

5 Cumulative Impacts

The CEQ regulations for implementing NEPA define cumulative impacts as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what other agency (federal or non-federal) or person undertakes such other actions” (40 CFR 1508.7). Cumulative impacts can result from individually minor but collectively significant actions by various agencies (federal, state, and local) or individuals that take place over time. Accordingly, a cumulative impact analysis must identify and define the scope of other actions and their relationship with the proposed action or its alternatives if there is the potential for environmental impacts to overlap in space and time.

The CEQ provides guidance on cumulative impacts analysis in *Considering Cumulative Effects Under the National Environmental Policy Act* (CEQ 1997). This guidance further identifies cumulative impacts as those environmental impacts resulting from “spatial and temporal crowding” of environmental disruptions; if additional disruptions occur within a system before that system has recovered from a first disruption, the effects of those disruptions will accumulate. Therefore, an analysis of cumulative impacts normally includes a defined geographic study area based on the context of each resource that would be impacted by the proposed action and a timeframe, including past, present, and reasonably foreseeable future actions, the effects of which may overlap in time with the proposed action.

5.1 Identifying Geographic Study Areas for Cumulative Impacts Analysis

The geographic study area for analysis of cumulative impacts can vary for different resources. CEQ guidance (CEQ 1997) indicates that geographic boundaries for cumulative impact analysis almost always should be expanded beyond those for project-specific analysis. An appropriate geographic study area generally depends on what distance an effect might extend. The CEQ guidance identifies potential geographic boundaries for cumulative impacts analysis. For air quality, the potentially affected air quality region is the appropriate boundary for assessment of cumulative impacts from releases of pollutants into the atmosphere. For land-based impacts on water resources, watershed boundaries may be the appropriate geographic study area. For wide-ranging or migratory wildlife, specifically marine mammals, fish, and sea birds, any impacts of the proposed action may combine with the impacts of other actions within

the range of the population. Based on this guidance, a specific geographic study area is identified at the beginning of each resource discussion.

5.2 Past, Present, and Reasonably Foreseeable Actions for Cumulative Impacts Analysis

Table 5-1 briefly describes actions that have been determined to be relevant to the analysis of cumulative impacts associated with the proposed action. The Navy has made an effort to identify and evaluate past, ongoing, and reasonably foreseeable future actions that have or would have similar and potentially cumulative or additive effects on those of the proposed action. Identifiable present effects of past actions are analyzed to the extent that they may be additive to the impacts of the proposed action. In general, the Navy lists and analyzes the effects of individual past actions only where appropriate; cumulative impacts analysis typically focuses on the combined effects of past, present, and reasonably foreseeable future actions. This analysis may be qualitative rather than quantitative when data on the environmental effects of past actions are insufficient. Analysis of cumulative impacts primarily includes present and reasonably foreseeable future actions that may have present or ongoing effects with the proposed action.

The proposed action is planned to begin in 2012 and would take approximately two years to complete. The timeframe for cumulative impacts resulting from aircraft operations under the proposed action would start in 2005, when the *Environmental Assessment for Replacement of EA-6B Aircraft with EA-18G Aircraft at Naval Air Station Whidbey Island, Washington*, was completed, and would continue into the foreseeable future to 2019 with the replacement of the P-3C Orion aircraft with the P-8A MMA. The timeframe for cumulative impacts resulting from foreseeable construction at Ault Field would start in 2012 and would continue to 2019.

Table 5-1 Past, Present, and Reasonably Foreseeable Future Actions near NAS Whidbey Island

Action Proponent (Agency/ Individual)	Project Name	Location and Description	Year Occurred/ To Occur	Resource Areas Impacted by the Project
Past				
Navy	Northwest Training Range Complex EIS	<p>This EIS covers training activities, force structure changes, and range enhancements in the Northwest Training Range Complex. That range consists of ocean operating areas, special use airspace, and land-based training areas from 250 nautical miles west of the coasts of Northern California, Oregon, and Washington inland to the Washington/Idaho border, including Military Operating Areas and training areas in the vicinity of NAS Whidbey Island.</p> <p>The Navy evaluated increases in training activities; accommodation of changes in basing locations for ships, aircraft, and personnel (force structure changes); and provided for range enhancements in the Northwest Training Range Complex. Baseline training activities will increase and training activities associated with force structure changes will be implemented for the EA18G Growler, Guided Missile Submarine, P-8A MMA, unmanned aerial systems, air-to-air missiles and sonobuoys. Most activities in the inshore area will increase, but mine countermeasure activities will decrease. Underwater detonations will decrease from 60 detonations per year to two detonations per year at Crescent Harbor, and no more than two underwater detonations per year will take place at Floral Point (Naval Base Kitsap-Bangor), for a maximum of four detonations per year (U.S. Navy 2010b).</p>	Ongoing	<ul style="list-style-type: none"> ▪ Airspace and Airfield Operations ▪ Noise ▪ Land Use Compatibility ▪ Air Quality ▪ Biological Resources: Federally Protected Species; Wildlife; Migratory Birds, and Bird Aircraft Strike Hazard.

Table 5-1 Past, Present, and Reasonably Foreseeable Future Actions near NAS Whidbey Island

Action Proponent (Agency/ Individual)	Project Name	Location and Description	Year Occurred/ To Occur	Resource Areas Impacted by the Project
Past				
Navy	Replacement of the P-3C Orion Aircraft with the P-8A MMA	<p>NAS Whidbey Island; NAS Jacksonville, Florida; Marine Corps Base Hawaii Kaneohe Bay; and NAS North Island, California</p> <p>The Navy is constructing facilities and providing functions to support the homebasing of 12 P-8A MMA squadrons and one FRS. Under the Record of Decision (ROD), four P-8A MMA squadrons (24 aircraft) will be homebased at NAS Whidbey Island. The number of military personnel at the air station is projected to decrease by 484 people, while the number of civilian and contractor personnel is projected to increase by 166 people (resulting in a net decrease of 318 personnel). New construction will include an aircraft hangar, a contractor logistics support building, an expansion of the existing Tactical Support Center and construction of new privately-owned vehicle parking, training facilities, an operational storage facility, and ordnance storage (U.S. Navy 2008).</p>	2012-2019	<ul style="list-style-type: none"> ▪ Airspace and Airfield Operations ▪ Noise ▪ Land Use Compatibility ▪ Air Quality ▪ Biological Resources: Federally Protected Species; Wildlife; Migratory Birds, and Bird Aircraft Strike Hazard. ▪ Socioeconomics
Navy	Replacement of EA-6B Prowler Aircraft with EA18G Growler Aircraft	<p>NAS Whidbey Island</p> <p>Replacement of the EA-6B Prowler with the EA18G Growler is ongoing. The replacement process was anticipated to result in an overall decrease in the number of aircraft and associated personnel at NAS Whidbey Island (U.S. Navy 2005b). The proposed action of this EA supplements the 2005 replacement EA of EA-6B Prowler aircraft with EA-18G Growler aircraft.</p>	2008-2014	<ul style="list-style-type: none"> ▪ Noise ▪ Air Quality

Table 5-1 Past, Present, and Reasonably Foreseeable Future Actions near NAS Whidbey Island

