

ORCAS ISLAND AIRPORT

Final
Environmental Assessment

For

Obstruction Removal

October 2016

Prepared for:

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Acronyms

ACHP	Advisory Council on Historic Preservation
Airport	Orcas Island Airport
APE	Area of Potential Effect
BA	Biological Assessment
BMP	best management practice
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CO	carbon monoxide
DAHP	Washington State Department of Archaeology and Historic Preservation
dB	decibels
dBa	A-weight decibels
DNL	day/night average sound level
DOE	Washington State Department of Ecology
DOT	U.S. Department of Transportation
E.O.	Executive Order
EA	Environmental Assessment
EFH	Essential Fish Habitat
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulation
GAO	General Accounting Office
GHG	greenhouse gas
ICAO	International Civil Aviation Organization
MBTA	Migratory Bird Treaty Act
MSL	mean sea level
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act

NMFS	National Marine Fisheries Service
NO ₂	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NO _x	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NRHP	National Historic Preservation Act
O ₃	ozone
Pb	lead
PM	particulate matter
PM ₁₀	particulate matter smaller than 10 microns in diameter
Port	Port of Orcas
RCRA	Resource Conservation and Recovery Act
SHPO	State Historic Preservation Office
SO ₂	sulfur dioxide
T&E	Threatened and Endangered
THPO	Tribal Historic Preservation Office
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compound
WDFW	Washington Department of Fish and Wildlife
WSDOT - Aviation	Washington State Department of Transportation – Aviation Division

Chapter 1 Introduction

Environmental Assessment for Obstruction Removal – Orcas Island Airport

1.1 Background and History of Proposed Action

This Environmental Assessment (EA) has been prepared in accordance with the guidance provided in Federal Aviation Administration (FAA) Order 1050.1F *Environmental Impacts: Policies and Procedures* (July 2015) and Order 5050.4B *National Environmental Policy Act [NEPA] Implementing Instructions for Airport Projects*.

The Orcas Island Airport (Airport) is located in San Juan County, Washington, approximately one mile from the Island's business center of Eastsound. San Juan County is in northwestern Washington and is comprised of four major islands and over 700 smaller ones. Orcas is the second most populated island with about 4,500 residents. The four major islands, Orcas, San Juan, Lopez, and Shaw, are all served by the Washington State Ferry System. Three of the four have public airports with the exception of Shaw.

The critical need for air service united Orcas Island residents to form their own port district in 1959. A public meeting took place on August 1, 1958 with an election to form the port district and to create a public airport. The vote was overwhelmingly in favor of both measures. The Port of Orcas (Port) came into operation January 12, 1959. The Port then purchased property and the private airstrip for \$14,000. From the 1970s-1990s, the Airport went through expansion and construction projects with the financial assistance of Washington State Department of Transportation – Aviation Division (WSDOT-Aviation) and the FAA.

The Port now has five commissioners, and the Airport is managed by a professional airport manager. According to a 2012 WSDOT-Aviation study, the Airport provides approximately \$6.4 million in direct, indirect, and induced economic impacts. This estimate includes jobs, salaries, and contributions to the local economy.

The 64-acre Airport has a single runway, Runway 16-34, which is 2,900 feet long and 60 feet wide. According to the 2008 Airport Layout Plan Update, there were approximately 26,250 annual aircraft operations and more than 6,400 passengers were served, with 75 based aircraft in 2005. Commercial air service is provided with other businesses offering freight, recreation, and flight instruction.

A 2014 obstruction survey identified numerous obstructions to the Runway 34 Federal Aviation Regulation (FAR) Part 77 approach surface. To improve the 20:1 visual approach surface for Runway 34, vegetation removal is proposed to clear current and future potential obstructions. The vegetation proposed for removal is within Port-owned property in the approach / departure zone to the south of the airport operations area. These trees are hazardous to operational safety because of their height and are growing into regulated airspace.

The Port of Orcas has undertaken this EA to evaluate the potential impacts of the proposed vegetation removal project needed to clear the visual approach surface. **Exhibit 1-1**, Vicinity Map, illustrates the Airport, project area and the surrounding area.



	<p style="text-align: center;">Vicinity Map Orcas Island Airport Port of Orcas, San Juan County, Washington</p>	<p style="text-align: center;">Exhibit 1-1</p>
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Exhibit 1-1 Vicinity Map

Chapter 2 Purpose and Need

Environmental Assessment for Obstruction Removal – Orcas Island Airport

This chapter describes the conditions at the Airport, identifies the Purpose and Need for the Proposed Action, and describes how the components of the Proposed Action will address the Purpose and Need. It also describes the Proposed Action and the anticipated timeframe for implementing the action.

According to the Federal Aviation Regulation (FAR) Part 77, there are currently obstructions to the Runway 34, 20:1 visual approach surface.

2.1 Purpose and Need for the Proposed Action

This section describes FAA airspace obstruction regulations. Further detail is provided to describe how the components of the Proposed Action would correct the obstruction penetrations in the approach surface that are necessary to comply with FAR Part 77.

2.1.1 Obstructions to FAR 77, 20:1 Approach Surface

The FAA regulates the airspace surrounding an airport to provide a safe operating environment for aircraft. FAR Part 77.25, *Objects Affecting Navigable Airspace*, defines airport imaginary surfaces which are established to protect the airspace immediately surrounding a runway. The airspace and ground areas surrounding a runway should be free of obstructions (*i.e.*, structures, terrain, trees, etc.) to the greatest extent possible. One of these imaginary surfaces is the approach surface. The visual approach surface at the Airport extends outward and upward at a slope of 20:1, beginning 200 feet from the end of the runway along the extended runway centerline. The approach surface has a trapezoidal shape and is 5,000 feet long, and has inner and outer widths of 250 feet and 1,250 feet, respectively.

Based on an obstruction survey completed in February 2014, there are numerous tree penetrations to the approach surface of Runway 34. More trees will likely penetrate the approach surface in the future, based on the current tree height and species of trees present. The Airport proposes clearing the vegetation within the approach surface on Port-owned property to protect the 20:1 visual approach surface for Runway 34, as shown in **Exhibit 2-1**

2.1.2 Purpose and Need of the Proposed Action

The purpose of the proposed action is to remove existing and future obstructions located within the Runway 34, 20:1 visual approach surface in accordance with FAR Part 77 on Port-owned property.

The proposed action is necessary because the current approach surfaces for Runway 34 does not meet the FAA regulations, which are meant to enhance safety. The proposed clearing of existing and future vegetation obstructions is needed to maintain the 20:1 visual approach surface for Runway 34.

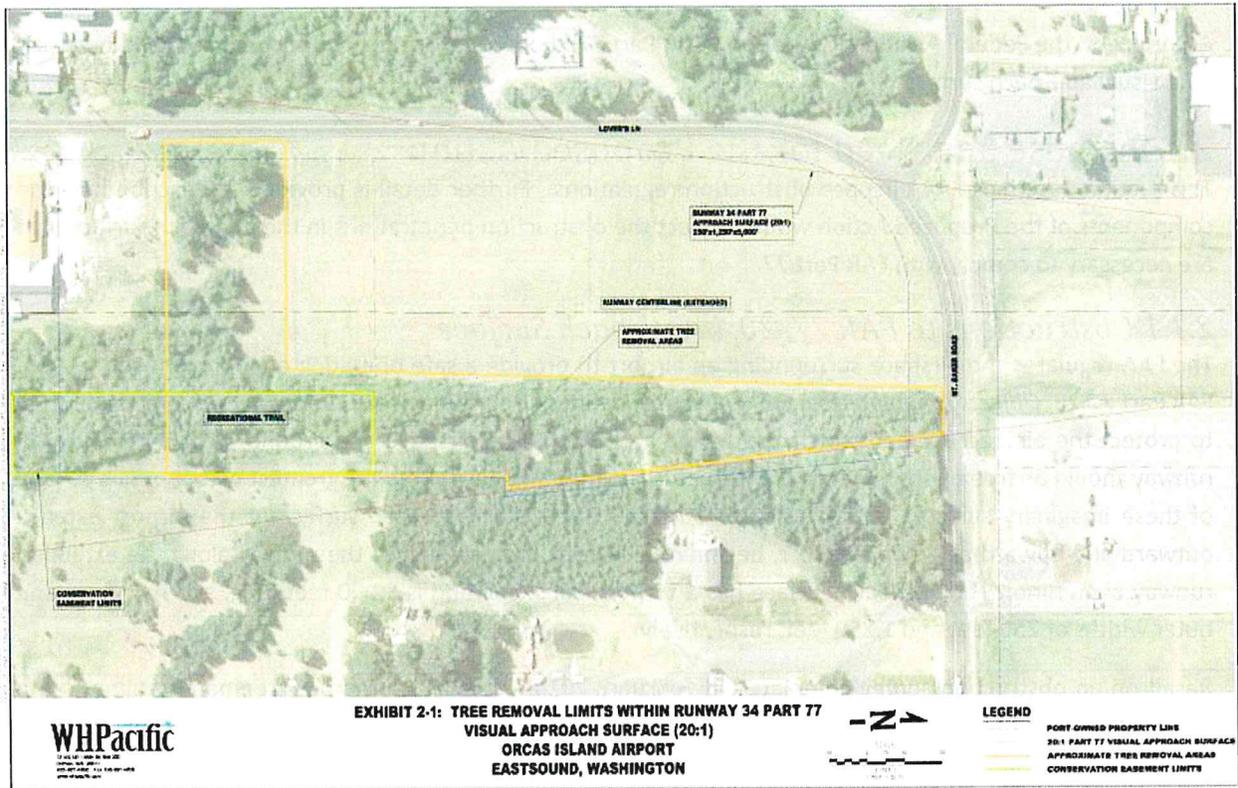


Exhibit 2-1 Tree Removal Limits Within Runway 34 Part 77 Visual Approach Surface 20:1

2.2 Elements of the Proposed Action

The Port of Orcas is proposing the following actions at the Airport in order to address the stated Purpose and Need:

- Clear obstructions (vegetation) that currently penetrate the FAR Part 77, 20:1 visual approach surface off of Runway 34 on Airport property. Vegetation that is likely to penetrate the approach surface in the future will also be cleared.

2.3 Proposed Federal Actions and Estimated Timeframe

The requested Federal Action is the approval of FAA funding and approval for Proposed Action, which is further described in Chapter 3, *Alternatives*.

The Proposed Action is anticipated to be completed outside of the bird nesting season and during the dry season. Timing is dependent upon funding availability.

FAA will make an environmental finding based upon the analysis in this document and the comments received from the public on the Draft EA.

Chapter 3 Alternatives

Environmental Assessment for Obstruction Removal – Orcas Island Airport

This Chapter identifies and analyzes alternatives that address the deficiencies discussed in Chapter 2, *Purpose and Need*. The analysis has been prepared in accordance with the Council on Environmental Quality (CEQ) regulations (40 CFR Section 1502.14) for implementing the National Environmental Policy Act (NEPA), which require that Federal agencies perform the following tasks:

- Rigorously explore and objectively evaluate all reasonable alternatives and briefly discuss reasons why other alternatives were eliminated
- Devote substantial treatment to each alternative considered in detail, including the Proposed Action, so reviewers may evaluate their comparative merits
- Include reasonable alternatives not within the jurisdiction of the lead agency
- Include a “No Action” alternative.

The following section describes the method by which alternatives were identified and evaluated to meet the Purpose and Need.

3.1 Obstruction Removal Alternatives

The Alternatives presented below address the obstructions to the Runway 34 approach surface. **Exhibit 2-1** illustrates the FAR Part 77 visual approach surface, existing vegetation, and areas where the vegetation penetrates the approach surface. The visual approach surface begins 200 feet beyond the runway end and extends upward and outward at a rate of 20:1 for 5,000 feet. The surface’s inner width is 250 feet, with an outer width of 1,250 feet.

The Airport proposes to clear vegetation obstructions on Port-owned property within the visual approach surface. The area in question is dominated by willow and red alder toward the north; Douglas fir, willow, and red alder toward the south. The vegetative understory throughout the forested area is comprised of English hawthorn, pea-fruited rose, Himalayan blackberry, and sweetbriar rose (see **Appendix A**, Biological Evaluation Memorandum). Along the eastern portion of the forested area are densely planted stands of Douglas fir. Some of the area is designated wetland. A portion of the Port-owned property was granted easements for the purposes of 1) public pathway and 2) wetland conservation. Obstruction clearing and maintenance activities are allowed within these easements.

The following section provides a brief description and evaluation of the proposed Alternatives.

3.1.1 No Action Alternative (Alternative 1)

Under the No Action Alternative, obstructions (vegetation) in the Runway 34 approach surface would remain. Additionally, some vegetation that is currently below the surface would likely grow to become future

obstructions. The vegetation within the approach surface would continue to pose a hazard to aircraft operations.

This alternative does not meet the Purpose and Need of the project as it does not remove objects penetrating the airspace. This would lead to a reduction of the usable runway length in order to maintain a clear approach for aircraft operations and negatively impact the ability of certain aircraft to continue safe operation at the Airport. This alternative will be included in the analysis as required per CEQ and NEPA.

Key Features of the No Action Alternative:

- There are no environmental impacts on- or off-site.
- It does not remove vegetation that has grown or potentially would grow into the FAR Part 77 visual approach surface.

3.1.2 Alternative 2

Alternative 2 includes complete vegetation removal, consisting of all trees, shrubs, and stumps within the Runway 34 visual approach surface, including the wetland conservation easement area.

This alternative would meet the Purpose and Need at the present and for the foreseeable future as it removes the existing and potential obstructions in the approach surface on Port-owned land. This alternative would disturb the wetland conservation easement area, which is intended to protect the natural and ecological features.

