington State passed a law aimed at reducing greenhouse gas (GHG) emissions. The law requires Washington State to reduce its GHG emissions to 1990 levels by 2020; to 25 percent below 1990 levels by 2035; and to 50 percent below 1990 levels by 2050. The Washington State Legislature also adopted a bill recognizing that the emissions goals will not be met without a substantial reduction in transportation emissions. Furthermore, the bill acknowledges the effect of land use development patterns on transportation emissions. The Department of Commerce provides assistance and evaluation tools to local agencies that choose to address the GHG reductions through their planning activities. See Section 3.2 for additional discussion of GHG emissions.

State Highway Limited Access Policy

In the state of Washington, state highways are divided into two main access control classes, limited access and managed access. All classes are defined based on the number of restrictions, with WSDOT controlling approaches to limited access routes, and cities controlling approaches within their boundaries on managed access routes. All approaches in unincorporated areas to any state highway require WSDOT authorization. Table 3.6-1 summarizes the various access classes for Washington State highways.

Within the study area, SR 3 is defined as a limited access highway, except for the portion south of Lake Flora Road, which is defined as a managed access highway. Therefore, future *driveway* connections with SR 3 within the SKIA site will be limited to right-in/right-out movements, subject to approval by WSDOT. However future *roadway* connections with full-access intersections, like the Cross SKIA Connector road, which is currently under construction, may be allowed by WSDOT.

Table 3.6-1: Access Control Types

Main Classes	Limited Access	Managed Access
Description	Highway access property rights are owned by WSDOT. Property owners adjacent to state highway do not have access without WSDOT approval.	Abutting property owner has right to access highway, but this right is subordinate to a safe and efficient highway system. Cities control approaches within their boundaries, others controlled by WSDOT.
Sub-classes	Full Control, Partial Control, Modified Control	Class 1, Class 2, Class 3, Class 4, Class 5
Characteristics	Full Control most restrictive, Modified Control least restrictive. At-grade intersections and commercial approaches prohibited or selectively permitted.	Class 1 most restrictive, Class 5 least restrictive. Accesses spaced at least 1,250' apart for Class 1 and at least 125' apart for Class 5. Other classes have distances that lie between these two values.

Source: Draft Bremerton Economic Development Study, WSDOT 2010.

Local Policies

City of Bremerton Comprehensive Plan LOS Standard

The City of Bremerton's Comprehensive Plan defines the City's level of service standards as D for all locations in the study area. A detailed description of the City's level of service standards is provided in Appendix H.

Kitsap County Comprehensive Plan Level of Service (LOS) Standard

Kitsap County's LOS policy generally recognizes that urban areas are likely to have more congestion than rural areas. This reflects the different characteristics of land use and transportation in these areas. For purposes of defining LOS standards, urban areas are the geographic areas located within a UGA boundary, and rural areas are the geographic areas located outside of all UGA boundaries. The LOS standard for rural areas is C, while the LOS standard for urban areas is D.

City of Port Orchard Comprehensive Plan LOS Standard

Consistent with the Kitsap County LOS Standard, Port Orchard has adopted a LOS D policy for their roadway system.

Analysis Methods

This section describes the methodologies and assumptions used to analyze the intersections within the study area.

Intersections

For roadway segments with signalized traffic control, roadway operations are typically defined by how well intersections along the roadway function, since intersections represent the points with the least capacity. Intersection operations are typically described using the level of service (LOS) concept. LOS is a qualitative description of traffic flow based on such factors as speed, travel time, delay, and freedom to maneuver. Six levels are defined from LOS A, with the least congested operating conditions, to LOS F, with the most congested operating conditions. LOS E represents "at-capacity" operations. Operations are designated as LOS F when volumes exceed capacity, resulting in stop-and-go conditions.

Signalized Intersections

The level of service method for signalized intersections analyzes operations based on average control vehicular delay, as described in Chapter 16 of the *Highway Capacity Manual (HCM)* (Transportation Research Board, 2000). Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The average control delay for signalized intersections was calculated using the Synchro analysis software and is correlated to a LOS designation, as shown in Table 3.6-2.

Unsignalized Intersections

Operations of unsignalized study intersections are evaluated using the method contained in Chapter 17 of the *HCM*. At two-way or side-street stop-controlled intersections, control delay is reported for the minor movement with the highest control delay, not for the intersection as a whole. For all-way stop-controlled intersections, the LOS is based on the weighted average control delay of all movements. The LOS designations for unsignalized intersections are also presented in Table 3.6-2.

Table 3.6-2: Intersection Level of Service Thresholds

Level of Service	Signalized Intersection Control Delay (sec/veh) [1]	Unsignalized Intersection Control Delay (sec/veh) [1]	General Description
A	0 – 10.0	0 – 10.0	Little to no congestion or delays.
B	10.1 – 20.0	10.1 – 15.0	Limited congestion, short delays
C	20.1 – 35.0	15.1 – 25.0	Modest delays and stable flow
D	35.1 – 55.0	25.1 – 35.0	Long delays, but stable flow
E	55.1 – 80.0	35.1 – 50.0	Operations at or near capacity
F	> 80.0	> 50.0	Over-capacity, breakdown flow

Source: Highway Capacity Manual, Transportation Research Board 2000.

[1] Control delay includes initial deceleration delay, queue move-up time, stopped delay, and acceleration delay.

Intersection Operations

The existing traffic operations in the study area were analyzed using PM peak hour traffic counts collected in September 2010. Figure 3.6-2 summarizes the lane configurations, traffic controls, and PM peak hour traffic volumes at the study intersections. Table 3.6-3 presents the LOS results.

Table 3.6-3: 2010 PM Peak Hour Intersection Level of Service

Intersection	Control Type	Intersection Delay (LOS)
1. SR 3 / Old Clifton Rd	Signalized	23 (C)
2. SR 3 / Lake Flora Rd	Side-street Stop	21 (C)
3. SR 3 / Imperial Way	Signalized	11 (B)
4. SR 3 / Sunnyslope Rd	Side-street Stop	24 (C)
5. SR 3 / SR 16 / Sam Christopherson Ave	**Signalized**	**83 (E)**
6. Sunnyslope Rd / Victory Dr	Side-street Stop	11 (B)
7. Old Clifton Rd / Sunnyslope Rd	Side-street Stop	9 (A)
8. Old Clifton Rd / SR 16 EB Ramps	**Side-street Stop**	**72 (F)**
9. Old Clifton Rd / SR 16 WB Ramps	**Side-street Stop**	**> 150 (F)[1]**
10. Sedgwick Rd / SR 16 EB Ramps	Signalized	35 (C)
11. Sedgwick Rd / SR 16 WB Ramps	Signalized	29 (C)

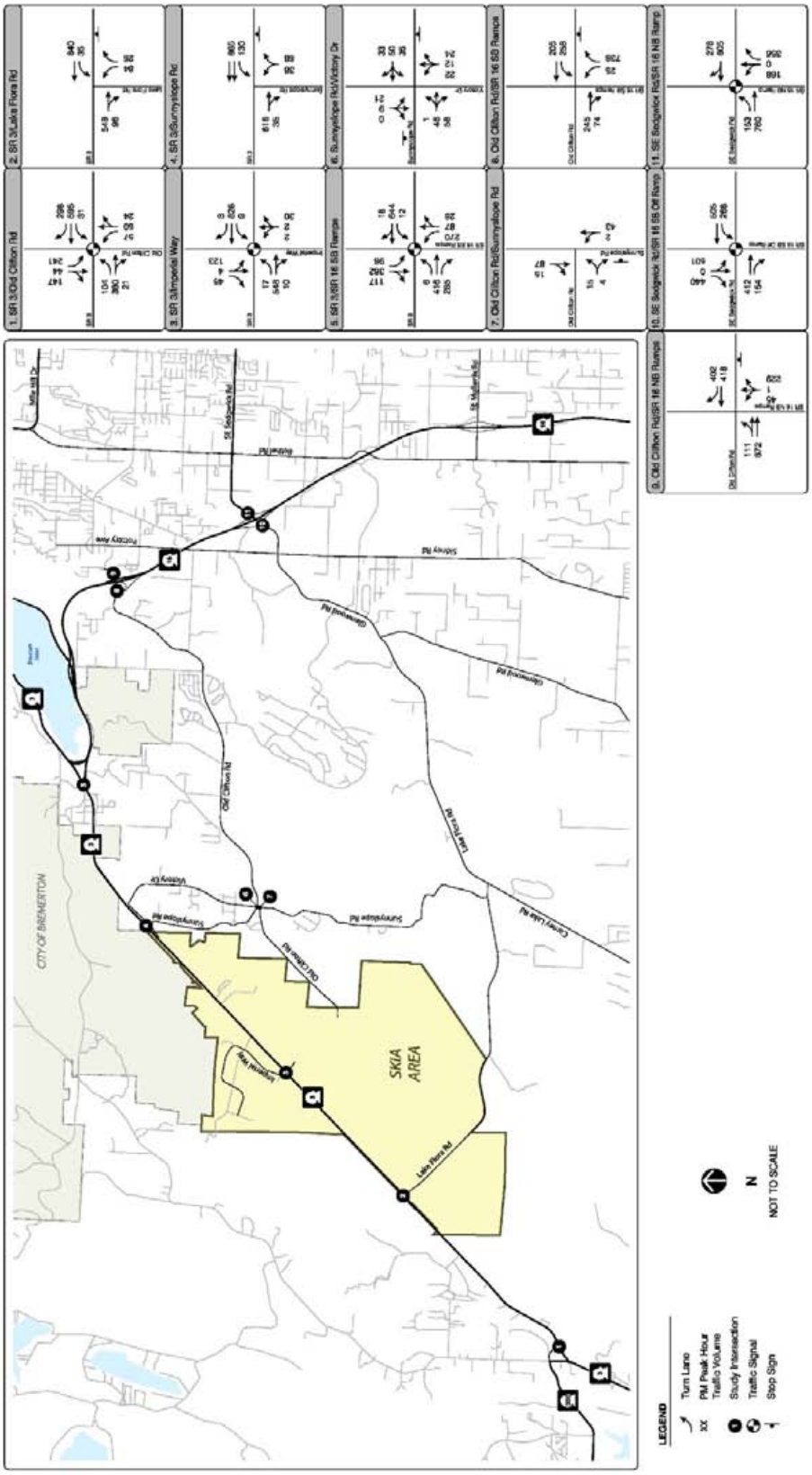
Source: Fehr & Peers, 2010.

[1] *Analysis software does not accurately report delays over 150 seconds.*

Table 3.6-3 shows that one signalized intersection operates at LOS E and two unsignalized intersections operate at LOS F during the 2010 PM peak hour. The remaining eight study intersections operate at LOS C or better.

The signalized intersection of SR 3 / SR 16 / Sam Christopherson Avenue operates at LOS E due to high traffic volumes at the intersection, particularly on the SR 3 approaches. The two unsignalized intersections at the SR 16 interchange with Old Clifton Road perform at LOS F because vehicles at the stop-controlled side streets have difficulty finding gaps in traffic to make left turns.

Figure 3.6-2: Peak Hour Traffic Volumes and Lane Configurations



Source: Fehr & Peers, 2010

Safety

The WSDOT has two procedures that identify locations where there are safety issues and a need for potential countermeasures. The first procedure is Collision Analysis Location, or CAL. The CAL is a quarter-mile buffered analysis, using the last five years of collision data. Fatal, serious, and evident injury collisions are considered in the analysis (see the box on the right for definitions of collision types). If the segment has six or more evident injury collisions and four or more fatal and serious injury collisions, as well as no planned safety project over the next six years, the segment is retained on the CAL list. If not, no additional analysis is performed.

The second procedure is the Collision Analysis Corridor, or CAC. The CAC is an analysis, also uses the latest five-year period of collision data; however collision data is organized along five-mile segments. Fatal and serious injury collisions become points along a route. Any five-mile segment with a history of 11 or more fatal or serious injury collisions would then be included in the CAC list.

The *Bremerton Economic Development Study* performed a safety analysis along the SR 3 corridor using 2004-2008 data. The analysis identified one CAL and no CACs in the study area. The CAL is located on SR 3 around the Lake Flora Road intersection (milepost 28.78 to milepost 29.30). This CAL contains 35 total collisions and one fatality, which occurred at the SR 3/Lake Flora Road intersection.

The safety analysis shows that the two leading causes of collisions were: speeding (12 collisions or 34%) and not granting the right-of-way (7 collisions or 21%) with other categories comprising the remaining 16 collisions.

Of the 35 total collisions, the safety analysis shows that 17 collisions (49%) reported no injuries; 8 collisions (23%) reported possible injury; and 6 collisions (17%) reported evident injury.

Types of Collisions:

Fatality Collisions are collisions that resulted in at least one fatality.

Serious Injury Collisions applies to collisions where an injury occurs which prevents the injured person from walking, driving, or continuing normal activities.

Evident Injury Collisions are collisions that involve any injury other than fatal or serious injuries that can be observed at the scene.

Possible Injury Collisions are collisions that include any injury reported by the individual.

No Injury Collisions are collision where only property damage occurs.

3.6.2 Future Conditions Land Use and Transportation Scenarios

This section describes the future conditions land use and transportation scenarios that will be analyzed in this document. Future conditions are assumed to occur by 2030 and include one transportation scenario and three land use alternatives.

Table 3.6-4 summarizes the distribution of the new jobs across the SKIA site by alternative. Figure 3.6-3 shows the Analysis Areas within SKIA.

Table 3.6-4: Employment by SKIA Analysis Area and Alternative

SKIA Development Analysis Area	Alt 1 - No Action Employment	Alt 2 Employment	Alt 3 Employment
Analysis Area A	400	500	1,400
Analysis Area B	800	1,500	2,200
Analysis Area C	50	1,500	1,000
Analysis Area D	50	400	800
Analysis Area E	0	850	1,800
Analysis Area F	0	1,150	2,000
Analysis Area G	100	600	800
Total	1,400	6,500	10,000

Source: Fehr & Peers, 2010

Future Transportation Improvements

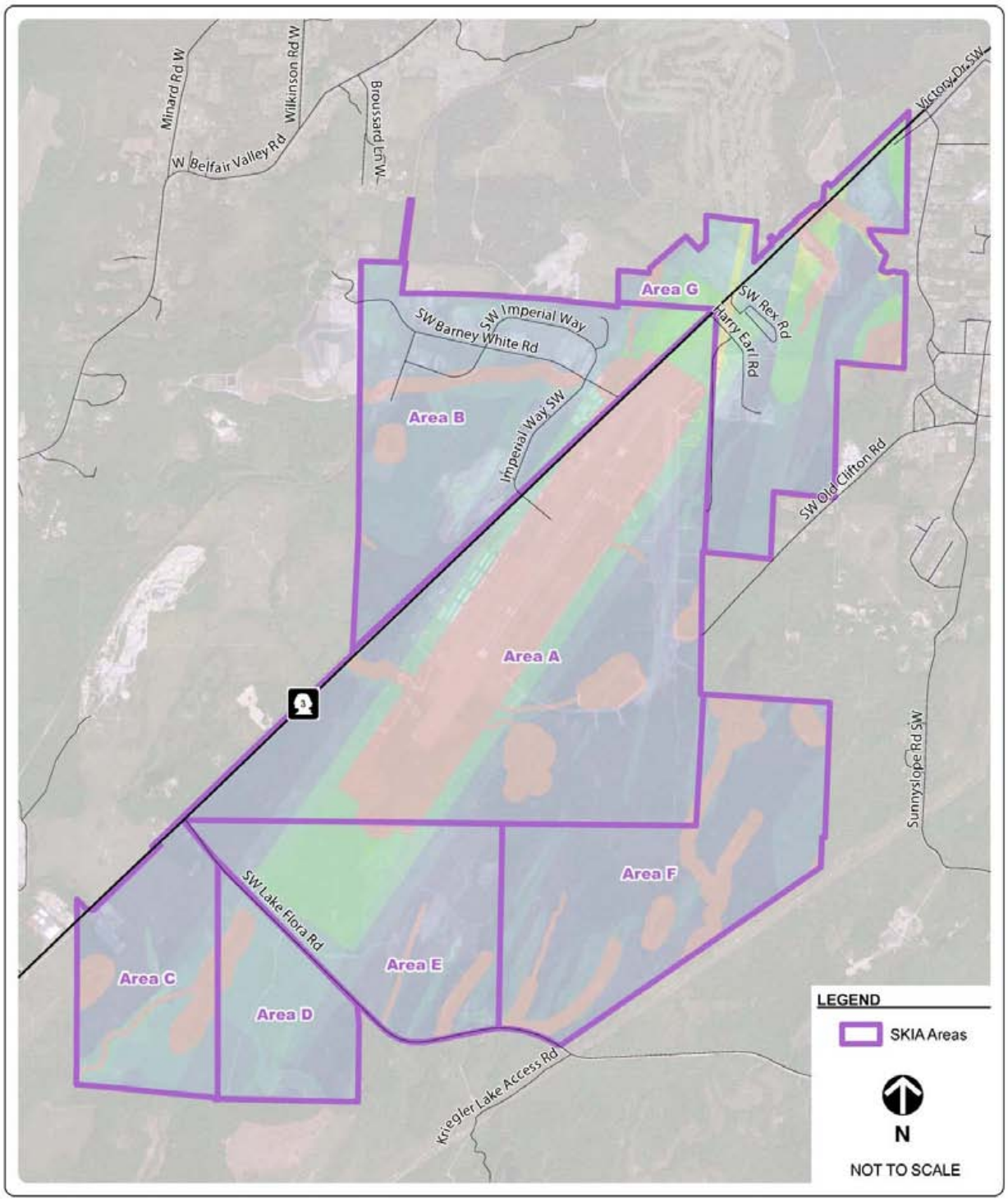
This section discusses the reasonably foreseeable improvements to the transportation network within the study area. Improvements to the roadway network, transit, and bicycle facilities are considered.

Planned Roadway Transportation Improvements

Internal to the SKIA area, the Port of Bremerton Cross SKIA Connector Phase 1 has been completed from SR 3 to east boundary of the airport. The port is currently pursuing a variety of funding sources to extend the road south to Lake Flora Road. Under Alternative 1, the Cross SKIA Connector is not assumed to be extended beyond its current terminus since the level of development that would spur the need for this road is not assumed. Under Alternatives 2 and 3, this road is assumed to be constructed south to Lake Flora Road.

In addition to the Cross SKIA Connector, other internal roadways, sidewalks, bicycle lanes, and trails will have to be constructed to support the future development. Additional details related to these internal transportation improvements are provided in section 3.6-10.

Figure 3.6-3: SKIA Analysis Areas



Source: Fehr & Peers, 2010

In August 2010, WSDOT released the Bremerton Economic Development Study (BEDS) which recommends numerous improvements to the road network along SR 3 and 16 in the SKIA area. This report provides a 20-

year vision and prioritized improvement list for the state-maintained highways in the vicinity of the SKIA site.

While BEDS has defined a clear vision for the state highways in the area, the report makes it clear that none of the projects listed in the document have full or reasonably foreseeable funding. Given the uncertainties related to future transportation finance, none of the BEDS projects were assumed to be in place under 2030 condition. Table 3.6-5, below, summarizes some of the key projects from the BEDS report.

Table 3.6-5: BEDS Priority Improvement Projects

Priority	Project	Description
1	Belfair Bypass	Two lane divided highway parallel to SR 3, with its northern terminus immediately north of Lake Flora Road
3	SR 3 / Sam Christopherson Intersection	• Additional left-turn lane from Sam Christopherson Road to SR 3 • Right-turn lane from SR 3 to Sam Christopherson Road • Additional through lane in each direction on SR 3 (interim improvement) • Dual-left turn and a right turn from the SR 16 ramp to SR 3 • Construct a new intersection to grade separate the intersection and widen the SR 16 spur (ultimate improvement)
4	SR 3 / Imperial Way Intersection	Add additional turning lanes
8	SR 3 / Sunnyslope Road intersection	Install roundabout or traffic signal
12	SR 3 Widening	Widen to four lanes from Imperial Way to SR 16
13	SR 16 Ramps / Tremont Street	Widen Tremont Street to four lanes and install new signals at both northbound and southbound intersections
14	SR 16 Ramps / Sedgwick Road	Widen Sedgwick Road to four lanes plus turn lanes

Source: WSDOT BEDS, 2010.

Transit, Bicycle, and Pedestrian System

Alternative transportation modes like transit, cycling, and walking can reduce the traffic impacts of increasing employment and help reduce the greenhouse gas emissions of the project.

