

**DRAFT**  
**ENVIRONMENTAL ASSESSMENT**  
**Lake Chelan Airport**  
**Chelan, Washington**

**USKH**  
SHARED VISION. UNIFIED APPROACH.

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**Lake Chelan Airport**  
**Chelan, Washington**

March 2, 2011

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USKH WO #1146701



**DRAFT**  
**ENVIRONMENTAL ASSESSMENT (EA)**  
**for the**  
**Lake Chelan Airport**  
**Chelan, Washington**

This environmental assessment becomes a Federal document when evaluated, signed, and dated by the responsible FAA official.

-----draft-----

\_\_\_\_\_  
**Responsible FAA Official**

\_\_\_\_\_  
**Date**

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## ACRONYMS

ACHP	Advisory Council on Historic Preservation
AIP	Airport Improvement Program
ALP	Airport Layout Plan
AOD	Airport Overlay District
APE	Area of Potential Effect
ARC	Airport Reference Code
ARP	Airport Reference Point
AWOS	Automated Weather Observation System
BMP	Best Management Practice
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CSCSL	Confirmed and Suspected Contaminated Sites List
EA	Environmental Assessment
EO	Executive Order
EPA	US Environmental Protection Agency
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulations
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
ft	foot or feet
FPPA	Farmland Protection Policy Act
GA	General Aviation
GIS	Geographic Information System
GMA	Growth Management Act
ISIS	Integrated Site Information System
LUST	Leaking Underground Storage Tank
MIRL	Medium Intensity Runway Lighting
NEPA	National Environmental Policy Act
NFA	No Further Action
NHPA	National Historic Preservation Act
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NRCS	National Resource Conservation Service
NRHP	National Registry of Historic Places
NWI	National Wetlands Inventory
OFA	Object Free Area
OFZ	Obstacle Free Zone
PAPI	Precision Approach Path Indicator
PUD	Public Utility District
RAP	Recycled Asphalt Pavement
REIL	Runway End Identifier Light
RPZ	Runway Protection Zone
RSA	Runway Safety Area
SEPA	State Environmental Policy Act
SHPO	State Historic Preservation Officer



- SMP.....Shoreline Master Program
- THPO.....Tribal Historic Preservation Officer
- UECA.....Uniform Environmental Covenants Act
- UGA.....Urban Growth Area
- USDA.....United States Department of Agriculture
- USFWS.....United States Fish and Wildlife Service
- USKH.....USKH Inc.
- UST.....Underground Storage Tank
- WDFW.....Washington Department of Fish and Wildlife
- WSASP.....Washington State Aviation System Plan
- WSDNR.....Washington State Department of Natural Resources
- WSDOE.....Washington State Department of Ecology
- WSDOT.....Washington State Department of Transportation



## 1 PURPOSE AND NEED

### 1.1 Introduction

The City of Chelan and Port of Chelan County, in cooperation with the Federal Aviation Administration (FAA), proposes to bring the Runway Safety Area (RSA), runway Obstacle Free Zone (OFZ) and runway Object Free Area (OFA) into compliance with FAA standards at the Lake Chelan Airport. Chelan is located in north-central Washington, in upper Chelan County, approximately 44 miles north of Wenatchee. Lake Chelan Airport is located approximately 3 miles northeast of the City of Chelan. The Airport Reference Point (ARP) coordinates are 47°51'57.63" north latitude and 119°56'33.72" west longitude. See Figure 1 for Location and Vicinity and Figure 2 for Existing Conditions.

The City of Chelan and the Port of Chelan County are joint sponsors for this project. An Airport Layout Plan (ALP) was developed for these agencies in February 2009; the ALP summarized existing conditions, identified deficiencies where the existing conditions do not meet safety and design standards for existing aircraft traffic, and identified proposed improvements to correct these deficiencies. See Appendix A for the ALP Drawings. This Environmental Assessment (EA) analyzes the impacts associated with improvements necessary to correct the non-standard items identified in the approved ALP. Appendix B includes figures 3-1 and 3-2 from the ALP, which identify non-standard items at both runway ends. Appendix B also includes figure 4-4 from the ALP, which describes proposed improvements for the preferred alternative of the ALP over the 20 year planning horizon of the ALP. Following chapters of this EA will provide details of the proposed and reasonably foreseeable actions for this EA and alternatives considered to correct the existing conditions.

The proposed improvements require an assessment of environmental impacts, as defined by FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects*, and FAA Order 1050.1E, Change 1, *FAA Environmental Impacts: Policies and Procedures*. This EA was prepared by USKH Inc. (USKH) to assess potential impacts that could result from the proposed improvements. All elements of the natural and constructed environment including earth, water, air, wildlife, noise, archaeology, and socioeconomic impacts will be evaluated. The FAA, City of Chelan, and the Port of Chelan County will rely on this document to make an impact determination under the NEPA and the State Environmental Policy Act (SEPA).

### 1.2 Purpose and Need

The purpose of this project is to correct several non-standard items for the Lake Chelan Airport to meet airport design standards in addition to eliminating several object penetrations to the airspace. Improvements are needed to provide a safe environment for existing aircraft traffic that uses the facility on a daily basis. Specifically, items that have been identified by the FAA as the highest priorities to enhance airport safety include providing unobstructed runway approaches, as well as providing standard dimensions, and surface conditions without obstructions for the runway critical surfaces (RSA, OFA, OFZ, and Runway Protection Zone [RPZ]).

### 1.3 Problem Definition: Existing Airport Conditions and Deficiencies

The Lake Chelan Airport is a general aviation (GA) airport that serves single-engine and small twin-engine aircraft for personal, agricultural, and business purposes. The airport also accommodates a limited amount (less than 500 operations per year) of business class turbine aircraft activity, including turboprops and smaller business jets. The airport accommodates seasonal fire response activity consisting of both helicopters and fixed wing aircraft. The runway is served by partial-length parallel taxiways on both sides, servicing adjacent landside areas.



**Figure 1 - Location and Vicinity**



The Airport Reference Code (ARC) system used by FAA relates airport design criteria to the operational and physical characteristics of aircraft that regularly use an airport. The ARC is composed of three designations relating to approach speed, wingspan, and weight. The appropriate ARC for the existing fleet of aircraft that regularly use the airport is B-1 (small). Furthermore, the ALP reflects a future ARC of B-1 (small). Therefore, FAA criteria for B-1 (small) facilities will be used as the guidelines for all proposed improvements at this airport.