Because of its potential impact on portions of the conservation easement area, Alternative 2 will not be considered for further analysis.

3.1.3 Alternative 3

Alternative 3 includes complete vegetation removal, consisting of all trees, shrubs, and stumps within the Runway 34 non-precision approach surface as shown in **Exhibit 3-1**. The 34:1 non-precision approach surface is a trapezoidal shape that is 5,000 feet long with inner and outer widths of 500 feet and 2,000 feet, respectively. The Port owns the land in the center portion of the non-precision approach surface. There are multiple private owners within the remainder of the approach surface areas. This alternative would meet the Purpose and Need as it removes the existing and potential obstructions in the approach surface; however, a portion of the vegetation removal area is located outside of the Port-owned property and would require landowner permission or potential purchase of the easements.

Because the non-precision approach surface covers areas outside of the Port-owned property, Alternative 3 will not be considered for further analysis. The Port is scheduled to conduct an Airport Master Plan Update next year, when a full obstruction analysis will be conducted for all the FAR Part-77 surfaces as part of the Master Plan Update.



**EXHIBIT 3-1: RUNWAY 34 PART 77
NON-PRECISION APPROACH SURFACE (34:1)
ORCAS ISLAND AIRPORT
EASTSOUND, WASHINGTON**



LEGEND
 PORT-OWNED PROPERTY LINE
 34:1 PART 77 APPROACH SURFACE

Exhibit 3-1 Runway 34 Part 77 Non-Precision Approach Surface (34:1)

3.1.4 Alternative 4

Alternative 4 consists of the complete vegetation removal (trees and shrubs, including stumps), within the visual approach surface – not including the wetland conservation easement area – as illustrated in **Exhibit 2-1**. Within the wetland conservation easement area, tree species that penetrate or have the potential to penetrate the 20:1 visual approach surface would be selectively removed, while the stumps would remain in place to minimize impacts to the ground and wetlands.

This alternative would satisfy all of the project's Purpose and Need by:

- Full vegetation removal (all trees and shrubs, including stumps) within the approach surface on Port-owned land, excluding the wetland conservation easement area.
- Within the wetland conservation easement area, all trees currently penetrating or with the potential to penetrate the approach surface would be removed, while leaving the stumps and undergrowth in place, to minimize ground and wetland disturbance and impacts. San Juan County was consulted on this project and their written consent is included in **Appendix B**.

Alternative 4 does address the Purpose and Need of the project as it removes all the current and potential future obstructions located within the 20:1 visual approach surface in the foreseeable future.

The alternative provides a long-term solution for surface approach penetrations. Additionally, there would be minimal ground disturbance within the conservation easement area. For these reasons, Alternative 4 is chosen as the Preferred Alternative for obstruction removal.

The key features of the Proposed Action:

- It would remove current and potential future obstructions within the Runway 34 visual approach surface.
- It would minimize ground disturbance within the conservation easement area.
- It would not impact private land.

The Proposed Action meets the project's Purpose and Need.

Chapter 4 Affected Environment

Environmental Assessment for Obstruction Removal – Orcas Island Airport

The Affected Environment chapter succinctly describes the environmental conditions of the project area. As described in 40 CFR 1502.15, this section is concentrated on the project area and gives particular attention to important issues. It provides sufficient data and information to determine the level of potential impact for each resource category.

FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, requires the evaluation of the following resource categories:

- Air Quality
- Biotic Resources
- Compatible Land Use
- Vegetation Removal (typically Construction) *
- Department of Transportation Act, Section 4(f) Resources
- Federally listed Endangered and Threatened Species
- Energy Supplies, Natural Resources, and Sustainable Design
- Socioeconomics, Environmental Justice, and Children’s Environmental Health and Safety Risks
- Farmlands
- Floodplains
- Hazardous Materials
- Historical, Architectural, and Cultural Resources, including Native American and Tribal Resources
- Light Emissions and Visual Effects
- Noise
- Solid Waste
- Water Quality
- Wetlands
- Greenhouse Gases/Climate
- Cumulative Impacts *

For the purpose of this EA, two elements are not applicable: Coastal Resources and Wild and Scenic Rivers.

- Coastal Resources laws pertain to marine coastal areas on the Atlantic, Pacific and Gulf coasts of the United States. The project site is outside of any areas regulated under shoreline or coastline laws.

* Vegetation Removal and Cumulative Impacts are the result of selecting a clearing alternative, and the impacts to these categories will be discussed in Chapter 5, *Environmental Consequences and Mitigation*.

- The Wild and Scenic Rivers Act (16 U.S.C. 1271-1287) was developed to protect certain free flowing rivers with outstanding scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values.
- Based on a review of the National Park Service website (www.rivers.gov/washington.php), there are no rivers in the project vicinity designated as Wild and Scenic or on the Candidate Rivers for Wild and Scenic listing.

No further discussion or analysis of these elements will be included in the EA.

4.1 Airport Location and Study Area

Orcas Island is located in Washington's Puget Sound in San Juan County. The Airport is located less than 1 mile north of the Village of Eastsound and is part of the Urban Growth Area. The Airport is located on a low-lying narrow section of the Island that has a width of approximately 1 ¼ miles and an elevation of approximately 30 feet mean sea level (MSL).

San Juan County consists of 176 named islands and reefs (up to 743 at low tides), with a population of 15,769 (2010 Census). The largest islands in the County are San Juan, Orcas, Lopez, and Shaw. The area is served by the Washington State Ferry System. Access to the Airport is provided via Mt. Baker Road and Schoen Lane.

The Airport land is governed by San Juan County's Code. According to the Eastsound Subarea Plan, the Airport resides in the County's Eastsound Airport District and is further addressed in San Juan County's Municipal Code, Section 16.55.280. Briefly, the purpose of this District is to accommodate the existing airport and provide for airport-related facilities and services within the Airport Use District, to allow for new compatible airport-related facilities and services, to allow for limited service and light industrial uses compatible with airport uses, and to prohibit residential development. Furthermore, it states that all development in the District must comply with FAR Part 77, relating to heights of land uses proximate to airports and protection of airspaces critical to airport operations, and that all development must comply with FAA Advisory Circular 150/5370-10, *Standards for Specifying Construction on Airports*.

The San Juan County zoning ordinance includes an Airport Overlay District, which is based on FAR Part 77 regulations to further mitigate the adverse impacts of new development on airport operations.

Existing land uses within a mile of the Airport are:

- Marina – to the north
- Service and Light Industrial – located all directions from the Airport
- Village Residential (4-12 units/acre) – to the south
- Eastsound Residential (2 units/acre) – to the west
- Eastsound Residential (4 units/acre) – to the east

4.2 Air Quality

In accordance with the Clean Air Act Amendments of 1990, the Federal government cannot approve an action that is not supportive of the attainment and maintenance of National Ambient Air Quality Standards (NAAQS) conformity. Conformity is intended to ensure that the Federal government does not take, approve or support actions that are in any way inconsistent with a state's plan to attain and maintain the NAAQS for criteria pollutants. Conformity applies to areas designated as "maintenance" or "non-attainment" for any of the criteria

pollutants. Six pollutants are typically monitored and regulated. These include carbon monoxide (CO), particulate matter (PM), ozone (O₃), sulfur dioxide (SO₂), lead (Pb), and nitrogen oxide (NO_x). Particulate matter is further monitored as to the size of particles. PM₁₀ is the most critical, as it represents particles smaller than 10 microns, which are easily inhaled and can remain in the lungs.

Geographic areas are classified as “non-attainment” if standards for one of the monitored pollutants are violated. “Maintenance” areas are those geographic areas that had a history of non-attainment, but are now consistently meeting the NAAQS. Areas classified as “attainment” are typically monitored for these standards, but no violations have occurred. Areas are “non-classified” if air quality is generally not a concern. San Juan County, including Orcas Island, is non-classified.

4.3 Biotic Resources (including Threatened & Endangered Species)

Biotic resources include plant and animal communities in the project study area. Included in this discussion are Threatened and Endangered (T&E) species. Section 7(C) of the Endangered Species Act (ESA) requires that Federal agencies contact the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) prior to any construction activity to determine if any proposed or listed T&E species may be in the project area. If the USFWS or NMFS determines that T&E species under their respective jurisdictions may be affected, a Biological Assessment (BA) must be prepared. If species are not present or a Biological Evaluation shows no effect, no BA is needed.

A detailed *Biological Evaluation Memorandum*, including recent photographs of resources found in the project area, was prepared by WHPacific, Inc. and is included in **Appendix A**.

WHPacific staff completed a pedestrian survey of the project area on June 10, 2014. Plant species and communities, and observed bird species were identified and recorded. The USFWS species list for San Juan County, Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species database, and NMFS Essential Fish Habitat database were reviewed prior to field investigations.

The largest portion of the study area lies north of Mt. Baker Road within the boundaries of the Airport fence. Some wetlands exist within this portion of the study area. Vegetation communities consist of mowed grasses between pavement surfaces, including common meadowgrass (*Poa pratensis*), tall fescue (*Schedonorus arundinaceus*), meadow brome (*Bromus erectus*), and other *Agrostis*, *Poa*, and *Bromus* spp. Avian species typical of mowed-grass airport environments include killdeer, European starlings, American robins, gulls, geese, waterfowl, and occasional raptors. The Airport perimeter is surrounded by an eight-foot high fence to prevent deer and other wildlife from entering the property.

The southern portion of the study area across Mt. Baker Road includes a large open field of tall grasses and an adjacent forested area, both of which contain wetlands. The western portion of this area is an open field which is primarily wetland with native and non-native grasses, sedges, rushes and forbs including velvetgrass (*Holcus lanatus*), soft rush (*Juncus effusus*), tall fescue, slough sedge (*Carex obnupta*), and another unidentified sedge (*Carex* sp). The general topography is hummocky with surface saturation present at low points and standing water up to one inch in very few places. In general, water flows from the tree removal area north across Mt. Baker Road into the airport.

The adjacent forested portion of this area and the site of proposed vegetation removal is dominated by willow (*Salix* spp.) and red alder (*Alnus rubra*) with a typical diameter at breast height (DBH) of 2-4” toward the north, and Douglas fir (*Pseudotsuga menziesii*), willow, and red alder with typical DBH of 6-8” toward the south. The

understory throughout the forested area is comprised of English hawthorn (*Crataegus monogyna*), pea-fruited rose (*Rosa pisocarpa*), and some Himalayan blackberry (*Rubus armeniacus*) and sweetbriar rose (*Rosa rubiginosa*). Along the eastern portion of the forested area are densely planted stands of Douglas fir with little understory or light penetration. No obvious avian nesting behaviors were observed in the study area, though dense forest and understory in the obstruction removal portion of the study area made it difficult to see in some places. Avian species observed using the proposed vegetation removal area included Swainson's thrush, cedar waxwing, American robin, and other passerines. All observed avian species are not listed as Federal or state T&E, but most are protected by the Migratory Bird Treaty Act (MBTA).

The USFWS and WDFW T&E species databases were reviewed prior to field investigations. None of the listed species were observed during field survey and suitable habitat for these species does not exist within the project area. Additionally, National Oceanic and Atmospheric Administration Fisheries, WDFW Priority Habitat and Species List, and San Juan County's 2014 Critical Area Ordinance were reviewed (per **Appendix A**).

Critical and priority habitats associated with the project were also researched using online databases for USFWS, WDFW, and NMFS. WDFW database search results show palustrine habitat covers most of the area of proposed obstruction removal. Nearby, but outside of the study area, palustrine habitat is west and adjacent to the Airport, and saltwater environs are located off of the north end of the runway containing marine intertidal aquatic habitat and pinto abalone (*Haliotis kamtschatkana*). A bald eagle (*Haliaeetus leucocephalus*) breeding area, wetland and palustrine areas are noted within a quarter mile to the west of the north end of the runway. Additionally, a wetland delineation of the study area was conducted (See Section 4.19, and **Appendix C**), which documented one wetland (D) and one ditched channel (3) within the project area.

The NMFS Essential Fish Habitat (EFH) database was reviewed prior to field investigations to determine presence of EFH within the study area. No EFH exists within the study area. A ditched channel (Stream 3) through the on-site portion of Wetland D appears to have been intentionally created several decades ago to control and convey the hydrology within the wetland for agricultural use. The ditched channel conveys natural hydrology, so is classified as a stream. The numerous blocks and lack of spawning habitat are indicators that the ditched channel would not be accessible nor suitable habitat for fish. There was no documented evidence that it supports fish habitat.

4.4 Compatible Land Use

The compatibility of existing and planned land uses near an airport is usually associated with the extent of the noise impacts. Airport development actions to accommodate fleet mix changes or the number of aircraft operations, air traffic changes or new approaches made possible by new navigational aids are examples of activities that can alter aviation-related noise impacts and affect land uses subjected to those impacts.

Existing land uses within a mile of the Airport consist primarily of Service and Light Industrial, and also includes some Residential with densities ranging from two to 12 units/acre. Noise contours have not been prepared for the Airport. According to the FAA's Environmental Desk Reference, Chapter 17, a noise analysis need not be conducted if annual operations are below 90,000 for piston-powered aircraft and 700 for jet-powered aircraft. According to FAA's Form 5010, the Airport's total annual aircraft operations is 41,800. Airport management estimates those operations can be further detailed as such: 37,800 piston-powered, 3,550 turboprop, 100 turbofan/jet, and 350 helicopters.