There are no planned transit improvements in the SKIA area, but future growth in the SKIA region may lead to bus services provided by Mason County Transportation (which currently operates a route parallel to SR 3 along Old Belfair Road) and/or Kitsap Transit. Additionally, the Kitsap Transit vanpool program could start service in the SKIA area. For the purposes of this analysis, no transit ridership was assumed in the study area.

The *Kitsap County Bicycle Facilities Plan* (Kitsap County, May 2001) recommends bicycle lane construction on multiple facilities within SKIA. These projects were classified by priority (low or high) or as opportunity projects. Opportunity projects are those that Kitsap County has already identified for road related improvements in the County Transportation Improvement Program and bicycle facilities could be added as part of the road work. The bicycle projects are summarized below:

- Lake Flora Road / Glenwood Road / SW Lider Road for 5.1 miles from Sunnyslope Road to Bethel Burley Road (high priority)
- Lake Flora Road / SR 3 for 4.5 miles between Sunnyslope Road and the Mason County line (low priority project)
- Sunnyslope Road for 1.1 miles between SW Clifton Road and the Sunnyslope Elementary School (opportunity project)
- Glenwood Road / SE Sedgwick Road for 1.3 miles between Sidney Road and Lake Flora Road (opportunity project)
- Sunnyslope Road for 2.7 miles between Sunnyslope Drive and Lake Flora Road (opportunity project)

Currently none of these projects have been completed, nor is there a timeline for their completion.

The City of Bremerton's *Non-Motorized Transportation Plan* (December 2007) does not specify any bicycle or pedestrian improvements in the study area, however, SKIA was not part of the City when this plan was prepared.

3.6.3 Trip Generation of the Alternatives

Given the sparse transit, pedestrian, and bicycle network in the study area, along with the industrial character of the SKIA site, the transportation impact analysis largely focuses on vehicular impacts. A key element in determining the level of vehicle impact is trip generation.

The trip generation estimate for each growth alternative is based on observed data from the SKIA site and information from the Institute of Transportation Engineers' (ITE) *Trip Generation, 8th Edition* document. *Trip*

Generation is a widely-accepted reference for estimating trip generation based on the type and quantity of proposed development in an area (such as number of new employees or square feet of development). The ITE data are drawn from trip generation surveys that have been collected across the country over the last 50 years. This section discusses the trip generation rates and methodology used for the transportation analysis.

Future Conditions Trip Generation Calculations

This section describes the analysis methodology and trip generation estimates for the three future year alternatives.

Alternative 1 - No Action

Alternative 1 assumes that the existing trend of development continues in SKIA, resulting in about 1,400 additional industrial employees under 2030 conditions. To estimate total trip generation under this alternative, the ITE Industrial Park trip generation rate (code 130) was used. This rate results in the generation of 644 PM peak hour trips and 4,676 daily trips. Table 3.6-5 at the end of this section summarizes the total trip generation results and Appendix H shows a detailed breakdown of trip generation by SKIA development area.

Alternatives 2 and 3

Future employment growth under Alternatives 2 and 3 is expected to be primarily industrial in nature with two notable exceptions:

- Alternatives 2 and 3 include the provision that Analysis Areas B, C, D, E, and G may contain up 20 percent of employment as supporting retail/business services.
- Alternative 2, Analysis Area C is proposed as a mixed use development with a blend of outlet center, entertainment center, and office uses. The retail development would serve populations in a 25 to 75 mile trade area.

For areas that are exclusively industrial (Alternative 2 and 3 in Analysis Areas A and F), trip generation estimates were made using the ITE Industrial Park (130) rate for new employment.

In Analysis Areas B, C, D, E, and G, a different ITE land use code was used to account for the support retail and commercial services. The project team determined that the closest ITE land use category was code 770, Business Park. *Trip Generation* notes that the average mix for this land use category is 20 to 30 percent office/commercial and 70 to 80 percent industrial/warehousing. This land use code accounts for both the industrial and commercial trips within the development area, and also the

high degree of trips between the industrial and commercial services that are expected to occur.

Trip Generation shows that the Business Park trip rate in the PM peak hour is lower than the trip rate for Industrial Park, based on number of employees (0.39 versus 0.46). However, the rate based on thousand square feet of development is higher (1.29 versus 0.86). Due to the potential increase in trips based on the commercial/retail uses in the Business Park, the lower PM peak hour rate was not considered reasonable. In order to provide a conservative estimate of PM peak hour trip generation, the business park rate used was 0.59.[1]

The final trip rate calculated was for Analysis Area C in Alternative 2. This area is projected to have destination retail and office space. Employment is assumed to be 80 percent retail and 20 percent office and the retail trip generation estimate was calculated using ITE code 820, Shopping Center. Trip generation for the remaining 20 percent of employment in this area was calculated at the Office Park (ITE code 750) rate.

For major regional retail centers, it is important that another trip generation adjustment, known as pass-by trips are taken into account. The ITE *Trip Generation Handbook*, 2nd Edition, defines pass-by trips as intermediate stops on the way from an origin to a primary trip destination without a route diversion. Examples include trips on the way home from work to a grocery store or restaurant. The *Trip Generation Handbook* notes that pass-by trips are closely linked to the size of the development and to the volume of traffic on the adjacent street that can deliver the pass-by trip. For the size of retail center proposed under Alternative 2, the *Trip Generation Handbook* estimates that 23 percent, or 463 PM peak hour trips would be drawn from SR 3. Table 3.6-6 summarizes the trip generation results for Alternatives 2 and 3. Appendix H provides a detailed breakdown of trips by analysis area for each Alternative.

[1] (1.29 Business Park by ksf / 0.86 Industrial Park by ksf) x 0.39 Business Park by Employee

Table 3.6-6: Trip Generation Summary

Trip Generation	Alternative 1		Alternative 2		Alternative 3	
	PM Pk. Hr. Trips	Daily Trips	PM Pk. Hr. Trips	Daily Trips	PM Pk. Hr. Trips	Daily Trips
Gross Trips	644	4,676	5,091	45,869	5,458	38,020
Pass-by Reduction	N/A	N/A	-515	-5,926	N/A	N/A
Total Trips	644	4,676	4,576	39,933	5,458	38,020

Source: Fehr & Peers, 2011

Heavy Truck Traffic

Heavy truck traffic is an important consideration when evaluating the transportation impacts of industrial projects. Based on the surveys collected for *Trip Generation,* truck trips account for an average of eight percent of total daily vehicle trips for industrial areas.

To obtain a more accurate local measurement, Fehr & Peers collected vehicle classification counts on September 9, 2010 and February 22-24, 2011, for vehicles leaving the Olympic View Industrial Park via Imperial Way at SR 3. Vehicles with six tires or more (on two or more axles) were recorded as heavy trucks, which is a typical definition for traffic operations analysis. The results are shown below in Table 3.6-7. The daily average was 23.2 percent, and the PM peak hour average was 13.2 percent. Based on proposed land use characteristics, the 2030 Puget Sound Regional Council (PSRC) travel demand model also predicts that trucks would represent about 15 percent of PM peak hour traffic for Analysis Area B under development alternative three.

Table 3.6-7: Existing Heavy Truck Volumes as a Percentage of Vehicles

Date of Survey	Daily Truck Percentage	PM Peak Truck Percentage
9/9/2010	N/A	19.2%
2/22/2011	17.2%	13.4%
2/23/2011	28.0%	13.3%
2/24/2011	28.1%	14.1%

Source: Fehr & Peers, 2011

A review of the uses in the Olympic View Industrial Park indicate a relatively high proportion of low employment density/high truck trip generators like Federal Express and the Waste Management solid waste transfer area. These types of uses help to explain the differences between the ITE estimated and observed heavy vehicle proportion.

For the purposes of this analysis, it is assumed that as the area develops, the proportion of heavy vehicles will fall to levels that are more typical of

industrial areas across the country. Specifically, it is assumed that heavy trucks will constitute 11 percent of vehicles leaving and entering future Industrial and Business Park areas during the PM peak hour. This rate represents an average of the ITE and observed data.

3.6.4 Trip Distribution of the Alternatives

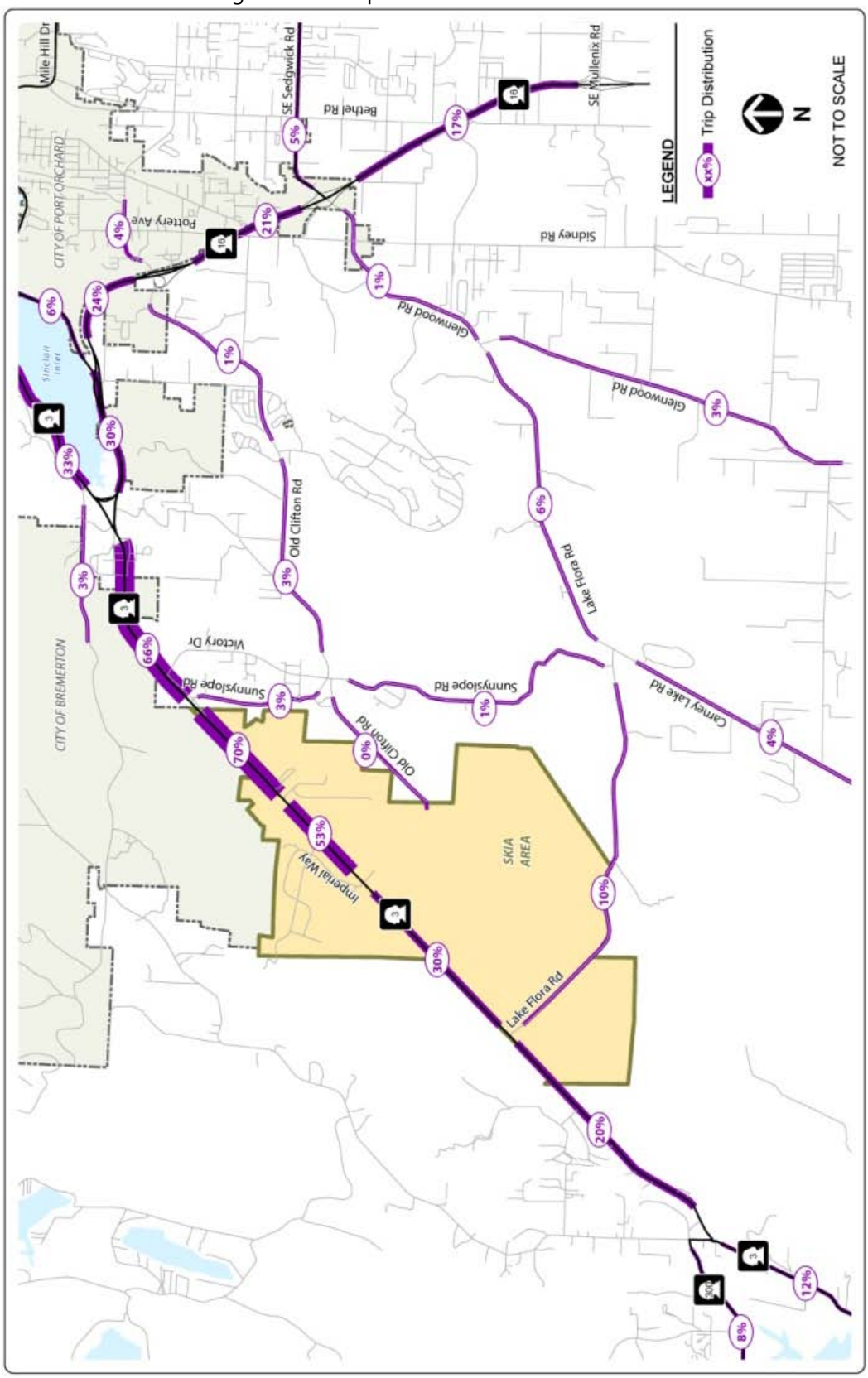
The previous section described the trip generation of the SKIA alternatives. The next step in evaluating the transportation impacts of the proposed alternatives is to determine the distribution pattern of the trips bound for and leaving the SKIA site.

Distribution of future SKIA trips was developed using output from the PSRC travel demand model. The PSRC model output was also compared to the distribution pattern described in Kitsap County's *2003 South Kitsap Industrial Area (SKIA) Subarea Plan Plan* and was found to be very similar.

Based on the results of the PSRC model run, the distribution varied slightly for each alternative. For Alternative 2, which includes a substantial regional retail component at the southern end of SKIA, the trip distribution pattern had a greater focus on the Belfair area and points south, as these locations are less served by existing retail and commercial services. Additionally, the distribution for each alternative varied slightly based on on the expected intensity of development in each SKIA area.

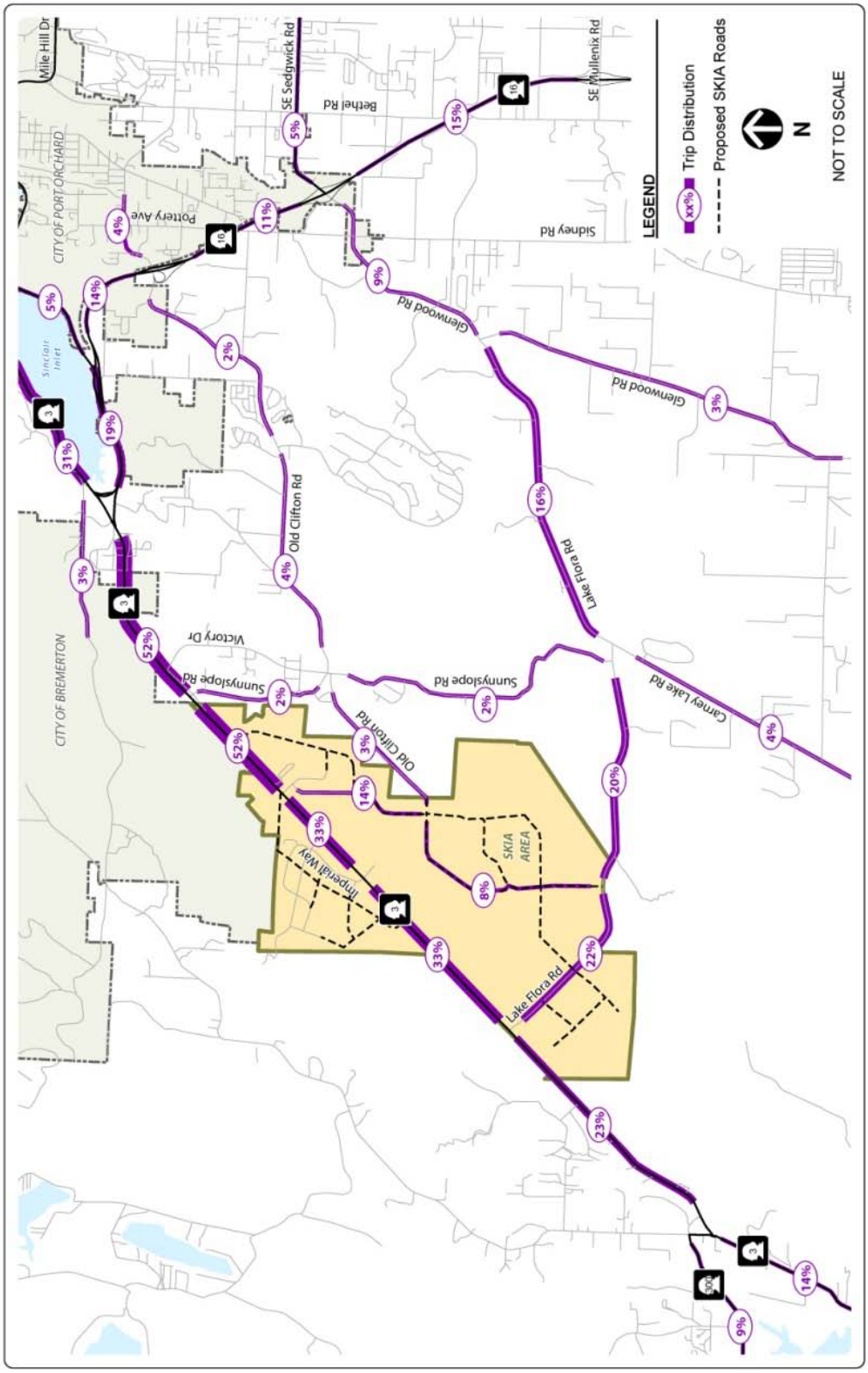
Figures 3.6-4 through 3.6-6 shows the overall distribution for each of the alternatives.

Figure 3.6-4: Trip Distribution 2030 No Action



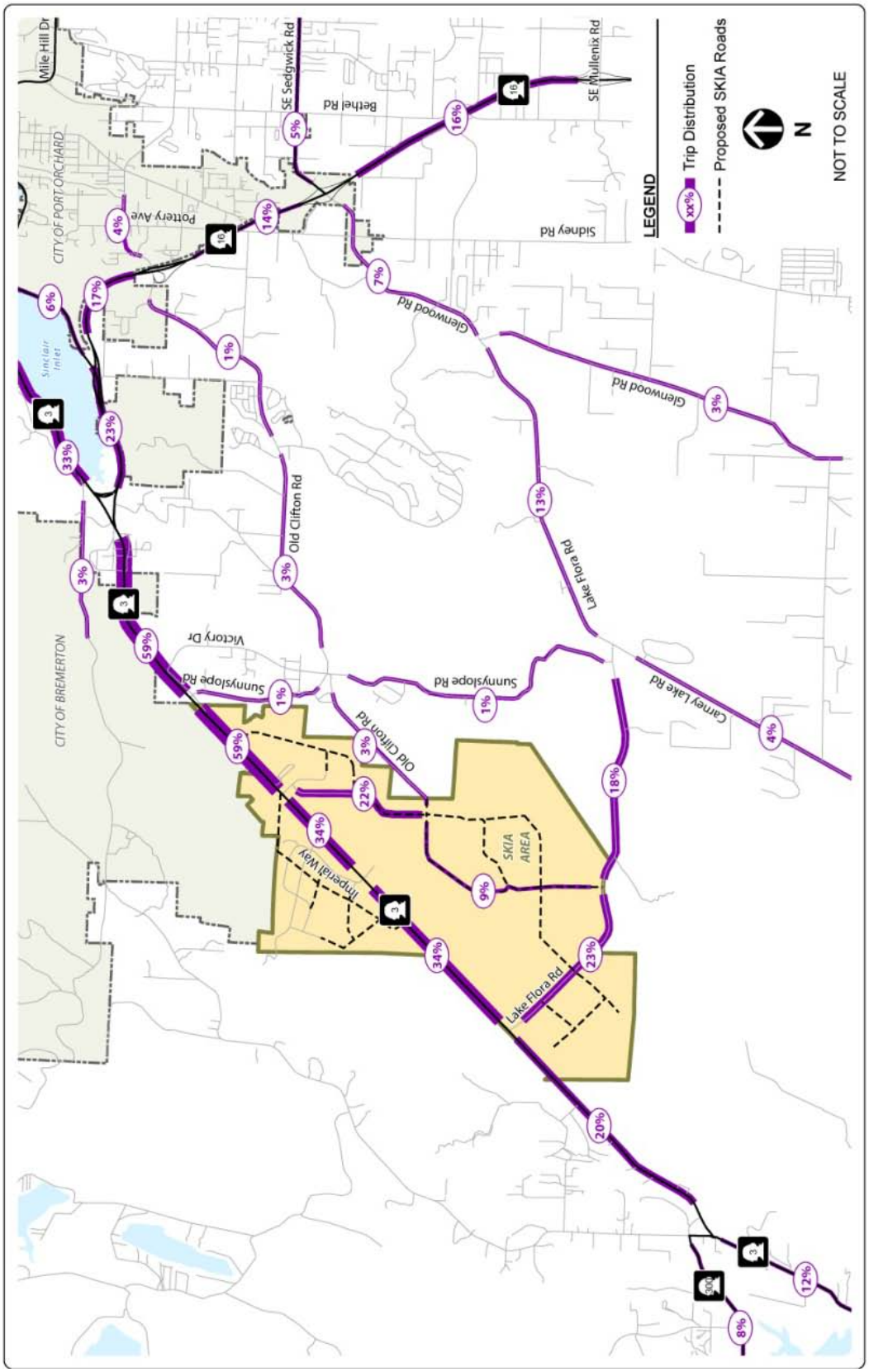
Source: Fehr & Peers, 2011

Figure 3.6-5: Trip Distribution 2030 Alternative 2



Source: Fehr & Peers, 2011

Figure 3.6-6: Trip Distribution 2030 Alternative 3



Source: Fehr & Peers, 2011

3.6.5 Background Traffic Forecasts

In addition to forecasting growth in traffic from the SKIA site, growth in traffic related to regional development under 2030 conditions was also forecasted. These 2030 background traffic forecasts were developed using the PSRC travel demand model. To increase the accuracy of the PSRC model in the study area, the large traffic analysis zones in the area were broken up to ensure a more realistic distribution of trips to the roadway network.