Action Proponent (Agency/ Individual)	Project Name	Location and Description	Year Occurred/ To Occur	Resource Areas Impacted by the Project
Present/Ongoing				
Navy	Northwest Training and Testing EIS	<p>The study area for this EIS includes activities within existing range complexes and facilities: (1) the Northwest Training Range Complex, (2) the Naval Undersea Warfare Center Keyport Range Complex, (3) the Southeast Alaska Acoustic Measurement Facility. Additionally, the proposed action includes the resumption of testing activities in Carr Inlet Operations Area and the proposed action includes pier-side sonar testing at Naval Base Kitsap at Bremerton, Naval Base Kitsap at Bangor, and Naval Station Everett.</p> <p>The Navy is proposing to conduct training and testing activities primarily within existing range complexes, operating areas, testing ranges, and selected Navy pier-side locations in the Pacific Northwest. The purpose of the proposed action is to conduct training and testing activities to ensure the Navy accomplishes its mission to maintain, train, and equip combat-ready military forces. This analysis will reassess the environmental analyses of Navy at-sea training and testing activities contained in two previous EISs/OEISs and various environmental planning documents, and consolidate these analyses into a single environmental planning document. This reassessment will support reauthorization of permits under the Marine Mammal Protection Act and the Endangered Species Act for activities to be carried out from 2015 to 2020.</p> <p>The Navy is preparing an EIS for this action and the draft is expected to be released to the public in the fall of 2013.</p>	2015	<ul style="list-style-type: none"> ▪ Airspace and Airfield Operations ▪ Noise ▪ Land Use Compatibility ▪ Air Quality ▪ Biological Resources: Federally Protected Species; Wildlife; Migratory Birds, and Bird Aircraft Strike Hazard.

Table 5-1 Past, Present, and Reasonably Foreseeable Future Actions near NAS Whidbey Island

Action Proponent (Agency/ Individual)	Project Name	Location and Description	Year Occurred/ To Occur	Resource Areas Impacted by the Project
City of Oak Harbor	City of Oak Harbor Water System Improvements	The city is planning to construct improvements to its water system in order to replace aging infrastructure and meet minimum storage requirements over the next 20-year planning horizon. Improvements will include construction of a new water reservoir tank, which will be 150 feet in diameter and 39 feet tall, with a capacity of 4.0 million gallons, and a new booster station. The reservoir tank and booster station will be located off of Gun Club Road, south of Ault Field. Additionally, 5,700 feet of 18-inch and 24-inch water transmission mains will be installed along Gun Club Road from Oak Harbor Road to the reservoir site. Other, follow-on improvement projects may include extension of large diameter mains and construction of pressure regulating valve stations in the city’s distribution system. The project will allow the city to supply water to Seaplane Base through its distribution system (City of Oak Harbor 2012).	2012 – 2019	<ul style="list-style-type: none"> ▪ Noise ▪ Biological Resources: Federally Protected Species; Wildlife; and Migratory Birds. ▪ Socioeconomics
City of Oak Harbor	Clean Water Facilities Planning	<p>Two sites under consideration, one near Windjammer Park and one north of Seaplane Base (Matson 2011)</p> <p>The City of Oak Harbor is planning to replace its two existing wastewater treatment facilities (WWTFs), which are nearing the end of their useful lives and lack the technology to meet increasingly stringent water quality standards, with a modern WWTF. This project is currently in the planning stages. The new WWTF would use a membrane bioreactor wastewater treatment process and would discharge treated effluent to Oak Harbor (Matson 2011).</p>	By 2017	<ul style="list-style-type: none"> ▪ Noise ▪ Biological Resources: Federally Protected Species; Wildlife; and Migratory Birds. ▪ Socioeconomics

Table 5-1 Past, Present, and Reasonably Foreseeable Future Actions near NAS Whidbey Island

Action Proponent (Agency/ Individual)	Project Name	Location and Description	Year Occurred/ To Occur	Resource Areas Impacted by the Project
Whidbey East Holdings, LLC	Harvest of 28 acres of timber	4606 Jones Road, Oak Harbor. Harvest of about 28 acres of a 40-acre site consisting of three contiguous parcels, with up to 1,500 yards of grading for logging road construction.	2012	<ul style="list-style-type: none"> ▪ Noise ▪ Biological Resources: Federally Protected Species; Wildlife; and Migratory Birds.
Navy	NAS Whidbey Island Petroleum, Oil, and Lubricants Pipeline	NAS Whidbey Island The Navy would construct 4.4 miles of 12-inch underground petroleum, oil, and lubricants pipeline from storage tanks located on Seaplane Base to storage tanks located on NAS Whidbey Island and decommission two existing 55-year-old pipelines. The existing pipelines would be used as conduits for communication systems or decommissioned by draining, plugging, and abandoning them in compliance with environmental requirements.	FY 2012	<ul style="list-style-type: none"> ▪ Noise ▪ Biological Resources: Federally Protected Species; Wildlife; and Migratory Birds. ▪ Socioeconomics
Reasonably Foreseeable				
Navy	Fuel Pier Breakwater Construction and Finger Pier Demolition	NAS Whidbey Island Seaplane Base Demolition of a 536-foot-long finger pier and construction of a 320-foot-long partial depth sheet pile breakwater.	FY 2014	<ul style="list-style-type: none"> ▪ Noise ▪ Biological Resources: Federally Protected Species; Wildlife; and Migratory Birds.
Navy	Replacement of the C-9 Aircraft with the C-40 Aircraft	NAS Whidbey Island The four C-9 Skytrain II aircraft stationed at NAS Whidbey Island would be replaced by three C-40 Clipper aircraft.	FY 2015	<ul style="list-style-type: none"> ▪ Airspace and airfield operations ▪ Noise ▪ Land Use Compatibility ▪ Air Quality ▪ Biological Resources: Federally Protected Species; Wildlife; Migratory Birds, and Bird Aircraft Strike Hazard.

Table 5-1 Past, Present, and Reasonably Foreseeable Future Actions near NAS Whidbey Island

Action Proponent (Agency/ Individual)	Project Name	Location and Description	Year Occurred/ To Occur	Resource Areas Impacted by the Project
Navy	Animal and Vegetation Control EA	The Navy is proposing to implement a rodent management program using both a rodenticide and controlled burning of the airfield open areas at Ault Field. An EA will be prepared.	Programmatic FY 2013	<ul style="list-style-type: none"> ▪ Air Quality ▪ Biological Resources: Federally Protected Species; Wildlife; and Migratory Birds.

Key:

- CATEX = Categorical exclusion
- EA = Environmental assessment
- EIS = Environmental impact statement
- FRS = Fleet replacement squadron
- FY = Fiscal year
- MMA = Multi-mission maritime aircraft
- SEPA = Washington State Environmental Policy Act
- WWTF = Wastewater treatment facility

5.3 Cumulative Impact Analysis

Cumulative impacts are discussed below by resource. This section does not address resources that the Navy has determined would not be impacted by the proposed action because the proposed action would not contribute to any cumulative impacts on these resources. Resources that are not analyzed include vegetation, soils, regional population and housing, community services, infrastructure and utilities, transportation, installation land uses, regional land uses, land use controls, coastal zone, architectural resources, archaeological resources, surface waters, groundwater, floodplains, hazardous materials and waste management, and IRP sites. These resources are discussed in Sections 3 and 4.

5.3.1 Airspace and Airfield Operations

The geographic study area for cumulative impacts on airspace and airfield operations is the navigable airspace controlled by NAS Whidbey Island. A summary of the relevant impacts of the Navy's proposed action, the relevant impacts of other projects that impact airspace and airfield operations, and the cumulative impacts of these projects combined is provided below.