The airport operates with one runway, Runway 2/20, oriented in the southwest-northeast direction. The runway and taxiways are constructed of asphalt concrete pavement. The runway has a published weight bearing capacity of 12,000 pounds for aircraft equipped with single-wheel landing gear. The runway has basic markings, medium-intensity runway edge lighting (MIRL), and threshold lighting at the displaced threshold locations. Runway 20 is equipped with a two-light precision approach path indicator (PAPI). Other airfield lighting includes a rotating beacon operated on an automatic dusk-dawn photocell switch. Local weather information including altimeter setting and visibility are provided by an Automated Weather Observation System (AWOS). The AWOS meets the FAA specification for an AWOS A-V, providing certified altimeter and visibility data suitable for navigation. Wind speed and other information are provided by the equipment as advisory information only.

### **1.3.1 Runway**

Runway 2/20 includes a paved surface 3,503 feet (ft) long and 60 ft wide. Displaced thresholds on both ends shorten the useable landing length to 3,056 ft for Runway 2 and 3,306 ft for Runway 20. The useable takeoff length remains 3,503 ft for both runway ends. FAA design requirements for runway length are based primarily on airport elevation, mean and maximum daily temperature of the hottest month, gradient, and the aircraft type expected to use the runway. Based on the specific conditions at Lake Chelan Airport, and the recommendations of the ALP, the FAA design requirement for runway length is 3,450 ft to accommodate 95 percent of the design fleet for B-I (small) aircraft.

Both ends of the runway have displaced thresholds due to close-in obstruction (roads, terrain, etc.). A displaced threshold is a runway threshold located at a point other than the physical beginning or end of the runway. Runway 2 is displaced due to several factors; the close proximity to Airport Way and Chelan Airport Road located south of the runway, Highway 97A located just south of the two local roads listed previously, and terrain obstructions south of Highway 97A. Runway 20 is displaced due to the close proximity to Howard Flats Road to the north of the runway. According to Washington State Department of Transportation's (WSDOT) Washington State Aviation System Plan (WSASP) database, Runway 2 has a 447-ft displaced threshold and Runway 20 has a 197-ft displaced threshold. Both ends of the runway have displaced threshold markings that include a displaced threshold bar, centerline arrows, and two arrowheads located immediately in front of the threshold bar.



The existing runway dimensions, critical surface dimensions, and the FAA design requirements for ARC B-I (small) airports are summarized in Table 1.

**Table 1 - Existing Conditions and Required FAA Standards**

Airport Feature	Existing Conditions	FAA B-I (small) Requirements
Runway Length (landing / take-off)	RW 2: 3,056 / 3,503 ft RW 20: 3,306 / 3,503 ft	RW 2: 3,450 / 3,450 ft <sup>1</sup> RW 20: 3,450 / 3,450 ft <sup>1</sup>
Runway Lighting	Unlit runway edge and end location for displaced thresholds	Lighted runway edge and end location for displaced thresholds
Runway Width	60 ft	60 ft
Runway Safety Area Width	Varies from 0 ft to 120 ft <sup>2</sup>	120 ft
Runway Safety Area Length (Beyond Runway End)	60 ft (north); 50 ft (south)	240 ft
Runway Object Free Area Width	Varies from 0 ft to 250 ft <sup>2</sup>	250 ft
Runway Object Free Area Length (Beyond Runway End)	60 ft (north); 50 ft (south)	240 ft
Runway to Taxiway Separation	Varies from 90 ft to 150 ft	150 ft
Aircraft Holding Position	Varies from 70 ft to 125 ft	125 ft
<sup>1</sup> Using FAA guidelines to accommodate 95% of the design fleet for B-1 (small) aircraft <sup>2</sup> Unobstructed distance		

### 1.3.2 Runway Lighting

Both ends of the runway have displaced thresholds. Both runway ends are equipped with threshold lights at the displaced thresholds only. The southern 447 ft and northern 197 ft are not lit (no threshold or edge lights). Standard design for a displaced threshold requires runway end lights and edge lights for the runway section from the end of the pavement to the displaced threshold.

### 1.3.3 Runway Safety Area

The RSA is a defined area surrounding an airport runway that is suitable for reducing the risk of personal injury and aircraft damage when an aircraft lands short of, overruns, or digresses laterally from the intended safe landing location.

The RSA should be capable of supporting emergency and maintenance vehicles, as well as the passage of aircraft without causing structural damage to the aircraft. The required RSA length and width are based on the characteristics of aircraft that regularly use the airport. The existing RSA dimensions are insufficient for both the existing and the required runway length. Howard Flats Road currently crosses through the RSA for Runway 20. In addition, trees bearing fruit crops are grown on the land northeast of Howard Flats Road within the RSA. Airport Way and Chelan Airport Road both cross through the RSA for Runway 2.



**Figure 2- Existing Conditions**



### 1.3.4 Runway Object Free Area

The runway OFA provides enhanced safety of aircraft operations by having the area free of objects above the runway edge elevation, except for navigational aids. Obstructions should not exist within the OFA because they may interfere with aircraft flight in the immediate vicinity of the runway. Howard Flats Road, the southern airport access road, and State Highway 97 all cross through the OFA. In addition, trees bearing fruit crops are grown on the land northeast of Howard Flats Road within the OFA.

### 1.3.5 Runway Protection Zone

RPZs are trapezoidal areas beginning 200 ft from the runway ends and are intended to enhance the protection of people and property on the ground. FAA recommends that sponsors restrict development within the RPZ boundary. In addition, airports are strongly encouraged to acquire fee title to all land within the RPZ to avoid conflicting land use and potential noise conflicts (FAA Order 5100.38C 701(b)(1) and 701(b)(2)). RPZ dimensions for this airport category should reflect a minimum of 250 ft (inner width) by 450 ft (outer width) by 1,000 ft in length. Howard Flats Road, the southern airport access road, Highway 97, agricultural fields, and several buildings including residences exist within the RPZs. These uses do not conform to the recommended standards for height or land use.

### 1.3.6 Federal Aviation Regulations (FAR) Part 77 Surfaces

Federal Aviation Regulations (FAR) Part 77, *Objects Affecting Navigable Airspace*, establishes obstruction standards used to identify potential adverse effects to air navigation. These areas are established to protect the airspace immediately surrounding a runway in a three-dimensional surface. These surfaces consist of primary, approach, transitional, horizontal, and conical surfaces. It is recommended that these areas be kept clear of obstructions, in particular the primary surface surrounding the runway and the approach surfaces located at the ends of the runway. Lake Chelan Airport currently has obstructions including; roads, terrain, trees, power poles, signs, hangars, and buildings that penetrate these areas. Penetrations are identified in the Airspace Plan (sheets 4 and 5 of the ALP, under Appendix A). Notable penetrations occur at each runway end. At the Runway 20 end, several objects penetrate the primary surface including; trees, power poles, signs, and Howard Flats Road. A displaced threshold is used so that the 20:1 visual approach surface is 15 ft above the road surface and trees in the neighboring orchard. The primary surface for Runway 2 is obstructed by several penetrations including; the airport access road that crosses through the surface as close as 5 ft from the runway end and Highway 97 that crosses through the surface approximately 300 ft south of the runway end. A displaced threshold is used so that the 20:1 visual approach surface is above the terrain approximately 500 ft south of the runway.