Background traffic forecasts were prepared using a technique known as the "difference method," which is a commonly used approach to minimize travel model error. The difference method takes the difference in traffic forecasts from an existing condition and future condition travel model run. This difference is then added to actual traffic counts to prepare the future year forecasts. This technique eliminates most of the model error since the majority of the future year forecast is based on observed traffic data.

3.6.6 Alternative 1 Future Conditions Transportation Analysis

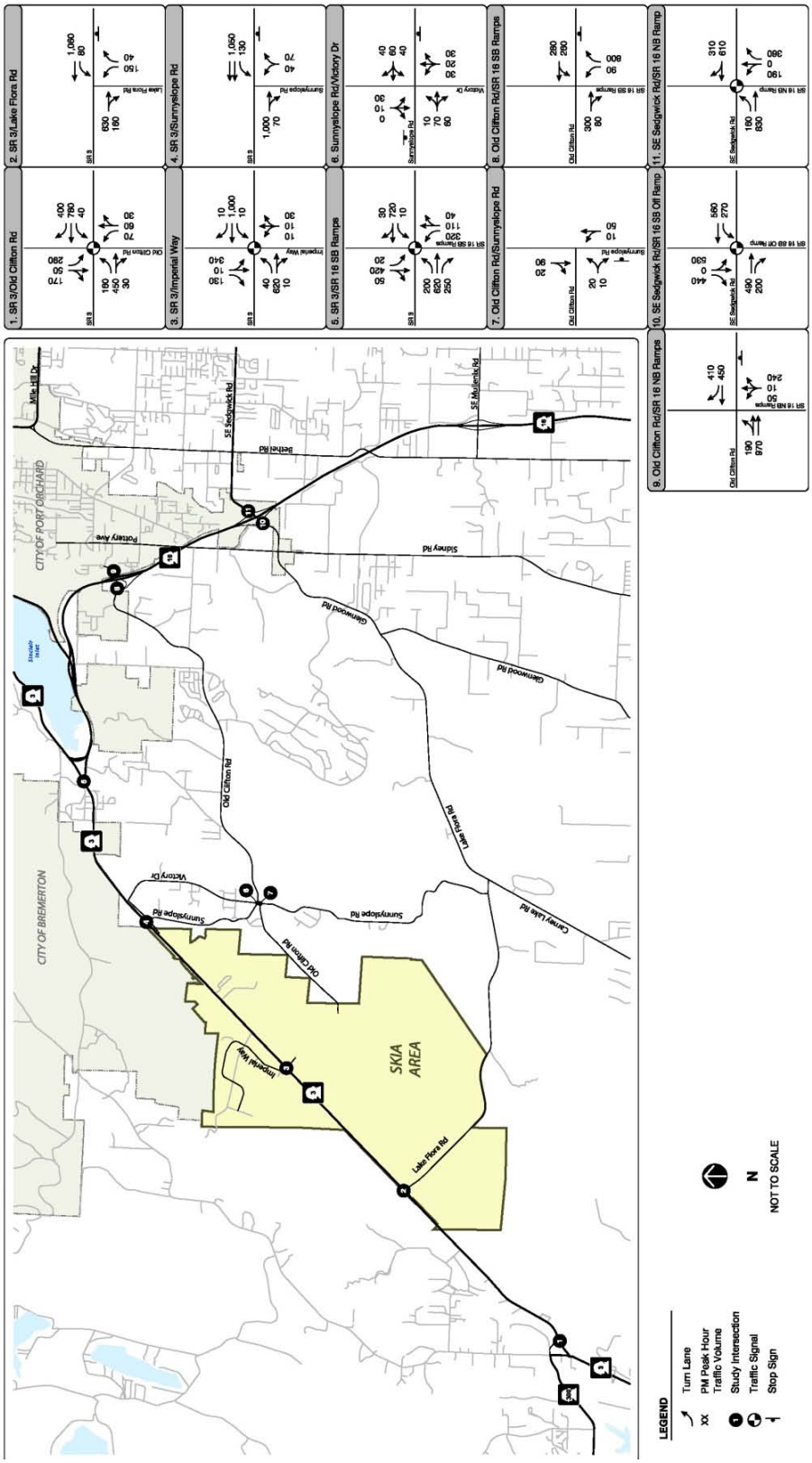
This section summarizes the results of the transportation analysis for Alternative 1. Alternative 1 represents the "No Action" scenario where development is anticipated to continue at historic rates and no changes to the land use zoning is anticipated in the SKIA area. This is an important analysis scenario since it represents the baseline by which impacts of the two "Action" alternatives (Alternative 2 and 3) will be measured.

Traffic Operations Analysis Results

Traffic operations of Alternative 1 were based on 2030 traffic forecasts prepared by combining the results of the trip generation, trip distribution, and background traffic forecasts described above. The PM peak hour traffic volumes, lane configurations, and traffic controls of the 2030 Alternative 1 are summarized in Figure 3.6-7.

Traffic operations for Alternative 1 were analyzed using the analysis techniques described under the existing conditions section. The results of the traffic operations analysis are presented in Table 3.6-8 below. The results are compared to the existing conditions traffic operations analysis results for comparative purposes.

Figure 3.6-7: PM Peak Hour Traffic Volumes and Lane Configurations
2030 No Action



Source: Fehr & Peers, 2011

Table 3.6-8: PM Peak Hour Delay and LOS, Existing and 2030 No Action

Intersection	Control Type	Existing Intersection Delay (LOS)	2030 No Action Intersection Delay (LOS)
1. SR 3 / Old Clifton Rd	Signalized	23 (C)	37 (D)
2. SR 3 / Lake Flora Rd	Side-street Stop	21 (C)	60 (F)
3. SR 3 / Imperial Way	Signalized	11 (B)	49 (D)
4. SR 3 / Sunnyslope Rd	Side-street Stop	24 (C)	58 (F)
5. SR 3 / SR 16 / Sam Christopherson Ave	Signalized	83 (E)	124 (F)
6. Sunnyslope Rd / Victory Dr	Side-street Stop	11 (B)	12 (B)
7. Old Clifton Rd / Sunnyslope Rd	Side-street Stop	9 (A)	9 (A)
8. Old Clifton Rd / SR 16 EB Ramps	Side-street Stop	72 (F)	135 (F)
9. Old Clifton Rd / SR 16 WB Ramps	Side-street Stop	> 150 (F)1	> 150 (F)1
10. Sedgwick Rd / SR 16 EB Ramps	Signalized	35 (C)	40 (D)
11. Sedgwick Rd / SR 16 WB Ramps	Signalized	29 (C)	35 (C)

Source: Fehr & Peers, 2010.

[1] *Analysis software does not accurately report delays over 150 seconds.*

The results above indicate that the following five intersections are expected to operate at an undesirable LOS under 2030 Alternative 1 conditions:

- SR 3 / Lake Flora Road
- SR 3 / Sunnyslope Road
- SR 3 / SR 16 / Sam Christopherson Avenue
- Old Clifton Road / SR 16 Eastbound Ramps
- Old Clifton Road / SR 16 Westbound Ramps

While not required for this EIS, recommendations to improve the operations of these five intersections are described below. These improvement options are based on the recommendations of the WSDOT

Bremerton Economic Development Study (BEDS) report and are summarized in Figure 3.6-8.

2. SR 3 / Lake Flora Road – The BEDS report does not specifically address improvements at this location, which is located adjacent to the northeast terminus of the preferred alignment of the Belfair Bypass. If the Belfair Bypass is constructed, changes at this intersection should include both signalization and potential widening. Under Alternative 1 conditions, signalizing the intersection with the existing intersection geometry results in LOS B operations.

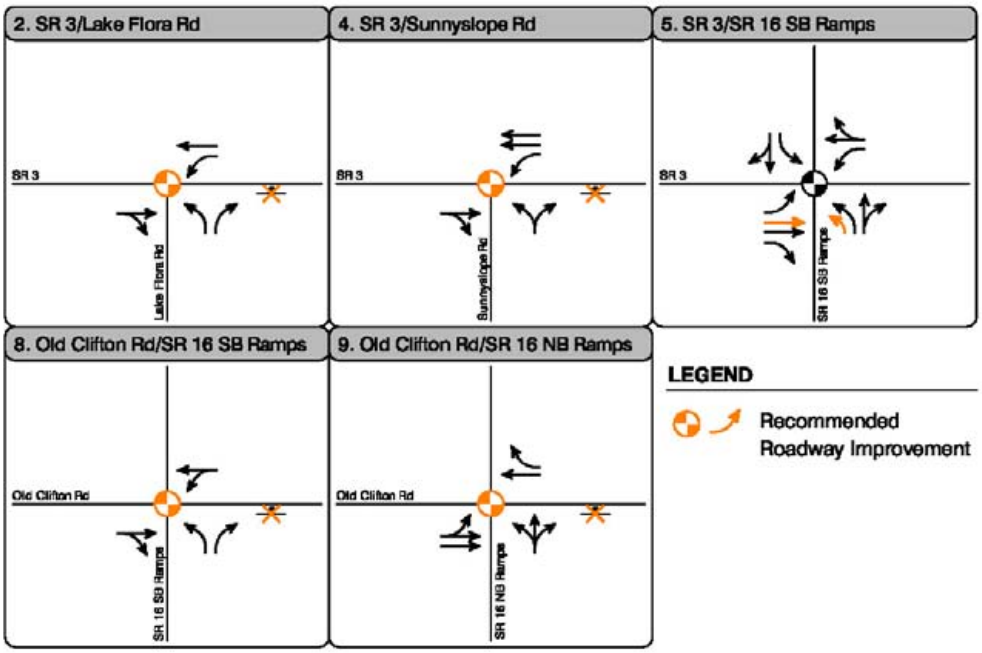
4. SR 3 / Sunnyslope Road – The BEDS report recommends installing a roundabout or signalizing this intersection. Based on existing lane configurations, a roundabout is not appropriate for this intersection due to heavy traffic on SR 3. However, signalizing the intersection with the existing lane configurations results in LOS A operations.

5. SR 3 / SR 16 / Sam Christopherson Avenue – The BEDS report recommends a series of improvements that can be phased in over time at this location. From this list of improvements, the analysis indicates that the addition of a new northbound left turn lane from the SR 16 ramp to SR 3 and additional north and south through lanes on SR 3 will result in LOS D operations at this intersection.

8. Old Clifton Road / Tremont Street / SR 16 EB Ramps – The BEDS report recommends widening Old Clifton Road/Tremont Street to four lanes and signalizing both this intersection and intersection 9. Signalizing this intersection under current configurations results in LOS C operations (therefore widening is not necessary to provide acceptable operations).

9. Old Clifton Road / Tremont Street / SR 16 WB Ramps – The BEDS report recommends widening Old Clifton Road/Tremont Street to four lanes and signalizing both this intersection and intersection 8. Signalizing this intersection under current lane configurations results in LOS B operations.

Figure 3.6-8: Recommended Roadway Improvements
2030 No Action



Source: Fehr & Peers, 2010.

As described in Section 3.6.2, there are no planned and funded transit, pedestrian, or bicycle improvements anticipated within the study area under any of the 2030 alternative scenarios. However, it is conceivable that Mason County Transportation or Kitsap Transit could provide bus service to the area as employment grows. It is also possible that some vanpool services serve SKIA under Alternative 1 conditions.

Internal to the site, implementation of the SKIA Subarea Plan will result in the development of a robust pedestrian and bicycle network. For example, roadway standards are recommended that include sidewalks and bicycle lanes on both sides of the street within more developed areas. In the undeveloped areas of the site, a multi-use path and wide shoulders are recommended, similar to the current Cross SKIA Connector design to accommodate active transportation modes. In addition, the SKIA Subarea Plan recommends that development be clustered to allow employees to walk or bicycle to retail and service commercial uses that will be located adjacent to industrial uses. Furthermore, it is recommended that a separate network of multi-use paths be constructed between clusters of development to provide direct connections between development areas for active transportation modes.

3.6.7 Thresholds of Significance

As described in the earlier, the transportation impacts of the "Action" Alternatives 2 and 3 are measured against the transportation conditions of the "No Action" Alternative 1 scenario. This section describes the thresholds that constitute a significant transportation impact. Significant impacts are defined for traffic operations, transit, bicycle and pedestrian circulation, and traffic safety.

Traffic Operations

A significant traffic operations impact is defined if either of the following occurs:

- An intersection that operates acceptably (LOS D or better) under Alternative 1 degrades to unacceptable operations (LOS E or F) under Alternative 2 or 3 conditions; or
- An intersection that operates at an unacceptable level (LOS E or F) under Alternative 1 conditions experiences an increase in delay of five or more seconds under Alternative 2 or 3 conditions.

Transit

A significant impact to transit is said to occur if the additional development associated with Alternatives 2 or 3 lead to an unmet demand for transit in the area.

Bicycle and Pedestrian Circulation

A significant impact to bicycle and pedestrian circulation is said to occur if the transportation system constructed in conjunction with Alternative 2 or 3 fails to provide bicycle or pedestrian facilities within the SKIA site.

Traffic Safety

A significant impact to traffic safety is said to occur if Alternatives 2 or 3 will lead to a substantial increase in traffic at locations defined a "Collision Analysis Location" by WSDOT. The impact is less than significant if the project will provide safety improvements at the Collision Analysis Location.

3.6.8 Transportation Impact Analysis Results

This section describes the results of the transportation impact analysis for land use Alternatives 2 and 3. The traffic operations analysis was performed using the same methodology and approach as defined in Sections 3.6.1 and 3.6.6. The transit, bicycle and pedestrian, and traffic safety analysis was performed at a qualitative level.

Traffic Operations Analysis

Table 3.6-9 summarizes the results of the traffic operations analysis for Alternatives 2 and 3. Significant traffic operations impacts are shown in bold. The analysis results are based on the PM peak hour traffic forecasts presented in Figures 3.6-9 and 3.6-10 for Alternative 2 and 3, respectively.

As shown in Table 3.6-9, the additional traffic generated by Alternatives 2 and 3 leads to a substantial degradation in traffic operations and significant traffic operations impacts at many study intersections.

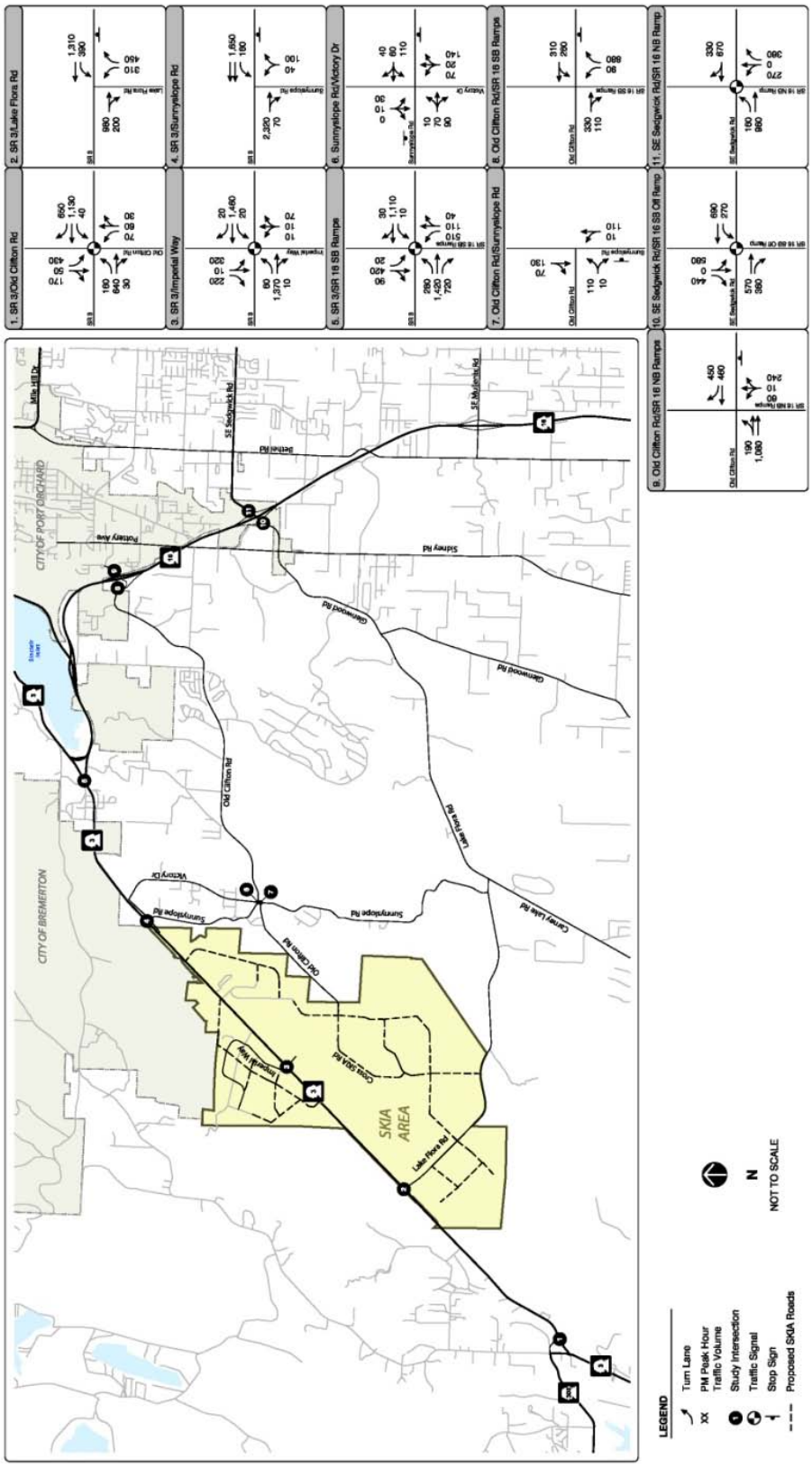
Table 3.6-9: 2030 Alternative 2 and 3 Intersection LOS Results

Intersection	Control Type	2030 No Action Intersection Delay (LOS)	2030 Alternative 2 Intersection Delay (LOS)	2030 Alternative 3 Intersection Delay (LOS)
1. SR 3 / Old Clifton Rd	Signalized	37 (D)	**111 (F)**	**122 (F)**
2. SR 3 / Lake Flora Rd	Side-street Stop	60 (F)	**> 150 (F)[1]**	**> 150 (F)[1]**
3. SR 3 / Imperial Way	Signalized	49 (D)	**> 150 (F)[1]**	**> 150 (F)[1]**
4. SR 3 / Sunnyslope Rd	Side-street Stop	58 (F)	**> 150 (F)[1]**	**> 150 (F)[1]**
5. SR 3 / SR 16 / Sam Christopherson Ave	Signalized	124 (F)	**> 150 (F)[1]**	**> 150 (F)[1]**
6. Sunnyslope Rd / Victory Dr	Side-street Stop	12 (B)	18 (C)	16 (C)
7. Old Clifton Rd / Sunnyslope Rd	Side-street Stop	9 (A)	12 (B)	11 (B)
8. Old Clifton Rd / SR 16 EB Ramps	Side-street Stop	135 (F)	**> 150 (F)[1]**	**> 150 (F)[1]**
9. Old Clifton Rd / SR 16 WB Ramps	Side-street Stop	> 150 (F)[1]	**> 150 (F)[1]**	**> 150 (F)[1]**
10. Sedgwick Rd / SR 16 EB Ramps	Signalized	40 (D)	54 (D)	**60 (E)**
11. Sedgwick Rd / SR 16 WB Ramps	Signalized	35 (C)	53 (D)	50 (D)[2]

Source: Fehr & Peers, 2011

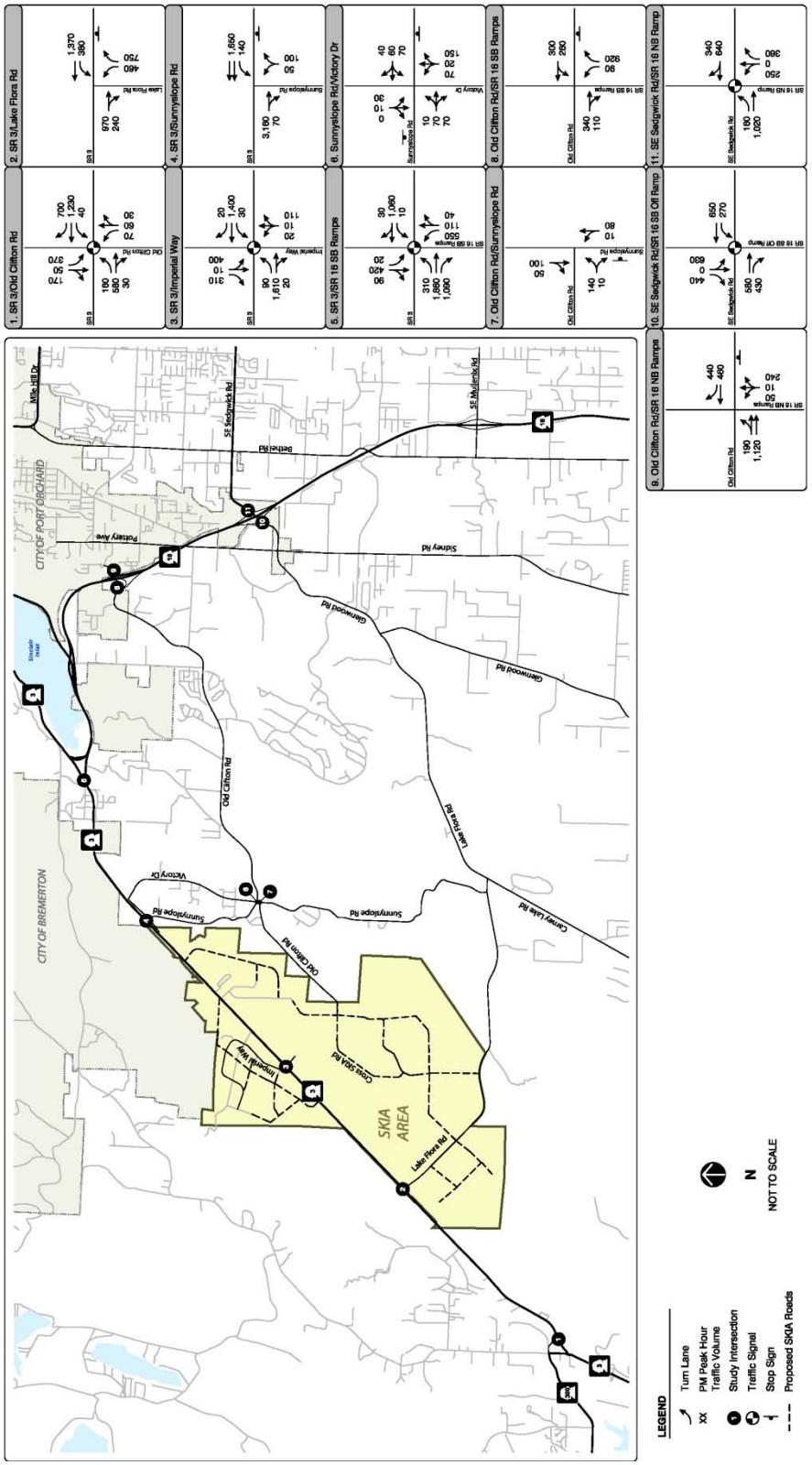
[1] Analysis software does not accurately report delays over 150 seconds.