5.3.1.1 Summary of Impacts from the Proposed Action

Under the proposed action, most of the pattern operations originating at Ault Field would be conducted within the Class C airspace over the airfield or within an up to 10-nm radius of the airfield (depending on altitude). The proposed action would result in an increase in total annual operations at Ault Field, ranging from a 2.7% increase (1,961 operations) under Alternative 1 to a 3.1% increase (2,178 operations) under Alternatives 2 and 3. Thus, no significant impacts to airspace and airfield operations are anticipated.

5.3.1.2 Summary of Impacts from Other Projects

Projects that have the potential to cumulatively impact airspace and airfield operations in combination with the proposed action include the NWTRC EIS training activities, the replacement of EA-6B aircraft with EA-18G aircraft at NAS Whidbey Island (carrier-based VAQ squadrons), the pending Northwest Training and Testing EIS training and testing activities, as well as the replacement of the P-3C Orion aircraft with the P-8A MMA and the replacement of the C-9 aircraft with the C-40 aircraft.

The airspace-related activities associated with the NWTRC EIS project included additional operations in the inshore area around NAS Whidbey Island. Aircraft were already operating in this airspace and no significant changes in the types of airspace classification and

uses were anticipated. Therefore, it was determined that there would be no significant impacts on airspace and airfield operations at Ault Field. The replacement of EA-6B aircraft with EA-18G aircraft at NAS Whidbey Island (carrier-based VAQ squadrons) anticipated a reduction of 7,335 operations following replacement of 72 EA-6B Prowler aircraft with 57 EA-18G Growler aircraft (U.S. Navy 2005b); however, there were no changes in the types of airspace classification or usage.

As a result of the replacement of the still transitioning P-3C Orion squadrons with P-8A MMA squadrons there would be less than a 1% decrease in operations at Ault Field. The replacement of P-8A MMA squadrons would not change the existing types of flight operations or flight tracks that are currently under use with the P-3C Orion squadrons. Additionally, the Navy is currently analyzing future training and testing activities in the NWTRC as well as at Navy Research, Development, Test and Evaluation (RDT&E) ranges both at offshore and inshore marine ranges in the Northwest Training and Testing EIS project. This project is not complete, so no final or quantitative analysis can be completed and the exact nature of the impacts is not yet known. However, the project has the potential to impact airspace similar to the impacts described in the NWTRC EIS. There is the potential for an increase in aircraft operations, as well as the potential development, testing, and introduction of new aircraft. The Northwest Training and Testing EIS will contain further discussion of cumulative impacts related to this project.

Additionally, the replacement of the C-9 Skytrain II aircraft has not been fully developed, so potential changes to airfield operations associated with this action cannot be assessed at this time. However, it is not expected that the percentage of total aircraft operations conducted by the C-9 Skytrain II replacement aircraft, C-40 Clipper, or the overall flight patterns of the aircraft would change significantly as a result of the replacement actions, and so it is expected that impacts on airspace and airfield operations would be minor.

5.3.1.3 Cumulative Impacts

The proposed action's increase of up to 3.1% in aircraft operations, combined with the proposed actions described in the NWTRC EIS, the Replacement of the P-3C Orion Aircraft with the P-8A MMA EIS, the Northwest Training and Testing EIS, and the replacement of the C-9 Skytrain II with the C-40 Clipper would not have a significant cumulative impact on airspace and airfield operations at Ault Field. No significant changes in the types of classification or use of the airspace are anticipated. Additionally, at this time, it is not anticipated that the

combination of the ongoing projects and the expected foreseeable projects would significantly change or increase the number of operations. Therefore, when considered in combination, no significant cumulative impacts on airspace and airfield operations are expected.

5.3.2 Noise

The geographic study area for cumulative impacts on noise is defined as the area within the Alternative 2 and 3 noise zones depicted on Figure 4-1 (Section 4). A summary of the relevant impacts of the Navy's proposed action, the relevant impacts of other projects that generate noise, and the cumulative impacts of these projects combined is provided below.

5.3.2.1 Summary of Impacts from the Proposed Action

Current and projected 2014 noise contours associated with Ault Field would be smaller than the historic contours associated with the EA-6B Prowler aircraft, which began operating at NAS Whidbey Island in 1970. Implementation of the proposed action would result in a decrease in the land area within the noise zones. No additional residential areas in Oak Harbor would be included in the projected greater-than-65-dB DNL noise zones under any of the action alternatives. Construction-related noise impacts associated with the proposed action would be intermittent and temporary and would be expected to occur only during an approximately 10-month construction period. Construction noise would be masked by the more dominant aircraft operation noise. Thus, no significant impacts on the existing noise environment are anticipated.

5.3.2.2 Summary of Impacts from Other Projects

Projects that have the potential to cumulatively impact noise in combination with the proposed action include the NWTRC EIS training activities, the Replacement of the P-3C Orion Aircraft with the P-8A MMA EIS, the replacement of EA-6B aircraft with EA-18G Aircraft at NAS Whidbey Island (carrier-based VAQ squadrons), the pending Northwest Training and Testing EIS training and testing activities, the City of Oak Harbor Water System Improvements, the Clean Water Facilities project, the harvest of 28 acres of timber, construction of the NAS Whidbey Island petroleum, oil, and lubricants pipeline, fuel pier breakwater construction and finger pier demolition, and the replacement of the C-9 aircraft with the C-40 aircraft.

The training activities associated with the NWTRC include additional aircraft training and underwater detonations in the inshore area around NAS Whidbey Island, but not a large increase in aircraft overflights over terrestrial areas. If the noise associated with the increased training falls within the greater-than-65-dB noise zones in the vicinity of NAS Whidbey Island, there is a potential for increased noise impacts. Underwater detonations have been proposed to

decrease from 58 per year to two per year at Crescent Harbor resulting in a decrease to noise impacts from detonations. Some above-ambient sounds levels could be expected from these detonations if they are closer to the surface in the water column. Therefore, it was determined that there would be no significant impact on noise receptors from noise associated with surface ships, aircraft, and underwater explosive ordnance training.

Aircraft operations associated with transitioning P-3C Orion squadrons with the P-8A MMA squadrons would decrease by less than 1%. This minor decrease would not significantly change the amount of land and water area within the greater-than-65-dB noise zones in the vicinity of NAS Whidbey Island. Therefore, there is the potential for minor decreased noise impacts on the population in the vicinity of NAS Whidbey Island. Additionally, the replacement of the EA-6B with EA-18G aircraft as evaluated in the 2005 EA will result in a 36% reduction in the population exposed to aircraft noise greater than 65 dB DNL around Ault Field and in a 28% decrease in the land area within the greater than 65 dB DNL noise contour round Ault Field.

The Navy is currently analyzing future training and testing activities in the NWTRC as well as at Navy RDT&E ranges, both in the offshore and inshore marine environments, in the Northwest Training and Testing EIS project. This project is not complete, so no final or quantitative analysis can be completed and the exact nature of the impacts is not yet known. However, the project has the potential for impacts similar to those described in the NWTRC EIS. There is the potential for an increase in aircraft operations, as well as the potential development, testing, and introduction of new aircraft. The Northwest Training and Testing EIS will contain further discussion of cumulative impacts related to this project.