### 1.3.7 Runway to Taxiway Separation

The existing parallel taxiway does not follow parallel to the runway. Rather the taxiway gets gradually closer to the runway nearest the Runway 20 end. The centerline to centerline separation between the runway and taxiway goes from 150 ft at the tiedown ramp to less than 90 ft at the connector taxiway that joins the Runway 20 end. FAA dimensional standards require a 150 ft separation from runway to taxiway centerlines.

### 1.3.8 Aircraft Holding Position

Holding position markings are in place to deter aircraft from entering critical areas with the runway. Because the parallel taxiway does not meet the standard centerline to centerline separation with the runway, holding



position markings at the Runway 20 end are closer than the standard dimension. Hold position markings at this location are approximately 70 ft from the runway centerline. FAA dimensional standards require a 125 ft separation.

#### **1.4 Identification of Federal Action Requested**

The requested federal action is FAA Airport Improvement Program (AIP) funding of improvements to bring the runway critical surfaces into compliance with FAA design standards for a B-I (small) airport. The proposed project will require land acquisition, relocation of roadways, relocation of an orchard business with a residence, removal of trees, removal of structures, relocation of utilities, shift of the runway, and re-alignment and extension of parallel taxiways. A detailed description of the proposed action as well as details of alternatives will be described in the next chapters of this EA.



## 2 PROPOSED ACTION

### 2.1 Summary

The Proposed Action is to complete improvements to bring the runway critical surfaces (RSA, OFA, OFZ, and RPZ) into compliance with FAA standards for a B-I (small) airport. The following elements are required to complete the improvements:

- Land acquisition
- Relocate roadways at both ends of the runway
- Relocate orchard businesses
- Relocate one resident
- Remove trees and buildings including residential structures
- Relocate utilities
- Shift the runway along the current alignment
- Re-align and extend the parallel taxiways

### 2.2 Proposed Action Details

Details of each element of the proposed action are listed separately below.

#### 2.2.1 Land Acquisition

Property will be acquired on the northern end of the runway and along the western side of the runway. The amount of land required will depend on the alternative implemented. Land is needed for road right of way where roads are to be relocated, for the construction of the shifted runway and extended parallel taxiway, and for the protection of the approach to Runway 20.

#### 2.2.2 Road Relocation

Howard Flats Road will be relocated on the north end of the runway so that it no longer interferes with critical surfaces of the runway but still provides access to the orchards and residences in the area. The southern airport access, which consists of two roads: Lake Chelan Airport Road and Airport Way, will be reconfigured so that it no longer interferes with critical surfaces of the runway. Airport Way, which is the main airport access road, will be reconfigured so that it no longer interferes with critical surfaces at the southern end of the runway but still provides access to the pilots lounge, vehicle parking, and main hangar development area. Chelan Airport Road will be reconfigured so that it no longer interferes with critical surfaces at the southern end of the runway but still provides access to the hangar development area on the southeast side of the runway.

#### 2.2.3 Utilities Relocation

Utilities located within the Howard Flats Road right of way will be relocated with the road away from the runway. Utilities located along the Airport Way and Chelan Airport Road will be relocated or reconfigured with each road respectively.



#### **2.2.4 Runway Shift**

The runway will be shifted northerly along the current alignment away from the terrain and roadway obstacles on the southern end of the runway.

#### **2.2.5 Parallel Taxiway Realignment**

The parallel taxiway will be extended northerly and re-aligned so that it is parallel to the runway for its entire length. An aircraft holding bay will be constructed near the end of the parallel taxiway at the connection with the approach end of Runway 20. For protection of the parallel taxiway it will be necessary to perform a boundary or lot-line adjustment of two adjoining parcels to allow for a full taxiway object free area.



## **3 ALTERNATIVES**

### **3.1 Development of Alternatives**

This section provides a discussion of each alternative considered to meet the purpose and need of improvements discussed in the previous section. The improvements are needed to bring the runway critical surfaces into compliance with FAA standards for a B-I (small) airport.

The ALP for Lake Chelan Airport was last updated in 2009, and alternatives to meet FAA requirements at Lake Chelan Airport were identified and evaluated. Alternatives were created analyzing the proposed improvements required to remedy the deficiencies of the airport, while considering potential environmental impacts of the construction of these improvements. These improvements, addressed in this EA, reference and comply with the Proposed Action of the approved February 2009 ALP. Four alternatives are addressed in this EA, including a No Action alternative, they are summarized below and in Table 2.

### **3.2 Alternative 1 – No Action**

If no action were to take place, the airport will remain in its present condition with a runway that does not meet FAA criteria for numerous non-standard items including the runway critical surfaces. The displaced thresholds would remain unlit, and various obstructions including roadways (Howard Flats Road, Airport Way, Chelan Airport Road) that would still interfere with the runway critical surfaces. If non-standard critical surfaces are determined to be the most feasible solution, some aircraft operators may not operate at the airport due to insurance requirements and corporate operating policy. This may result in the loss of existing and future GA aircraft operations. Non-standard critical surfaces such as safety areas may also result in shortening of the useable runway pavement, which would eliminate some of the current airport users that could safely operate at the facility. See Figure 3.

### **3.3 Alternative 2 – Shift Runway 127 Feet and Relocate Roadways (2009 ALP Recommendation)**

In this alternative the runway would shift northerly 127 ft, which is the minimum distance needed so that the RSA is within the airport property. A displaced threshold will remain for approaches to Runway 2. The displaced threshold is eliminated for approaches to Runway 20. Howard Flats Road will be relocated from its current position, which crosses the RSA to a location parallel to the runway, so that it is outside the RSA and critical surfaces. The parallel taxiway would be re-aligned, extended to the north, and an aircraft holding apron constructed. The main airport access road would be reconfigured so that a new loop access connecting Airport Way along the west side of the airport property connecting to Apple Acres Road at both ends. A new southern airport access road would be created by connecting Chelan Airport Road to Howard Flats Road, see Figure 4.

### **3.4 Alternative 3 – Shift Runway 127 Feet and Relocate Roadways on an Alternate Alignment**

In this alternative the runway would shift northerly 127 ft and the parallel taxiway will be re-aligned and extended as described in Alternative 2. However, Howard Flats Road would be relocated so that it decreases the need for property acquisition and follows the natural contours of the land to minimize grading impacts for construction of the road. The main airport access on Chelan Airport Road will be removed on the southerly end. The main airport access would then come from Apple Acres Road onto Airport Way and terminate in a cul-de-sac. Chelan Airport Road would be reconfigured so that access to the eastern hangar development area will be directly from Highway 97A, see Figure 5.