Figure 3.6-9: PM Peak Hour Traffic Volumes and Lane Configurations
2030 Alternative 2



Source: Fehr & Peers, 2010.

Figure 3.6-10: PM Peak Hour Traffic Volumes and Lane Configurations
2030 Alternative 3



Source: Fehr & Peers, 2010.

Alternative 2 – Significant Traffic Operations Impacts

This alternative will have impacts at the following seven study intersections:

- SR 3 / Old Clifton Road
- SR 3 / Lake Flora Road
- SR 3 / Imperial Way
- SR 3 / Sunnyslope Road
- SR 3 / SR 16 / Sam Christopherson Avenue
- Old Clifton Road / SR 16 Eastbound Ramps
- Old Clifton Road / SR 16 Westbound Ramps

Alternative 3 – Significant Traffic Operations Impacts

This alternative will have impacts at the following eight study intersections:

- SR 3 / Old Clifton Road
- SR 3 / Lake Flora Road
- SR 3 / Imperial Way
- SR 3 / Sunnyslope Road
- SR 3 / SR 16 / Sam Christopherson Avenue
- Old Clifton Road / SR 16 Eastbound Ramps
- Old Clifton Road / SR 16 Westbound Ramps
- Sedgwick Road / SR 16 Eastbound Ramps

Transit

Development under Alternatives 2 and 3 is assumed to occur consistent with the SKIA Subarea Plan, which is currently under development. The SKIA Subarea Plan includes a series of strategies to accommodate transit service to the site and ensure that transit needs are met. Specifically, the Subarea Plan calls for an expansion of the Kitsap Transit vanpool program to serve the uses in the SKIA site. To facilitate vanpool and carpool commuting, the Subarea Plan also recommends that a Transportation Management Association (TMA) be established within SKIA. A TMA provides resources to member employers and can assist in establishing commute trip reduction programs, identifying carpools, and provide information related to other transportation options like buses, vanpools, and cycling.

As the area develops, the City of Bremerton and the SKIA TMA are encouraged to work with Mason County Transportation and Kitsap Transit to extend fixed route bus service to the area. Assuming the transit elements of the SKIA Subarea Plan are implemented, this is considered a less-than-significant impact.

Bicycle and Pedestrian Circulation

As described previously, the SKIA Subarea Plan will also include a variety of bicycle and pedestrian elements, such as complete streets roadway design standards which include bicycle lanes, sidewalks, or multi-use trails. In addition, the plan will include recommendations to develop a separate off-street trail system that will link clusters of development to facilitate and encourage active modes of transportation by providing a direct and attractive route between different portions of the SKIA site. Assuming the bicycle and pedestrian elements of the SKIA Subarea Plan are implemented, this is considered a less-than-significant impact.

Traffic Safety

Development under Alternatives 2 and 3 will lead to additional traffic traveling through the Collision Analysis Location (CAL) defined by WSDOT at SR 3 near the Lake Flora Road intersection. While WSDOT has plans to reconfigure this intersection as part of the Belfair Bypass, this roadway project is not funded and is not assumed to be in place under 2030 conditions. Therefore the additional traffic added to this CAL under Alternatives 2 and 3 is considered a significant impact to traffic safety.

3.6.9 Mitigation Measures

This section identifies projects and actions to reduce the significance of the transportation impacts described above.

Proposed Plan Features

Traffic Operations Mitigation Measures

Mitigation measures to address significant traffic operations impacts of Alternatives 2 and 3 are generally based on the recommended improvements described in the WSDOT BEDS report. In some cases the WSDOT improvement recommendations were not sufficient to reduce the impact to a less-than-significant level. In these cases, an alternative improvement is recommended; however, since WSDOT has not considered or planned for these alternative improvements, they are considered infeasible.

Alternative 2

Poor traffic operations can generally be mitigated if the following improvements are implemented:

- Implement the Belfair Bypass
- Widen SR 3 to four lanes from a point south of Lake Flora Road to SR 16 and install traffic signals at the Lake Flora Road and Sunnyslope Road intersections

SR 3: When is widening to four lanes triggered?

The traffic operations analysis indicated that under Alternatives 2 and 3, traffic on SR 3 will increase to a level that will require widening to four lanes between a point south of Lake Flora Road to SR 16.

Given that widening of SR 3 is an expensive project, Fehr & Peers performed a threshold analysis to determine how many additional jobs could be accommodated before the highway needs to be widened. The results indicated that under 2030 conditions, SR 3 will have the capacity to absorb 2,300 employees, or 36 percent of the growth of Alternative 2 and 2,600 employees, or 26 percent of the growth of Alternative 3.

- Grade separate the northbound and southbound SR 3 movements at SR 3 / SR 16 / Sam Christopherson Avenue intersection
- Implement minor intersection widening and signalization at the Old Clifton Road / SR 16 ramp intersections

Even with these improvements, the intersection of SR 3 / Old Clifton Road will operate at an unacceptable LOS, which is considered a significant and unavoidable impact. Figure 3.6-11 summarizes the mitigation measures. Details on specific mitigation measures are provided below.

1. SR 3 / Old Clifton Road – The poor operations at this intersection are caused by the high traffic volumes on northbound and southbound SR 3. The Belfair Bypass is identified in the BEDS report as the highest priority project in the SR 3 corridor. This bypass would reduce the amount of through traffic on "old SR 3" through the Belfair community, but would not reduce local trips or trips to/from the North Shore area on SR 300. Based on an origin destination analysis described in the *Belfair Bypass Proviso Report* (WSDOT 2010) the bypass will likely not lead to a sufficient amount of diversion to result in LOS D or better operations at this intersection, although the congestion levels will improve when compared to the option without the bypass. Outside of the diverted trips, the only intersection configuration that improves this intersection to LOS D or better is the addition of northbound and southbound through lanes on "Old SR 3." However additional lanes are inconsistent with the current Belfair Area Widening and Safety Improvements project (currently funded for construction in 2012) to add a two-way left turn lane on SR 3 south of this intersection, and may be infeasible due to right-of-way impacts and the configuration of the railroad undercrossing located north of Belfair. This impact is considered significant and unavoidable.

2. SR 3 / Lake Flora Road – Signalizing this intersection under 2030 Alternative 2 conditions is not sufficient to return the intersection to an acceptable LOS. However, signalization along with widening SR 3 to four lanes, as indentified in the BEDS report, will lead to an acceptable LOS at this intersection. Note that widening SR 3 south of Imperial Way is not a priority project as identified by WSDOT.

3. SR 3 / Imperial Way – Widening SR 3 to four lanes at this intersection is identified as a priority project in BEDS. The operations analysis shows that such widening will be required for this intersection to have a satisfactory level of service (D).

4. SR 3 / Sunnyslope Road – Widening SR 3 to four lanes at this intersection along with signalization is identified as a priority project

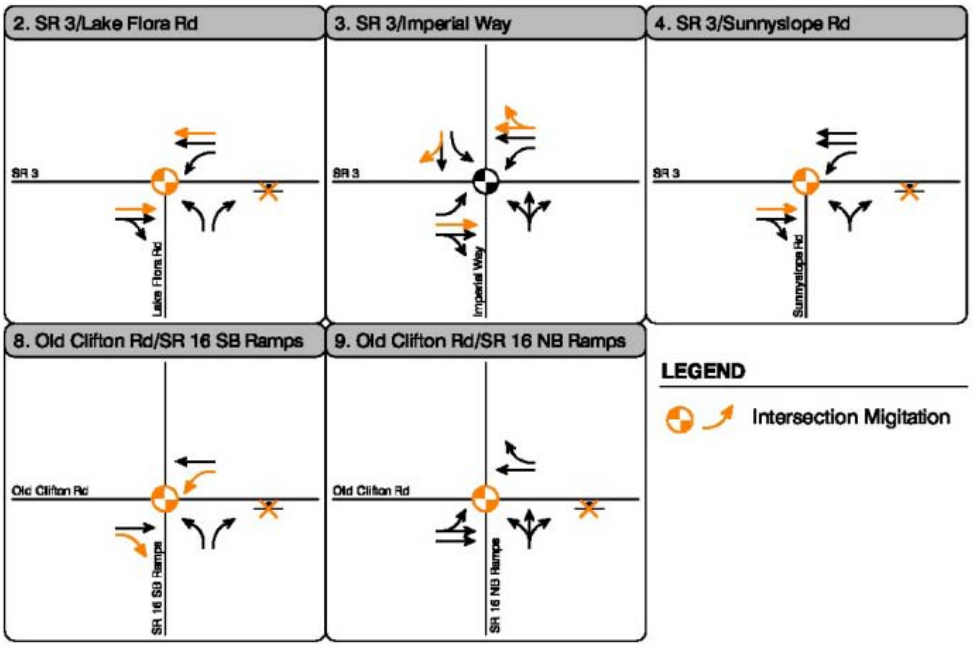
in BEDS. This mitigation will allow the intersection to operate at a satisfactory level of D.

5. SR 3 / SR 16 / Sam Christopherson Avenue – The BEDS report recommends a list of improvements for this location and ultimately recommends grade separation of the northbound and southbound SR 3 movements. All interim improvements including additional turning lanes and through lanes on SR 3 still result in LOS F at this location. Therefore full mitigation of the traffic operations impact will require grade separation of this intersection.

8. Old Clifton Road/Tremont Street / SR 16 EB Ramps – The BEDS report recommends widening Old Clifton Road/Tremont Street to four lanes and signalizing both this intersection and intersection 9. Signalizing this intersection and adding a dedicated right-turn lane for eastbound vehicles and a dedicated left turn lane for westbound vehicles results in an acceptable LOS D.

9. Old Clifton Road/Tremont Street / SR 16 WB Ramps – The BEDS report recommends widening Old Clifton Road/Tremont Street to four lanes and signalizing both this intersection and intersection 8. Signalizing this intersection with the current lane geometry results in LOS B operations.

Figure 3.6-11: Intersection Mitigations 2030 Alternative 2



Source: Fehr & Peers, 2011

Alternative 3

Mitigation measures for Alternative 3 are similar to those identified for Alternative 2:

- Implement the Belfair Bypass
- Widen SR 3 to four lanes from a point south of Lake Flora Road to SR 16 and install traffic signals at the Lake Flora Road and Sunnyslope Road intersections
- Grade separate the northbound and southbound SR 3 movements at SR 3 / SR 16 / Sam Christopherson Avenue intersection
- Implement minor intersection widening and signalization at the Old Clifton Road / SR 16 ramp intersections
- Revise the signal phasing at the Sedgwick Road / SR 16 EB Ramps

Even with these improvements, the following intersections will operate unacceptably:

- SR 3 / Old Clifton Road
- SR 3 / Imperial Way
- SR 3 / Sunnyslope Road

Additional widening or grade separation (for the Imperial Way and Sunnyslope Road) intersections could improve operations to an acceptable level. However, these improvements are not in any WSDOT plans and could lead to additional right-of-way, environmental, and cost impacts and are considered infeasible. These intersections are considered to have significant and unavoidable impacts. Mitigation measures are summarized on Figure 3.6-12. Details on specific mitigation measures are described below.

1. SR 3 / Old Clifton Road **–** The poor operations at this intersection are caused by the high traffic volumes on northbound and southbound SR 3. The Belfair Bypass is identified in the BEDS report as the highest priority project in the SR 3 corridor. This bypass would reduce the amount of through traffic on "old SR 3" through the Belfair community, but would not reduce local trips or trips to/from the North Shore area on SR 300. Based on an origin destination analysis described in the *Belfair Bypass Proviso Report* (WSDOT 2010) the bypass will likely not lead to a sufficient amount of diversion to result in LOS D or better operations at this intersection, although the congestion levels will improve when compared to the option without the bypass. Outside of the diverted trips, the only intersection configuration that improves this intersection to LOS D or better is the addition of northbound and southbound through lanes on "Old SR 3." However additional lanes are inconsistent with the current Belfair Area

Widening and Safety Improvements project (currently funded for construction in 2012) to add a two-way left turn lane on SR 3 south of this intersection, and may be infeasible due to right-of-way impacts and the configuration of the railroad undercrossing located north of Belfair. This impact is considered significant and unavoidable.

2. SR 3 / Lake Flora Road – Signalizing this intersection under 2030 Alternative 2 conditions is not sufficient to return the intersection to an acceptable LOS. However, signalization along with widening SR 3 to four lanes, as indentified in the BEDS report, will lead to an acceptable LOS at this intersection. Note that widening SR 3 south of Imperial Way is not a priority project as identified by WSDOT.

3. SR 3 / Imperial Way – Widening SR 3 to four lanes at this intersection location is identified as a priority project in BEDS. However, the additional traffic generated by Alternative 3 will require either an additional through lane in each direction of SR 3 (bringing the total number of lanes to six) or grade separation with an interchange. Since there are no WSDOT plans to widen or improve SR 3 beyond what is identified in the BEDS report. This impact is considered significant and unavoidable.

4. SR 3 / Sunnyslope Road – Widening SR 3 to four lanes south to this intersection location is identified as a priority project in BEDS. However, the additional traffic generated by Alternative 3 will require either an additional through lane in each direction of SR 3 (bringing the total number of lanes to six) or grade separation with an interchange. Since there are no WSDOT plans to widen or improve SR 3 beyond what is identified in the BEDS report. This impact is considered significant and unavoidable.

5. SR 3 / SR 16 / Sam Christopherson Avenue – The BEDS report recommends a list of improvements for this location and ultimately recommends grade separation of the northbound and southbound SR 3 movements. All interim improvements including additional turning lanes and through lanes on SR 3 still result in LOS F at this location. Therefore full mitigation of the traffic operations impact will require grade separation of this intersection.

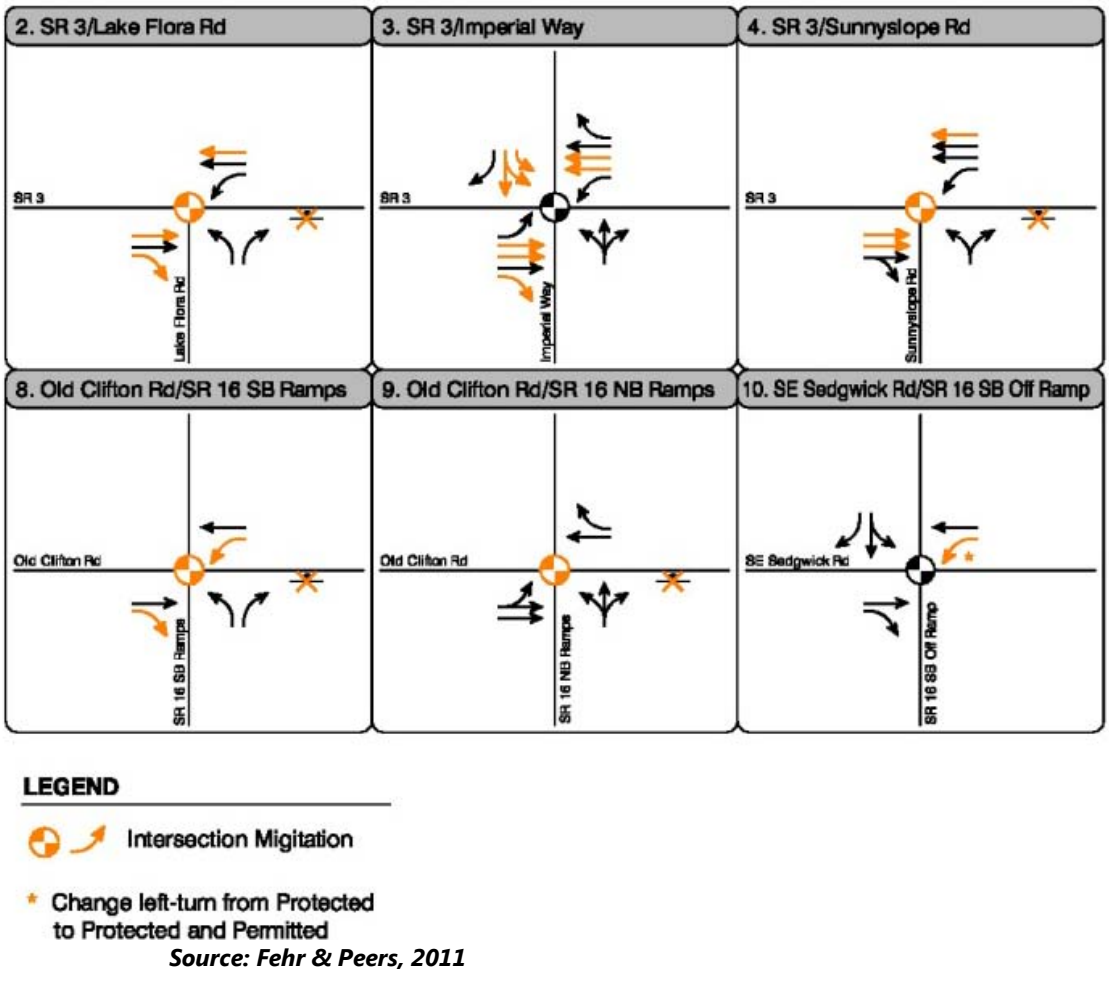
8. Old Clifton Road/Tremont Street / SR 16 EB Ramps – The BEDS report recommends widening Old Clifton Road/Tremont Street to four lanes and signalizing both this intersection and intersection 9. However, acceptable operations can be provided with a slightly reduced set of improvements including the addition of a dedicated

right-turn lane for eastbound vehicles and a dedicated left turn lane for westbound vehicles.

9. Old Clifton Road/Tremont Street / SR 16 WB Ramps – The BEDS report recommends widening Old Clifton Road/Tremont Street to four lanes and signalizing both this intersection and intersection 8. However, signalizing this intersection with the current lane geometry results in LOS B operations.

10. Sedgwick Rd / SR 16 EB Ramps – The BEDS report recommends widening Sedgwick Road to four lanes plus turn lanes at this location. However, widening Sedgwick will likely require construction of a new SR 16 overcrossing. The mitigation analysis shows that changing the westbound left signal from protected to protected plus permitted results in LOS D operations at this intersection.