Construction-related noise could result from the replacement of the City of Oak Harbor's two existing water treatment facilities under the City of Oak Harbor Water Systems Improvement project and the Clean Water Facilities Planning project, the harvest of 28 acres of timber, the NAS Whidbey Island petroleum, oil and lubricants pipeline, and the fuel pier breakwater construction and finger pier demolition. These projects could have the potential to impact the population in Oak Harbor; however, it is expected that any impacts would be minor due to the short-term timeframe of the projects. The construction of a breakwater and the demolition of a pier could have the potential to impact the population at NAS Whidbey Island Seaplane Base; it is not expected that the noise from construction and demolition would extend off the base. Therefore, it is expected that impacts from increased noise would be minor and short-term during the construction and demolition phases of these projects.

Furthermore, the replacement of four C-9 Skytrain II aircraft by three C-40 Clipper aircraft has not been fully developed, so potential changes to the noise environment associated with this action cannot be assessed at this time. However, it is not expected that the percentage of total aircraft operations conducted by the C-9 Skytrain II replacement aircraft, C-40 Clipper, or the overall flight patterns of the aircraft would change significantly as a result of the replacement actions, and so it is expected that impacts to noise would be minor.

5.3.2.3 Analysis of Cumulative Impacts

The proposed action combined with the proposed actions of the ten projects discussed above would not have a significant cumulative noise impact. The proposed action would result in a 14% reduction in the amount of land and water area within the greater-than-65-dB noise zones in the vicinity of Whidbey Island. The transition of the P-8A MMA would result in an approximately 20-dB reduction in SELs over the current P-3's and a less than 1% decrease in aircraft operations. The C-40 is anticipated to be quieter than the C-9 and fewer of them would be homebased at NAS Whidbey Island. Finally, the 2005 EA that analyzed the transition of the E/A-6B with E/A-18G has resulted in a reduction of aircraft noise since the E/A-18G is quieter than the E/A-6B. Additionally, the Northwest Training and Testing project has not been developed but the potential noise impacts from training could remain the same or increase. Although an increase in training is possible, it is not anticipated to increase at a level that would create a significant cumulative impact. As a result, the overall noise impacts of these projects would likely reduce the noise associated with NAS Whidbey Island and its surrounding areas.

The construction projects in the area, such as the replacement of the P-3C Orion aircraft with the P-8A MMA, City of Oak Harbor water system improvements, the harvest of 28 acres of timber, and construction of the NAS Whidbey Island petroleum, oil, and lubricants pipeline would all be expected to take place during 2012, potentially in the same timeframe as the construction for the proposed action. It is expected that any construction noise, both on the installation and off the installation, would be temporary or intermittent.

Because of the positive impact from the reduction of acreage under the noise contours resulting from the proposed action and the small amount of construction noise both on and off the installation, the cumulative impacts from construction and from air operations would not be significant.

5.3.3 Land Use Compatibility

The geographic study area for cumulative impacts on land use is defined as the area surrounding NAS Whidbey Island. A summary of the relevant impacts of the Navy's proposed action, the relevant impacts of the other projects that impact land use compatibility, and the cumulative impacts of these projects combined are provided below.

5.3.3.1 Summary of Impacts from the Proposed Action

Under the proposed action, there would be a reduction of approximately 14% in the acreage of land and water within the projected greater-than-65-dB DNL noise zones. No additional residential areas within Oak Harbor would be included in the projected greater-than-65-dB DNL noise zones. This would result in a positive impact on land use compatibility in the vicinity of the air station.

5.3.3.2 Summary of Impacts from Other Projects

Projects that have the potential to cumulatively impact land use compatibility in the area surrounding NAS Whidbey Island in combination with the proposed action include the NWTRC EIS, Replacement of the P-3C Orion Aircraft with the P-8A MMA EIS, Northwest Training and Testing EIS, and the Replacement of the C-9 Aircraft with the C-40 Aircraft.

The training and testing activities associated with the NWTRC EIS project could increase the amount of land within the greater-than-65-dB DNL noise zones due to the increase in aircraft training operations as well as the potential development, testing, and introduction of new aircraft. As described in the NWTRC EIS, there is potential for increased aircraft operations in the inshore area but not a large increase in aircraft overflights over terrestrial areas. Therefore, it was determined that no significant impacts to land use compatibility in the vicinity of NAS Whidbey Island would occur.

The change in operations associated with the replacement of the P-3C Orion squadrons with P-8A MMA squadrons would decrease aircraft operations by less than 1%. Under the ROD for the P-8A, an additional 6 acres of land would be included within the projected greater-than-65-dB DNL noise zones (U.S. Navy 2008). None of the action alternatives resulted in additional residential acreage included within the projected greater-than-65-dB DNL noise zones (U.S. Navy 2008). With the potential for more squadrons and the FRS to be based at NAS Whidbey Island, additional land could be included within the greater-than-65-dB DNL noise zones and could have the potential for minor impacts. Additionally, it was determined in the Replacement

of the P-3C Orion Aircraft with the P-8A MMA EIS that no additional incompatible land uses were located within the noise zones.

The Navy is currently analyzing future training and testing activities in the NWTRC as well as at Navy RDT&E ranges, both in the offshore and inshore marine environments, in the Northwest Training and Testing EIS project. This project is not complete, so no final or quantitative analysis can be completed and the exact nature of the impacts is not yet known. However, the project has the potential to impact land use compatibility similar to the impacts described in the NWTRC EIS. There is the potential for an increase in aircraft operations, as well as the potential development, testing, and introduction of new aircraft. The Northwest Training and Testing EIS will contain further discussion of cumulative impacts related to this project.

The replacement of four C-9 Skytrain II aircraft by three C-40 Clipper aircraft has not been fully developed, so potential changes to the noise environment associated with this action cannot be assessed at this time. However, it is not expected that the percentage of total aircraft operations conducted by the C-9 Skytrain II replacement aircraft, C-40 Clipper, or the overall flight patterns of the aircraft would change significantly as a result of the replacement actions, and so it is expected that impacts on land use would be minor.

5.3.3.3 Analysis of Cumulative Impacts

The proposed action would reduce up to approximately 14% of the acreage of land and water within the projected greater than 65-dB DNL noise zones, in contrast to the potential minor increase in land and water within the greater than 65-dB DNL noise zones as described in the NWTRC EIS, Replacement of the P-3C Orion Aircraft with the P-8A MMA EIS, Northwest Training and Testing EIS, and the replacement of the C-9 Skytrain II with the C-40 Clipper. Because of the positive impact from the reduction of acreage within the noise zones resulting from the proposed action, it is likely there would be no change in noise zones from the replacement of the C-Skytrain II with the C-40 Clipper and the potential minor impacts described in the NWTRC EIS, Northwest Training and Testing EIS, and the Replacement of the P-3C Orion Aircraft with the P-8A MMA EIS, so there would be no significant cumulative impacts on land use compatibility within the vicinity of NAS Whidbey Island.

5.3.4 Air Quality

The geographic study area for cumulative impacts on air quality is defined as the occurrence of emissions in a large, three-dimensional area at and above NAS Whidbey Island,

Island County, and Skagit County. The airspace in which the projected emissions from the new replacement aircraft would occur extends beyond the boundaries of NAS Whidbey Island, its horizontal extent being generally on the order of a county and vertically extending 3,000 feet. A summary of the relevant impacts of the Navy's proposed action, the relevant impacts of the other projects that impact air quality and the cumulative impacts of these projects combined are provided below.