### 3.5 Alternative 4 – Shift Runway 470 Feet and Relocate Roadways on an Alternate Alignment (Preferred Alternative)

In this alternative the runway would shift northerly 470 ft and the parallel taxiway would be re-aligned and extended, which would eliminate the need for a displaced threshold on both ends of the runway. Howard Flats Road would be relocated as described in Alternative 3. A 470 ft shift was chosen for this alternative, so that less land acquisition is required for the parallel taxiway because the runway/taxiway system is shifted so that the hold bay at the approach end of Runway 20 will be within the county road right of way parcel that will be acquired for all options. The main airport access and the southern airport access will be reconfigured the same as Alternative 3.

### 3.6 Evaluation of Alternatives

Each alternative was evaluated to determine whether it meets the purpose and need of this project. Table 2 summarizes this comparison.

**Table 2- Summary of Alternatives**

Deficiency	Alternative 1 (No Action)	Alternative 2	Alternative 3	Alternative 4 (Preferred Alternative)
Insufficient Runway Safety Area (RSA)	No change to RSA area.	Shift Runway 2/20 127 ft north, to allow for standard RSA width (120 ft) and length (240 ft) beyond each runway end.	Shift Runway 2/20 127 ft north, to allow for standard RSA width (120 ft) and length (240 ft) beyond each runway end.	Shift Runway 2/20 470 ft north, to allow for standard RSA width (120 ft) and length (240 ft) beyond each runway end.
Insufficient Runway Object Free Area (OFA)	No change to OFA area.	Shift Runway 2/20 127 ft north, to allow for standard OFA width (250 ft) and length (240 ft) beyond each runway end.	Shift Runway 2/20 127 ft north, to allow for standard OFA width (250 ft) and length (240 ft) beyond each runway end.	Shift Runway 2/20 470 ft north, to allow for standard RSA width (250 ft) and length (240 ft) beyond each runway end.
Insufficient Runway Length	No change to runway configuration. Runway length remains limited in both directions.	Increases useable runway length. Runway 2 increases to 3,183 ft for landings and 3,503 ft for takeoffs. Runway 20 increases to 3,503 ft for both landings and takeoffs. Eliminates displaced threshold on RW 20.	Increases useable runway length. Runway 2 increases to 3,183 ft for landings and 3,503 ft for takeoffs. Runway 20 increases to 3,503 ft for both landings and takeoffs. Eliminates displaced threshold on RW 20.	Increases runway length to 3,503 ft for takeoffs and landings in both directions. Eliminates displaced thresholds at both ends.



**Table 2- Summary of Alternatives**

<b>Deficiency</b>	<b>Alternative 1 (No Action)</b>	<b>Alternative 2</b>	<b>Alternative 3</b>	<b>Alternative 4 (Preferred Alternative)</b>
Obstructions/Penetrations within Runway Protection Zone (RPZ)	Howard Flats Road and southern airport access road would remain within RPZ limits.	Howard Flats Road would be relocated outside RPZ limits; southern airport access road would be closed. Other obstructions would be removed as allowed, or marked by obstruction lights.	Howard Flats Road would be relocated outside RPZ limits; southern airport access road would be closed. Other obstructions would be removed as allowed, or marked by obstruction lights.	Howard Flats Road would be relocated outside RPZ limits; southern airport access road would be closed. Other obstructions would be removed as allowed, or marked by obstruction lights.
Insufficient Lighting and Marking	No threshold or edge lights would be added to the displaced thresholds. Taxiway hold marking positions would remain.	Lighting and marking would be corrected with shift of Runway 2/20. Runway 2 end and displaced threshold would be lighted.	Lighting and marking would be corrected with shift of Runway 2/20. Runway 2 end and displaced threshold would be lighted.	Lighting and marking would be corrected with shift of Runway 2/20.
Property Ownership	Sponsor ownership of the RSA, OFA, and RPZ would not be achieved.	Sponsor ownership or control of the RSA, OFA, and RPZ would be achieved. Requires approx. 38.0 acres from 8 parcels of land.	Sponsor ownership or control of the RSA, OFA, and RPZ would be achieved. Requires approx. 43.3 acres from 4 parcels of land.	Sponsor ownership or control of the RSA, OFA, and RPZ would be achieved. Requires approx. 38.2 acres from 3 parcels of land.
Meets Purpose and Need.	No. Does not provide standard runway and runway critical areas. Does not provide adequate runway length for 95% of current operations.	No. Does not provide adequate runway length for both landing and takeoff for 95% of current operations.	No. Does not provide adequate runway length for both landing and takeoff for 95% of current operations.	Yes.

Alternative 1 does not resolve any of the airport safety deficiencies nor does it remedy the inadequate runway length. Alternatives 2 and 3 would resolve the airport safety deficiencies. However, neither of these alternatives provide an adequate runway length to meet the needs of the existing aircraft traffic for both landings and takeoffs. Alternative 4 would resolve the airport safety deficiencies, accommodate existing aircraft without the need for displaced thresholds, and provide the highest degree of land use protection at both runway ends. Therefore, Alternative 4 has been chosen as the Preferred Alternative, See Figure 6.

The Preferred Alternative will be analyzed against the no-action alternative in following sections of this document. Alternatives 2 and 3 will not be analyzed further because they do not meet the runway length requirements.



**Figure 3- Alternative 1: No Action**



**Figure 4 - Alternative 2: Shift Runway 127 ft and Relocate Roadways (2009 ALP Recommendation)**



**Figure 5 - Alternative 3: Shift Runway 127 ft and Relocate Roadways on an Alternate Alignment**



**Figure 6 - Alternative 4: Shift Runway 470 ft and Relocate Roadways on an Alternate Alignment (Preferred Alternative)**



## 4 AFFECTED ENVIRONMENT

### 4.1 Physical Setting

The Lake Chelan Airport is located geographically in the north-central portion of Washington, roughly 0.5 nautical miles northwest of the Columbia River on a bench approximately 200 ft above the river. The Columbia River is a physical boundary that separates county jurisdictions: Chelan County (north and west) and Douglas County (south and east). The Airport is located approximately 3 miles northeast of Chelan, Washington within an area of Chelan County referred to as the Howard Flats Subarea (refer to Figure 1 for location and vicinity).

### 4.2 Existing and Planned Land Uses

The Airport occupies approximately 85 acres on Howard Flats, about 3 miles northeast of the City core. The airport is within a separately designated Urban Growth Area (UGA). The majority of the Airport was annexed as part of the City's UGA in 1995 (refer to Figure 2). In 2009, the City's Growth Management Act (GMA) amendment docket included expanding the UGA boundary to include the planned runway shift as described in the ALP and an 18-acre parcel that was acquired in 2004. In January 2010 Chelan County adopted (resolution 10-06) changes to its comprehensive plan that incorporate the City's UGA amendments and changes to the City's Comprehensive Plan, which guides land use decisions within the UGA. Both the City and County comprehensive plans adopt by reference the 2009 ALP.