4.5 Department of Transportation Act, Section 4(f) Resources

The Federal statute that governs impacts in this category is commonly known as the U.S. Department of Transportation (DOT) Act, Section 4(f) provisions. Section 4(f) of the DOT Act, which is codified and renumbered as Section 303(c) of 49 U.S.C., provides that the Secretary of Transportation will not approve any program or project that requires the use of any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance or land from an historic site of national, state, or local significance as determined by the officials having jurisdiction thereof – unless there is no feasible and prudent alternative to the use of such land and such program, and the project includes all possible planning to minimize harm resulting from the use.

A review of maps of San Juan show a number of potential resources in the airport vicinity. Doughty Point Park (San Juan County) is approximately 1.5 miles west of the Airport. Turtleback Mountain Preserve (San Juan County Land Bank) is about 3.5 miles southwest of the Airport, and Moran State Park (Washington State Parks) is about 3.5 miles southeast.

Within land owned by the Port, south of the Airport, between Mt. Baker Road and Enchanted Forest Road is a recreational trail, granted through an easement to the County. This trail is considered a 4(f) resource and is protected for the purposes of a recreational trail. The 10-foot wide easement is for non-motorized ingress/egress and provides written allowances to maintain and improve the area including the removal of trees and vegetation. Portions of the trail are in the project area.

4.6 Federally Listed Endangered and Threatened Species

See Section 4.3.

4.7 Energy Supplies, Natural Resources, and Sustainable Design

Executive Order (E.O.) 13123, *Greening the Government through Efficient Energy Management*, encourages each Federal agency to expand the use of renewable energy within its facilities and in its activities. The order also requires each Federal agency to reduce petroleum use, total energy use and associated air emissions and water consumption in its facilities. According to the FAA Environmental Desk Reference for Airport Actions (2007), the FAA supports projects that promote environmental sustainability.²

Currently, electrical energy is used to power navigation aids, airport lighting, and airport buildings. Petroleum fuels are used to power aircraft, maintenance vehicles, and other equipment, such as generators.

Other natural resources affected by the Airport are described in the sections discussing water quality, wetlands, biotic communities, and T&E species.

4.8 Socioeconomics

FAA must evaluate proposed airport development actions to determine if they would cause socioeconomic impacts. Socioeconomic impacts include moving homes and businesses; dividing or disrupting established

² FAA *Environmental Desk Reference for Airport Actions*. Office of Airports, Office of Airport Planning and Programming, Airports Planning and Environmental Division, APP-400, (2007).

communities; changing surface transportation patterns; disrupting orderly, planned development; or creating a notable change in employment.

The principal impacts to consider are associated with relocating or disrupting a residential or business community, transportation capability, planned development or employment. Environmental documents should provide information on the individuals and families (e.g., numbers and characteristics) an action would displace and the effects of that displacement on the neighborhood; information on the capability of the neighborhood to provide adequate relocation housing for the families the action would displace; the businesses an action would displace and the effects of moving the businesses to other areas; and information on the areas' ability to provide replacement or new buildings or other features associated with the affected businesses.

Significant impacts may occur when there is:

- Extensive relocation, and sufficient replacement housing is unavailable.
- Extensive relocation of community businesses that would cause severe economic hardship for affected communities.
- Disruption of local traffic patterns that substantially reduce the Levels of Service of roads serving the airport and its surrounding communities.
- A substantial loss in community tax base.

The area surrounding the Airport is Service and Light Industrial mixed with some residential properties. The community is less populated in the winter months, in comparison to the summer months, as many of the properties are second homes to those who live on mainland Washington.

A portion of land owned by the Port, south of the Airport, between Mt. Baker Road and Enchanted Forest Road contains a recreation trail that was granted through an easement to the County. The proposed action includes removal of obstructions (vegetation) in this area to clear the FAR Part 77 approach surface. The trail itself would not be altered, aside from the removal of shade provided by the existing vegetation.

4.9 Environmental Justice

In recent years, concern about environmental impacts on particular populations has been growing; this type of impact is referred to as environmental justice. Low income and minority communities, for example, may bear a disproportionately high risk to human health and the environment from pollution and other effects of specific types of development or facilities. E.O. 12898 (*Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*) provide the basis for this analysis.

The Airport has been in the community for over 55 years. Over time, the land uses around the Airport have remained low density residential, with Service and Light Industrial being the most prominent. Within the project area, or immediate vicinity, there are no concentrations of minority or low-income populations.

4.10 Children's Environmental Health and Safety Risks

FAA must evaluate project-related impacts with the potential to have a disproportionate effect on children's environmental health or safety. E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, provides a basis for this analysis and defines the risks to children's safety that are attributable to products or substances that the child is likely to touch or ingest. Examples include the air, food, water for drinking and

recreation, and soil for food production. An action causing disproportionate health and safety risks to children may indicate a significant impact.

Children are also more sensitive to certain types of impacts that may alter physical development or impact schools or other concentrations of children. Within the project area and immediate vicinity, there are no places where children congregate (e.g., schools, recreation centers, or daycare centers).

4.11 Farmlands

Certain types of soils are considered prime farmland because of their drainage, mineral, and other characteristics. These soils, when in urbanized or developed areas, are not considered prime due to the compaction and other activities that degrade the potential for farm use.

Across Mt. Baker Road, the majority of the area proposed for vegetation removal is Sholander-Speiden complex (0 to 15 percent slopes). The western edge of this area is in Deadmanbay-Morancreek complex (2 to 15 percent slopes).

According to the Soil Survey of San Juan County, Sholander-Speiden complex is considered prime farmland if it is irrigated. There is no irrigation on the Airport and in the vegetation removal area. The Deadmanbay-Morancreek complex is considered prime farmland soil. See Figure 4 in **Appendix C** (Wetland Compensatory Mitigation Plan) for U.S. Department of Agriculture-Soil Conservation Service soils maps.

There is no history of cultivation in this area, although it may have been used for grazing prior to the Airport's development.

4.12 Floodplains

Floodplains. E.O. 11988 directs Federal agencies to "take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains...." A review of on-line Flood Insurance Rate Maps, prepared by the Federal Emergency Management Administration shows the area is not within the mapped floodplain.

4.13 Hazardous Materials

Four primary laws have been passed governing the handling and disposal of hazardous materials, chemicals, substances, and wastes. The two most important statutes to the FAA for the NEPA analysis are the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) as amended. RCRA governs the generation, treatment, storage, and disposal of hazardous wastes. CERCLA provides for consultation with natural resources trustees and cleanup of any release of hazardous substances, excluding petroleum, into the environment.

The Airport currently generates solid waste associated with aircraft use and the operation of a fixed base operator. Based on information presented in the San Juan County's Solid and Hazardous Waste Management Plan and a records search of Washington State Department of Ecology's Cleanup Site Search (<https://fortress.wa.gov/ecy/gsp/sitesearchpage.aspx>), there is no history of spills or dumping on the site. There is no reason to believe the ground is contaminated by hazardous material. If odor or visual clues are identified during vegetation removal, work would be halted, and an assessment of the contamination and remediation requirements would be prepared.

4.14 Historical, Architectural & Cultural Resources including Native American & Tribal Resources

A cultural resource inventory (**Appendix D**) that included a records review, pedestrian survey, and subsurface probing for the proposed improvements was completed. No cultural resources were identified during the survey of the proposed area of potential effect (APE). Analysis of LiDAR imagery and shovel probe data revealed that the proposed APE showed signs of filling at the southern end and potential cutting associated with field clearing or leveling, thus limiting the potential for encountering archaeological deposits in this area. The wetland conservation easement of the proposed APE appears to have been subject to limited development - primarily vegetation removal. A series of drainage ditches are located in the northern half of the conservation easement portion of the proposed APE, but they appear to be modern in origin and either currently support, or had previously supported, drainage of the airport runway. As such, the potential for encountering archaeological deposits in this area is also limited.

4.15 Light Emissions and Visual Effects

Vegetation removal may create impacts due to light emissions or visual impacts. These include increased visibility of airport lighting from off-site viewpoints and the potential to impact people or properties. The EA must consider the extent to which any lighting associated with the proposed action will create an annoyance among people in the airport vicinity or interfere with their normal activities.

Visual or aesthetic impacts are more subjective. Analysis of these impacts may include the extent that the proposed action contrasts with the existing environment and whether another agency considers the contrast objectionable.

The FAA regulates lighting that is used on an airport for navigation and directional information. There are also recommendations for minimization of light and glare that could affect a pilot's ability to see or understand airport lighting.

The Airport currently has a medium-intensity runway and taxiway lighting system. The Airport is also equipped with a rotating beacon, a lighted windsock, a two-light precision approach path indicator on the left side of Runway 34, and a four-light visual approach slope indicator on the left side of Runway 16. The lighting may be visible at night from adjacent home sites. Beyond the properties adjacent to the Airport, on-airport lighting is mostly contained on-site and does not spillover into the surrounding community. The beacon may be visible in excess of a mile from the Airport.

The area south of the Airport is mostly open land with patches of trees. The eastern edge of the area has dense vegetation. The trail through the area provides views of trees and shrubs.

4.16 Noise

For aviation noise analyses, the FAA has determined that the cumulative noise energy exposure of individuals to noise resulting from aviation activities must be established in terms of yearly day/night average sound level (DNL) as FAA's primary metric. However, FAA Order 1050.1F, Appendix B, states

“No noise analysis is needed for projects involving Design Group I and II airplanes (wingspan less than 79 feet) in Approach Categories A through D (landing speed less than 166 knots) operating at airports whose forecast operations in the period covered by the NEPA document do not exceed 90,000 annual propeller operations (247 average daily operations) or 700

annual jet operations (2 average daily operations). Also, no noise analysis is needed for projects involving existing heliports or airports whose forecast helicopter operations in the period covered by the NEPA document do not exceed 10 annual daily average operations with hover times not exceeding 2 minutes.”

As discussed in Section 4.4, the Airport annual operations consist of 41,800 aircraft. Therefore, the Airport is exempt from developing noise contours.

4.17 Solid Waste

There is no threshold of significance for solid waste. The impacts of a project would be considered significant if the solid waste generated by the project would exceed available landfill or incineration capacities or require extraordinary effort to meet applicable solid waste permit conditions or regulations, or if local, state, or Federal agencies determine that substantial unresolved solid waste issues are associated with the project.

Currently, the Airport generates solid waste from the existing Fixed Based Operators and from aircraft using the Airport. The quantity generated is minimal and is picked up as part of a regular garbage collection cycle.

Solid waste accumulation during vegetation removal is expected to be minimal.

4.18 Water Quality

Water quality is generally governed under the provisions of the federal Water Pollution Control Act, as amended by the Clean Water Act and other amendments. To comply with Federal law, Washington State Department of Ecology (DOE) maintains a listing of water bodies and impediments to meeting water quality standards for each body. These standards are typically thresholds for the presence of a particular element (such as dissolved oxygen or bacteria) or general conditions such as temperature or artificial stream banks.

For airports, the primary water quality effect is caused by any additional runoff generated from the creation of impervious surfaces. There is also some potential for impacts to water temperature, oil or fuel spillage, and de-icing chemicals to affect water quality. The Airport rarely, if ever, uses de-icing chemicals. Oil and fuel are used in airport maintenance and operations, as well as aircraft operations. The Port maintains a spill containment pad at its fueling station. The Port also maintains a set of procedures to be followed in the event of a spill, to prevent contaminants from entering the local waters. Incidental fuel or oil collected on hard surfaces is removed from runoff as it is conveyed through drainage swales.

The Airport collects, treats and maintains most of its stormwater on-site; therefore, the Port is not required to operate under the requirements of a National Pollutant Discharge Elimination System (NPDES) 1200-Z permit Schedule A, Storm Water Pollution Control Plan. For vegetation removal, the Port would need a 1200-C permit.

4.19 Wetlands

A delineation of wetlands and other waters in the project area was prepared after site visit June 3, 2014 (see **Appendix C**). WRI identified one wetland (Wetland D) and one ditched channel (Stream 3) within the project area.

Wetland D

Wetland D was historically part of a larger wetland complex that extends off-site to the south. It is classified as a depression, forested wetland. Prior to development in the East Sound area, the wetland may have extended to Fishing Bay, located within 1/2 mile south of the site. The wetland contains a ditched channel (Stream 3), which was constructed for agricultural use many decades ago to control and convey the hydrology within the

wetland. Wetland D has moderate potential for hydrologic control and water quality improvement functions, as evidenced by its scores for these functions on the DOE wetland rating form. Wetland D receives a low score for habitat functions because it contains forested habitat with special habitat features and multiple water regimes.

The full wetland delineation report is included in **Appendix C**.

4.20 Greenhouse Gases/Climate

Greenhouse Gases (GHGs) are not directly discussed within FAA Order 1050.1F; however, the following section is included because research has shown there is a direct correlation between fuel combustion and GHG emissions. In terms of U.S. contributions, the General Accounting Office (GAO) reports that "domestic aviation contributes about three percent of total carbon dioxide emissions, according to EPA data," compared with other industrial sources including the remainder of the transportation sector (20 percent) and power generation (41 percent)³. The International Civil Aviation Organization (ICAO) estimates that GHG emissions from aircraft account for roughly three percent of all anthropogenic GHG emissions globally.⁴ Climate change due to GHG emissions is a global phenomenon, so the affected environment is the global climate.⁵

The scientific community is continuing efforts to better understand the impact of aviation emissions on the global atmosphere. The FAA is leading and participating in a number of initiatives intended to clarify the role that commercial aviation plays in GHG emissions and climate. The FAA, with support from the U.S. Global Change Research Program and its participating federal agencies (e.g., National Aeronautics and Space Administration, NOAA, U.S. Environmental Protection Agency, and DOE), has developed the Aviation Climate Change Research Initiative in an effort to advance scientific understanding of regional and global climate impacts of aircraft emissions. FAA also funds the Partnership for Air Transportation Noise & Emissions Reduction Center of Excellence research initiative to quantify the effects of aircraft exhaust and contrails on global and U.S. climate and atmospheric composition. Similar research topics are being examined at the international level by the ICAO.⁶

As discussed in Section 4.15, operations at the Airport are modest. The amount of GHGs created at the Airport are not known, but are likely minimal.