5.3.4.1.1 Summary of Impacts from the Proposed Action

Replacement of the Expeditionary EA-6B squadrons with the EA-18G would have no significant impact on local air quality. The increases are not considered to be a significant impact on regional air quality. The NWAPA is in attainment for all criteria pollutants, and the increase would not cause the region to be in violation of any of the NAAQS.

Stationary source emissions of CO from the test cell are projected to increase and emissions of VOCs, NO_x, SO₂ and PM₁₀ are projected to decrease. Increased emissions of CO are not considered to be a significant impact on regional air quality because the projected increases would be well below the PSD threshold as defined under the CAA.

Greenhouse Gas Emissions and Climate Change

GHG emissions are by nature global and cumulative, as individual sources of GHG emissions are not large enough to have an appreciable effect on climate change. A significant impact on global climate change could only occur when the GHG emissions of a proposed action combine with GHG emissions from other manmade activities on a global scale. Even when considering the projects together, no global-scale changes to GHG emissions would occur.

5.3.4.1.2 Summary of Impacts from Other Projects

Projects that have the potential to cumulatively impact air quality in the area surrounding NAS Whidbey Island in combination with the proposed action include the NWTRC EIS project, the Replacement of the P-3C Orion Aircraft with the P-8A MMA EIS, the Northwest Training and Testing EIS project, the replacement of the C-9 aircraft with the C-40 aircraft, and the Animal Vegetation Control EA.

As described in the NWTRC EIS, training activities could increase, including changes in basing locations for ships, aircraft, personnel, and range enhancements. Although the proposed action could result in increases in emissions of air pollutants above the baseline conditions, associated emissions would not exceed air quality standards in U.S. territory and emissions

outside U.S. territorial waters and would not adversely affect offshore air quality; therefore, no significant impacts would be expected to occur.

Air quality impacts associated with the replacement of the P-3C Orion aircraft with the P-8A MMA would result from emissions from short-term construction activities, long-term aircraft operations, and personnel commuting changes. Both temporary construction emissions and annual operating emissions are projected to be approximately 230 tpy and therefore would have no significant impact on air quality in the region. Additionally, the Navy is currently analyzing future training and testing activities in the NWTRC as well as at Navy RDT&E ranges, both in the offshore and inshore marine environments, in the Northwest Training and Testing EIS project. This project is not complete so no final or quantitative analysis can be completed and the exact nature of the impacts are yet unknown. However, the project has the potential to result in increases in emissions of air pollutants. There is the potential for an increase in aircraft operations, as well as the potential development, testing, and introduction of new aircraft. The Northwest Training and Testing EIS will contain further discussion of cumulative impacts related to this project.

The replacement of four C-9 Skytrain II aircraft has not been fully developed, so potential changes in air quality associated with this action cannot be assessed at this time. It is expected that this action would result in decreased aircraft operations emissions because of a proposed reduction in airframes. Projected emissions data are unavailable for this project, although emissions would be expected to be small due to the nature of the proposed action.

The Navy will prepare an EA for the proposed implementation of a rodent management program that proposes controlled burning at the airfield. Emissions would be expected to include short-term particulate matter; however, the Navy has not yet completed an air quality analysis so air emissions have not yet been calculated. The Navy would comply with all applicable air quality permits throughout the life of the project. This project would be small-scale and temporary in duration. Therefore, this project would have no significant long-term impact on air quality in the region.

5.3.4.1.3 Analysis of Cumulative Impacts

NAS Whidbey Island is located in regions that are in attainment for all criteria emissions. PSD standards establish 250 tpy thresholds for criteria pollutants for major stationary emissions sources. Due to the rural nature of the study area, emissions from the projects described above would be minimal. Whidbey Island is expected to remain largely rural into the

foreseeable future, and air emissions from all sources are not expected to increase significantly above current levels. Therefore, there would be no significant cumulative impacts on air quality within the vicinity of NAS Whidbey Island.

5.3.5 Biological Resources

This section discusses the impacts to federally protected species, wildlife, migratory birds, and BASH that may have the potential for a cumulative impact from the Navy's proposed action and other past, ongoing, or reasonably foreseeable future actions. Marine mammals, bald and golden eagles, and federally protected species (except for the marbled murrelet) are discussed in this EA, but are not discussed in this section because the Navy's proposed action would have no impact and therefore, there would be no combined cumulative impact.

5.3.5.1 Federally Protected Species

The geographic study area for cumulative impacts on the marbled murrelet is defined as the area within the Alternative 2 and 3 noise zones depicted on Figure 4-1. A summary of the relevant impacts of the Navy's proposed action, the relevant impacts of other projects that generate noise, and the cumulative impacts of these projects combined is provided below.

5.3.5.1.1 Summary of Impacts from the Proposed Action

As discussed in Section 4.3, under all three action alternatives in this EA, the proposed changes in flight operations and noise levels may affect, but are not likely to adversely affect, the federally threatened marbled murrelet on the waters surrounding Whidbey Island. The risk of collision would increase in the immediate vicinity of Ault Field while aircraft are operating below 500 feet agl, but aircraft spend a short time in marbled murrelet airspace. No construction-related impacts to the marbled murrelet or its habitat would occur under the proposed action. In a letter dated May 24, 2012, the USFWS concurred with the Navy's affect determination. Thus, no significant impacts to marbled murrelets are anticipated.

5.3.5.1.2 Other Projects

Projects that have the potential to cumulatively impact the marbled murrelet in combination with the proposed action include the NWTRC EIS project, the Replacement of the P-3C Orion Aircraft with the P-8A MMA EIS, the Northwest Training and Testing EIS project, the City of Oak Harbor Water System Improvements, harvesting of 28 acres of timber, the NAS Whidbey Island petroleum oil, and lubricants pipeline project, fuel pier breakwater construction

and finger pier demolition, replacement of the C-9 aircraft with the C-40 aircraft, and the Animal and Vegetation Control EA.

According to the EIS for the NWTRC, the proposed action would involve aircraft overflights, and underwater detonations that may affect, but are not likely to adversely affect, the marbled murrelet. Additionally, it was determined that activities in the NWTRC would not destroy or adversely modify critical habitat for the marbled murrelet. There would be no significant impacts on the murrelet from aircraft noise and aerial and underwater sound from underwater detonations. The impacts on the marbled murrelet may range from short-term behavioral reactions to temporary or permanent threshold shift of hearing sensitivity for marbled murrelets foraging underwater at the time of the detonation. The USFWS does not expect essential or normal marbled murrelet behavior to be significantly impaired or disrupted by the activities associated with the military training in the NWTRC. The Navy has prepared a monitoring plan for pre-, during, and post-detonations. The Navy will report the dates, times, locations, and water depth of all detonations and the marbled murrelet response to these detonations to the USFWS.