According to the current City of Chelan Comprehensive Plan, the Airport property is located within the City UGA. The land-use within this area of the UGA is designated Airport and given a zoning designation of AP- Airport in the City of Chelan Comprehensive Plan. Properties outside the City limits whether inside or outside the UGA, are subject to the provisions of Chelan County including the Airport Overlay District (AOD), zoning codes, and regulations.

The surrounding land use is a mix of agricultural parcels and rural residences on lots 2.5 to 20 acres in size. The County has designated these parcels with a number of different zoning designations. These designations are: commercial agricultural lands (AC), rural village (RV), rural industrial (RI), mineral commercial (MC) and rural residential (RR-2.5, RR-5, RR-10, RR-20).

A preliminary draft report entitled "*Draft Regional Strategic Action Plan for the Lower Lake Chelan Basin*" prepared for Chelan County and the City of Chelan identified the Howard Flats Subarea as a potential area for a corridor industrial development, including an employment center. This is consistent with the existing and current AOD zoning codes and regulations.

### 4.3 Political Jurisdictions

The Lake Chelan Airport is owned jointly by the City of Chelan and the Port of Chelan County and operated by the City of Chelan through a joint operating agreement. While the airport property is owned and operated by these entities, land use decisions are under the jurisdiction of the City of Chelan. Some of the property to be acquired is outside the City limits and therefore land use decisions are under Chelan County jurisdiction. The Airport's surrounding airspace covers portions of both Chelan County and Douglas County. Refer to ALP Sheet 4, Appendix A; WSDOT Airspace Exhibit, Appendix C; and the city and county information in Appendix D. Douglas County does not apply additional land use designations or zoning based on the location of the Airport.



The airport is served by the Chelan County Fire District No. 7-Station No. 4, the City of Chelan Police Department and Chelan County Sheriff's Department, Greater Wenatchee Irrigation District, Chelan Douglas Health District, and Lake Chelan School District 129. Lake Chelan Airport is also within the 4th Congressional District for Washington State. WSDOT has jurisdiction over Highway 97A, which is adjacent to the project site.

There are no other potential jurisdictions affected by the proposed action.

#### **4.4 Demographic Information**

According to the U.S. Census Bureau, the population of the City of Chelan was 3,522 in 2000. The Census Bureau 2008 and 2009 population estimates for Chelan County were 71,540 and 70,668, respectively, with a population increase of 7.4 percent and 6.1 percent from the 2000 estimate of 66,616. A population decrease of 1.2 percent was noted from 2008 to 2009. Chelan represents 5.3 percent of Chelan County population according to 2000 population estimates.

The 2000 Census demographic profile for the City of Chelan is 85.7 percent Caucasian, 0.1 percent Black or African American, 1.5 percent American Indian and Alaska Native, 0.5 percent Asian, 0.1 Native Hawaiian and Other Pacific Islander, 9.2 some other race, and 2.8 percent two or more races. These statistics are grouped under one or more races. The Hispanic/Latino population is 14.5 percent of any race mentioned of the prior statistic.

The median income for a household in the city was \$28,047, and the median income for a family was \$33,662. The per capita income for the town was \$16,511. About 17.3 percent of families and 20.9 percent of the population were below the poverty line.

The proposed action is not expected to affect the demographic characteristics.



**Figure 7 - Lake Chelan Airport looking Northeast**



**Figure 8 - Lake Chelan Airport looking Northwest**



**Figure 9 - Aircraft flying southwest over Chelan Airport Road and Hwy 97**



**Figure 10 - Aircraft taxiing for takeoff at RW 20**



**Figure 11 - South taxiway entrance to Runway 2 and Chelan Airport Road**



**Figure 12 - Howard Flats Road looking West**



## 5 ENVIRONMENTAL CONSEQUENCES

### 5.1 Introduction

This section analyzes the environmental impacts of each alternative in terms of direct, indirect, and cumulative effects. Direct effects, as defined in the Code of Federal Regulations (CFR), are caused by the action and occur at the same time and place (40 CFR 1508.8(a)) Council on Environmental Quality Regulations. Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable (40 CFR 1508.8(b)). Direct and indirect effects are analyzed together due to the challenges of differentiating between the two. Cumulative impacts are the impacts on the environment that result from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions.

Direct and indirect effects are analyzed further in this chapter. Cumulative impacts are evaluated in Chapter 6 . Cumulative impacts are not evaluated for the No Action alternative since this alternative does not change the existing environment.

There are eighteen potential impact categories that must be considered with regards to environmental consequences. These categories can be found in Appendix A of FAA Order 1050.1E and are listed below:

1. Air Quality
2. Coastal Resources
3. Compatible Land Use
4. Construction Impacts
5. Department of Transportation Act: Sec. 4(f)
6. Farmlands
7. Fish, Wildlife, and Plants
8. Floodplains
9. Hazardous Materials, Pollution Prevention, and Solid Waste
10. Historical, Architectural, Archeological, and Cultural Resources
11. Light Emissions and Visual Impacts
12. Natural Resources and Energy Supply
13. Noise
14. Secondary (Induced) Impacts
15. Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks
16. Water Quality
17. Wetlands
18. Wild and Scenic Rivers

From the list of environmental categories above, five have been eliminated from further evaluation and are summarized in Section 5.2. For each of the remaining categories, the Preferred Alternative (Alternative 4 as identified in Section 3.5) and no action alternative (Section 3.2) are considered with respect to the direct and indirect impacts in Section 5.3 through Section 5.15. Cumulative impacts are considered in Chapter 6 .



## 5.2 Resource Categories Eliminated from Further Consideration

This EA focuses on only those resource categories that were identified as an issue through project development and agency and public involvement. Some resources categories are not evaluated because they either do not exist in the project area or they are eliminated from consideration by FAA guidance. Table 3 summarizes the resource categories that were are not evaluated further in this EA:

**Table 3- Resource Categories Eliminated from Further Consideration**

Resource Category	Reason for Elimination
Air Quality	Chelan County has no non-attainment areas for national air quality criteria pollutants. No air quality analysis is needed for the proposed action because forecasted operations in the study period are less than 180,000 operations annually (Air Quality Procedures for Civilian Airports and Air Force Bases Handbook, 2005, Chapter 2.1). Temporary air quality impacts and mitigation from construction activities are described in Section 5.4
Coastal Resources	There are no lands included in the Coastal Barriers Resources Act system located within the State of Washington. Chelan County is not in a Coastal Zone jurisdiction. Chelan County does have a Shoreline Master Program (SMP) that includes the Columbia River. The action alternatives would not affect the Columbia River shoreline, nor do they affect access to the river.
Department of Transportation Act, Section 4(f)	There are no Section 4(f) properties in the project study area.
Noise	According to the FAA Order 1050.1E, no noise analysis was required at Lake Chelan Airport because forecasted annual aircraft operations do not exceed the level (90,000 annual adjusted propeller operations or 700 annual adjusted jet operations) that require such analysis.
Wild and Scenic Rivers	There are no designated state or federal wild or scenic rivers in the project vicinity. The Klickitat, White Salmon, and Skagit Rivers are the only designated Wild and Scenic Rivers in Washington State.