Figure 3.6-12: Intersection Mitigations 2030 Alternative 3



Source: Fehr & Peers, 2011

Transit, Bicycle, and Pedestrian Mitigation Measures

Assuming the transit, bicycle, and pedestrian elements of the SKIA Subarea Plan Plan are adopted, no additional mitigation measures are required for these modes of travel.

Traffic Safety Mitigation Measures

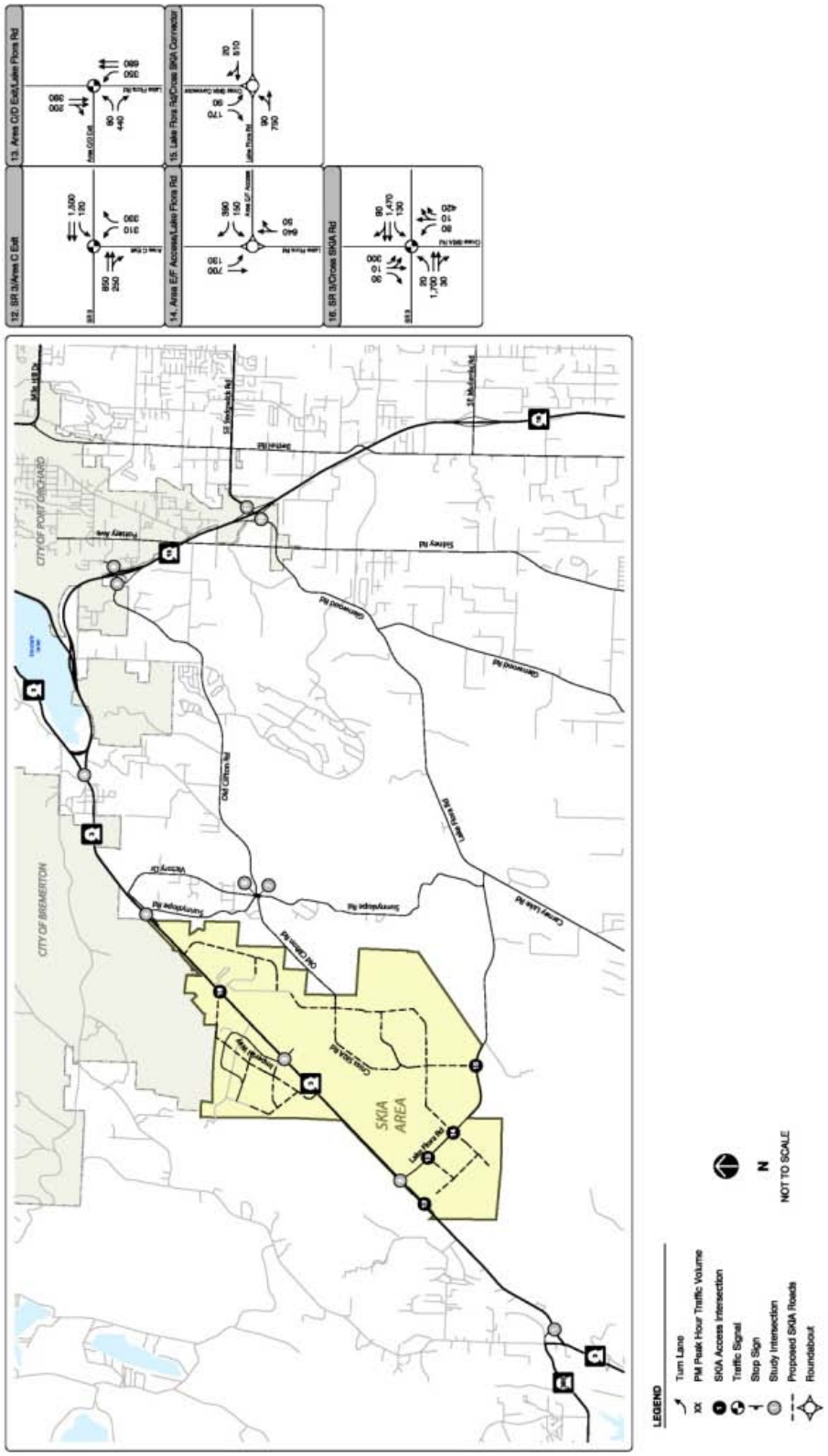
As described in the previous section, the development of Alternatives 2 and 3 lead to additional traffic passing through the Collision Analysis Location (CAL) identified by WSDOT at SR 3 near Lake Flora Road. Implementing the intersection improvements described above to improve traffic operations at the SR 3 / Lake Flora Road intersection should also reduce the number of collisions, particularly those where failure to yield was the primary cause. While this impact is considered less-than-significant with mitigation, continued monitoring of this location should continue after the implementation of any improvements at the intersection.

3.6.10 SKIA Site Access Evaluation

In addition to existing intersections, there are five new access intersections assumed under Alternatives 2 and 3. These new access intersections are shown in Figures 3.6-13 and 3.6-14. The list below describes each of the intersections:

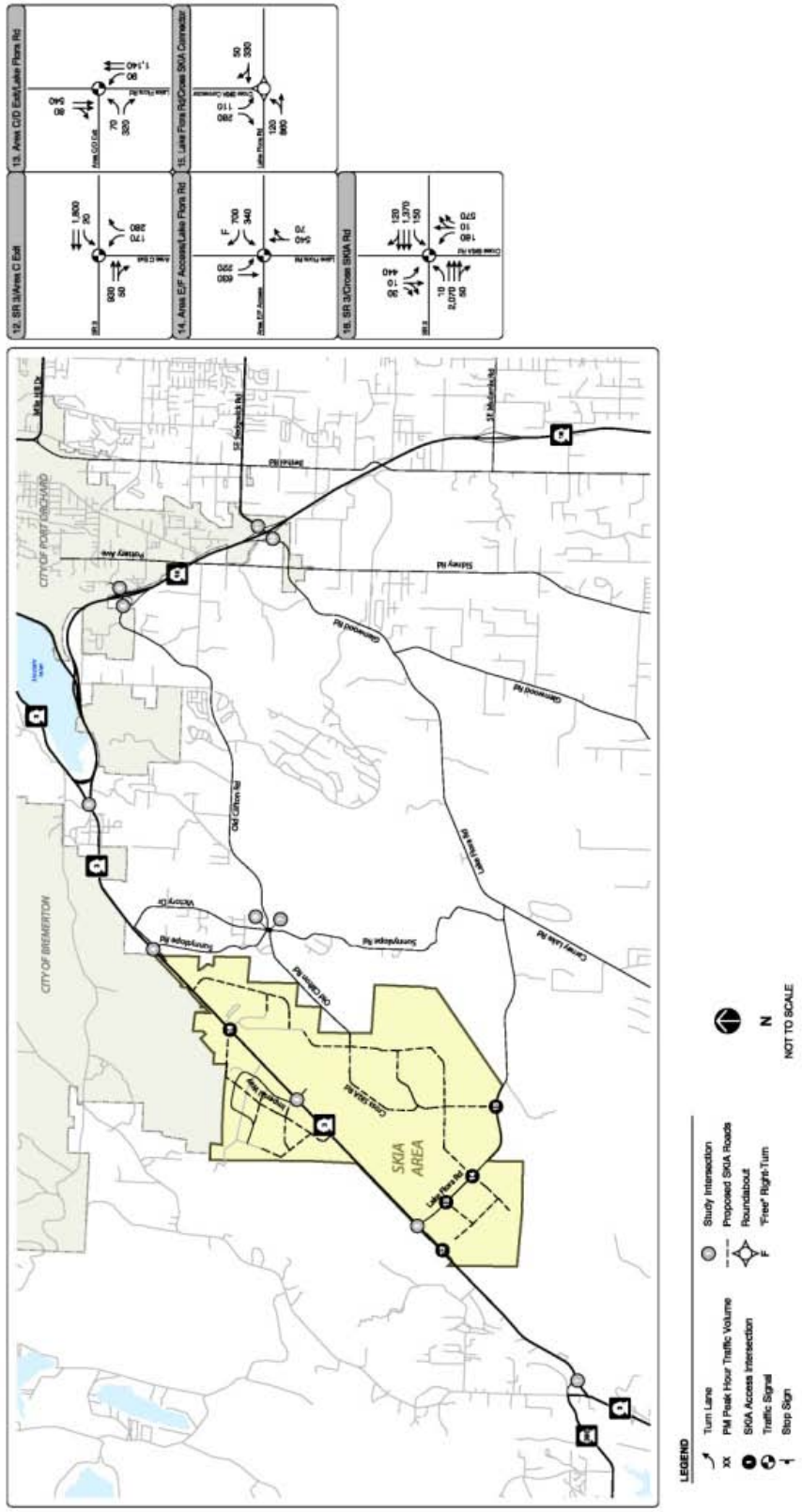
- Intersection 12: Analysis Area C and SR 3. This intersection is necessary to provide access to Analysis Area C and is located southwest of the existing Lake Flora Road / SR 3 intersection.
- Intersection 13: Analysis Area C/D and Lake Flora Road. This intersection is necessary to provide access to parts of Analysis Areas C and D and is located southeast of the existing Lake Flora Road / SR 3 intersection.
- Intersection 14: Analysis Area E/F and Lake Flora Road. This intersection is necessary to provide access to parts of Analysis Areas E and F and is located southeast of the existing Lake Flora Road / SR 3 intersection.
- Intersection 15: Cross-SKIA Connector and Lake Flora Road. This intersection is the southern terminus of the proposed extension of the Cross SKIA Connector. It provides access to Analysis Areas E, F, A, and G.
- Intersection 16: Cross SKIA Connector / Analysis Area B Access / SR 3. This intersection is located at the current northern terminus of the Cross SKIA Connector. It is envisioned that an extension of the Cross SKIA Connector would proceed into Analysis Area B, providing additional access and circulation in the northeast portion of the Olympic View Industrial Park.

Figure 3.6-13: PM Peak Hour Traffic Volumes and Lane Configurations SKIA Access Intersections – 2030 Alternative 2



Source: Fehr & Peers, 2011

Figure 3.6-14: PM Peak Hour Traffic Volumes and Lane Configurations SKIA Access Intersections – 2030 Alternative 3



Source: Fehr & Peers, 2011

SKIA Access Intersection Operations and Recommended Configurations

Figures 3.6-13 and 3.6-14 show the recommended lane configurations for the site access intersections under Alternatives 2 and 3. Due to heavy traffic volumes on SR 3, acceptable operations are the new intersections are only provided assuming that SR 3 is widened to four lanes, consistent with the mitigation recommendations described in the previous section. Table 3.6-10 summarizes the LOS at each of the new access intersections.

Table 3.6-10: New Project Intersection Operations

Intersection	2030 Alt 2 Control Type	2030 Alternative 2 Intersection Delay (LOS)	2030 Alt 3 Control Type	2030 Alternative 3 Intersection Delay (LOS)
12. Analysis Area C Access / SR 3	Signalized	20 (C)	Signalized	13 (B)
13. Analysis Area C/D Access / Lake Flora Rd	Signalized	14 (B)	Signalized	8 (A)
14. Analysis Area E/F Access / Lake Flora Rd	Roundabout[2]	18 (B)	Signalized	49 (D)
15. Cross SKIA Connector / Lake Flora Rd	Roundabout[2]	14 (B)[2]	Roundabout	21 (C)[5]
16. Cross SKIA Connector / SR 3	Signalized	54 (D)	Signalized	**134 (F)**

Source: Fehr & Peers, 2011

Table 3.6-10 indicates that even with SR 3 assumed to be widened to four lanes, the intersection of SR 3 / Cross SKIA Connector is expected to operate at LOS F in Alternative 3. The results of the traffic operations analysis at this intersection is similar to what was found at the SR 3 / Imperial Way and SR 3 / Sunnyslope intersections. Namely, acceptable intersection operations cannot be achieved at these locations without widening SR 3 to six lanes south of the construction of a grade separated interchange with the Cross SKIA Connector.

Roundabout intersections are recommended for the Cross SKIA Connector / Lake Flora Road intersection and the intersection of Analysis Area E/F Access / Lake Flora Road. As described in the SKIA Subarea Plan, roundabouts can accommodate certain traffic volumes with fewer greenhouse gas emissions and lower maintenance costs than traffic

signals. However, if traffic signals are installed, the delay and LOS are comparable, as shown in calculation sheets in Appendix H.

3.6.11 Significant Unavoidable Adverse Impacts

Under Alternative 2, the intersection of SR 3 / Old Clifton Road experiences a significant and unavoidable impact to traffic operations even with implementation of the Belfair Bypass mitigation measure. Under Alternative 3, there are four intersections that will have significant unavoidable traffic operations impacts. These intersections are listed below:

- SR 3 / Old Clifton Road
- SR 3 / Sunnyslope Road
- SR 3 / Imperial Way
- SR 3 / Cross SKIA Connector

If Alternative 3 is implemented, the operations on SR 3 from Imperial Way to SR 16 are expected to be poor, even if the roadway is widened to four lanes. To avoid this traffic operations impact, SR 3 will have to be widened to six lanes, or the segment will have to be reconstructed as a freeway with grade separated intersections. As described in Section 3.6.9, both of these options are considered infeasible.

3.7 PUBLIC SERVICES

This section of the Draft EIS describes the existing status of City of Bremerton entities that provide public services to the South Kitsap Industrial Area (SKIA) and evaluates the impacts of added demand on such services from redevelopment under the alternatives. Municipal services considered in this section include fire and emergency services and police services.

3.7.1 Affected Environment

Fire and Emergency Services

Fire protection and emergency medical services (EMS) for the South Kitsap Industrial Area (SKIA) are provided by South Kitsap Fire and Rescue; EMS facilities provide both Basic Life Support (BLS) and Advanced Life Support (ALS) services. Subsequent to the SKIA annexation in 2009, South Kitsap Fire and Rescue entered into an agreement with the City of Bremerton to continue to provide fire and emergency services to the area.

BLS is used for patients with life-threatening injuries until full medical care can be given. Generally no drugs or invasive skills are utilized.

South Kitsap Fire and Rescue is comprised of 16 Fire Stations, including eight staffed fire stations and eight volunteer fire stations. The Department serves an approximately 122 square mile area and a population of approximately 69,965 people. The South Kitsap Industrial Area is primarily served by Fire Station #16, Fire Station #17, and Fire Station #31, which are staffed by career firefighters. Volunteer Fire Station #6 also provides service in this area on an on-call basis.

ALS includes advanced procedures involving invasive methods such as defibrillation, medication, and intravenous cannulation (IVs).

Equipment owned by South Kitsap Fire and Rescue include the following:

- 16 Fire Engines
- One Ladder Truck
- Three EMS Paramedic Units
- Seven Aid Units
- Two Brush Trucks
- Nine Water Tenders
- One Air Support Vehicle
- Two Command Vehicles
- One MCI Unit
- 21 miscellaneous vehicles (staff and support vehicles)

South Kitsap Fire and Rescue employs a career staff of 102 employees, including 84 career firefighters. The Department also utilizes over 69 volunteer firefighters; volunteers typically work on an on-call basis. All firefighters are trained as emergency medical technicians (EMT) and 18

firefighters are also trained as paramedics. South Kitsap Fire and Rescue has a minimum staffing level of 19 firefighters and a minimum of eight firefighters are required to be on-duty each day at the fire stations in the vicinity of the South Kitsap Industrial Area; Table 3.7-1 provides a summary of equipment and minimum staffing at each fire station.

Table 3.7-1: South Kitsap Fire and Rescue Staffing and Equipment

Station	Staffing	Equipment
Station #16	Minimum of 2 on-duty personnel.	- Fire Engine - Aid Unit
Station #31	Minimum of 4 on-duty personnel.	-Fire Engine -Medic Unit - Ladder Truck
Station #17	Minimum of 2 on-duty personnel.	-Fire Engine -Aid Unit
Volunteer Station #6	On-call volunteer personnel	-Fire Engine

Source: South Kitsap Fire and Rescue, 2010.

Call Volume

Between 2000 and 2009, calls for service to South Kitsap Fire and Rescue have ranged from approximately 7,100 to 9,200. Between 2000 and 2009, call volumes have increased by approximately 15 percent; however, call volumes decreased by approximately eight percent from 2008 to 2009. Table 3.7-2 provides a summary of call volumes from 2000 to 2009, including EMS and fire service calls.

Table 3.7-2: South Kitsap Fire and Rescue Call Volumes 2000-2009

Year	EMS Calls	Fire Calls	Other Calls[1]	Total Calls
2000	4,686	201	2,275	7,162
2001	5,163	322	2,669	8,154
2002	5,107	333	2,552	7,992
2003	5,308	335	2,746	8,389
2004	5,305	278	2,778	8,361
2005	5,478	229	2,877	8,584
2006	5,541	338	3,307	9,186
2007	5,536	201	3,219	8,956
2008	6,401	217	2,425	9,043
2009	5,631	200	2,467	8,298

Source: South Kitsap Fire and Rescue 2009 Annual Report.

[1] *Includes calls for hazardous materials, service calls and false calls.*

Call volumes to stations serving the South Kitsap Industrial Area (Stations 16, 17, and 31) ranged from approximately 880 to 1,930 over the last three years. Between 2007 and 2009, calls for service to Station #16 have decreased by approximately eight percent. Calls for service to Station #17 and Station #31 have also decreased by approximately less than one percent and 22 percent respectively. Table 3.7-3 summarizes the call volumes for Station #16, 17, and 31.

Table 3.7-3: Call Volumes for Stations #16, 17, and 31 2007-2009

	2007	2008	2009
Station 16	1,050	938	967
Station 17	535	572	532
Station 31	2,481	2,515	1,927

Source: South Kitsap Fire and Rescue, 2010.

Over the last six months, the Kitsap County CENCOM Department has received approximately 32 calls for fire and emergency services to the South Kitsap Industrial Area. The majority of the calls for service were to respond to residential and commercial fire alarms and to provide emergency medical services (ALS and BLS).

Kitsap County CENCOM was established in 1973 and is responsible for answering and dispatching all 911 and non-emergency calls in Kitsap County.

Level of Service

South Kitsap Fire and Rescue have established travel time standards for personnel to arrive at fire service incidents and EMS incidents. Travel times indicate the amount of time it takes for the first engine or aid company to arrive at the scene of a reported fire or EMS call. These times are primarily a function of the number and location of fire stations, the

number of fire apparatus units and the number of available firefighters. Travel times are to be achieved on 90 percent of all calls for service.

The travel time standard for an EMS unit to arrive when responding to a call for Basic Life Support (BLS) is seven minutes and forty seconds. The Department's current travel time for BLS incidents is seven minutes and twenty-one seconds.

The travel time standard for an EMS unit to arrive at an Advanced Life Support (ALS) emergency is ten minutes and twenty seconds. The current travel time for ALS incidents is nine minutes and twenty-three seconds.

For structure fire incidents, the Department's travel time standard is nine minutes and thirty seconds. The current travel time is six. In addition, the Department also maintains a standard of eighteen minutes and twenty seconds for an effective response force (full first alarm assignment) at a structure fire. The current travel time for an effective response force is seventeen minutes and twenty-three seconds.

Fire Department Planning

South Kitsap Fire and Rescue

The *Kitsap County Comprehensive Plan* Capital Facilities section identifies potential facility and equipment upgrades that would be needed by South Kitsap Fire and Rescue based on future population growth projections. Kitsap County has established a level of service (LOS) standard that equates to 0.41 fire units (engines, ladder trucks, medic units, etc.) in service per 1,000 population. At the time of the projections, South Kitsap Fire and Rescue had 34 fire and emergency service units available.

Based on the current population, South Kitsap Fire and Rescue would need 31 fire and emergency service units to fulfill the LOS standard and serve the service area population. Projected growth in the South Kitsap Fire and Rescue service area by 2012 would require 34 fire and emergency service units, which could be met by the existing available units. Based on the established LOS and projected population growth in the area, no additional fire or emergency service units would be needed through 2012.

Potential facility projects were also identified as part of the *Kitsap County Comprehensive Plan*. It is anticipated that South Kitsap Fire and Rescue would potentially need to remodel Station #16 and replace Station #6 by 2012.

Following the approval of the May 2009 EMS Levy, South Kitsap Fire and Rescue hired 12 new firefighters, which allowed the Department to raise

the minimum on-duty staff level to 19 firefighters and change Fire Station #9 from a volunteer station to a fully staffed career station. This modification to Fire Station #9 occurred in 2010 once all personnel were trained and ready to respond.