As described in the Replacement of the P-3C Orion Aircraft with the P-8A MMA EIS, the negligible change in noise exposure associated with aircraft operations of this action may affect, but is not likely to adversely affect, the marbled murrelet. Given the nature of the current NAS Whidbey Island operations, locally occurring individuals have likely become habituated to aircraft noise. The increase in strike risk would be negligible as air operation numbers would not contribute greatly to current operations at NAS Whidbey Island. Additionally, the Navy is currently analyzing future training and testing activities in the NWTRC as well as at Navy RDT&E ranges, both in the offshore and inshore marine environments, in the Northwest Training and Testing EIS project. This project is not complete so no final or quantitative analysis can be completed and the exact nature of the impacts are yet unknown. However, the project has the potential to impact the marbled murrelet similar to the impacts described in the NWTRC EIS. There is the potential for an increase in aircraft operations, as well as the potential development, testing, and introduction of new aircraft. Similar levels of underwater detonations at Crescent Harbor are anticipated as well. The Northwest Training and Testing EIS will contain further discussion of cumulative impacts related to this project. The Navy will consult with the USFWS, as necessary, as part of the EIS process. Mitigation measures, as needed, will be incorporated into the EIS.

Construction-related impacts could result from the replacement of the City of Oak Harbor's two existing water treatment facilities under the City of Oak Harbor Water Systems Improvement project, the Clean Water Facilities Planning project, the harvest of 28 acres of timber, the NAS Whidbey Island petroleum, oil and lubricants pipeline, and the fuel pier breakwater construction and finger pier demolition. The marbled murrelet could be disrupted during foraging and nesting activities. However, this potential disruption would be expected to be minor because it would be short-term, and federal and state mitigation measures, as needed, would be adhered to. Additionally, the discharge of effluent into Oak Harbor as a result of improvement of the City of Oak Harbor's water supply infrastructure and the replacement of the City of Oak Harbor's two existing water treatment facilities would not be expected to impact the marbled murrelets nearshore foraging areas because all discharge would be treated before its release.

Additionally, the harvest of timber could have the potential to impact marbled murrelet nesting habitat because the species nests in old-growth forests located in coastal areas. However, it would be expected that this project would not be implemented during nesting season. Ample forested habitat is available in the adjacent 4,134-acre Deception Pass State Park; therefore, through mitigation, it is expected that the harvesting of 28 areas would not significantly impact the marbled murrelet.

The replacement of the C-9 Skytrain II aircraft has not been fully developed, so potential impacts on the marbled murrelet from this action cannot be accurately assessed at this time. However, it is not expected that the percentage of total aircraft operations conducted by the C-9 Skytrain II replacement aircraft, C-40 Clipper, or the overall flight patterns of the aircraft would change significantly as a result of the replacement actions, and so it is expected that impacts to marbled murrelets would be minor. The Navy will consult with the USFWS during the NEPA process and incorporate mitigation as needed.

The Animal and Vegetation Control project would not be expected to impact the marbled murrelet as the action would occur in a habitat that is not suitable to the species. The Navy will prepare an EA for the proposed implementation of a rodent management program that uses a rodenticide and controlled burning. The Navy will consult with the USFWS during the NEPA process and will incorporate mitigation as needed.

5.3.5.1.3 Analysis of Cumulative Impacts

The proposed action when considered with other past, present, and future actions is not anticipated to have a significant cumulative impact on the marbled murrelet. It is expected that the marbled murrelet has habituated to the current noise associated with aircraft training from NAS Whidbey Island. Changes in the noise levels are not expected to be significantly different from current levels in that the types of operations and flights are similar to past actions. Although operations in the area may increase, this would be offset somewhat by the quieter nature of the Growler aircraft. In addition, the reduction of EOD operations in the bay is expected to decrease impacts to the murrelet. The Navy has consulted with USFWS on the impacts to the marbled murrelet for past and current projects and will continue to do so for future projects.

Construction-related impacts such as the modification and construction of additional buildings/hangars associated with the proposed action and the projects listed above would be short-term and the projects are not occurring concurrently. Construction would not be expected to have a significant cumulative impact on the marbled murrelet.

5.3.5.2 Wildlife

The geographic study area for cumulative impacts on wildlife is defined as the area covered by the Alternative 2 and 3 noise zones depicted on Figure 4-1. A summary of the relevant impacts of the Navy's proposed action, the relevant impacts of other projects, and the cumulative impacts of these projects on wildlife is provided below.

5.3.5.2.1 Summary of Impacts from the Proposed Action

The paved surfaces and maintained lawn and landscaped areas that would be affected by the proposed construction would not likely support a high diversity or abundance of wildlife species. Species present in these areas would be expected to be acclimated to human disturbance. Temporary displacement of wildlife would occur in peripheral areas during construction, when noise and human activity levels increase. However, once construction has been completed, wildlife should return to these peripheral areas. Some wildlife species such as songbirds, small mammals, reptiles, and amphibians that are able to adapt to the landscaped conditions of urban environments can be expected to inhabit the developed areas.

There would be an increase in the number of EA-18G Growler flight operations (by 2.7% under Alternative 1 and 3.1% under Alternatives 2 and 3) but a decrease in noise levels at Ault Field compared to baseline conditions. Several studies indicate that there is a strong tendency

for species to acclimate or habituate to noise disturbances (Grubb and King 1991; Ellis et al. 1991; Mancini et al. 1988; Fraser et al. 1985; Black et al. 1984). Given the nature of the current NAS Whidbey Island operations, locally occurring wildlife species have likely become habituated to aircraft noise. Therefore, the proposed action would not significantly impact wildlife.

5.3.5.2.2 Summary of Impacts from Other Projects

Projects that have the potential to cumulatively impact wildlife in combination with the proposed action include the NWTRC EIS project, the Replacement of the P-3C Orion Aircraft with the P-8A MMA EIS, the Northwest Training and Testing EIS project, the City of Oak Harbor Water System Improvements, Clean Water Facilities Planning, harvesting of 28 acres of timber, construction of the NAS Whidbey Island petroleum, oil, and lubricants pipeline, fuel pier breakwater construction and finger pier demolition, replacement of the C-9 aircraft with the C-40 aircraft, and the Animal and Vegetation Control EA.

The increase in noise from aircraft training activities in the NWTRC EIS project would not have a significant impact on wildlife. The areas of land that would be affected are disturbed from prior use and provide poor quality wildlife habitat. Additionally, there would be an increase of aircraft training activities in inshore areas, but not a large increase in aircraft overflights over terrestrial areas. Given that the nature and types of operations would not change, and given the less than significant increase in noise, it was determined that there would be no significant impacts on wildlife.

The introduction of the P-8A MMA aircraft and operational changes would not have a significant impact on wildlife because the increase of the land area within the greater-than-65-dB DNL noise zones would be negligible. Given the nature of the current NAS Whidbey Island operations, locally occurring wildlife species have likely become habituated to aircraft noise. Increased noise during the construction period would temporarily displace wildlife. However, this potential disruption would be minor as it would be short-term and wildlife should return upon the completion of construction. Additionally, the removal of habitat would likely have a negligible effect on wildlife as they can relocate to other suitable habitat located in the vicinity. As determined in the Replacement of the P-3C Orion Aircraft with the P-8A MMA EIS, this action would not have a significant impact on wildlife.