## 5.3 Compatible Land Use

Existing and planned land uses in the vicinity of the airport are reviewed with respect to the preferred and no action alternatives for compatibility. The airport is located within incorporated municipal limits of the City of Chelan and is zoned as A - Airport. The project area includes land that is not currently within the City Limits but is included in the City's UGA. The project area and surrounding vicinity is subject to the provisions of the Chelan County AOD. See Appendix D for maps showing the respective land use designations and zoning.

Both City and County agencies have taken proactive steps toward ensuring compatible land use around the Airport. Both agencies updated their comprehensive plans and adopted the ALP in 2010. Both agencies agreed to a change in the Chelan UGA to incorporate areas that will be affected by implementation of the ALP. However, future action to update the Chelan County AOD will be required to adjust the boundaries of the AOD consistent with the proposed location and dimensions of the runway after confirmation of the preferred alternative through this EA. Appendix D contains figures showing the proposed shift in the AOD.



### 5.3.1 Preferred Alternative

**Direct and Indirect Impacts:** To ensure compatible land use within the RPZ of the shifted runway, approximately 38.2 acres of land at the northern end of the airfield would be acquired from private property owners. The land is designated Airport and is located within the Chelan UGA. It is estimated that 15.7 acres are needed for the runway shift, while the remaining 22.5 acres proposed for acquisition would be acquired for approach protection and to eliminate uneconomic remnant parcels. Three parcels owned by two land owners are proposed for acquisition as part of the Preferred Alternative.

The land that is proposed for acquisition is currently used for agricultural purposes, mainly fruit orchards. There is one residence located within the area to be acquired. Under the Preferred Alternative, approximately 11.7 acres of orchard will be removed to accommodate the runway shift and associated critical surfaces. In addition to the runway shift, another 3.0 acres of orchard would be removed to realign Howard Flats Road. Another 22.0 acres of orchard would be removed to clear the land acquired. It is possible that the land acquired by the Airport under the Preferred Alternative may be leased to the previous owners for continued use for agricultural purposes as long as all the FAA standards and requirements are met.

Acquisition of property within the RPZs would eliminate the potential for future incompatible development within these areas. The Preferred Alternative is compatible with local land use plans.

### 5.3.2 No Action

**Direct and Indirect Impacts:** The No Action alternative would not ensure compatible land use within the approaches and RPZ on either end of runway. Current uses within these areas include roadways, utilities, a residence, and several objects that are penetrations to the airspace and obstructions to the runway critical surfaces.

## 5.4 Construction Impacts

Potential impacts from construction activities may include, but are not limited to, dust and noise from heavy equipment, disposal of construction debris, and air and water pollution. Many of the temporary impacts that are included for construction also fall into separate environmental categories (i.e. air quality, water quality). Construction impacts are considered to be temporary - lasting from the first day of mobilization until all construction efforts are completed.

### 5.4.1 Preferred Alternative

**Direct and Indirect Impacts:** Construction impacts from the Preferred Alternative would involve both demolition and construction activities for the shift for the runway and taxiway as well as relocating Howard Flats Road and reconfiguring Airport Way and Chelan Airport Road. It is anticipated the construction would occur over three construction seasons, tentatively set for 2012 through 2014. Activities that may occur as part of the construction efforts include removal and replacement of existing pavements, excavation, grading, and installation of new lighting and marking. The following is a list of potential negative construction impacts for the Preferred Alternative:

- **Air Quality:** The operation of heavy equipment and hauling material can create dust during dry conditions, which may cause wind erosion and temporary air quality impacts.



- **Solid Waste:** Demolition of the existing runway, taxiway, and road surfaces will generate waste that will likely include asphalt, crushed surfacing material, and topsoil material.
- **Noise:** Heavy equipment and vehicle activity would temporarily increase noise at the airport and in the vicinity of the road rerouting construction. No noise-sensitive receivers were identified that would be impacted by construction noise.
- **Water Quality:** Water quality may be impacted as a result of storm water events occurring while grading and excavation is being completed.
- **Noxious Weeds:** Soils disturbed during excavation activities may be colonized by aggressive weeds.
- **Airport Operations:** Construction at both ends of the runway and taxiways will require temporary displaced thresholds be set in place. Runway closures will be necessary a portion of the construction. Navigational aids will be temporarily out of service during portions of the construction.
- **Surface Transportation:** Impacts will include reconfiguring Airport Way and Chelan Airport Road, relocating Howard Flats Road, as well as a creating a new access point from Highway 97A to Chelan Airport Road. Traffic delays may occur for local residents and farmers while Howard Flats Road is being relocated. Airport users may experience delays while Airport Way and Chelan Airport Road are under construction.

Best Management Practices (BMPs) can be put into place to help minimize the construction impacts associated with the Proposed Action. These may include:

- **Air Quality:** Construction impact can be minimized by graveling the construction access roads, using water to control dust, or other state/locally approved methods.
- **Solid Waste:** A waste management plan will be included with the project plans and specifications outlining proper disposal methods for the waste construction materials and debris.
- **Noise:** Construction impact can be reduced or eliminated by requiring functioning muffler systems on all construction equipment and by limiting working hours to be between 7:00 a.m. to 7:00 p.m.
- **Water Quality:** Covering the soil, water bars, temporary settling ponds, check dams, inlet protection, silt fencing, or other state/locally approved methods may be used to minimize water quality impacts. Disturbed soils will be stabilized against erosion within 14 days after earthwork has ceased in a particular area. Side slopes and disturbed areas will be seeded following the construction work.
- **Noxious Weeds:** A noxious weed control plan will be prepared for the construction work and will include BMPs such as soil covering or an application of an approved pre-emergent agent.

Other phasing and design considerations that are proposed to minimize construction impacts include:

- **Airport Operations:** Phasing of the construction work may allow for one end of the runway to be worked on at a time to keep as much of the runway open as possible. Closures may be scheduled in advance and for certain days or times to reduce the impact to airport operations.
- **Surface Transportation:** Construction of Howard Flats Road will be scheduled to minimize road closures and provide access for emergency vehicles throughout the project. A temporary traffic control plan that includes all appropriate safety measures will be prepared prior to starting construction. Temporary and permanent marking and signage will be installed to inform of the changes in access.