³ *Aviation and Climate Change*. GAO Report to Congressional Committees, (2009).

⁴ Alan Melrose, *European ATM and Climate Adaptation: A Scoping Study*, in ICAO Environmental Report. (2010).

⁵ Climate Change Division, Office of Atmospheric Programs, USEPA, *Technical Support Document for Endangerment and Case or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act 2-3 (2009)*.

⁶ Lourdes Q. Maurice and David S. Lee. *Chapter 5: Aviation Impacts on Climate*. Final report of the ICAO Committee on Aviation and Environmental Protection Workshop.

Chapter 5 Environmental Consequences & Mitigation

Environmental Assessment for Obstruction Removal – Orcas Island Airport

This Chapter provides a summary of the impacts of the two alternatives under analysis, No Action (Alternative 1) and the Proposed Action (Alternative 4), for each of the environmental elements described in the Affected Environment chapter. In some cases, the impacts may be short-term, generally associated with vegetation removal activity, or they may be long-term, associated with the upkeep of the vegetation in the approach surface at the Airport. In some cases, there may be no impact. Where applicable, the reader may be referred to an appendix containing a topic-specific report that provides greater detail.

5.1 Air Quality

5.1.1 Significance Criteria

The U.S. Environmental Protection Agency (USEPA) has adopted air quality standards that specify the maximum permissible short-term and long-term concentrations of air contaminants. The National Ambient Air Quality Standards (NAAQS) consist of a primary and secondary standard for each pollutant. Air quality standards are the levels established to protect the public health and welfare from harm within a margin of safety. All areas of the country are required to demonstrate attainment with the NAAQS.

The DOE has established state ambient air quality standards that are at least as stringent as the national standards.

The air quality standards focus on limiting the quantity of six criteria pollutants:

- Ozone (O₃)
- Carbon Monoxide (CO)
- Nitrogen Dioxide (NO₂)
- Particulate Matter (PM₁₀ and PM_{2.5})
- Sulfur Dioxide (SO₂)
- Lead (Pb)

Volatile Organic Compounds (VOCs) are not a criterion pollutant and therefore no ambient air standards have been established for this pollutant. Since VOCs react with nitrogen oxides (NO_x) in sunlight to form ozone, VOCs, and NO_x emissions are included in this analysis.

FAA Order 1050.1F, *Significance Threshold*, identifies significant impacts if the action would “cause pollutant concentrations to exceed one or more of the NAAQS, as established by USEPA under the Clean Air Act, for any of the time periods analyzed, or increases the frequency or severity of any such existing violations.”

Actions that would not increase airport capacity, lead to increased congestion of roadways or airfields, or relocate aircraft or vehicular activity closer to sensitive receptors are not likely to exceed the NAAQS for CO.

5.1.2 Analysis

An Air Quality Analysis was not prepared for this project, as it will not result in an increase in operations, and

the Airport is outside of any areas designated non-attainment or maintenance.

No Action Alternative

With the No Action Alternative, the proposed project would not be undertaken. Therefore, no project-related vegetation removal would occur, and there would be no additional emissions. Surface transportation emissions would continue to increase as background traffic increases.

Preferred Alternative

The use of heavy equipment, trucks, chippers and chain saws would be necessary to complete vegetation removal. These impacts are discussed under Vegetation Removal, Section 5.4.

As noted in the Purpose and Need and Alternatives Chapters of this EA, the Proposed Action would not alter the number of aircraft operations serving the Airport. Surface transportation emissions not related to vegetation removal would remain the same as in the No Action Alternative. The Preferred Alternative would not create changes to air quality beyond what would occur with growth in Airport operations.

5.1.3 Mitigation

No mitigation is required, as the proposed project would not result in an exceedance of the general conformity de minimis threshold (100 tons of project-related emissions); thus, no significant adverse impact is expected to occur with the proposed project.

5.2 Biotic Resources (including Threatened & Endangered Species)

5.2.1 Significance Criteria

According to FAA Order 1050.1F, *Significance Threshold*, a project should consider impacts on the biotic communities and consult with agencies and organizations having jurisdiction over or special expertise. According to FAA Order 1050.1F, for non-listed species, there is not an established significance threshold. A project would have impacts on biotic communities when the Proposed Action has the potential for:

- “A long-term or permanent loss or unlisted plant or wildlife species”
- “Substantial loss, reduction, degradation, disturbance, or fragmentation of native species’ habitats or their populations”
- “Adverse impacts on a species reproductive success rates, natural mortality rates, non-natural mortality (e.g. road kills and hunting), or ability to sustain the minimum population level required for population maintenance.”

FAA Order 1050.1F, *Significance Threshold*, states a project would have significant impacts on special status species when the USFWS or NMFS “determines that the action would be likely to jeopardize the continued existence of Federally-listed threatened or endangered species, or would result in the destruction or adverse modification of Federally-designated critical habitat in the affected area.”

FAA Order 1050.1F further specifies that a project would have significant impacts on special status species when in addition to the criteria for non-listed species; the Proposed Action or alternatives would also create:

- “Adverse impacts to special status species (e.g. state species of concern, species proposed for listing, migratory birds, bald and golden eagles) or their habitat.”

5.2.2 Analysis

Information in the *Biological Resources Evaluation Memo* (see **Appendix A**) describes four vegetation communities within the project vicinity. The report confirms that there are no listed terrestrial plant or animal species present, nor are there listed fish species in the project area. The habitat types are not unique within Orcas Island.

No Action Alternative

There would be no change to the habitat types found on and around the Airport, other than continued maintenance of grass in the mowed area, the habitat found within the maintained Airport area. There would be No Effect on Federal- or state-listed species.

Preferred Alternative

As designed, the proposed project is expected to have no effect on Federal- or state-listed species. Listed species or species of concern were not observed during field investigations, and are unlikely to be within the project area based on available habitat. Critical habitat does not occur within or near the project area. Avian species observed during the site investigation are not Federal- or state-listed as threatened or endangered, but are protected under the MBTA. Vegetation removal would occur after the nesting season.

No EFH occurs within the project area.

5.2.3 Mitigation

No impacts to Biotic Resources are expected as a result of the Proposed Action. Areas outside of the conservation easement would be seeded with grass.

5.3 Compatible Land Use

5.3.1 Significance Criteria

FAA Order 1050.1F, *Significance Thresholds*, states “the FAA has not established a significance threshold for Land Use. There are no specific independent factors to consider for Land Use. The determination that significant impacts exist in the Land Use impact category is normally dependent on the significance of other impacts.”

5.3.2 Analysis

Noise impacts for the project fall into two general areas: aircraft noise and traffic noise. Noise modeling was not required for the Airport as the project would not change the runway length or alter the location of aircraft relative to sensitive receptors, nor does the current level of aircraft operations justify the need for noise modeling.

San Juan County has an Airport Overlay District that is intended to identify and protect the Airport by providing protective standards that are combined with the underlying zoning district to minimize the conflicts between airports and proposed future development. These protections prevent future incompatible uses and the establishment of airspace obstructions in airport clear zones, approaches and surrounding areas through height restrictions, and restrict noise-sensitive uses and regulate further establishment of uses sensitive to airport operations by precluding some uses and notification of airport impacts of other uses.

No Action Alternative

The No Action Alternative would maintain noise at its current level. Vehicle noise would likely increase over time because of new development and tourism. Aircraft operations and noise may increase over time.

Preferred Alternative

The Preferred Alternative vegetation removal activity would produce short-term noise effects (see Section 5.4). As described in the Purpose and Need, the Proposed Action would not cause an increase in Airport operations. Noise may increase over time, if aircraft and vehicular traffic volumes increase in the project vicinity from new development and tourism.

5.3.3 Mitigation

No mitigation measures are proposed, as the vehicular noise increases are not significant according to Title 23 CFR Part 772, *Procedures for Abatement of Highway Traffic Noise and Construction Noise*, which cites significance when noise sensitive areas to experience an increase in noise of 10 A-weight decibels (dBA) or approaches 67 dBA. Additionally, because there is no change in the number of aircraft operations, the change in aircraft noise is not significant according to FAA criteria (an increase of 1.5 dBA or more above the 65 dBA noise exposure line).

5.4 Vegetation Removal

5.4.1 Significance Criteria

There is no threshold of significance for vegetation removal. Vegetation removal would be conducted in accordance with the guidance provided in FAA Advisory Circular 150/5370-10A, *Standards for Specifying Construction of Airports*, Item P156, Temporary Air and Water Pollution, Soil Erosion, and Siltation Control (FAA, 1991).

5.4.2 Analysis

The No Action Alternative includes minor maintenance activities. The Preferred Alternative would be implemented over one season. The vegetation removal work would occur outside of the bird nesting season and during the dry season.

There are no vegetation removal-related impacts to the following resources, as the resource is not present in the project area or the resource is not subject to temporary impacts: Compatible Land Use, Cumulative Impacts, Environmental Justice and Farmlands.

The impacts of the project would predominantly be temporary, resulting from activities that are necessary to meet the project's purpose and need.

No Action Alternative

The No Action Alternative would have minimal impacts associated with ongoing maintenance.

Preferred Alternative

It is anticipated that vegetation removal would involve heavy-duty diesel equipment potentially traveling to Orcas Island via ferry. Vegetation removal personnel may consist of local workers and commuters.

Air Quality Impacts

Vegetation removal related air quality impacts would include the potential for airborne particulates as a result of exhaust from equipment. Equipment-related emissions would be primarily from the use of power tools (e.g. chain saws), trucks, chippers and loaders.

Biotic Resources

Timing of vegetation removal would avoid disturbance of nesting birds and to take advantage of dry conditions.

No EFH occurs within the project area. Erosion control would comply with the County and the Washington State Department of Ecology requirements, and follow Best Management Practices (BMPs) as described under Water Quality.

Department of Transportation Act, Section 4(f) Resources

Short-term vegetation removal activities runway would not affect Section 4(f) resources. Tree removal in the conservation easement area may require temporary closure of the trail to protect user's safety. Trail users would be given advance notice of the closures.

Federally-Listed Endangered and Threatened Species

No Federal-listed T&E species were found in the project area. Timing of vegetation removal would avoid impacts to any protected species under MBTA.

Energy Supplies, Natural Resources, and Sustainable Design

Vegetation removal impacts on energy supplies, natural resources and sustainable design would be minimal. The vegetation removal equipment may include gasoline powered saws, as well as diesel powered equipment, including chippers, loaders and trucks to remove wood-waste. Because of the island's remote location, the contractor may choose to provide on-site fueling for equipment. There would be no impact to fuel supplies on the island.

Vegetation removal activity would not have a short-term impact on natural resources such as sand, gravel or rock resources, and would have no impact on sustainable design features.

Floodplains

The vegetation removal project area is located outside of the flood zone.

Hazardous Materials

Any time fuel powered equipment is used, there is a risk of an accidental spill or leak. The contractor would be required to have a spill prevention and pollution control (SPPC) plan in place, and maintain a supply of absorbent materials on-site in the event a release occurs.

Historical, Architectural, and Cultural Resources, including Native American and Tribal Resources

The vegetation removal area also has a history of farming use. The Cultural Resources Report (**Appendix D**), and subsequent consultation with the potentially affected Tribes, suggest that resources are not likely to be present in the project work area. There is a remote possibility that during the earthwork phases, resources may be uncovered.

If any archaeological or historic materials are encountered, work would stop and the State and Tribal historic offices would be contacted. If materials that are considered sensitive are found, the Port and the contractor would:

- Implement reasonable measures to protect the discovery site, including any appropriate stabilization or covering
- Take reasonable steps to ensure the confidentiality
- Take reasonable steps to restrict access

Socioeconomic Effects

Vegetation removal workers may come from off-island, increasing the demand for temporary housing or creating additional traffic on the Washington State Ferry system and on local roads. There may be increased use of Island shops, including restaurants and grocery stores. While vegetation removal may take place during “high season” for tourism, typical schedules would allow workers to arrive and depart outside of heavy recreational travel times.

Recreational users of the trail, including bicyclists and walkers, would need to find alternate recreation sites during the temporary trail closure. Users would be notified in advance of any closures.

Light Emissions and Visual Effects

During and after the vegetation removal process, the view of the area would change. Equipment would be visible south of the Airport.

Noise

The use of chainsaws, chippers, trucks and loaders would add to the background noise in the project area. There are no residences immediately adjacent to the vegetation removal areas.

Solid Waste

Removal of the vegetation would generate solid waste. The vegetation removed from the area within the visual approach surface may have marketable use including firewood or production of wood chips for landscaping. Other waste may include food, packaging and containers from oil, lubricants and other materials. The contractor would be required to provide a collection area for waste and arrange for its removal.

Water Quality

The areas outside of the conservation easement would be seeded with grass after vegetation removal. There would be the potential to create erosion before the grass begins to grow. Because the project disturbs more than one acre of land, vegetation removal would require a NPDES 1200C Construction Stormwater Permit. The NPDES 1200C Permit focuses on preventing pollution from erosion and runoff by requiring protections such as erosion-control fencing and the use of BMPs. In addition, permittees are required to inspect and maintain their controls to ensure they are working properly to prevent erosion and sediment runoff from leaving the site. Other BMPs may also be required, per FAA Order 1050.1F and FAA Advisory Circular 150/5370-10A.