It should be noted that South Kitsap Fire and Rescue and the City of Bremerton Fire Department are currently in the process of discussing the potential for a Regional Fire Authority (RFA) that would consolidate the resources of both fire agencies. Discussions regarding the potential RFA are still ongoing at this time.

City of Bremerton Fire Department

Should the City of Bremerton decide to end their service agreement with South Kitsap Fire and Rescue in the future, the Bremerton Fire Department would provide service to SKIA. Potential future facility and equipment upgrades for the Bremerton Fire Department are identified in the *City of Bremerton Comprehensive Plan* and are based on the projected population for the City and the Department's ability to serve that population. It should be noted that the potential facility and equipment needs do not take into consideration the SKIA site. Future projections conducted by the City could include the South Kitsap Industrial Area.

Based on the current population, the demand for service indicates that the Bremerton Fire Department has a need for three EMS paramedic units, which can be met by its current facilities and staffing levels. It is anticipated that by 2024, the Bremerton Fire Department would need four EMS paramedic units in order to serve the projected population, which could also be fulfilled by the existing Department facilities. However, additional full-time staffing for two EMS unit would be needed by 2024. Existing EMS units are also scheduled to be replaced every 10 years, which would require that one new unit be purchased every two to three years.

The current demand for service indicates that the Department has a need for three active fire apparatus, which can be fulfilled by the Department's current facilities and staffing. By 2024, new population growth is anticipated to require the need for five active fire apparatus to serve the projected demand for service; no additional buildings would be required if the project population growth is within the current city service area.

The Bremerton Fire Department currently has six apparatus (three active and three reserve) and two additional apparatus would be needed. Additional firefighters and operational personnel would be required to staff all five apparatus. In addition, the Department typically schedules the replacement of fire apparatus on a 20-year cycle and existing fire engines would require replacement during this time frame.

Police Services

The Bremerton Police Department provides primary police protection for the City of Bremerton, including the South Kitsap Industrial Area. The Police Department is responsible for the maintenance of public order, responding to incidents of criminal activity, traffic control, criminal investigations, crime prevention, Homeland Security issues, and other related public services. The Chief of Police and all officers under his direction are tasked with enforcement of all federal and state laws and City of Bremerton ordinances with the boundaries of the City of Bremerton. Prior to its recent annexation into the City of Bremerton in 2009, primary police protection for the South Kitsap Industrial Area was provided by the Kitsap County Sheriff's Office.

In 2007, the City constructed a new facility to house the Police Department (1025 Burwell Street). The new police headquarters provides approximately 22,746 square feet of building space for police functions. The City also contracts with Kitsap County for jail services.

The Bremerton Police Department employs a total of 73 staff members, including 60 commissioned police officers. The organizational structure of the department is comprised of two divisions, the Operations Division and the Support Services Division.

Operations Division

The Operations Division (also referred to as "Patrol") consists of the largest number of employees and provides "first responder" services to the City of Bremerton to preserve and protect life and property while also serving as the front line of communications with the citizens of Bremerton. Patrol officers are assigned to one of three shifts providing coverage 24 hours a day, seven days a week.

Patrol officers are assigned to one of five geographical patrol districts within the city. Patrol officers also assume additional duties which include participation in the following units:

- Traffic
- K-9
- Mountain Bike Patrol
- Explorer Program Mentors
- Bomb Technician
- SWAT
- Chaplains Unit

Support Services Division

The Support Services Division of the Bremerton Police Department is comprised of non-uniformed police officers and support staff that make up the following units.

- Administration
- General Investigations
- Crime Scene Investigations
- Special Operations Group
- Property and Evidence
- Community Resources
- Explorers

Call Volume

In 2009, there were approximately 55,105 calls for police service in the City of Bremerton. It should be noted that prior to 2009, primary police response to the South Kitsap Industrial Area was provided by the Kitsap County Sheriff's Office. In the last six months of 2010, approximately 220 calls for service were received from the South Kitsap Industrial Area. Total calls for service represented a one percent increase from the previous year and a less than one percent decrease since 2007. Table 3.7-4 summarizes the call volumes in the City of Bremerton between 2006 and 2009.

Table 3.7-4: City of Bremerton Calls for Police Service

Area	2006	2007	2008	2009
Total Calls	55,124	55,128	54,491	55,105

Source: City of Bremerton Police Department, 2010.

[1] Prior to annexation in 2009, primary police service for the South Kitsap Industrial Area was provided by the Kitsap County Sheriff's Office.

Level of Service

The need for law enforcement facilities can be estimated by projecting the number of officers that will be needed to serve the forecasted population and by calculating the building space needed per officer. Currently, with 60 officers, there is approximately one officer per 619 people in the City of Bremerton. While there is no consensus on staffing levels for local police departments, the ratio of officers to population is significantly related to crime rates. The Bremerton Police Department's current staffing level (60 officers) equates to approximately 1.6 officers per 1,000 people. However, the Department believes that this staffing level is too low and would prefer 70 officers to serve the City; this would equate to approximately 1.8 officers per 1,000 people.

In addition to staff LOS, the City of Bremerton has a level of service (LOS) for building space of 250 square feet per officer. Prior to the construction of the new police headquarters, the Bremerton Police Department had an adjusted building space LOS of 212 square feet per officer; the Department considered this amount of space to be inadequate for the current staff level. Subsequent to the construction of the new police headquarters, the building space LOS for the police department is approximately 367 square feet per officer.

Police Department Planning

The City of Bremerton *Comprehensive Plan* includes population growth projections and associated projections for Police Department staff and capital facilities that would be needed to serve the City. It should be noted that the South Kitsap Industrial Area was not included as part of the City's projections for the Department due to the fact that the projections were conducted prior to the annexation of the area.

At the current staffing LOS (1.6 officers/1,000 people), the Department would need to hire 21 new officers by 2023 (a total of 83 officers). Conversely, under the Department's preferred staffing LOS (1.8 officers/1,000 people), the Department would need to hire 25 new officers by 2023 (a total of 95 officers).

In addition, the projected population growth and associated need for new officers would also result in a subsequent need for additional building space to accommodate new staff within the Police Department. Based on the proposed building LOS (250 square feet per officer), the Department's building space needs would increase by approximately 5,600 square feet by 2023. The total building space need would be approximately 21,000 square feet, which would be able to be accommodated by the new police headquarters building.

3.7.2 Significant Impacts

Impacts Common to All Alternatives

During construction phases of future development, construction activity in SKIA may affect the response times of emergency vehicles.

Over the long term, future development will result in an incremental increase in calls for emergency service and future traffic growth may impact the response time of emergency vehicles. The magnitude of the increment would depend on the type and rate of the development and related transportation system improvements.

Fire and Emergency Services

Currently, South Kitsap Fire and Rescue level of service is 0.41 fire units (engines, ladder trucks, medic units, etc.) per 1,000 population. Future development will result in an incremental increase in calls for emergency service that would require additional fire units to maintain the current level of service.

Police Services

Currently, the Bremerton Police Department staffing level of service is 1.6 officers per 1,000 population. Future development will result in an incremental increase in calls for emergency service that would require additional police staff to maintain the current level of service.

Alternative 1

Fire and Emergency Services

Under Alternative 1 (No Action) approximately 1,400 additional employees can be expected in the SKIA area. If employment population is considered the same as residential population, Alternative 1 would result in a need for an additional 0.6 fire units.

Police Services

Under Alternative 1 (No Action) approximately 1,400 additional employees can be expected in the SKIA area. If employment population is considered the same as residential population, Alternative 1 would result in a need for an additional 2.2 officers.

Alternative 2

Fire and Emergency Services

Under Alternative 2 development assumptions, an additional 6,500 employees can be expected in the SKIA area. If employment population is considered the same as residential population, Alternative 2 would result in a need for an additional 2.7 fire units.

Alternative 2 will generate greater demand for fire and emergency services, but it will also generate a greater amount of tax revenue from the new development. Assuming that some of these additional revenues are provided for fire protection, South Kitsap Fire and Rescue may be able to afford adequate capacity to meet the increased demand under any of the alternatives. With coordination and planning, no significant impacts are expected to result from the proposal or alternatives.

Police Services

Under Alternative 2 development assumptions, an additional 6,500 employees can be expected in the SKIA area. If employment population is considered the same as residential population, Alternative 2 would result in a need for an additional 10.4 officers.

Alternative 2 will generate greater demand for police services than Alternative 1, but it will also generate a greater amount of tax revenue from the new development. Assuming that some of these additional revenues are provided for police protection, Bremerton's Police Department may be able to afford adequate staffing to meet the increased demand under any of the alternatives. With coordination and planning, no significant impacts are expected to result from the proposal or alternatives.

Alternative 3

Fire and Emergency Services

Under Alternative 3 development assumptions, an additional 10,000 employees can be expected in the SKIA area. If employment population is considered the same as residential population, Alternative 3 would result in a need for an additional 4.1 fire units.

Alternative 3 will generate the greatest demand for fire and emergency services, but it will also generate the greatest amount of tax revenue from the new development. Similar to Alternative 2, assuming that some of these additional revenues are provided for fire protection, South Kitsap Fire and Rescue may be able to afford adequate capacity to meet the increased demand under any of the alternatives. With coordination and planning, no significant impacts are expected to result from the proposal or alternatives.

Police Services

Under Alternative 3 development assumptions, an additional 10,000 employees can be expected in the SKIA area. If employment population is considered the same as residential population, Alternative 3 would result in a need for an additional 16 officers.

Alternative 3 will generate greater demand for police services than Alternative 1, but it will also generate a greater amount of tax revenue from the new development. Similar to Alternative 2, assuming that some of these additional revenues are provided for police protection, Bremerton's Police Department may be able to afford adequate staffing to meet the increased demand under any of the alternatives. With

coordination and planning, no significant impacts are expected to result from the proposal or alternatives.

3.7.3 Mitigation Measures

Impacts to public services from development under the proposal would be the greatest under Alternative 3, but additional revenues from new development would mitigate he impacts by providing additional staffing and facilities. Alternative 2 would have less impact, and its impacts are also expected to be mitigated by additional revenues from the new development. Alternative 1 would have the least impact.

Mitigation measures can be taken to prevent or further minimize environmental consequences to public services. Recommended mitigating measures include:

- Coordinate with South Kitsap Fire and Rescue and Bremerton Police Department during final design, construction, and operation of future development under proposed action to ensure that reliable emergency access is maintained.
- Reduce public safety impacts thru adherence to CPTED design standards.

3.7.4 Significant Unavoidable Adverse Impacts

No significant unavoidable adverse impacts to public services are anticipated. Demand for public services due to development under the Proposal or the No Action Alternative would increase, but could be mitigated.

3.8 UTILITIES

This section addresses the current utility conditions within the study area including water, wastewater, and stormwater and the impacts to these conditions from the adoption of the proposed alternatives.

3.8.1 Affected Environment

This section provides a summary description of the water, wastewater, and stormwater infrastructure in the SKIA study area. The information contained in this summary is based on a review of the following documents:

- Wastewater
  - SKIA Subarea Plan Appendix G – Wastewater, Parametrix, November, 2001
  - City of Bremerton Wastewater Comp Plan, CDM, 2005
  - City of Bremerton Sewer Planning, South Kitsap Industrial Area, HDR, September 2008
  - Port of Bremerton Olympic View Industrial Park Wastewater Expansion, Bovay NW, 1986
  - Gorst/SKIA Sewer Feasibility Study, Parametrix, November 1996
  - Port of Bremerton Land Application Permit Renewal, WSDOE, 2001
- Water
  - SKIA Subarea Plan Appendix F – Water, Semcon, August 2001
  - SKIA Subarea Plan Appendix K – LOI for water to SKIA, May 30, 2002
  - City of Bremerton Water System Plan, HDR, 2005
- Stormwater
  - SKIA Subarea Plan Appendix H – Stormwater Scope of Work, 2001
  - NRCS Soil Survey for Mason and Kitsap Counties, 2009
  - City of Bremerton Stormwater Management For NPDES – Updated December 31, 2010

Wastewater

The Port of Bremerton's wastewater treatment plant located off of SW Barney White Road serves about 158 acres of the core Port development in the study area, including the airport, supporting facilities and the Olympic View Industrial Park. The approved capacity for this system is 72,500 gallons per day (gpd). In 2002, this plant was treating and average

14,400 gallons per day or 19.8% of its rated capacity. Summer lows can be as low as 8,000gpd and winter peaks can be as high as 27,000gpd.

The existing Port sewer collection system primarily consists of 8-inch gravity pipes to convey flows to the sewer lagoons. Near the airport, there is a small pump station that conveys flow under Highway 3. The existing system was constructed in 1972 and upgraded in 1987.

The majority of the study area is outside of the area served by the existing wastewater treatment facility and and relies on onsite septic systems. The City of Bremerton has recently undertaken a project to extend sewer service to the Gorst Area. Any sewer service for the study area would ultimately be extended from this new line and service provided by the City of Bremerton.

Mason County is currently constructing a 500,000 (max.) GPD Membrane Bioreactor (MBR) wastewater treatment project +/-1.3 miles down SR-3 near Belfair. This project was sized to serve the Belfair UGA and, based on available information, does not appear to have the capacity to serve development in SKIA.[1]

Wastewater Re-Use Planning

Reclaimed water is derived from domestic wastewater and small amounts of industrial process water or stormwater. The process of reclaiming water, sometimes called water recycling or water reuse, involves a highly engineered, multi-step treatment process that speeds up nature's restoration of water quality. The process provides a high level of disinfection and reliability to assure that only water meeting stringent requirements leave the treatment facility. Reclaimed water can be used for a wide variety of beneficial uses such as irrigation, industrial process or cooling water, toilet flushing, dust control, construction activities and many other uses of non-potable water supplies. Reclaimed water can also be used as a resource to create, restore and enhance wetlands, recharge groundwater supplies, and increase the flows in rivers and streams.

The City of Bremerton's 2005 Wastewater Comprehensive Wastewater Plan provides a summary of the wastewater re-use study prepared by Brown and Caldwell in 1998. This study identified several uses for reclaimed water in the city. Two of these uses, the Gold Mountain Golf Complex and the Port of Bremerton Industrial Park, are in the study area.

[1] http://www.masoncountywastewater.com/documents/Q_and_A_FINAL.pdf

- **Gold Mountain Golf Complex**. The golf complex is comprised of two 18-hole golf courses that are owned and operated by City of Bremerton. The golf course currently uses potable water for irrigation at a rate of an average of 525,000 gpd from late May through late September. The potable water is pumped into one of two ponds, with total storage capacity of approximately 20 million gallons. According to the City of Bremerton's wastewater Comprehensive Plan "Current WWTP effluent would need to be blended with potable water at a ratio between (2:1) and (6:1) or undergo additional treatment (i.e. MBR treatment) to lower total dissolved solids (TDS) and possibly nutrients. Because of the grass type on the golf course, the reuse report recommended a TDS limit of 2,000 mg/L. Nutrient removal may also be required to prevent algal blooms in the storage ponds. The large storage area eliminates "peak hour" requirements. A conveyance pipe is already in place for this use (B&C, 1998)."
- **Port of Bremerton Industrial Park businesses**. Demand peaks at 39,700 gpd in July, with minimum demand at 13,600 gpd in December and January.
  In 1998, 23 companies operated within Port of Bremerton Industrial Park, three of which were "wet" industries with processes amenable to non-potable water use. The three businesses are Fred Hill Materials (cement preparation), Morrison Gravel (gravel mining and washing), and Express Pipe and Precast (no current records). The top water user was Fred Hill Materials, with almost 90 percent of the 21,100 – 43,900 gpd water demand of the three businesses.
- **Gorst Creek Stream Augmentation**. The augmentation of flows in Gorst Creek, outside of the study area, is the largest potential user, with peak daily demand in December at 8 mgd, and lowest daily demand in May at 1.75 gpd.

Water

The City of Bremerton water system currently extends into the study area. The study area is part of what is known as the W517 zone of the City of Bremerton water system and is considered by the Washington State Department of Health (WSDOH) as a separate water system owned and operated by the City of Bremerton.

Water Supply

As described in the 2005 Water System Plan, the City has sufficient current water rights to serve the area. Water for the W517 zone is provided through four wells, as shown in Table 3.8-1, below.

Table 3.8-1: Groundwater Sources for the Bremerton West 517 Zone System

Well Number	Aquifer	Year Drilled	Capacity Gallons per month (gpm)	Function
15	Twin Lakes	1981	210	Provides water to the West 517 Zone System
16	Gorst Sea Level	1981	140	Irrigation to Cascade Course
18R	Twin Lakes	2002	380	Provides water to the West 517 Zone System
19	Twin Lakes	1988	260	Provides water to the West 517 Zone System

Source: City of Bremerton, 2005

The 2005 City of Bremerton Water System Plan assumed demand for 1.4 mgd of new service to the SKIA study area by 2024. Future demand estimates within the W517 zone include 0.2MGD for golf course irrigation and 0.285 MGD of non-SKIA commercial use. These assumptions were based on 547 net acres of development within the zone resulting in 7,065 Equivalent Residential Unit (ERU) at build-out. One ERU in the analysis is considered to be 200gpd. Within the W517 zone the plan also provides for 1,160 ERU's for 80 acres owned by McCormick Land and 125 ERU's for 950 acres for the now defunct NASCAR track plan.

Water Storage

Water storage is provided to the W517 zone through a 1.2 million gallon reservoir, known as Reservoir 10. This reservoir consists of two ground level tanks located at the industrial park located in the Olympic View Industrial Park. The W517 system storage is projected to be deficient in the 2011 and 2024 planning horizons based on the development assumptions contained in the Water System Plan (described above).

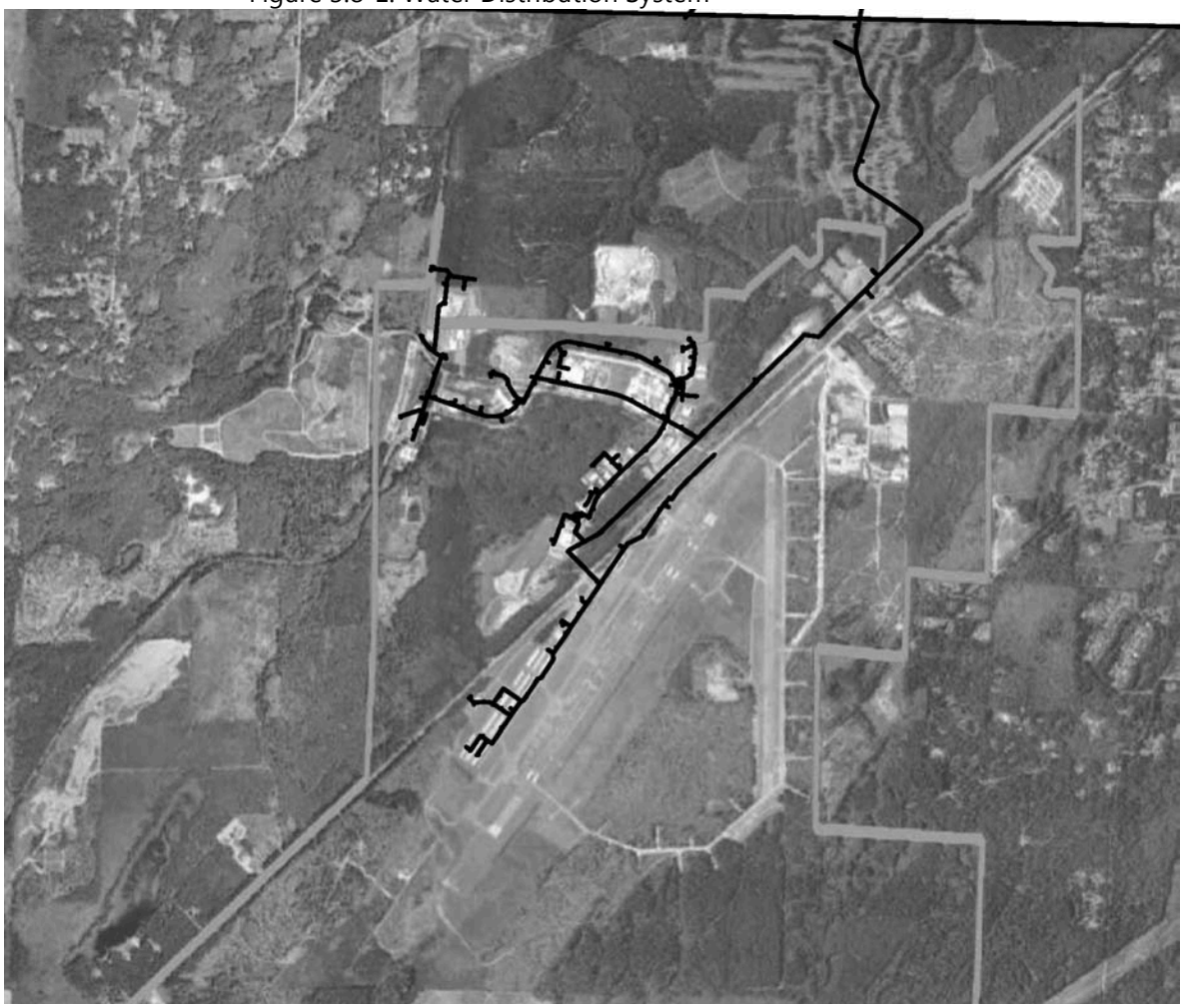
The capital improvement plan in the 2005 Bremerton Water System Plan shows $2 million being spent in 2015 to increase reservoir storage for SKIA in response to anticipated growth. Additionally it shows increasing the Port of Bremerton transmission line from 8"diameter Asbestos Cement pipe to 18"diameter Ductile Iron pipe the same year at a cost of $1 million. Both of these improvements are growth related and as of the writing of this document the growth has been less than expected and

therefore the capital improvements are not currently needed (i.e. the reservoir capacity is sufficient)[2].