The Navy is currently analyzing future training and testing activities in the NWTRC as well as at Navy RDT&E ranges, both in the offshore and inshore marine environments, in the

Northwest Training and Testing EIS project. This project is not complete, so no final or quantitative analysis can be completed and the exact nature of the impacts are yet unknown. However, the project has the potential to impact wildlife similar to the impacts described in the NWTRC EIS. There is the potential for an increase in aircraft operations, as well as the potential development, testing, and introduction of new aircraft. The Northwest Training and Testing EIS will contain further discussion of cumulative impacts related to this project. Additionally, the replacement of the C-9 Skytrain II aircraft has not been fully developed, so potential impacts on wildlife from this action cannot be accurately assessed at this time. However, it is not expected that the percentage of total aircraft operations conducted by the C-9 Skytrain II replacement aircraft, C-40 Clipper, or the overall flight patterns of the aircraft would change significantly as a result of the replacement actions. Therefore, impacts on wildlife in the vicinity of Whidbey Island would be expected to be minor.

Construction-related noise could result from the replacement of the City of Oak Harbor's two existing water treatment facilities under the City of Oak Harbor Water Systems Improvement project, the Clean Water Facilities Planning project, the harvest of 28 acres of timber, the NAS Whidbey Island petroleum, oil and lubricants pipeline, and the fuel pier breakwater construction and finger pier demolition. These projects could cause increased noise during the construction period, which would temporarily displace wildlife. However, this potential disruption would be expected to be short-term and wildlife should return upon the completion of construction. The harvesting of timber would have the potential to impact wildlife habitat for species that utilize forested areas; however, there is ample forested habitat in the adjacent 4,134-acre Deception Pass State Park. Therefore, the harvesting of 28 acres of timber is not expected to impact wildlife because the wildlife could relocate.

The Navy will prepare an EA for the proposed implementation of a rodent management program comprised of the use of a rodenticide and controlled burning. The Navy will confer with the Washington Department of Ecology during the NEPA process and will incorporate mitigation as needed to protect other wildlife. Additionally, the controlled burning would have the potential to displace wildlife that utilizes airfield open areas at Ault Field. After vegetation recovers at Ault Field, wildlife could return to the areas that were burned. This impact would be expected to be minor as Ault Field is not known to support a high diversity or number of wildlife species.

5.3.5.2.3 Analysis of Cumulative Impacts

Noise generated by air operations associated with the proposed action and the proposed actions of the projects described above would not be significant. Aircraft currently fly in the area so wildlife would likely be habituated to increased noise levels. Noise generated by construction associated with the proposed action and the proposed actions of the projects described above would be short-term and would not occur concurrently. In conclusion, the proposed action, combined with the proposed actions of the projects described above would not have a significant cumulative impact on wildlife.

5.3.5.3 Migratory Birds

The geographic study area for cumulative impacts on migratory birds is defined as the area in the Alternative 2 and 3 noise zones depicted on Figure 4-1. A summary of the relevant impacts of the Navy's proposed action, the relevant impacts of other projects, and the cumulative impacts of these projects on migratory birds is provided below.

5.3.5.3.1 Summary of Impacts from the Proposed Action

The paved surfaces and maintained lawn and landscaped areas that would be affected by the proposed construction would not support a high diversity or abundance of birds. While the proposed new construction could disturb approximately 0.2 acre of habitat potentially used by various species of neotropical migratory songbirds, removal of this habitat would not impact migratory bird species populations and no direct mortality of migratory birds would result. Based on the availability of remaining suitable habitat, removal of habitat due to construction would not impact migratory birds at NAS Whidbey Island. During operations, noise levels would decrease slightly and, therefore, would not have a significant impact on migratory bird species.

5.3.5.3.2 Other Projects

Projects that have the potential to cumulatively impact migratory birds in combination with the proposed action include the Northwest Training Range Complex EIS project, the Replacement of the P-3C Orion Aircraft with the P-8A MMA EIS, Northwest Training and Testing EIS project, the City of Oak Harbor Water System Improvements, Clean Water Facilities Planning, harvesting of 28 acres of timber, construction of the NAS Whidbey Island petroleum, oil, and lubricants pipeline, fuel pier breakwater construction and finger pier demolition, replacement of the C-9 aircraft with the C-40 aircraft, and the Animal and Vegetation Control EA.

The increase in noise from aircraft training activities currently ongoing and analyzed in the NWTRC EIS project would not have a significant impact on migratory birds. The areas of land that would be affected by this training are disturbed from prior use and provide poor quality habitat. Additionally, as implemented, there may be an increase of aircraft training activities in inshore areas, but not a large increase in aircraft overflights over terrestrial areas. Given that the nature and types of operations would not change, and given the less than significant increase in noise, it was determined that there would be no significant impacts on wildlife.

The change in noise exposure associated with the Replacement of the P-3C Orion Aircraft with the P-8A MMA would not have significant impact on migratory birds. Given the nature of the current NAS Whidbey Island operations, locally occurring migratory bird species have likely become habituated to aircraft noise. It is anticipated that increased noise during the construction period temporarily would displace migratory birds. However, this potential disruption would be expected to be minor as it would be short-term and migratory birds should return upon the completion of construction. Additionally, the Navy is currently analyzing future training and testing activities in the NWTRC as well as at Navy RDT&E ranges, both in the offshore and inshore marine environments, in the Northwest Training and Testing EIS project. This project is not complete so no final or quantitative analysis can be completed and the exact nature of the impacts are yet unknown. However, the project has the potential to impact migratory birds similar to the impacts described in the Northwest Training Range Complex EIS. There is the potential for an increase in aircraft operations, as well as the potential development, testing, and introduction of new aircraft. The Northwest Training and Testing EIS will contain further discussion of cumulative impacts related to this project.

Construction-related noise could result from the replacement of the City of Oak Harbor's two existing water treatment facilities under the City of Oak Harbor Water Systems Improvement project, the Clean Water Facilities Planning project, the harvest of 28 acres of timber, the NAS Whidbey Island petroleum, oil and lubricants pipeline, and the fuel pier breakwater construction and finger pier demolition. These projects could cause increased noise during the construction period, which would temporarily displace migratory birds. However, this potential disruption would be expected to be short-term and migratory birds should return upon the completion of construction. The harvesting of timber would have the potential to impact migratory bird habitat for species that utilize forested areas; however, there is ample forested habitat in the adjacent 4,134-acre Deception Pass State Park. Therefore, it is expected that the harvesting of 28 areas would not impact migratory birds as they could relocate.

The replacement of four C-9 Skytrain II aircraft has not been fully developed, so potential impacts on migratory birds from this action cannot be accurately assessed at this time. However, it is not expected that the percentage of total aircraft operations conducted by the C-9 Skytrain II replacement aircraft, C-40 Clipper, or the overall flight patterns of the aircraft would change significantly as a result of the replacement actions. Therefore, impacts on migratory birds in the vicinity of Whidbey Island would be expected to be minor.

The Navy will prepare an EA for the proposed implementation of a rodent management program comprised of the use of a rodenticide and controlled burning. The Navy will consult with USFWS during the NEPA process and incorporate mitigation as needed. Additionally, the controlled burning would have the potential to displace migratory birds that utilize airfield open areas at Ault Field. After vegetation recovers at Ault Field, migratory birds could return to the areas that were burned. This impact would be expected to be minor as Ault Field is not known to support a high diversity or number of migratory bird species.

5.3.5.3.3 Analysis of Cumulative Impacts

Noise disturbance from aircraft associated with the proposed action and the projects described above would not be significant. Aircraft currently fly in the area so migratory birds would likely be habituated to increased noise levels. Noise generated by construction associated with the proposed action and the projects described above would be short-term and would not occur concurrently. In conclusion, the proposed action, combined with the projects described above would not pose a significant cumulative impact. Air operations in the area are currently ongoing and migratory birds most likely have been habituated and construction activities would be short-term.