Additionally, water quality impacts may occur from fuel or lubricant spills, as discussed in Hazardous Materials section. Secondary containment would be required when refueling equipment and spill kits would be on hand in case of an accidental release.

Wetlands

Wetland D may also incur soil disturbance related to vegetation removal equipment. Stream 3, also in the vegetation removal area, would be protected by erosion control devices and by performing work during the dry season. Tree stumps would be left in-ground in the conservation easement area to reduce disturbance to wetland soils.

5.4.3 Mitigation

Specific effects during vegetation removal that may create temporary adverse environmental impacts include noise from equipment use; noise and dust from the transport of equipment and personnel to the site; and water quality impacts from erosion and spills. No mitigation is required, but minimization and avoidance techniques would be employed.

BMPs for vegetation removal include a variety of measures to minimize impacts. These include:

- Limits on hours of construction
- Requirements for engine mufflers on equipment to reduce noise
- SPPC Plan and on-site materials for spill containment and clean up
- Washing equipment before it leaves site
- Recycling of waste materials where appropriate
- Use of removed vegetation for firewood, wood chips and compost in lieu of disposing in a landfill
- Neighborhood and trail user notification of vegetation removal activity
- Vegetation removal during the non-nesting period
- Upon completion of vegetation removal, areas seeded with grass or grass-type vegetation to provide soil stabilization
- Federal and state recommended BMPs used for erosion control and water quality protection

5.5 Department of Transportation Act Section 4(f) Resources

5.5.1 Significance Criteria

FAA Order 1050.1F, *Significance Threshold*, indicates a significant impact would occur when the Sponsor's Preferred Alternative "involves more than a minimal physical use of a 4(f) property or constitutes a "constructive use" based on an FAA determination that an aviation project substantially impairing the 4(f) resource." "Resources that are protected by Section 4(f) are publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance; and publicly or privately owned land from an historic site of national, state, or local significance. Substantial impairment occurs when the activities, features, or attributes of the resource that contribute to its significance or enjoyment are substantially diminished."

5.5.2 Analysis

A review of maps of the local area shows one potential resource, a conservation easement area south of the Airport, on Port-owned land that includes a recreation trail granted under a separate easement. The purpose of the Lavender Hollow Wetland Conservation Easement is to preserve and maintain the natural elements and ecological and aesthetic value of the land by continuation of land use patterns. Wetlands within the conservation easement would not be disturbed by tree removal. San Juan County provided approval to remove trees within the conservation easement (see **Appendix B**). The FAA has determined that the Lavender Hollow Wetland Conservation Easement property is not a 4(f) resource; however, the trail is a 4(f) resource.

No Action Alternative

The No Action Alternative would not alter use of, or the experience of using, the path.

Preferred Alternative

Vegetation removal along the trail may require temporary closure of the trail for user safety; however, no permanent alteration or closure of the trail is planned. Maintenance of the trail in its present configuration, while removing the vegetation is not considered a direct use of the 4(f) resource, is allowed outright in the easement terms.

There is no feasible or prudent alternative to removal of the vegetation in order to protect the 20:1 visual approach surface. The Airport considered topping trees or cutting only trees that currently penetrate the approach surface; however, that would require frequent disruptions of the area, as trees would continue to grow.

Removal of the vegetation near the trail is also not a constructive use of the 4(f) property because the trail would remain in its existing location and would be surrounded with grass and grass-type vegetation. The actions proposed in order to maintain the 20:1 visual approach surface does not constitute a constructive use of a 4(f) property.

5.5.3 Mitigation

No mitigation is proposed beyond replanting the areas around the trail with grass after vegetation removal is complete. Notices would be posted for trail users well in advance, noting the dates and times of any planned closures to ensure public safety while work is being performed.

5.6 Federally-Listed Endangered and Threatened Species

See Section 5.2.

5.7 Energy Supplies, Natural Resources, and Sustainable Design

5.7.1 Significance Criteria

FAA Order 1050.1F does not establish a significance threshold for Natural Resources and Energy Supply. The EA must consider if the Proposed Action has the "...potential to cause demand to exceed available or future supplies of these resources." For purposes of the EA, the Proposed Action will be examined to identify any proposed major changes in stationary facilities or the movement of aircraft and ground vehicles that would have a measurable effect on local supplies of energy or natural resources. If there are major changes, power companies or other suppliers of energy will be contacted to determine if projected demands can be met by existing or planned source facilities. The use of natural resources other than for fuel need be examined only if the action involves a need for unusual materials or those in short supply.

5.7.2 Analysis

The Airport's electricity is provided by Orcas Power and Light Cooperative. The Proposed Action would not affect demand for electricity at the Airport.

No Action Alternative

The No Action Alternative would not alter the current use of energy and natural resources at the Airport.

Preferred Alternative

Removal of vegetation would not increase demand for electricity or any construction materials or resources.

5.7.3 Mitigation

No mitigation measures are proposed since the Proposed Action does not involve a need for unusual materials or those in short supply.

5.8 Socioeconomics

5.8.1 Significance Criteria

FAA Order 1050.1F does not establish a significance threshold for socioeconomic impacts. The EA must consider whether the project would:

- “Induce substantial economic growth in an area, either directly or indirectly (e.g., through establishing projects in an undeveloped area);
- Disrupt or divide the physical arrangement of an established community;
- Cause extensive relocation when sufficient replacement housing is unavailable;
- Cause extensive relocation of community businesses that would cause severe economic hardship for affected communities;
- Disrupt local traffic patterns and substantially reduce the levels of service of roads serving an airport and its surrounding communities; or
- Produce a substantial change in the community tax base.”

Normally, socioeconomic impacts on public services would not be considered significant except where there are significant impacts in other categories such as land use. For purposes of analysis, an action is considered to have a significant impact on public services if construction of major new facilities, such as a permanent new school building or a community center, is required to accommodate the projected demand from the action.

5.8.2 Analysis

The Airport serves a variety of important economic and social functions for the Eastsound community, as well as the San Juan Islands. As an FAA-obligated Airport, the Port has a responsibility to maintain the Airport’s consistency with FAA Part 77, 20:1 visual approach surface regulations.

No Action Alternative

There would be no change to the current conditions. The Port has identified obstructions in the FAR Part 77, 20:1 visual approach surface. If the Airport is not improved, these conditions would remain, and the Airport would not be in compliance or meet Part 77 regulations. Decreased runway length, along with increased approach minimums, would likely occur without obstruction removal.

Preferred Alternative

The Preferred Alternative would remove vegetation in the 20:1 visual approach to meet the FAR Part 77 regulations. Clearing obstructions by removing vegetation in the approach surface would improve aircraft operations and safety.

The proposed project does not create any off-Airport impacts. The Preferred Alternative does not relocate any residents or businesses, and there would be no road closures or detours. There would be no short- or long-term alteration of travel patterns. There would be no losses in the community tax base. Use of the

trail would be restricted during vegetation removal activities to protect user safety. Notices would be posted well in advance to advise users of temporary closure dates.

5.8.3 Mitigation

The project would not create any negative socioeconomic impacts; therefore, no mitigation is proposed.

5.9 Environmental Justice

5.9.1 Significance Criteria

Determining significance under NEPA is guided by FAA Order 1050.1F. The order does not establish a significance threshold for Environmental Justice. The EA must consider whether the proposed “action would have the potential to lead to a disproportionately high and adverse impact to an environmental justice population, i.e., a low-income or minority population, due to:

- Significant impacts in other environmental impact categories; or
- Impacts on the physical or natural environment that affect an environmental justice population in a way that the FAA determines are unique to the environmental justice population and significant to that population.”

To determine whether an environmental justice population is present, Federal agencies must refer to U.S. Census data to establish the demographic and socioeconomic baseline. If a Proposed Action causes disproportionately high and adverse human health or environmental effects on a minority- and low-income population, it would represent a significant impact associated with environmental justice.

5.9.2 Analysis

Within the project area and immediate vicinity, there are no concentrations of minority or low-income populations. A review of land use shows there are no specific concentrations of elderly (nursing home, retirement housing) in the Airport vicinity.

No Action Alternative

The No Action Alternative would not alter the Airport from its current configuration. There would be no change to the manner in which the Airport affects the surrounding community.

Preferred Alternative

No residential or business relocations would occur as part of the Preferred Alternative. Vegetation removal would not affect jobs. The Proposed Action creates minimal off-site impact. As there are no identified populations of ethnic minorities, low income or elderly persons, no disproportionate impacts would occur to one segment of the population.

5.9.3 Mitigation

No mitigation is proposed, as there would be no disproportionate impacts to one segment of the population.

5.10 Children’s Health and Safety Risks

5.10.1 Significance Criteria

FAA Order 1050.1F does not establish a significance threshold for Children’s Environmental Health and Safety Risks. The project must consider whether there is the potential disproportionate risk to the health and safety of children.

Environmental health and safety risks include those attributable to products or substances with which a child is likely to come into contact. Disproportionate health and safety risks to children that would result from a Proposed Action may represent a significant impact. For the purpose of this analysis, a significant impact to air quality, schools or public recreational facilities would be considered a significant risk to children's health and safety.

5.10.2 Analysis

The project would not alter the number of aircraft operations serving the Airport. Surface transportation emissions not related to vegetation removal would remain the same. Vegetation removal related air quality impacts would include the potential for airborne particulates as a result of exhaust from equipment. There are no schools or daycare facilities in the project area or Airport vicinity.

No Action Alternative

The No Action Alternative would not alter Airport operations or change its current configuration. There would be no change to the manner in which the Airport affects the surrounding community, and no impacts to children's health and safety.

Preferred Alternative

Clearing obstructions by removing vegetation in the approach surface would improve aircraft operations and safety. Recreational trail use would be restricted during vegetation removal activities to protect public safety. Vegetation removal related equipment emissions would not impact children's health and safety because there are no schools or daycare facilities in the project area. The proposed project does not create any adverse or disproportionate impacts to children's health and safety.

5.10.3 Mitigation

The project would not create any negative or disproportionate impacts children's health and safety; therefore, no mitigation is proposed.

5.11 Farmlands

5.11.1 Significance Criteria

FAA Order 1050.1F, *Significance Threshold*, states a significant impact occurs if "the total combined score on Form AD-1006, *Farmland Conversion Impact Rating*, ranges between 200 and 260 points." The project must consider if the Proposed Action would convert important farmland to non-agricultural use.

5.11.2 Analysis

In the vegetation removal area, Deadmanbay-Morancreek complex is considered prime farmland soil. Sholander-Speiden complex (unirrigated) is also present. There are no plans to irrigate this area. Vegetation removal would not preclude future use for farming, as long as it was consistent with FAA and local requirements to protect the Airport.

No Action Alternative

The No Action Alternative would not alter any use of soils that are considered prime or unique farmland.

Preferred Alternative

The proposed removal of vegetation would not remove the land from potential farm use. The Port proposes to re-seed the area in grass and maintain it as a mowed field. At some future time, if deemed compatible with Airport use, the area could be farmed.

There is no loss of potentially farmable land as a result of the Preferred Alternative.

5.11.3 Mitigation

No mitigation is proposed, as no prime or unique farmlands would be lost as a result of the Preferred Alternative.

5.12 Floodplains

5.12.1 Significance Criteria

FAA Order 1050.1F, *Significance Threshold*, states a significant impact occurs when the proposed “action would cause notable adverse impacts on natural and beneficial floodplain values. Natural and beneficial floodplain values are defined in Paragraph 4.k of USDOT Order 5650.2, Floodplain Management and Protection.”

Agencies are required to make a finding that there is no practicable alternative before taking action that would encroach on a base floodplain based on a 100-year flood. If the agency finds that the only practicable alternative requires siting in the base floodplain, a floodplain encroachment would occur and further environmental analysis is needed.

The FAA shall, prior to taking the action, design or modify the Proposed Action to minimize potential harm to natural floodplain values or within the base floodplain. The action is to be consistent with regulations issued according to section 2(d) of E.O. 11988. The FAA shall also provide the public with an opportunity to review the encroachment through its public involvement process, and any public hearing presentations shall include identification of encroachment. FAA’s analysis shall also indicate if the encroachment would be a “significant encroachment,” that is, whether it would cause one or more of the following impacts.

- The action would have a high probability of loss of human life.
- The action would likely have substantial, encroachment-associated costs or damage, including interrupting aircraft service or loss of a vital transportation facility (e.g., flooding of a runway or taxiway; important navigational aid out of service due to flooding, etc.)
- The action would cause adverse impacts on natural and beneficial floodplain values.

5.12.2 Analysis

FEMA maps show the northern portion of the runway and parallel taxiway are in Flood Zone A – annual flooding. This area is protected by a tide gate and most flooding is related to tidal extremes. None of the area proposed for vegetation removal is within an identified flood zone.

No Action Alternative

The No Action Alternative would not alter a floodplain area or increase the risk of flooding.

Preferred Alternative

The Preferred Action Alternative would not affect the flood risk for the area south of Mt. Baker Road, as the area is not within the flood zone.

5.12.3 Mitigation

No mitigation is proposed.

5.13 Hazardous Materials

5.13.1 Significance Criteria

FAA Order 1050.1F does not establish a significance threshold for hazardous materials. According to FAA Order 1050.1F, the EA must consider whether the proposed “action would have the potential to:

- Violate applicable Federal, state, tribal, or local laws or regulations regarding hazardous materials...;
- Involve a contaminated site (including but not limited to a site listed on the National Priorities List)...;
- Produce an appreciably different quantity or type of hazardous waste...;
- Adversely affect human health and the environment.”