#### 5.4.2 No Action

**Direct and Indirect Impacts:** The No Action alternative would have no construction impacts.



## 5.5 Farmlands

The Farmland Protection Policy Act (FPPA) was instituted in 1981 to help minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of prime or unique farmland to non-agricultural uses. The act also encourages alternative actions, if appropriate, that could lessen the adverse effects on farmland, and assure that federal programs are operated in a manner such that, to the extent practicable, they are compatible with the states, local governments, and private programs to protect prime or unique farmland.

A map of farm soils was acquired from the Washington State Department of Ecology (WSDOE) geographic information system (GIS) website for Chelan County. Within the area of the existing airport, farmland of statewide/unique importance and prime farmland if irrigated are depicted, as well as within the area for the Proposed Action. See Appendix E for a printout of the WSDOE map.

WSDOE uses soil type as the sole criteria for designating these areas within their GIS system. The existing airport footprint and the surrounding industrial and commercial uses are located on farmland as designated by this GIS system. Based on the designations it is prudent to consult with the NRCS and Chelan County to determine FPPA actually applies. Both agencies have been contacted, but no response has been received as of the date of this report.

### 5.5.1 Preferred Alternative

**Direct and Indirect Impacts:** A total of 36.7 acres of farmland located within the proposed acquisition area would be removed from orchard production under the Preferred Alternative for shifting the runway and taxiway, and the relocation of Howard Flats Road. This farmland has been identified as potentially being farmland of statewide/unique importance or prime farmland if irrigated by WSDOE. In order to determine if FPPA applies both the NRCS and Chelan County have been contacted.

- A consultation letter was sent to the Wenatchee Office of National Resource Conservation Service (NRCS) on March 12, 2010, seeking information regarding Prime or Unique Farmland Impacts. A second attempt to contact the agency was made on May 17, 2010, via telephone. No response has been received to date.
- A custom soil resource report was created using the NRCS soil survey website. From this report, two main types of soil and thirteen minor soil types are present for the existing airport and the proposed project area. The main soil types listed included Cashmont sandy loam (CcA) and Supplee very fine sandy loam (SuA). These soil types are good soil for cultivation of crops.
- Chelan County was contacted on January 19, 2011, to identify the existence of prime or unique farmland within the vicinity of the existing airport and proposed project area. Based on the zoning in the project area Chelan County does not consider the land as prime or unique.

The net impact includes the loss of approximately 36.7 acres of land currently used for orchards. This area has been given the land use and zoning designation of Airport by the City of Chelan and Agricultural Commercial by Chelan County. The amount of farmland removed from production can be reduced if the orchards located within the acquisition area remain as producing orchards and are leased back for orchard use.

### 5.5.2 No Action

**Direct and Indirect Impacts:** The No Action alternative would not remove or alter existing farmlands.



## 5.6 Fish, Wildlife, and Plants

The Endangered Species Act of 1973 established a program for the conservation of threatened or endangered plants and animals and their associated habitats. The law requires that federal agencies shall, in consultation with the U.S. Fish and Wildlife Service (USFWS) and the U.S. National Oceanic and Atmospheric Administration (NOAA) Fisheries Service, “ensure that actions that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species” according to the US Environmental Protection Agency (EPA) (<http://www.epa.gov/regulations/laws/esa.html>).

A total of 57 species of birds, fish, reptiles, mammals, mollusks, plants and trees were identified as either federal or state listed threatened or endangered species or species of concern from the USFWS, Washington Department of Fish and Wildlife (WDFW), and the Washington State Department of Natural Resources (WSDNR). For each species that was identified, the expected habitat was researched. A list of these species including the scientific name, the federal and state status, the expected habitat, and the likelihood of the species occurrence within the proposed project area is provided in Table 4.

**Table 4 - Chelan County Listed Species**

<b>Common Name / Scientific Name</b>	<b>Type</b>	<b>Federal</b>	<b>State</b>	<b>Expected Habitat</b>	<b>Project Area Information</b>
Van Dyke's salamander <i>Plethodon vandykei</i>	Amphibian	FCo	SC	Splash zones of rocky streams, talus, fractured rock, near waterfalls and under woody debris near water	No surface water located within project area
Western toad <i>Bufo boreas</i>	Amphibian	FCo	SC	Hardwood forests and riparian areas; breeds near ponds, lakes and slow moving streams	No riparian areas, hardwood forests, or surface water located within project area
Bald eagle <i>Haliaeetus leucocephalus</i>	Bird	FCo	SS	Interior Douglas-fir zones, water and wetlands, major river valleys	Uncommon along major river valleys and lakes in eastern Washington; No trees within project area suitable for nesting
Black-backed woodpecker <i>Picoides arcticus</i>	Bird	--	SC	Prefers burn areas, open meadows in forested landscapes and diseased tree stands	No burn areas or forested landscapes within project area
Columbian sharp-tailed grouse <i>Tympanuchus phasianellus columbianus</i>	Bird	FCo	ST	Grass and shrub savanna; found in the northern Columbia basin	Project area habitat suitable; found mostly in northern Columbia Basin; Chelan County not identified for breeding habitat
Common loon <i>Gavia immer</i>	Bird	--	SS	Quiet lakes or secluded bays or sloughs of river with suitable emergent vegetation	No surface water located within project area
Ferruginous hawk <i>Buteo regalis</i>	Bird	FCo	ST	Steppe vegetation of south-central Washington and east along the Snake River; Nests on cliffs, high bluffs, utility towers, trees, or on the ground	No recent records of nesting in Chelan County
Flammulated owl <i>Otus flammeolus</i>	Bird	--	SC	Local in mature forests of Ponderosa Pine and Douglas-fir in eastern Washington	No mature forests within project area
Golden eagle <i>Aquila chrysaetos</i>	Bird	--	SC	Open dry forests of eastern Washington, most common where large rocky cliffs occur for nesting habitat	No forests or rocky cliffs located within project area
Lewis' woodpecker <i>Melanerpes lewis</i>	Bird	--	SC	Open forests and woody riparian corridors of eastern Washington	No forests or riparian areas located within project area