5.3.5.4 Bird/Aircraft Strike Hazard

The geographic study area for cumulative impacts on BASH is defined as the area within the Alternatives 2 and 3 noise zones depicted on Figure 4-1. A summary of the relevant impacts of the Navy's proposed action, the relevant impacts of other projects, and the cumulative impacts of these projects on BASH is provided below.

5.3.5.4.1 Summary of Impacts from the Proposed Action

The proposed action would not create attractants, such as diverse habitat structure, that would have the potential to increase the concentration of birds in the vicinity of Ault Field. Considering the minor increase (2.7% under Alternative 1 and 3.1% under Alternatives 2 and 3) in annual air operations and use of existing flight tracks, a minor increase in the BASH risk could

occur at NAS Whidbey Island. With the minor increase in air operations, there would be a potential for increased bird strikes of one to two birds a year under the action alternatives. Thus, no significant impacts to BASH risk are anticipated.

5.3.5.4.2 Summary of Impacts from Other Projects

Projects that have the potential to cumulatively impact BASH in combination with the proposed action include the NWTRC EIS project, the Replacement of the P-3C Orion Aircraft with the P-8A MMA EIS, the Northwest Training and Testing EIS project, replacement of the C-9 aircraft with the C-40 aircraft, and the Animal and Vegetation Control EA.

The activities associated with the NWTRC EIS project include additional training activities in the inshore area around NAS Whidbey Island. Aircraft were already operating in this airspace and no significant changes in the types of airspace classification and uses were anticipated. Therefore, it was determined that an increase in aircraft operations and training in the inshore areas would have no significant impact on the BASH risk under the proposed action for the NWTRC EIS project.

The BASH risk would decrease with a decrease in air operation numbers at NAS Whidbey Island as a result of the replacement of the P-3C Orion aircraft with the P-8A MMA. Therefore, due to the decrease in aircraft operations and utilization of existing flight tracks, no increase in the BASH risk would be expected to occur at NAS Whidbey Island. Additionally, the Navy is currently analyzing future training and testing activities in the NWTRC as well as at Navy RDT&E ranges, both in the offshore and inshore marine environments, in the Northwest Training and Testing EIS project. This project is not complete so no final or quantitative analysis can be completed and the exact nature of the impacts are yet unknown. However, the project has the potential to impact BASH risk similar to the impacts described in the NWTRC EIS. There is a potential for increase in aircraft operations and training activities, as well as the potential development, testing, and introduction of new aircraft. The Northwest Training and Testing EIS will contain further discussion of cumulative impacts related to this project.

The replacement of four C-9 Skytrain II aircraft has not been fully developed, so potential impacts on BASH risk from this action cannot be accurately assessed at this time. A reduction in the number of aircraft is proposed, but it is not known if the number of operations would remain the same or be reduced. As a result, this action would not be expected to change BASH risk. No new land or water areas within the vicinity of NAS Whidbey Island would be

expected to be impacted. Therefore, BASH risk would be expected to remain the same as current conditions.

The Navy will prepare an EA for the proposed implementation of a rodent management program comprised of the use of a rodenticide and controlled burning. These two proposed actions would reduce attractants for birds such as habitat area and a food source (rodents for birds of prey). Therefore, this action, if implemented, would be expected to have beneficial impacts on BASH management.

5.3.5.4.3 Analysis of Cumulative Impacts

There could be an increase in the risk of bird/aircraft strikes from aircraft operations associated with the proposed action and the projects described above. Additionally, the animal and vegetation control project would have a beneficial impact on BASH risk and would partially offset the potential for cumulative impacts. Given that NAS Whidbey Island manages BASH currently and is proposing additional BASH management controls, the overall potential increase in strike risk would likely be minor and therefore there would be no significant cumulative impact.

5.3.6 Socioeconomics

The geographic study area for cumulative impacts on the regional economy is Island County. A summary of the relevant impacts of the Navy's proposed action, the relevant impacts of other projects, and the cumulative impacts of these projects combined is provided below.

5.3.6.1 Summary of Impacts from the Proposed Action

Impacts on the regional economy as a result of the proposed action would primarily be short-term, beneficial impacts resulting from increased temporary employment and expenditures on materials during construction of new and modified facilities. Implementation of Alternative 1 would result in a 1% increase in base personnel, which would be a minimal change in the number of permanent personnel employed at the air station or the air station's payroll. Implementation of Alternatives 2 or 3 would result in a 3.1% increase in base personnel. This would result in a small increase in payroll over the long term, but this increase would not be expected to have a significant impact on the overall regional economy.

5.3.6.2 Summary of Impacts from Other Projects

Projects that have the potential to cumulatively impact socioeconomics in combination with the proposed action include the Replacement of the P-3C Orion Aircraft with the P-8A

MMA EIS, City of Oak Harbor Water System Improvements, Clean Water Facilities Planning, construction of the NAS Whidbey Island petroleum, oil, and lubricants pipeline, and the fuel pier breakwater construction and finger pier demolition.

The construction associated with the P-8A MMA replacement would have a minor, short-term, beneficial impact on the economy of Island County. As stated in the Replacement of the P-3C Orion Aircraft with the P-8A MMA EIS, approximately \$411.4 million in economic benefits would be generated by one-time expenditures and total earnings would decrease by \$28.8 million. The short-term beneficial impact would result from the temporary increase in expenditures on temporary housing and goods and services by construction workers who would relocate to Island County for the duration of construction. As noted in Section 4.9, construction-related investments are considered one-time expenditures, and the positive economic impacts would no longer be multiplied once construction funds leave the regional economy through savings, taxes, or purchases of goods and services from outside the region.

The replacement of the City of Oak Harbor's two existing water treatment facilities under the City of Oak Harbor Water Systems Improvement project, the Clean Water Facilities Planning project, the NAS Whidbey Island petroleum, oil and lubricants pipeline, and the fuel pier breakwater construction and finger pier demolition would be expected to have a minor, short-term, beneficial impact on the economy of Island County during construction. This potential beneficial impact could be greater if a large percentage of the construction funds are spent on labor and materials purchased locally. A beneficial impact also would be expected to result from the temporary increase in expenditures on temporary housing and goods and services by construction workers who would relocate to Island County for the duration of construction. The projects would be expected to improve public water supply infrastructure, which is essential to the residents of Island County. Improvements to public infrastructure would be expected to enhance the quality of life of residents and would have the potential to create an incentive for more people to live and visit the region.

5.3.6.3 Analysis of Cumulative Impacts

The proposed action along with the proposed actions of the Replacement of the P-3C Orion Aircraft with the P-8A MMA EIS, City of Oak Harbor Water System Improvements, Clean Water Facilities Planning, construction of the NAS Whidbey Island petroleum, oil, and lubricants pipeline, and fuel pier breakwater construction and finger pier demolition would have a short-term, beneficial impact on the economy of Island County as a result of construction

activities. This would result from the temporary increase in expenditures on temporary housing and goods and services by construction workers who would relocate to Island County for the duration of construction. City of Oak Harbor Water System Improvements and Clean Water Facilities Planning both would also have a minor long-term beneficial impact on the local economy by improving current public infrastructure.

The positive impacts on socioeconomics through the actions described above would be minor and short-term. Therefore these actions, along with the proposed action, would pose no significant cumulative economic impact.