5.13.2 Analysis

On-Airport, there is a 10,000 gallon underground fuel storage tank. The fuel service area has spill containment aprons. No development or dumping activities have been known to occur in the area south of the runway where vegetation removal is proposed.

No Action Alternative

The No Action Alternative would not increase the generation of potentially hazardous materials in the project area. The No Action Alternative would not increase the risk of finding previously contaminated areas on- or off-Airport property.

Preferred Alternative

Spills may occur when aircraft are damaged as a result of a collision or when an aircraft accidentally leaves the runway or taxiway surface. The removal of vegetation in the 20:1 visual approach area reduces the risk of an aircraft sustaining damage during a landing or take off.

5.13.3 Mitigation

If the contractor identifies any material or odors that could be of a hazardous nature, work would cease until the material can be identified and appropriately disposed of. No additional mitigation is proposed.

5.14 Historical, Architectural & Cultural Resources including Native American & Tribal Resources

5.14.1 Significance Criteria

FAA Order 1050.1F does not provide a significance threshold for historical, architectural, archaeological or cultural resources. According to FAA Order 1050.1F, the EA must consider whether the proposed “action would result in a finding of Adverse Effect through the Section 106 process.”

The National Historic Preservation Act (NHPA) of 1966, as amended, establishes the Advisory Council on Historic Preservation (ACHP) and the National Register of Historic Places (NRHP). Section 106 requires Federal agencies to consider the effects of their undertaking on properties on or eligible for inclusion in the NRHP. Compliance with section 106 requires consultation with the ACHP, the State Historic Preservation Officer (SHPO), and/or the Tribal Historic Preservation Officer (THPO) if there is a potential adverse effect to historic properties on or eligible for listing on the National Register of Historic Places.

The responsible FAA official determines whether the Proposed Action is an “undertaking,” as defined in 36 CFR 800.16(y) (and not an undertaking that is merely subject to State or local regulation administered pursuant to a delegation or approval by a Federal agency), and whether it is a type of activity that has the potential to cause adverse effects on historic properties eligible for or listed on the NRHP. If an undertaking may have an adverse effect, the first step is to identify the area of potential effect (APE) and the historical or cultural resources within it.

If a NRHP-eligible property occurs within the undertaking’s APE and the Proposed Action may affect the property’s historic characteristics, the Responsible FAA Official must apply the criteria of effect listed in 36 CFR 800.5(a). The Official must examine the potential effects in consultation with the SHPO/THPO and any Tribe or Native Hawaiian organization attaching religious or cultural importance to the identified property. 36 CFR 800.5(a)(3) permits phased assessments of effects when alternatives the agency is considering involve corridors, large land areas, or when access to property is restricted. The FAA Official may propose a “finding of no adverse effect” after determining that the undertaking would not:

- physically destroy the property;
- alter the property, but, if alterations would occur, they meet the requirements of the Secretary of the Interior’s “Standards for Treatment of Historic Properties” (36 CFR part 68);
- remove the property from its historic location;
- introduce an atmospheric, audible, or visual feature to the area that would diminish the integrity of the property’s setting, provided the setting contributes to the property’s historical significance; or,
- through transfer, sale, or lease, diminishes the long-term preservation of the property’s historic significance that Federal ownership or control would otherwise ensure.

5.14.2 Analysis

The Cultural Resource Inventory conducted for this project (see **Appendix D**) shows low potential for any significant resources in the area proposed for vegetation removal.

The FAA consulted with the applicable tribes (Lummi, Samish, Upper Skagit, and Swinomish) and Washington State Department of Archaeology and Historic Preservation (DAHP).

No Action Alternative

Taking no action would have no effect on cultural, archaeological, architectural or historic resources.

Preferred Alternative

Based on consultation with the DAHP and Tribes included in **Appendix E**, the Preferred Alternative would have no effect on cultural, archaeological, architectural or historic resources. The FAA has determined the project may proceed in accordance with Section 106 regulations.

5.14.3 Mitigation

No mitigation is proposed. Per the Inadvertent Discovery Plan included in the Cultural Resources Report, recommendations would be implemented if any archaeological or historic materials are encountered. These guidelines are identified in the Vegetation Removal Impacts section of this chapter.

5.15 Light Emissions and Visual Effects

5.15.1 Significance Criteria

FAA Order 1050.1F does not establish significance threshold for light emissions or visual effects. According to FAA Order 1050.1F, the project must consider “the degree to which the action would have the potential to:

- Create annoyance or interfere with normal activities from light emissions; and
- Affect the visual character of the area due to the light emissions, including the importance, uniqueness, and aesthetic value of the affected visual resources.
- Affect the nature of the visual character of the area, including the importance, uniqueness, and aesthetic value of the affected visual resources;
- Contrast with the visual resources and/or visual character in the study area; and
- Block or obstruct the views of visual resources, including whether these resources would still be viewable from other locations.”

Because of the relatively low levels of light intensity compared to background levels associated with most air navigation facilities and other Airport development actions, light emissions impacts are unlikely to have an adverse impact on human activity or the use or characteristics of the protected properties.

Visual quality impacts deal more broadly with the extent that the development contrasts with the existing environment and whether the jurisdictional agency considers this contrast objectionable.

5.15.2 Analysis

There would be no changes to runway lighting or other on-airport lights. Vegetation removal in-line with the runway would create a different view of the approach area. Removal of trees within the conservation easement area would alter the view from the trail. The Airport beacon would remain in its present location and continue operation.

No Action Alternative

Taking no action would not alter the view or the amount of light generated by the Airport.

Preferred Alternative

The Preferred Alternative would remove vegetation in the area directly in-line with the runway. The area would be re-vegetated with grass or grass-like vegetation. Trees and tree species with the ability to grow into the 20:1 visual approach would be removed from the conservation easement area. The view of this area would change to an area of lower shrubs and understory vegetation. Views from the trail would include stumps and existing shrubby vegetation.

5.15.3 Mitigation

No mitigation is proposed.

5.16 Noise

5.16.1 Significance Criteria

FAA order 1050.1F, *Significance Threshold*, states a significant impact occurs when the “action would increase noise by DNL 1.5 decibels (dB) or more for a noise sensitive area that is exposed to noise at or above the DNL 65 dB noise exposure level, or that will be exposed at or above the DNL 65 dB level due to a DNL 1.5 dB or greater increase, when compared to the no action alternative for the same timeframe.” This is consistent with federal (FAA and U.S. Department of Housing and Urban Development land use compatibility guidelines and

federal noise attenuation grant funding eligibility criteria. FAA 1050.1F further states, “special consideration needs to be given to the evaluation of the significance of noise impacts on noise sensitive areas within Section 4(f) properties where the land use compatibility guidelines in 14 CFR part 150 are not relevant to the value, significance, and enjoyment of the area in question.”

5.16.2 Analysis

Noise modeling was not required for the Airport. Airport noise is primarily a function of runway location (including length) and size. Relocating a runway could move noise generation closer to sensitive users, while lengthening a runway can move noise generation and can allow larger and possibly louder aircraft. The Proposed Action would not alter the location of the runway, extending its length or in any other way moving it closer to sensitive uses. The Proposed Action would not add capacity to the Airport, create induced demand or contribute to an increase in noise.

No Action Alternative

No change to the current conditions would occur.

Preferred Alternative

The Preferred Alternative would not alter Airport-related noise from the current conditions because the runway is not being relocated or extended.

5.16.3 Mitigation

No mitigation is proposed, as there would be no significant noise impacts.

5.17 Solid Waste

5.17.1 Significance Criteria

FAA Order 1050.1F does not establish significance threshold for solid waste. The EA must consider if the project violates Federal, state, tribal, or local laws or regulations for solid waste management or generates an appreciably different quantity or type of solid waste, proposes a different method for collection and disposal, exceeds local capacity or adversely impacts human health or the environment. Generally, additional information or analysis is needed only if problems are anticipated with respect to meet local, state, Tribal or Federal laws and regulation on solid waste management.

5.17.2 Analysis

The Airport currently generates solid waste associated with the business of airport management. Materials may include paper, food waste and wrappings, and replaced aircraft parts. The Proposed Action would remove vegetation. Downed trees within the conservation easement and all vegetation in all other areas would be removed and taken off-site.

No Action Alternative

Solid waste generation under the No Action Alternative would increase at the rate of increasing use of the Airport.

Preferred Alternative

The Preferred Alternative would not effect on-airport waste generation. The removed vegetation can be used for compost, wood chips and firewood, and not taken to a landfill.

5.17.3 Mitigation

There are no significant impacts to solid waste generation at the Airport; therefore, no mitigation is proposed.

5.18 Water Quality

5.18.1 Significance Criteria

FAA Order 1050.1F, *Significance Threshold*, specifies a significant impact occurs when the project exceeds “water quality standards established by Federal, state, local, and tribal regulatory agencies; or contaminates public drinking water supply such that public health may be adversely affected.” The EA must consider whether the Proposed Action has the potential to “adversely affect natural and beneficial water resource values to a degree that substantially diminishes or destroys such values; adversely affect surface waters such that the beneficial uses and values of such waters are appreciably diminished or can no longer be maintained and such impairment cannot be avoided or satisfactorily mitigated; and presents difficulties based on water quality impacts when obtaining a permit or authorization.”

5.18.2 Analysis

Water quality is generally governed under the provisions of the Federal Water Pollution Control Act, as amended by the Clean Water Act and other amendments.

No Action Alternative

The No Action Alternative creates no long-term water quality impacts.

Preferred Alternative

The project would not alter the amount of impervious surface on the airport. It would not effect on-airport drainage. The Proposed Action would comply with all requirements for stormwater using erosion control measures. The Port would obtain authorization under the NPDES Construction General Permit and prepare a Stormwater Pollution Prevention Plan to control stormwater runoff.

5.18.3 Mitigation

No mitigation is proposed.

5.19 Wetlands

5.19.1 Significance Criteria

FAA Order 1050.1F, *Significance Threshold*, states that a significant impact would occur when a Proposed Action would “adversely affect a wetland’s function to protect the quality or quantity of municipal water supplies, including surface waters and sole source and other aquifers; substantially alter the hydrology needed to sustain the affected wetland system’s values and functions or those of a wetland to which it is connected; substantially reduce the affected wetland’s ability to retain floodwaters or storm runoff, thereby threatening public health, safety or welfare; adversely affect the maintenance of natural systems supporting wildlife and fish habitat or economically important timber, food, or fiber resources of the affected or surrounding wetlands; promote development of secondary activities or services that would cause the circumstances listed above to occur; or be inconsistent with applicable state wetland strategies.”

5.19.2 Analysis

A delineation of wetlands and other waters at the project area was prepared after site visit on June 3, 2014. The delineation identified one wetland (Wetland D) and one ditched channel (Stream 3) in the project area. Detailed wetland information is presented in **Appendix C**.

No Action Alternative

Taking no action would allow the existing on-Airport wetland areas to remain undisturbed.

Preferred Alternative

Vegetation removal activity would not create a permanent loss of wetlands. Wetlands (Wetland D) would be disturbed by the use of equipment necessary to remove vegetation, but the area would be replanted with grass or grass-like vegetation immediately following the work. No filling or grading is proposed; therefore, no loss of hydrologic control functions are anticipated.

There is a ditch channel (Stream 3) through the southern area that connects to other downstream systems, there may be a concern with short- and long-term water quality impacts. Short-term impacts would be mitigated through the installation of erosion control measures. Long-term impacts would be mitigated by replanting of native grass or grass-like along the ditch immediately following the vegetation removal. Other prevention measures include clearing during the driest part of the year.

5.19.3 Mitigation

The proposed mitigation measures for the tree clearing in Wetland D would include:

- 1) Immediate restoration of any disturbed soils, if necessary, and then grass seeding.
- 2) Mowing shall be avoided within 25 feet of either side of the ditch to protect water quality functions.
- 3) Ongoing maintenance to control pioneer tree species would occur within the conservation easement.

These mitigation measures would be reviewed and approved by the San Juan County.

5.20 Greenhouse Gases/Climate

5.20.1 Significance Criteria

Although there are no federal standards for aviation-related GHG emissions, it is well-established that GHG emissions can affect climate⁷. FAA 1050.1F does not identify significance thresholds or specific factors to consider to make a significance determination. The CEQ has indicated that climate should be considered in NEPA analyses. As noted by CEQ, however, "it is not currently useful for the NEPA analysis to attempt to link specific climatological changes, or the environmental impacts thereof, to the particular project or emissions, as such direct linkage is difficult to isolate and to understand".⁸

5.20.2 Analysis

GHGs are currently produced as a result of aircraft operations at the Airport. The exact level of these emissions are unknown.

No Action Alternative

The GHG emissions at the Airport would continue at their current level.

Preferred Alternative

The vegetation removal project would have no impact to GHG emissions. The size of the aircraft that can utilize the Airport does not change as a result of the Proposed Action, nor would it increase the Airport's capacity or alter the type of demand currently exhibited.

⁷ See *Massachusetts v. EPA*, 549 U.S. 497, 508-10, 521-23 (2007).

⁸ *Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions*, CEQ (2010).

5.20.3 Mitigation

No mitigation is proposed, as the project would not change the level of GHG emissions.

5.21 Cumulative Impacts

5.21.1 Significance Criteria

Cumulative Impact is the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period. Determining whether a Proposed Action will have a significant impact, the EA shall include considerations of whether the action is related to other actions with individually insignificant but cumulatively significant impacts. This analysis shall include identification and consideration of the cumulative impacts of ongoing, proposed and reasonably foreseeable future actions and may include information garnered from FAA, the Port and the NEPA process.