Water Distribution

Figure 3.8-1, below, shows the extent of City of Bremerton water service in the area. As shown, the water system extends from the north to serve the Port of Bremerton properties at Olympic View Industrial Park and the Airport.

Figure 3.8-1: Water Distribution System



Source: Chris Webb & Associates, 2010.

[2] Personal communication with Kathleen Cahall, City of Bremerton Public Works, May 11, 2011

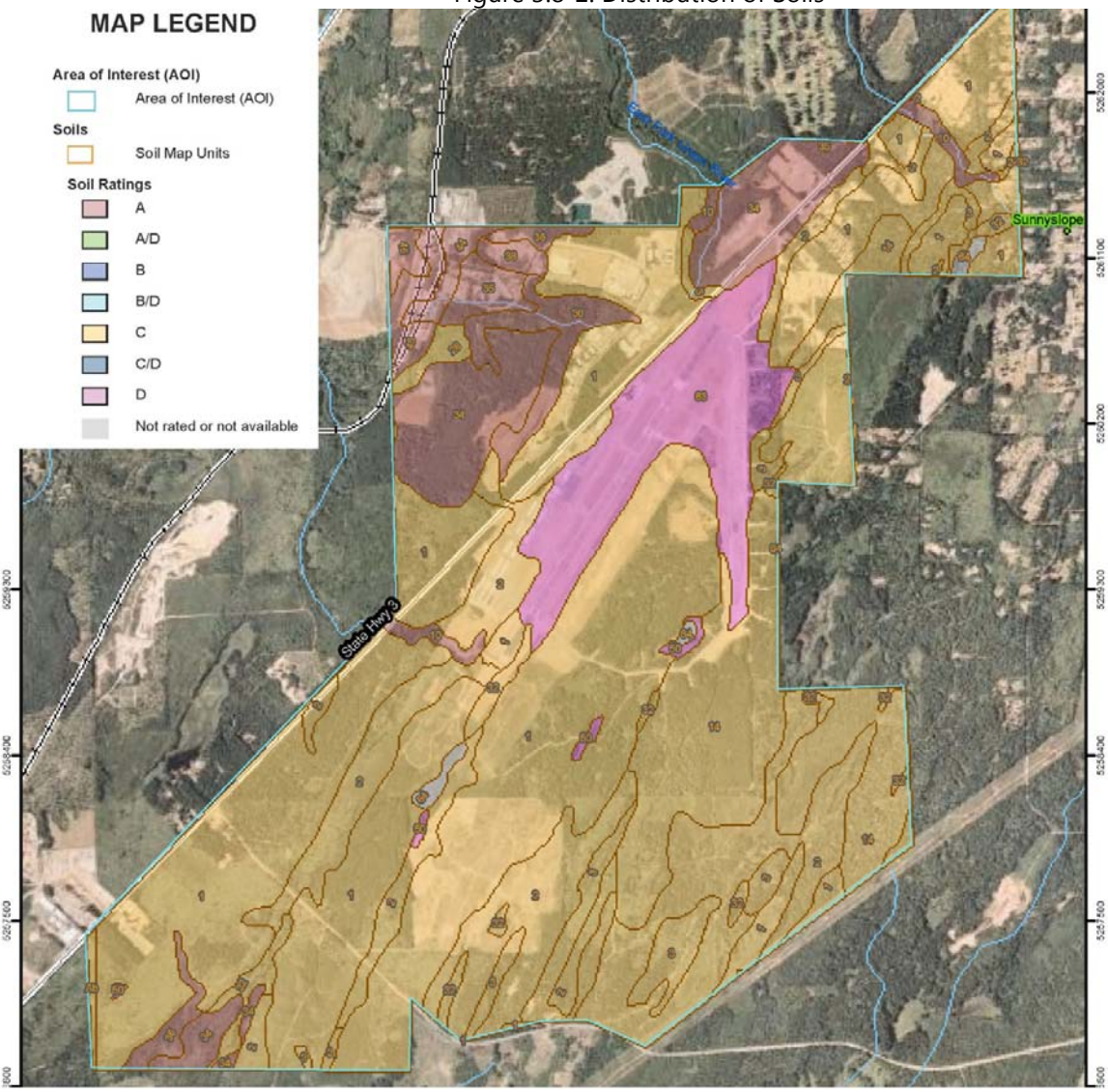
Stormwater

The average monthly rainfall for Bremerton (NCDC Cooperative Station 450872) ranges from a low of 0.86 inches in July to a high of 8.84 inches in December. Average annual rainfall is 51.73 inches.

Given the largely undeveloped and rural nature of the SKIA area there are no significant stormwater treatment and or flow control facilities. There are also no known drainage problems within the study area.

Soil types in the study area are shown in Figure 3.8-2. Most of the soil in SKIA is an Alderwood series gravelly sandy loam (+/- 63%) and Harstine series gravelly sandy loam (+/- 13%). These soils tend to be deep moderately well drained soils underlain in some cases by a cemented till

Figure 3.8-2: Distribution of Soils



Source: Chris Webb & Associates, 2010

layer at 20"-40" depth. The extent of mapped gravelly sandy loam generally suggests favorable soils for Low-Impact Development (LID) strategies relying on infiltration. The presence of the till layer can challenge the feasibility of large traditional stormwater infiltration structures but an LID stormwater approach uses decentralized and distributed Best Management Practices (BMP) and therefore the till layer is less of a concern.

About 14% of the site is mapped as hydrologic group A indicating outwash soils and very favorable conditions for traditional infiltration structures. The site is mapped at 78% hydrologic group C suggesting the possible presence of a till layer in those areas.

Please see Section 3.1, Natural Environment, for additional discussion of study area geology and hydrogeology.

3.8.2 Significant Impacts

Impacts Common to All Alternatives

Stormwater

Stormwater run-off is generated from precipitation running off impervious surfaces such as building roofs and impervious pavement. In undeveloped areas, the natural ground cover generally consists of vegetation and permeable soils. Precipitation in these areas may be intercepted by vegetation and absorbed by the soils, ultimately contributing to groundwater recharge. This infiltration tempers the amount of stormwater that runs off immediately into streams during the storm event. In developed areas with reduced vegetative cover and increased hard surfaces, the amount of water that runs off rather than infiltrating the ground is increased, and the runoff carries with it pollutants that have accumulated on impervious surfaces. Pollutants include sediment, oil and gasoline, metals such as copper and zinc, pet wastes, and residue from pesticides, fertilizers, and other chemicals

Additionally, certain paved areas are considered Pollution Generating Impervious Surfaces (PGIS)[3] and run-off from these areas contains heavy

[3] Pollution Generating Impervious Surfaces are defined by the Washington State Department of Ecology as those impervious surfaces considered to be a significant source of pollutants in stormwater runoff. Such surfaces include those which are subject to: vehicular use; industrial activities; or storage of erodible or leachable materials, wastes, or chemicals, and which receive direct rainfall or the run-on or blow-in of rainfall.

metals, hydrocarbons, suspended solids and other contaminants that can degrade water quality if not removed through a treatment system.

Finally, the land disturbance created through the construction process can itself generate sediment loading on receiving waters.

New construction and redevelopment in SKIA will occur according to BMC Section 15.04.042, Stormwater, which sets for specific BMPs for development. Development according to these standards will minimize the impacts to the greatest extent feasible. The use of LID methods, which exploit the permeable nature of the soils in SKIA, will further reduce the stormwater impacts.

The impacts during construction will result from clearing and grading activities that leave soil bare during the rainy season. These impacts will be mitigated by Temporary Erosion and Sediment Control (TESC) measures that are required for projects under current City regulations.

However, any development that occurs will alter the hydraulic regime of the area by reducing the vegetative cover and native soils that provides canopy interception, evapotranspiration, resulting in increased runoff over developed land even with stormwater BMP's in place.

Water

Under all alternatives SKIA would experience new development and increased water demand. The relative differences in water demand between the alternatives is discussed below.

Wastewater

Under all alternatives SKIA would experience new development and increased generation of wastewater. The relative differences in wastewater demand between the alternatives is discussed below.

Alternative 1

Stormwater

Relative to the other alternatives, the least amount of development is anticipated under Alternative 1. As shown in Figure 2-4, much of the vegetated area would remain undeveloped, resulting in the lowest level of stormwater hydrology impact.

Water

Under this alternative, the estimated 1,400 new jobs are expected to result in an increase water demand of 0.035 mgd[4]. This is equivalent to the commercial water use within the entire West 517 zone of the City of Bremerton water system in 2004 (2005 City of Bremerton Water System Plan) and would represent a 100 percent increase in demand compared with 2004 usage.

The water system in the Olympic View Industrial Park would be expanded locally to serve new development in Analysis Areas A and B. New water mains would be extended into Analysis Area G from the existing 10" main extended to Harry Earl Road. Development in Analysis Areas C through F would be expected to rely on individual wells on an interim basis until new water mains are extended into these areas as part of an overall city capital improvement program. It is estimated that water demand under Alternative 1 can be met on an interim basis by a combination of increased demand on the City of Bremerton water system, increased withdrawals from groundwater within SKIA via new individual wells, and increased production from the City wells within SKIA. Ultimately, the entire subarea would be served by public water systems.[5]

Wastewater

Under Alternative 1, the 1,400 new jobs are estimated to result in an increase in wastewater discharge by 35,000 gpd[6].

The wastewater collection system in the Olympic View Industrial Park would be expanded locally to serve new development in this area. Development in other areas will be served on an interim basis by private on-site septic systems. The levels of treatment provided in on-site septic

[4] Future water demand was based on estimated demand rates of 25 gallons per employee per day for new commercial development and new industrial development in unsewered areas and 150 gallons per day per employee for new industrial development in sewered areas. These estimates are based on 500 gallons per gross acre per day and 3,000 gallons per gross acre per day respectively and 20 employees per gross acre for the industrial development and 25 gpd per employee for commercial.

[5] Urban services are required in designated urban areas, as SKIA is within the Bremerton Urban Growth Area. An urban level of service for domestic water is public water service from a Group A public water system (WAC 365-196-320).

[6] Future sewage production was based on estimated sewage production rates of 25 gallons per employee per day for new commercial and new industrial development in unsewered areas and 150 gallons per day per employee for new industrial development in sewered areas. These estimates are based on 500 gallons per gross acre per day and 3,000 gallons per gross acre per day respectively and 20 employees per gross acre for the industrial development and 25 gpd per employee for commercial.

systems and in lagoon systems is less robust than that provided in a wastewater treatment plant and could result in impacts to groundwater quality. Ultimately, the entire subarea would be served by a sanitary sewer system as part of an overall city capital improvement program.[7]

Alternative 2

Stormwater

Compared to the other alternatives, this alternative would result in a moderate level of stormwater hydrology impact. Although more development is anticipated than under the No Action Alternative, much of the area would remain in forest or other undeveloped state and much of the vegetated area would remain undeveloped (see Figure 2-5).

Water

Under this alternative, water demand is estimated to increase by 0.6 – 0.8 mgd as a result of 6,500 new jobs. Compared to the 2004 commercial water use in the West 517 zone of the City of Bremerton, this represents an increase of 1400% - 2200% over 2004 demand. Water demand under this alternative could exceed the City's transmission and storage capacity in this area. Please see the discussion under Mitigation Measures for required improvements to provide water service under Alternative 2.

Wastewater

Under this alternative, the 6,500 new jobs are expected to result in an increase of 0.6 – 0.8 mgd of wastewater flows. Projected wastewater flows under this alternative would exceed the Port's treatment capacity in this area. Please see the discussion under Mitigation Measures for required improvements to provide wastewater service under Alternative 2.

Alternative 3

Stormwater

Compared to the other alternatives, this alternative would result in the greatest level of stormwater hydrology impact. Although more development is anticipated than under the No Action Alternative and Alternative 2, much of the area would remain in forest or other undeveloped state (see Figure 2-6).

[7] Sanitary sewer systems are considered urban services (WAC 365-196-320). The use of on-site sewer systems within urban growth areas may be appropriate in limited circumstances where there is no negative effect on basic public health, safety and the environment; and the use of on-site sewer systems does not preclude development at urban densities.

Water

Under this alternative, water demand is estimated to increase by 0.8 – 1.1 mgd as a result of 10,000 new jobs. Compared to the 2004 commercial water use in the West 517 zone of the City of Bremerton, this represents an increase of 2100% - 3000% over current demand. Water demand under this alternative would exceed the City's transmission and storage capacity in this area. Please see the discussion under Mitigation Measures for required improvements to provide water service under Alternative 3.

Wastewater

Under this alternative, the 10,000 new jobs are expected to result in an increase of 0.8 – 1.1 mgd of wastewater flows. Projected wastewater flows under this alternative would exceed the Port's treatment capacity in this area. Please see the discussion under Mitigation Measures for required improvements to provide wastewater service under Alternative 3.

3.8.3 Mitigation Measures

Stormwater

Proposed Plan Features

- All sites developed within SKIA should be required to use LID as its primary stormwater management approach. The emerging practice of LID has the ability to mitigate water quality impacts of development in a more effective manner than conventional stormwater treatment practices. Additionally, LID can address water quantity by reducing run-off and recharging groundwater. In till soils, LID can reduce the size of any required detention and flow control facilities and in outwash soils LID can often be used in place of detention facilities for stormwater flow control.
- LID street standards should be implemented that apply to all new roads in SKIA. Example street sections are shown in Figure 3.8-3.
- The City's stormwater utility fee structure should be used to encourage the use of exceptional uses of LID and impervious surface limitations. The City of Bremerton established its stormwater utility as codified in BMC 15.04. The purpose of the utility is to provide for the operation and maintenance of the stormwater system for the collection and treatment of surface drainage in the City.
- Green building standards, such as LEED, should be encouraged or required for all new development in SKIA.

Applicable Regulations and Requirements

- Water quality and quantity impacts can be mitigated by the practices required by the City's regulatory process for stormwater (BMC 15.04).

Water and Wastewater

Proposed Plan Features

- Green building standards should be encouraged or required for SKIA. Development to such standards can typically achieve 30% or more conservation for non-process related water consumption for domestic fixtures and irrigation.
- New wastewater treatment should be encouraged to be provided with satellite MBR wastewater plants that can produce effluent with sufficiently high quality as to be re-used as reclaimed water.

Applicable Regulations and Requirements

- Bremerton Municipal Code 15.02 and 15.03 set forth standards for water and wastewater with which all development must comply
- Future development would comply with adopted City policies and regulations in the City's Water System Plan (2005), Wastewater Comprehensive Plan (date), and SKIA Sewer Planning (2008) documents. The City of Bremerton's Water and Wastewater Capital Investment Plans are continually updated. As water demand forecasts are updated, then more detailed evaluation/modeling will be used to plan water and wastewater service to the study area.

Other Mitigation

Alternative 1

- The water system in the Olympic View Industrial Park would be expanded locally to serve new development in Analysis Areas A and B.
- New water mains would be extended into Analysis Area G from the existing 10" main extended to Harry Earl Road.
- Development in Analysis Areas C through F would be expected to rely on individual wells on an interim basis until new water mains are extended into these areas as part of an overall city capital improvement program.
- The wastewater collection system in the Olympic View Industrial Park would be expanded locally to serve new development in Analysis Area B.

- Development in other areas will be served on an interim basis by private on-site septic systems.

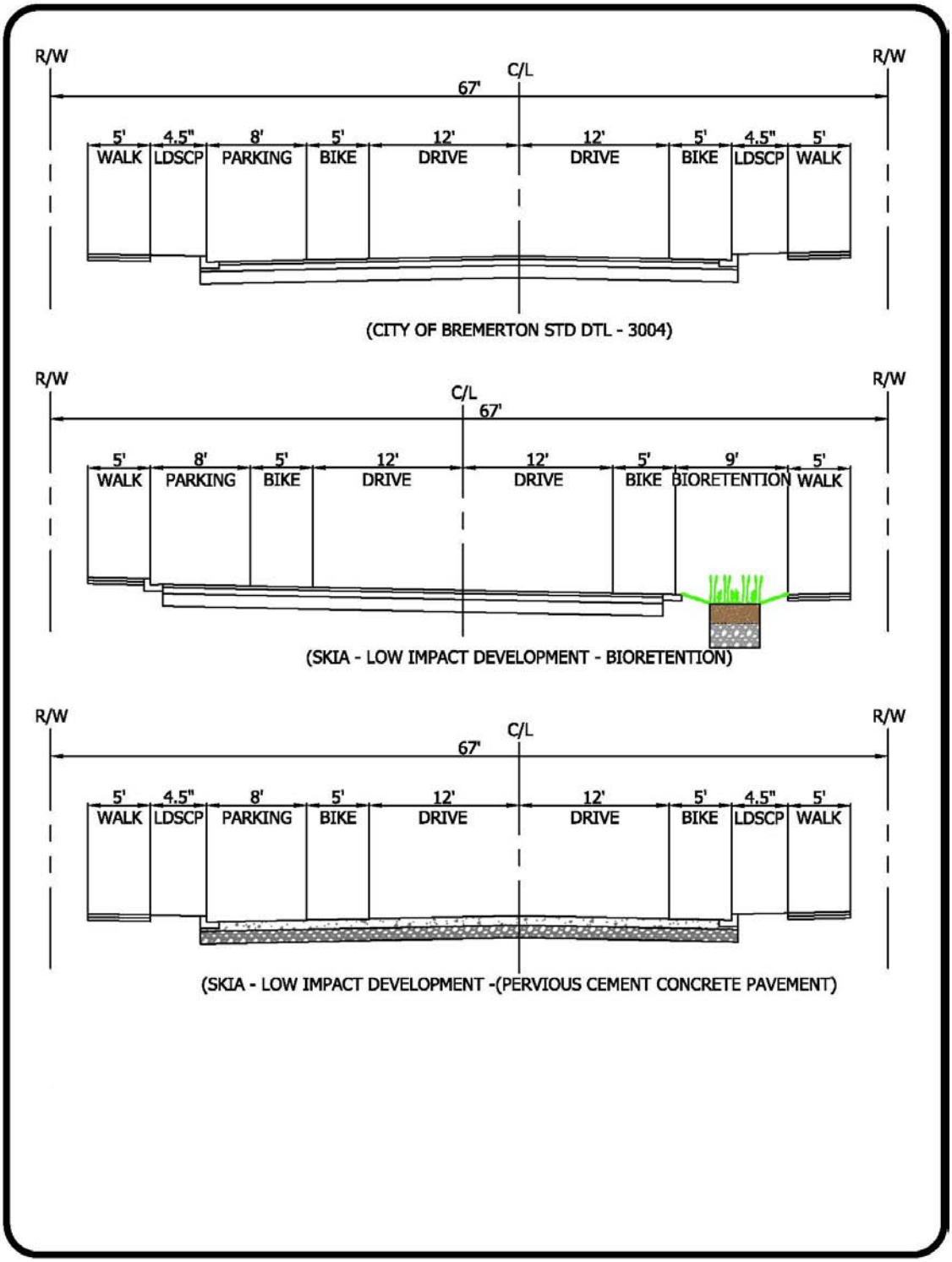
Alternative 2

- Water source, distribution, and storage analysis is needed to determine the extent and nature of improvements needed.
- The water transmission main between the City of Bremerton and SKIA would require expansion and new trunk lines and distribution lines would be required to serve areas of development.
- The amount of water storage in SKIA would need to be increased to account for the new flows.
- The wastewater collection system in the Olympic View Industrial Park (Analysis Area B) would require expansion to serve new development in this area. The wastewater treatment lagoon system would be upgraded to a ±0.2MGD MBR plant.
- A satellite MBR plant with a capacity of ±0.4MGD would be required to serve Analysis Areas C, D, and E.
- New interim on-site septic systems may be required to serve Analysis Areas A and G.
- New interim on-site septic systems and a small satellite community treatment system would be required to serve development in Analysis Area F.