5.21.2 Analysis

The analysis considered the possible impacts of the Proposed Action and other development both on and off the Airport. The analysis identified if any of the following actions are planned to occur within the vicinity of the Proposed Action: development by local government or planning agencies, land development projects, other development or improvements at the Airport, roadway improvements and public infrastructure projects.

Past Projects (3-5 year timeframe)

The Airport apron was reconstructed in 2011. There have been no other projects on the Airport or adjacent to it in the past three to five years.

Present Projects

There is a current airport maintenance project, which includes maintaining the airfield pavements, drainage structures, fencing and gates, and weather reporting equipment.

Reasonably Foreseeable Projects (3-5 year horizon)

There are no known projects in the reasonably foreseeable future in the Airport vicinity. The Airport, at this time, has no plans for future projects, as the Port will be updating the Airport Master Plan.

5.21.3 Cumulative Impacts Summary

The Proposed Action has no off-site impacts. There are no known developments currently occurring or planned in the foreseeable future, and there are no significant impacts associated with the Proposed Action.

The Preferred Alternative, when combined with past, present and reasonably foreseeable future projects is not anticipated to create significant cumulative impacts.

Any new development outside of State-recognized thresholds would be required to undergo review under the Washington State Environmental Policy Act and comply with all State and Federal permitting processes.

5.22 Mitigation Summary

There are no direct or cumulative significant impacts anticipated as a result of the proposed project; therefore, no mitigation is proposed.

5.23 Public and Agency Involvement

The Port held a public scoping meeting on December 2013 to present the project and seek input. The meeting was advertised in the local newspaper. The meeting was minimally attended, and participants were all key users of the Airport. No concerns were raised about the proposed project.

The FAA initiated consultation with DAHP in accordance with Section 106 of the NHPA in March 2015 (**Appendix E**). DAHP concurred with the finding of no historic properties affected for the project (**Appendix D**).

The FAA also initiated consultation with the Lummi Nation, Samish Indian Nation, Swinomish Indian Tribal Community, and Upper Skagit Tribe in March 2015 in accordance with Section 106 of the NHPA, EO 13175 and FAA order 1210.20 (**Appendix E**). No comments were received regarding the proposed project.

The Airport coordinated with San Juan County regarding tree removal within the conservation easement (**Appendix B**). San Juan County agreed to tree cutting within the Port-owned area of the easement.

Appendix A Biological Evaluation Memorandum

Appendix A Biological Evaluation Memorandum

Technical Memorandum

To: Anthony Simpson, Port of Orcas
From: Valerie Thompson, WHPacific, Inc.
Date: July 5, 2016
Re: Orcas Airport Biological Evaluation Memorandum

Project Description

This Biological Evaluation Memorandum describes the results of a site assessment conducted for the Orcas Island Airport in anticipation of a proposed obstruction removal project. The purpose of this study is to evaluate the potential effects of the proposed project on biological resources listed under the Federal Endangered Species Act (ESA) and Washington State ESA.

The Orcas Island Airport (Airport) is located in San Juan County, Washington, approximately one mile from the Island's business center of Eastsound. San Juan County is in northwestern Washington and is comprised of four major islands and over 700 smaller ones. Orcas is the second most populated island with about 4,500 residents. The airport consists of one runway, one parallel taxiway, and associated airport structures. The proposed action is needed improve the visual approach surface to meet FAA design and safety standards. From a local perspective, the Proposed Action is needed to maintain the Airport as an essential public facility and economic resource for Orcas Island.

There are currently numerous obstructions to the Runway 34 Federal Aviation Regulation (FAR) Part 77 approach surface, as identified in a 2014 obstruction survey. To improve the most critical center portion of the 20:1 visual approach surface of Runway 34, vegetation removal is proposed to meet Federal Aviation Administration (FAA) design standards. The trees proposed for removal are hazardous because of their height and are growing into regulated airspace. Vegetation that is likely to penetrate the approach surface in the future will also be removed as part of this project.

The project is located to the south of the airport. The majority of the project will occur on Port-owned property and a small portion of privately-owned property. The study area consists of two distinct vegetative communities: an open grass field and a forested area. A wetland delineation was conducted for the study area (Wetland Resources 2014), which identified wetlands in both areas, and a stream in the forested area. A wetland conservation easement area and a pedestrian path are also located within the forested portion of the study area.

The project includes full vegetation removal (all trees and shrubs, including stumps) within the approach surface, excluding the wetland conservation easement area. Within the wetland conservation easement area, all trees currently penetrating or with the potential to penetrate the center portion of approach surface will be removed. Tree stumps and undergrowth will be left in place to minimize ground and wetland disturbance and impacts. The use of heavy equipment, trucks, chippers and chain saws would be necessary to complete vegetation removal.

Methods and Results

WHPacific staff completed a pedestrian survey of the study area on June 10, 2014. Photos of the study area are shown in Appendix A. Plant species and communities, and observed bird species were recorded. The U.S. Fish and Wildlife Service (USFWS) species list for San Juan County, and Washington Department of Fish and Wildlife (WDFW) Priority Habitats and Species (PHS), and National Marine Fisheries Service (NMFS) Essential Fish Habitat (EFH) databases were reviewed prior to field investigations to identify sensitive resources for the study area and the surrounding waters of Puget Sound. Two distinct vegetative communities were investigated within the study area: a periodically maintained grass field and an adjacent forested area.

The open grass field, located along the western portion of the study area, contains wetlands and is dominated by soft rush (*Juncus effusus*), taper-tip rush (*Juncus acuminatus*), redtop bentgrass (*Agrostis gigantia*), velvetgrass (*Holcus lanatus*), meadow foxtail (*Alopecurus pratensis*), tall fescue (*Festuca arundinacea*), and slough sedge (*Carex obnupta*). The general topography is hummocky, and at the time of investigation, surface saturation was present at low points throughout the field with standing water up to one inch in a few places.

The eastern portion of the study area is forested and contains wetlands a ditched channel and a pedestrian trail. This forested area is the site of proposed obstruction removal. Vegetation here is dominated by willow (*Salix spp.*), red alder (*Alnus rubra*), Douglas fir (*Pseudotsuga menziesii*), with an understory of English hawthorn (*Crataegus laevigata*), Himalayan blackberry (*Rubus armeniacus*), and multiple rose species (*Rosa spp.*). The eastern portion of the forested area is a densely planted stand of Douglas fir with little understory or light penetration. A ditched channel runs through the forested portion of the site and appears to have been intentionally created several decades ago to control and convey the hydrology within the wetland for agricultural use. The ditched channel conveys natural hydrology, so it is classified as a stream.

No avian nesting behaviors were observed in the study area at the time of investigation. However, the dense forest and understory made it difficult to see in some places; and nesting by common avian species protected by the Migratory Bird Treaty Act (MBTA) would be expected in a forested stand such as this one. Avian species observed using the proposed study area included Swainson's thrush (*Catharus ustulatus*), Cedar waxwing (*Bombycilla cedrorum*), American robin (*Turdus migratorius*), and other common passerines. None of the observed avian species are listed under the Federal or state ESA, but most are protected by MBTA.

The USFWS and WDFW Threatened and Endangered Species databases were reviewed prior to field investigations. Appendix B includes Federal and state listed species for San Juan County including nearby waters of the Puget Sound with listing status and general habitat requirements. Critical and priority habitats associated with the project were also researched using online databases for USFWS, WDFW, and NMFS and San Juan County's 2014 Critical Area Ordinance, and the results are included in Appendix B. None of the listed species in Appendix B were observed during field investigations, and suitable habitat for these species does not exist within the study area.

The NMFS EFH database was reviewed prior to field investigations to determine the presence of EFH within the study area. Listed salmonids are not present within the study area, but are present in the waters

of Puget Sound including Puget Sound Chinook salmon (*Oncorhynchus tshawytscha*, Threatened), Hood Canal summer chum salmon (*Oncorhynchus keta*, Threatened), Puget Sound steelhead (*Oncorhynchus mykiss*, Threatened), and coastal/Puget Sound bull trout (*Salvelinus confluentus*, Threatened). No EFH exists within the study area; however, EFH is present within Puget Sound for Chinook salmon, coho salmon (*Oncorhynchus kisutch*), and Puget Sound pink salmon (*Oncorhynchus gorbuscha*).

The WDFW PHS database search results show palustrine habitat covering most of the area of proposed obstruction removal. Nearby, but outside of the study area, saltwater environs off of the north end of the airport contain Marine Intertidal Aquatic Habitat, and pinto abalone (*Haliotis kamtschatkana*). A Bald eagle (*Haliaeetus leucocephalus*) breeding area, and wetland and palustrine areas are noted within a quarter mile to the west of the north end of the runway. In the waters of Fishing Bay, a half mile to the south of the project area, the PHS database also noted Wetlands, Estuarine and Marine Wetlands as aquatic habitats; a Pacific herring (*Clupea pallasii*) breeding area, and pinto abalone are also present.

Consequences

As designed, the proposed project is expected to have no effect on Federal- or state-listed species. No Federal-listed T&E species were found in the study area during field investigations. Further, they are unlikely to be within the study area based on available habitat. There is no designated Critical Habitat or EFH within the study area.

Avian species observed during the site investigation, or anticipated to be in the study area, are not Federal- or state-listed, but are protected under MBTA. Vegetation removal will occur outside of the nesting season and during the dry season to avoid potential disturbance of nesting birds and minimize ground disturbance.

Stormwater management would be used control erosion and prevent runoff from discharging to local waters. The areas would be seeded with grass after vegetation removal. Vegetation removal would be conducted in accordance with FAA Advisory Circular 150/5370-10A, *Standards for Specifying Construction of Airports*, Item P156, Temporary Air and Water Pollution, Soil Erosion, and Siltation Control (FAA, 1991). Erosion control would comply with the San Juan County and the Washington State Department of Ecology requirements, follow best management practices and comply with all requirements for stormwater.

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Appendix A: Photos (June 10, 2014)



Photo 1: Western portion of study area. Looking northeast toward obstruction removal area.



Photo 2: Emergent wetland within forested area. Willow spp., English hawthorn, Himalayan blackberry, slough sedge.



Photo 3: Southern end of study area, looking south.



Photo 4: Pedestrian path with densely-planted Douglas fir.



Photo 5: English hawthorn, Himalayan blackberry in understory near pedestrian path.

Appendix B: Federal and State Protected Species in San Juan County, Washington:

Table 1: Washington State and Federal Threatened and Endangered Non-Fish Species in San Juan County*

Species		WA State Status	Federal Status	Habitat Requirements and Occurrence in San Juan County
Taylor's checkerspot (butterfly)	<i>Euphydryas editha taylori</i>	Endangered	Endangered	Dry prairies or prairie-like native grassland with host plant species. Historic range includes the San Juan Islands but there are no known populations currently on the islands (WDFW 2013).
Brown pelican	<i>Pelicanus occidentalis</i>	Endangered	Species of Concern	Not common in San Juan county. Use marine and near shore habitats used as resting sites including islands, off shore rocks, piers, breakwaters, sand spits, and sandbars (Herrea and the Watershed Company 2011). Brown pelicans have additional required protections under the San Juan County Critical Area Ordinance (2014).
Marbled murrelet	<i>Brachyramphus marmoratus</i>	Threatened	Threatened	Inhabit shallow coastal areas where they primarily feed on near shore forage fish. Travel inland to nest in mature and old growth forest, mostly building nests on large branches or other suitable platforms in large trees (WDFW 2013). Marbled murrelets use the marine waters around the San Juan Islands year round with higher numbers being found in the winter (Adamus 2011). There is no confirmed nesting of marbled murrelets in the San Juan Islands but potential breeding habitat may exist (Adamus 2011). Have additional required protections under the San Juan County Critical Area Ordinance (2014).
Humpback Whale	<i>Megaptera novaeangliae</i>	Endangered	Endangered	Usually occur off of Washington State from July to September. Once common (early 1900's) but now rare visitors to the inner marine waters of Washington and British Columbia (WDFW 2013). Have required protections under the San Juan County Critical Area Ordinance (2014).
Killer Whale (Orca)	<i>Orcinus orca</i>	Endangered (all populations)	Endangered (southern resident population)	The southern resident population has designated critical habitat throughout Puget Sound, including around the San Juan Islands (NOAA 2014). Have additional required protections under the Marine Mammal Act and the San Juan County Critical Area Ordinance (2014).
Sea Otter	<i>Enhydra lutris</i>	Endangered	Species of Concern	At present sea otter populations occur in rocky habitats along the west coast of the Olympic Peninsula (WDFW 2013). Have required protections in the San Juan County Critical Area Ordinance (2014).
Steller sea lion	<i>Eumetopias jubatus</i>	Threatened	Species of Concern	Use jetties, offshore rocks, coastal islands, and navigation buoys as haulout sites. Present in the San Juan Islands. Pupping areas in Washington State are along the outer Washington coast (WDFW 2013). Have required protections under the Marine Mammal Act and the San Juan County Critical Area Ordinance (2014).
Western pond Turtle	<i>Actinemys marmorata</i>	Endangered	Species of Concern	Lives in slow moving streams, lakes, ponds, and wetlands (WDFW 2013). Not listed as present in San Juan County (WDFW 2008). The San Juan Islands are included in the Western pond turtle Puget Sound/Puget Trough recovery zone (Hays et al. 1999). Have additional protections under the San Juan County Critical Area Ordinance (2014).
Green sea turtle	<i>Chelonia mydas</i>	Threatened	Threatened	Pelagic animals usually found in tropical and subtropical waters near islands and continents. Rarely recorded in Washington State (WDFW 2013).
Leatherback sea turtle	<i>Dermochelys coriacea</i>	Endangered	Endangered	Pelagic animals that nest in the tropics and feed primarily on jelly fish. They can be found off the coast of WA in the summer and fall, including area around the San Juan Islands (WDFW 2013).
Loggerhead sea turtle	<i>Caretta</i>	Threatened	Endangered	Pelagic animals that feed mostly on benthic invertebrates and are found throughout in tropical and temperate ocean regions worldwide. They are rarely recorded in Washington State (WDFW 2013).