Alternative 3

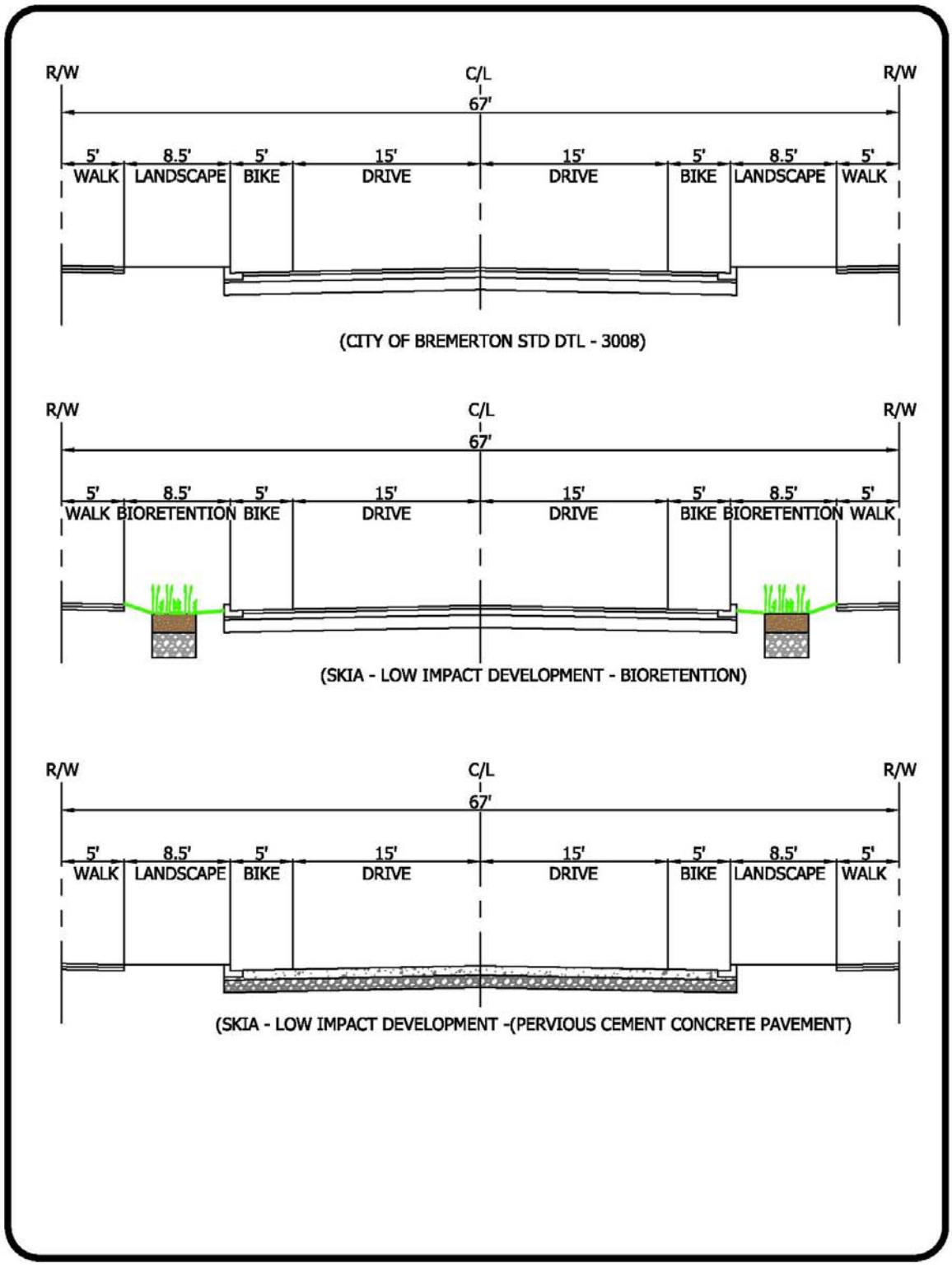
- Water source, distribution, and storage analysis is needed to determine the extent and nature of improvements needed.
- The water transmission main between the City of Bremerton and SKIA would require expansion and new trunk lines and distribution lines would be required to serve areas of development.
- The amount of water storage in SKIA would need to be increased to account for the new flows.
- New development in SKIA area would be connected to the City of Bremerton Wastewater treatment Plant via a new large force main and pump station(s). New gravity sewers would be installed to serve the developed areas and flow to SR-3 where flows would be pumped to the City of Bremerton.

Figure 3.8-3: Typical Low Impact Development Street Standards – Local Access



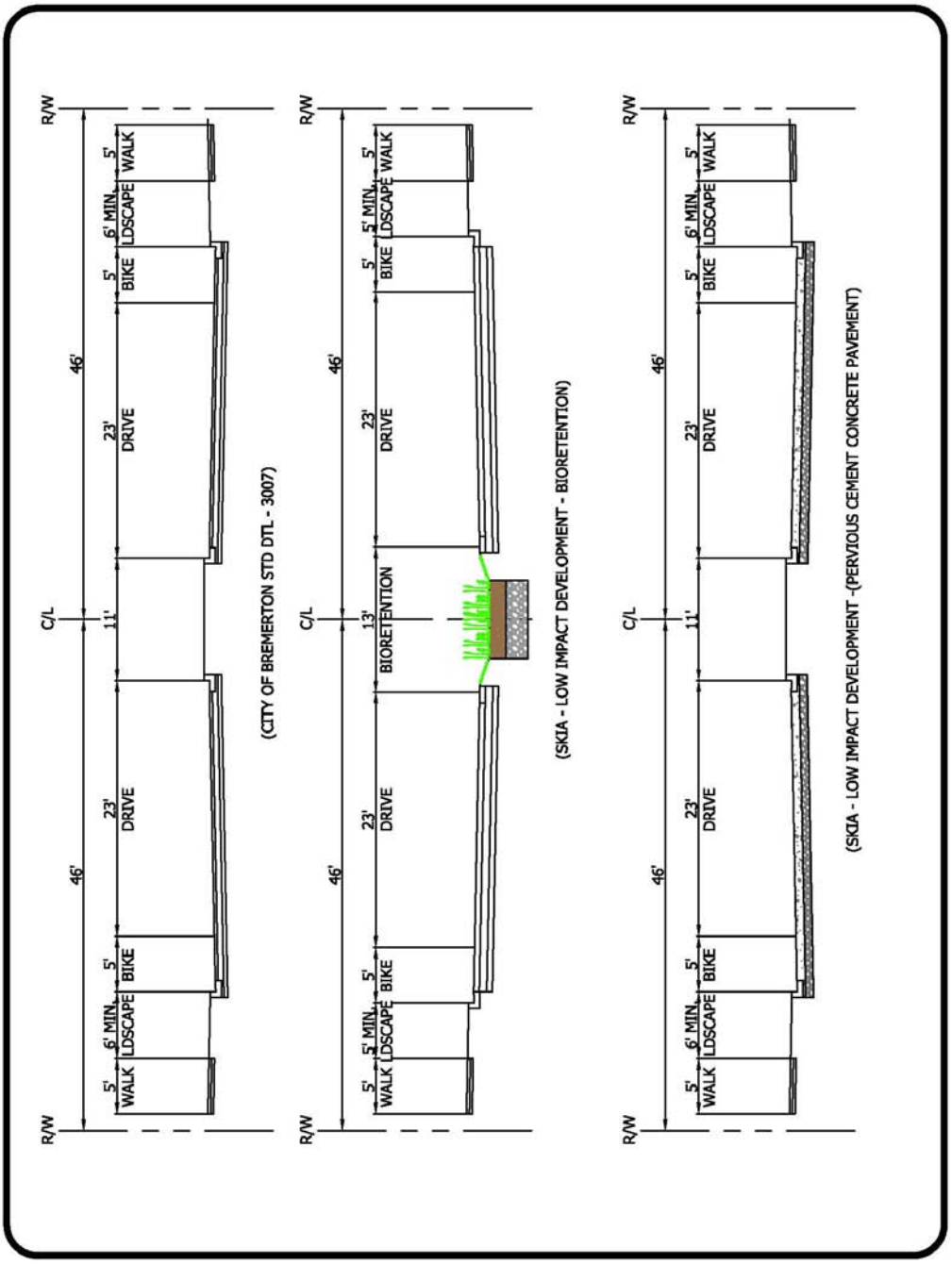
Source: Chris Webb & Associates, 2010

Figure 3.8-4: Typical Low Impact Development Street Standards – Commercial/Industrial



Source: Chris Webb & Associates, 2010

Figure 3.8-5: Typical Low Impact Development Street Standards – Arterial



Source: Chris Webb & Associates, 2010

3.8.4 Significant Unavoidable Adverse Impacts

All of the alternatives cited will result in increased demand for water and wastewater services and impacts to ground and surface waters associated with increased development. The application of the use of advanced sustainable water and wastewater systems, Low-Impact Development (LID), and other green building strategies should minimize these impacts to the greatest extent possible.

Section 4 - Acronyms

4. ACRONYMS

ALS	Advanced Life Support
BEDS	Bremerton Economic Development Study
BLS	Basic Life Support
BMC	Bremerton Municipal Code
BMP	Best Management Practices
CAL	Collision Analysis Location
CAO	Critical Area Ordinance
CARA	Critical Aquifer Recharge Areas
CENCOM	Central Communications
CUL	City Utility Lands
EMS	Emergency Medical Services
EMT	Emergency Medical Technicians
ERU	Equivalent Residential Unit
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
FAA	Federal Aviation Administration
FAR	Floor Area Ratio
FAR	Federal Aviation Regulation
GHG	Greenhouse Gas
GMA	Growth Management Act
Gpd	Gallons Per Day
HCM	Highway Capacity Manual
I	Industrial
IBC	International Building Code
IP	Industrial Park
IPM	Integrated Pest Management
KCGMP	Kitsap County Groundwater Management Plan
LID	Low-Impact Development
LOS	Level Of Service
MBR	Membrane Bioreactor
MBTA	Migratory Bird Treaty Act
MIC	Manufacturing/Industrial Center
MPO	Metropolitan Planning Organization
$MTCO_2e$	Metric Ton Carbon Dioxide Equivalent
NOAA	National Oceanic and Atmospheric Administration
NWI	National Wetlands Inventory
PGIS	Pollution Generating Impervious Surfaces
PSRC	Puget Sound Regional Council
Qga	Advance Outwash
Qgo	Recessional Outwash
Qgt	Vashon Glacial Till
Qp	Peat
RFA	Regional Fire Authority
SEPA	State Environmental Policy Act
SKIA	South Kitsap Industrial Area
TCP	Traditional Cultural Properties
TESC	Temporary Erosion and Sediment Control
TMA	Transportation Management Association
U	Unstable
UGA	Urban Growth Area
UOS	Unstable Old Slide
URS	Unstable Recent Slides
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
VMT	Vehicle Miles Traveled
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington State Department of Natural Resources Division of Geology
WSDOH	Washington State Department of Health
Ybp	Years Before the Present

Section 5 - References

5. REFERENCES

City of Bremerton. *City of Bremerton Comprehensive Plan*, 2009.

City of Bremerton. *Fire Department Website: http://www.ci.bremerton.wa.us/display.php?id=25*. September 2010.

City of Bremerton. *Police Department Website: http://www.ci.bremerton.wa.us/display.php?id=26*. September 2010.

Kitsap County CENCOM Department. *Calls for Service by UGA*. August 2010.

Washington State Department Transportation. *Draft Bremerton Economic Development Study*. August 2010.

Kitsap County. *Kitsap County Comprehensive Plan*, 2006.

City of Port Orchard. *Port Orchard Comprehensive Plan*, 2008.

City of Bremerton. *Bremerton Comprehensive Plan*, 2004.

Transportation Research Board. *Highway Capacity Manual*. 2000.

Boilke, E.L., et al. *Ground Water Availability on the Kitsap Peninsula, Washington*. U.S. Geological Survey Water Resources Investigations, Open-File Report 81-1186. 1980.

Bridgham, S.D, J.P. Megonigal, J.K. Keller, N.B. Bliss, and C. Treetin. The carbon balance of North American wetlands. Wetlands. 26(4):889-916. 2006.

Cahall, K. 11 January 2011. Personal communication (telephone conversation with Mandie MacDonald, Landau Associates, Inc., regarding City wellhead protection program.) Water Resources Manager, City of Bremerton, WA. Environmental Laboratory. *Interim Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Western Mountains, Valleys, and Coast Region*. Wetlands Regulatory Assistance Program Technical Report ERDC/EL TR-08-13. April 2008.

FAA. FAA Wildlife Strike database. http://wildlife-mitigation.tc.faa.gov/wildlife/default.aspx. Updated 9/2/2010.

GeoEngineers. Wetland and Stream Delineation SKIA Gravel Mine, Bremerton Washington. For McCormick Land Company, Inc. December 2, 2008.

Hernandez, M.E. and W. J. Mitcsh. Influence of hydrologic pulses, flooding frequency, and vegetation on nitrous oxide emissions from created riparian marshes. Wetlands. 26(3): 862-877. 2006.

Hruby, T. *Washington State Wetland Rating System for Western Washington – Revised*. Publication No. 04-06-025. Washington State Department of Ecology. Olympia, Washington. 2004.

Johnson, D.H. and T.A. O'Neil. *Wildlife-Habitat Relationships in Oregon and Washington*. Oregon State University Press. Corvallis, Oregon. 2001.

Kayranli, B., M. Scholz, A. Mustafa, A. Hedmark. Carbon storage and fluxes in freshwater wetlands: a critical review. Wetlands. 30(1): 111-124. 2009.

King County Planning Division & Washington State Department of Ecology. *Ground Water Resource Protection: A Handbook for Local Planners and Decision Makers in Washington State*.

Kitsap County. South Kitsap Industrial Area Sub-Area Plan. Department of Community Development. December 8. 2003.

Kitsap County. *Kitsap County Critical Areas Ordinance. Kitsap County Department of Community Development Ordinance 217-1998.* 1998.

Kitsap Public Utility District. *Kitsap County Ground Water Management Plan.* 1998.

NRCS. *2010 National Hydric Soils List by State.* Natural Resources Conservation Service. http://soils.usda.gov/use/hydric/lists/state.html Accessed September 2010.

NOAA Fisheries. *Endangered and Threatened Species; Designation of Critical Habitat for 12 Evolutionarily Significant Units of West Coast Salmon and Steelhead in Washington, Oregon, and Idaho; Final Rule*. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service. 50 CFR Part 226. Federal Register 70(170): 52630-52858. 2005.

Parametrix, Inc. *Appendix D – Environmental Resources and Protection; South Kitsap Industrial Area Sub-Area Plan.* December 2002.

PFMC. Amendment 14 to the Pacific Coast Salmon Plan, Appendix A, *Identification and Description for Essential Fish Habitat, Adverse Impacts, and Recommended Conservation Measures for Salmon*. Pacific Fisheries Management Council. NOAA NAO7FC0026. 1999.

Pritchett, R. Wildlife Fence Design for Airport Gets Go-Ahead. Kitsap Sun. August 24, 2010.

USDA. *U.S. agriculture and forestry greenhouse gas inventory: 1990-2001*. Technical bulletin 1907. Office of the Chief Economist, U.S. Department of Agriculture, Washington, D.C., 2004. Available online at www.usda.gov/oce/gcpo .

USDA. *Soil Survey of Kitsap County Area, Washington*. U.S. Department of Agriculture Soil Conservation Service in cooperation with Washington Agriculture Experiment Station. 1977.

USFWS. 2010. *Endangered and Threatened Wildlife Plants: Revised Designation of Critical Habitat for the Bull Trout in the Conterminous United States: Final Rule*. U.S. Fish and Wildlife Service. 50 CFR Part 17. Federal Register 75(200): 63898-64070.

USFWS. *Endangered and Threatened Wildlife Plants; Revised Critical Habitat for the Marbled Murrelet: Proposed Rule*. 50 CFR Part 17. U.S. Department of the Interior, U.S. Fish and Wildlife Service. Federal Register 73(148): 44678-44701. 2008.

USFWS. *Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Bull Trout; Final Rule*. U.S. Department of the Interior, Fish and Wildlife Service. 50 CFR Part 17. Federal Register 70(185): 56211-56260. September 26, 2005. .

USFWS. *Endangered and Threatened Wildlife Plants; Final Designation of Critical Habitat for the Marbled Murrelet: Final Rule*. 50 CFR Part 17. U.S. Department of the Interior, U.S. Fish and Wildlife Service. Federal Register 61(102): 26252-26320. 1996.

United States Geological Survey (USGS). Earthquakes Hazards Program – Quaternary Faults in Google Earth. http://earthquake.usgs.gov/hazards/qfaults/google.php. Accessed September 20, 2010.

Washington State Department of Ecology. *Washington Coastal Atlas*. http://www.ecy.wa.gov/programs/sea/sma/atlas_home.html. Accessed September 11, 2010.

WDFW. Habitats and Species Map in the Vicinity of T23R01E Section 7; T23R01W Section 27; T23R01W Section 10; T23R01W Section 24. July 13, 2010.

WDFW. *Interactive Salmonscape Application: WDFW*. Washington Department of Fish and Wildlife. http://wdfw.wa.gov/mapping/salmonscape/ Accessed May 2011.

WDNR. Washington State Department of Natural Resources. http://www.dnr.wa.gov/ResearchScience/Topics/GeosciencesData/Pages/gis_data.aspx. Accessed September 12, 2010.

WDNR. *Sections that Contain Natural Heritage Features*. http://www.dnr.wa.gov/Publications/amp_nh_trs.pdf July 21, 2009.

Section 6 - Distribution List

6. DISTRIBUTION LIST

The following parties have been provided a notice of availability of the Draft EIS. Those marked with an asterisk (*) were provided an electronic copy of the Draft EIS. Paper copies are available upon request by calling 360.473.5269.

State and Federal Agencies

US Environmental Protection Agency*
Federal Aviation Administration*
Naval Base Kitsap*
WA Department of Archaeology and Historic Preservation
WA Department of Commerce, Growth Management Services*
WA Department of Corrections, Capital Program
WA Department of Ecology* (2 copies)
WA Department of Fish and Wildlife*
WA Department of Natural Resources*
WA Department of Transportation*
WA Department of Transportation, Aviation Division*

Tribes

Suquamish Tribe*
Port Gamble/S'Klallam Tribe*
Skokomish Tribe
Squaxin Island Tribe

Regional and Local Governments

Kitsap Regional Coordinating Council*
Puget Sound Clean Air Agency
Puget Sound Regional Council*
Kitsap County*
City of Port Orchard*
Mason County*

Special Purpose Service Providers

Kitsap Regional Library, Downtown Bremerton Branch*
Olympic College
Port of Bremerton*
Puget Sound & Pacific Railroad
Sunnyslope Water District No. 15*

Community Organizations

Bremerton Chamber of Commerce

Hood Canal Coordinating Council
Kitsap Economic Development Alliance
Port Orchard Chamber of Commerce
Sustainable Bremerton

Private Firms and Individuals

Overton Associates
McCormick Land Company
Alpine Evergreen
Alpine Evergreen Inc
Ataee, Tony
Bremerton, City Of
Bremerton Trap & Skeet Club
Bright Family Llc
C & I Real Estate Llc
Coulter Creek Lp
Cross, Jerrie L
Dean, Jack E
Dobson, Laura
Dobson, Scott D & Kathleen M
Edquid, Art C
Esska Llc
Esslinger, Richard A
Feddock, Steven P Jr
Gardner Family Trust, The
James, Elva R
Laceda, Edgardo A & Nellie O
Liberty Business Centers Llc
Mcdonald, David
Mungra, Mahesh & Nirmala & Sabhaya, Mansukh & Pragna
North Bay Properties Lp
North Mason Lp
Paije Properties Llc
Palmer Properties Llc
Port Of Bremerton
Potter, Patricia E
Rodeo Drive In Theatre
Rogers, Sandra K
Sande, Earl & Burnett Amy
Sayer, Betty J
Schillinger, C R & Patricia M & Johnson, Thomas W & Karen J
Schmidt, Paul A & Mary E
Schoening, Clifford & Marion

Southwest Kitsap Lp
St Trust
Sylvan Products Inc
U S A In Trust
Victory Business Park Llc
Viking Fence Of Poulsbo Llc
Weegman, Aaron D
Yelverton, Michael W & Beverly K

Media

Kitsap Sun
Kitsap Business Journal
Northwest Navigator