Adder's-tongue	<i>Ophioglossum pusillum</i>	Threatened	BLM sensitive, USFS sensitive	Seasonally wet areas in pastures, old fields, roadside ditches, bogs, fens, wet meadows, flood plains, moist woods, grassy swales, dry or damp sand, dry hillsides, and in seasonally wet acidic soil. Rare plant present in San Juan County (WNHP 2014).
Bog twayblade	<i>Liparis loeselii</i>	Endangered	BLM strategic, USFS strategic	Only two known occurrences in WA and one (San Juan Co. population) may be extinct. Both Washington State populations found in boggy wetlands (WNHP 2014).
California buttercup	<i>Ranunculus californicus</i> var. <i>californicus</i>	Threatened	BLM sensitive	Coastal bluffs, open grasslands, rocky slopes along the shore, and rocky wooded areas. Usually in dry grassland areas but also found in moister sites. Only 5 recent populations known in Washington State. (WNHP 2014).
Erect pygmy-weed	<i>Crassula connata</i>	Threatened	BLM strategic	Washington State populations found on seasonally wet cliffs, rock outcrops, and steep slopes. Rare plant present in San Juan County. (WNHP 2014).
Golden paintbrush	<i>Castilleja levisecta</i>	Endangered	Threatened	Primarily found in open grasslands and prairies generally with glacial outwash or depositional soils (WNHP 2014). Does not tolerate closed canopy. It is known to occur in San Juan County (USFW 2014).
Rosy owl-clover	<i>Orthocarpus bracteosus</i>	Endangered	BLM sensitive, USFS sensitive	Open areas in moist meadows in the transition zone between wetland and upland. Historically found on San Juan Island but populations have not been relocated. (WNHP 2014).
Rush aster	<i>Symphotrichum boreale</i>	Threatened	BLM strategic	Lakesides, marshes, bogs, and fens (including calcareous bogs and fens), open peatland, and sedge-dominated open sphagnum bogs, at elevations from 250 to 2500 feet. Rare plant present in San Juan County. (WNHP 2014).
Sharpruited peppergrass	<i>Lepidium oxycarpum</i>	Endangered	BLM strategic	Only one documented occurrence in WA (San Juan Co.). Grows within salt spray zone in moist cracks and vernal pools on bedrock, sandy, or dark saline soil in full sun (WNHP 2014).
Water lobelia	<i>Lobelia dortmanna</i>	Threatened	BLM strategic, USFS strategic	Submerged aquatic habitats in lakes and ponds. Grows on hard, firm sandy or gravel sediment (WDOE 2014). Rare plant present in San Juan County. (WNHP 2014).
White meconella	<i>Meconella oregana</i>	Endangered	Species of Concern	Open grassland on gradual to 100% slopes, at elevations of 60 to 620 feet. Sometimes found in a mix of forest and grassland Rare plant present in San Juan County. (WNHP 2014).

* San Juan County listed species compiled from WDFW Priority Habitat and Species List (WDFW 2008), Washington Natural Heritage Program's list of known occurrences of rare plants in San Juan County (WNHP 2014), and San Juan County's 2014 Critical Area Ordinance section 18.30.160 fish and wildlife habitat conservation areas (FWHCAs).

Table 2: Listed Fish and Shellfish in San Juan County *

Species		WA State Status	Federal Status	Notes
Bull trout/Dolly Varden	<i>Salvelinus confluentus/S. malma</i>	Candidate	Threatened	(USFWS 2014)
Chinook - Puget Sound ESU ²	<i>Oncorhynchus tshawytscha</i>	Candidate	Threatened	(NOAA 2014) Have additional required protections San Juan County Critical Area Ordinance (2014).
Chum - Hood Canal summer run ESU ²	<i>Oncorhynchus keta</i>	Candidate	Threatened	(NOAA 2014) Have additional required protections San Juan County Critical Area Ordinance (2014).
Ozette Lake Sockeye	<i>Oncorhynchus nerka</i>	Candidate	Threatened	(NOAA 2014)
Steelhead - Puget Sound ESU ²	<i>Oncorhynchus mykiss</i>	Candidate	Threatened	(NOAA 2014) Have additional required protections San Juan County Critical Area Ordinance (2014).
Bocaccio– Georgia Basin DPS ¹	<i>Sebastes paucispinis</i>	Candidate	Endangered	Have additional required protections San Juan County Critical Area Ordinance (2014).
Canary rockfish – Georgia Basin DPS ¹	<i>Sebastes pinniger</i>	Candidate	Threatened	Have additional required protections San Juan County Critical Area Ordinance (2014).
Yelloweye rockfish – Georgia Basin DPS ¹	<i>Sebastes ruberrimus</i>	Candidate	Threatened	Have additional required protections San Juan County Critical Area Ordinance (2014).
Pinto (Northern) Abalone	<i>Haliotis kamtschatkana</i>	Candidate	Species of Concern	WDFW 2014, NOAA 2014

*San Juan County listed fish species list compiled from NOAA Fisheries, West Coast Region, and Status of ESA Listings & Critical Habitat Designations for West Coast Salmon & Steelhead Map, WDFW Priority Habitat and Species List (WDFW 2008), and San Juan County’s 2014 Critical Area Ordinance section 18.30.160 fish and wildlife habitat conservation areas (FWHCAs).

¹ Distinct Population Segment (DPS)

² Evolutionary Significance Unit (ESU)

Table 3: Species not included above with additional habitat protection requirements outlined in San Juan County Critical Area Ordinance section 18.30.160 fish and wildlife habitat conservation areas (FWHCAs) (San Juan County 2014).

Species		WA State Status	Federal Status	Species Information and/or Required FWHCAs Protections
Island marble butterfly	<i>Euchloe ausonides insulanus</i>	Candidate	Species of Concern	Sub-species of marble butterfly re-discovered in 1998. Small populations found in coastal grasslands and prairies on San Juan and Lopez Islands. Use plants in the mustard family as host plants (WDFW 2013).
Great arctic butterfly	<i>Oeneis nevadensis gigas</i>	Candidate	None	Non-migratory butterfly species found on the southern end of Vancouver Island, British Columbia, Canada. Listed as potentially occurring in San Juan County but there are no known populations currently in Washington State (NatureServe 2014).
Sand verbena moth	<i>Copablepharon fuscum</i>	Candidate	None	Restricted to habitats along beaches, sand dunes, and spits that have dense populations of its host plant yellow-sand verbena (<i>Abronia latifolia</i>) (NatureServe 2014).
Valley silverspot butterfly	<i>Speyeria zerene bremnerii</i>	Candidate	Species of Concern	Windy peaks with nearby forest openings, native prairies and grasslands. Found in the San Juan Islands. (Xerces 2014).
Bald eagle	<i>Haliaeetus lurocephalus</i>	Sensitive	Species of Concern	Protected under the federal Bald and Golden Eagle Protection.
Black oystercatcher	<i>Haematopus bachmani</i>	None	None	Rocky coastal shorelines. Breeding habitat associated with inter-tidal zone high tide margin and includes sand and gravel beaches, cobble and gravel beaches, exposed rocky headlands, rocky islets, and tidewater glacial moraines (NatureServe 2014). Occur at low densities across range and have breeding sites in San Juan County (Golumbia et al. 2009).
Golden eagle	<i>Aquila chrysaetos</i>	Candidate	None	Rare in Western Washington but are known to live year round in the San Juan Islands (Seattle Audubon 2014). Protected by the federal Bald and Golden Eagle Protection Act.
Common Loon	<i>Gavia immer</i>	Sensitive	None	Wintering, migrating, and non-breeding populations occur around the San Juan Islands. Most common in shallow, clear, sheltered waters close to shore. There are no recent breeding records in San Juan County. (Adamus 2011). Have required buffer zones and other protections when present.
Great Blue Heron	<i>Ardea herodias</i>	None	None	Foraging habitats include freshwater and brackish marshes, along lakes, bays, lagoons, ocean beaches, mangroves, fields, and meadows. Nest commonly in tall trees in swamps and forested areas but have been known to nest in bushes or on the ground. (NatureServe 2014). Found on Orcas Island (Adamus 2011). Required ¼ mile buffer zones around nesting areas.
Northern Harrier	<i>Circus cyaneus</i>	None	None	Grasslands, farmlands, parks, and steppe (Seattle Audubon). Required buffer zones around nesting and feeding areas.
Peregrine falcon	<i>Falco peregrinus</i>	Sensitive	Species of Concern	Have required buffer zone and other protections when present. Recommendations include avoiding the use of lead shoot, pesticides and insecticides near nesting and feeding areas.
Short-eared owl	<i>Asio flammeus</i>	None	None	Broad expanses of open land with low vegetation including fresh and saltwater marshes, bogs, dunes, prairies, and grasslands for feeding and nesting (NatureServe 2014). Not known to occur on Orcas Island but island has preferred habitat (Adamus 2011). Required buffer zone around nesting and feeding areas.
Wilson's Snipe	<i>Gallinago delicata</i>	None	None	Breed in lowland, freshwater marshes and wet meadows with emergent vegetation (especially sedge meadows). During migration and winter, snipes can also be found in salt marshes, estuaries, and other mucky areas (Seattle Audubon Birdweb). Known to occur on Orcas Island (Adamus 2011). Required buffer zones around nesting and feeding areas.
Northern flying squirrel	<i>Glaucomys sabrinus</i>	None	None	Coniferous and mixed forest, deciduous woods, and riparian woodlands. Prefer cool, moist mature forests with snags and downed logs near surface water (NatureServe 2014). Found on San Juan Island, probable presence on Orcas Island based upon habitat preferences (Adamus 2011).

Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	Candidate	Species of concern	Dry to moist forests, riparian, and open field habitats. Day roosts include caves, lava tubes, mines, old buildings, bridges, and concrete bunkers. Hibernacula include caves, mines, lava tubes, and occasionally buildings. Maternity colonies have been found in San Juan County (WDFW 2013).
All bat species				FWHCA protection for areas with high concentrations of roosting bats.
Gray Whale	<i>Eschrichtius robustus</i>	Sensitive	None	Coastal marine species that feed on the sea bottom in shallow waters. A few visit the inner marine waters of Washington State each year from around January through summer (WDFW 2013).
Sharp-tailed snake	<i>Contia tenuis</i>	Candidate	Species of Concern	Generally found under logs, rocks, fallen branches or other cover in pastures, meadows, oak woodlands, chaparral, and edges or coniferous or hardwood forests (NatureServe 2014). Found on Orcas Island (Adamus 2011).
Western Toad	<i>Anaxyrus boreas</i>	Candidate	Species of Concern	Required buffer zones when species is present. Recommendations include minimizing soil-disturbing activities, the preventing the pollution of runoff, and retaining rocks and down wood.
Alaska alkaligrass	<i>Puccinellia nutkaensis</i>	WNHP watch list	USFW strategic	Salt marshes, rock outcrops and crevices receiving salt spray, mud flats and gravelly areas near the beach (WNHP2014). Added to WNHP's watch list since species is more abundant and/or less threatened in Washington than previously assumed (WNHP 2014).
Arctic aster	<i>Eurybia merita</i>	State Sensitive	USFS sensitive	Open rocky places, rock crevices, alpine lithosols, and unstable talus slopes mostly at high elevations in the mountains (WNHP 2014).
Blunt-leaf pondweed	<i>Potamogeton obtusifolius</i>	Sensitive	BLM strategic	Submerged on banks of lakes, sloughs, and slow-moving streams in 3 to 9 feet of water. Rare in Washington State (WNHP 2014).
Brittle prickly pear cactus	<i>Opuntia fragilis</i>	WNHP watch list	None	Sandy slopes, rocky outcrops, rocky knobs, and talus slopes in dry well drain soil from 14 to 4500 feet. Found in San Juan County. (WNHP <i>Opuntia fragilis</i> website). Added to WNHP's watch list since species is more abundant and/or less threatened in Washington than previously assumed (WNHP 2014).
Coast microseris	<i>Microseris bigelovii</i>	Possibly Extirpated		Grasslands on old dunes, glacial deposits, in small crevices, and on rock, 6 to 10 feet above the high tide line, usually in very little soil. Historically found in San Juan County, may be extinct in Washington State (WNHP 2014).
Few-flowered sedge	<i>Carex pauciflora</i>	Sensitive	BLM sensitive, USFS sensitive	Wet acidic environments including sphagnum bogs and acidic peat at elevations of 250 to 4550 feet (WNHP 2014).
Nuttall's quillwort	<i>Isoetes nuttallii</i>	Sensitive	BLM sensitive, USFS sensitive	Seasonally wet ground, seepages, temporary streams, and mud near vernal pool at elevations from 200 to 345 feet (WNHP 2014).
Slender crazyweed	<i>Oxytropis campestris</i>	Sensitive	BLM sensitive	Prairies, alpine meadows, open woodlands, and gravelly flood plains, moist or dry soils, at elevations from 1870 to 7600 feet (WNHP 2014).
White top aster	<i>Sericocarpus rigidus</i>	Sensitive	Species of Concern	Usually on gravelly, glacial outwash soils in relatively flat, open lowland grasslands at elevations of 30 to 550 feet (WNHP 2014).

Appendix B San Juan County Correspondence