**Table 4 - Chelan County Listed Species**

<b>Common Name / Scientific Name</b>	<b>Type</b>	<b>Federal</b>	<b>State</b>	<b>Expected Habitat</b>	<b>Project Area Information</b>
Loggerhead shrike <i>Lanius ludovicianus a</i>	Bird	FCo	SC	Shrub-steppe, shrub, and shrub savanna	Project area habitat suitable; portions of Chelan County identified as core breeding habitat
Northern goshawk <i>Accipiter gentilis</i>	Bird	FCo	SC	Various forest types, especially mature forests	No forests located within project area
Olive-sided flycatcher <i>Contopus cooperi</i>	Bird	FCo	--	Forested zones with fresh water/wetlands and forest openings	No forests, surface water, or wetlands located within project area
Peregrine falcon <i>Falco peregrines</i>	Bird	FCo	SS	Cliffs for nesting, open areas for foraging	Rare and unpredictable occurrences, formerly extirpated from eastern Washington
Pileated woodpecker <i>Dryocopus pileatus</i>	Bird	--	SC	Forested areas below Alpine/Parkland zones and steppe zones along edges of Columbia Basin	No forests located within project area
Sage sparrow <i>Amphispiza belli</i>	Bird	--	SC	Grassland, shrub savanna, and shrublands	Project area habitat suitable; portions of Chelan County identified as core breeding habitat
Sage thrasher <i>Oreoscoptes montanus</i>	Bird	--	SC	Grassland, shrub savanna, and shrub in steppe zones	Project area habitat suitable; portions of Chelan County identified as core breeding habitat
Spotted Owl <i>Strix occidentalis</i>	Bird	FT	SE	Mid and late-seral closed canopy conifer forest	No forests located within project area
Vaux's swift <i>Chaetura vauxi</i>	Bird	--	SC	Coniferous and mixed forest, nest in cavities including dead trees and chimneys	No forests located within project area
White-headed woodpecker <i>Picoides albolarvatus</i>	Bird	--	SC	Coniferous forest in the Ponderosa Pine and Oak zones of eastern Washington	No forests located within project area
Yellow-billed cuckoo <i>Coccyzus americanus</i>	Bird	FC	SC	Mixed and hardwood forest, especially along riparian corridors and wetland areas	No forests, surface water, or wetlands located within project area

**Table 4 - Chelan County Listed Species**

<b>Common Name / Scientific Name</b>	<b>Type</b>	<b>Federal</b>	<b>State</b>	<b>Expected Habitat</b>	<b>Project Area Information</b>
Bull trout <i>Salvelinus confluentus</i>	Fish	FT	SC	Freshwater	No surface water located in project area
Chinook salmon (Upper Columbia Spring Run) <i>Oncorhynchus tshawytscha</i>	Fish	FE	SC	Freshwater	No surface water located in project area
Pacific lamprey <i>Lampetra Tridentata</i>	Fish	FCo	SM	Freshwater, anadromous	No surface water located in project area
Pygmy whitefish <i>Prosopium coulteri</i>	Fish	FCo	SS	Freshwater, common in lakes and flowing water of clear or silted rivers of mountainous country	No surface water located in project area
Redband trout <i>Oncorhynchus mykiss</i>	Fish	FCo	--	Freshwater, cool, clean, well-oxygenated water	No surface water located in project area
River lamprey <i>Lampetra ayresi</i>	Fish	FCo	SC	Freshwater, anadromous	No surface water located in project area
Steelhead (Upper Columbia) <i>Oncorhynchus mykiss</i>	Fish	FT	SC	Freshwater, anadromous	No surface water located in project area
Western brook lamprey <i>Lampetra richardsoni</i>	Fish	FCo	--	Freshwater, small tributaries	No surface water located in project area
Westslope cutthroat trout <i>Oncorhynchus clarki lewisi</i>	Fish	FCo	--	Freshwater, small mountain streams, main rivers, and large natural lakes	No surface water located in project area
Black-tailed jackrabbit <i>Lepus californicus</i>	Mammal	--	SC	Steppe zone sagebrush in the Columbia Basin	Project area habitat suitable; Chelan County not identified for breeding habitat
Fisher <i>Martes pennanti</i>	Mammal	FC	SE	Dense, mature forests near water/wetlands	No forests, surface water, or wetlands are located within project area
Gray wolf <i>Canis lupus</i>	Mammal	FE	SE	Large range with all habitats good except ice, developed, and agriculture areas; Limited to remote northern Cascades and extreme northeast	Project area unlikely habitat because of development and agricultural use

**Table 4 - Chelan County Listed Species**

<b>Common Name / Scientific Name</b>	<b>Type</b>	<b>Federal</b>	<b>State</b>	<b>Expected Habitat</b>	<b>Project Area Information</b>
Grizzly bear <i>Ursus arctos</i>	Mammal	FT	SE	Areas not inhabited by humans; Limited to remote area of the Cascades	Project area unlikely habitat
Kincaid meadow vole <i>Microtus pennsylvanicus kincaidi</i>	Mammal	--	SM	Moist meadows, marshes, swamps and bogs, along streams, ponds and small lakes	No surface water or wetlands are located within project area
Long-eared myotis <i>Myotis evotis</i>	Mammal	FCo	SM	All forested zones, steppe zones with water/wetlands	No forests, surface water, or wetlands are located within project area
Lynx <i>Lynx Canadensis</i>	Mammal	FT	ST	Forests, shrubland, and water/wetland	No forests or water/wetlands are located within project area
Merriam's shrew <i>Sorex merriami</i>	Mammal	--	SC	Steppe zones in the Columbia Basin with elevation limits of 1200 feet and 3000 feet	Project area habitat suitable; Chelan County not identified for breeding habitat
Pallid Townsend's big-eared bat <i>Corynorhinus townsendii pallescens</i>	Mammal	FCo	SC	Caves or cave-like structures for roosting in forest and steppe zones	No caves located within project area
Western gray squirrel <i>Sciurus griseus</i>	Mammal	FCo	ST	Open forest of broadleaf, nut-bearing trees in pure or mixed stands with conifers in low elevations	No forests located within project area
White-tailed jackrabbit <i>Lepus townsendii</i>	Mammal	--	SC	Non-forested steppe zones with bunchgrass	Project area habitat suitable; portions of Chelan County identified as core or marginal breeding habitat
Wolverine <i>Gulo gulo</i>	Mammal	FC	SC	Subalpine and alpine zones of Cascades and northeastern Washington	Project area unlikely habitat
California floater <i>Anodonta californiensis</i>	Mollusk	FCo	SC	Okanogan River in Chelan County	No surface water located within project area
Giant Columbia spire snail <i>Fluminicola Columbiana</i>	Mollusk	FCo	SC	Large tributaries and rivers, require cold water with high oxygen content	No surface water located within project area
Sagebrush lizard <i>Sceloporus graciosus</i>	Reptile	FCo	SC	Grasslands, shrublands, shrub and tree savannas, uncommon in the Columbia Basin steppe,	Project area unlikely habitat

**Table 4 - Chelan County Listed Species**

<b>Common Name / Scientific Name</b>	<b>Type</b>	<b>Federal</b>	<b>State</b>	<b>Expected Habitat</b>	<b>Project Area Information</b>
Sharptail snake <i>Contia tenuis</i>	Reptile	FCo	SC	Restricted to low elevations near streams and moist areas	No surface water or moist areas located within project area
Chelan rockmat <i>Petrophyton cinerascens</i>	Plant	FCo	--	Exclusively on exposed rock cliffs and outcrops that predominantly face east or west	No rock cliffs or outcrops located within project area
Clustered lady's slipper <i>Cypripedium fasciculatum</i>	Plant	FCo	--	Mid to late seral Douglas fir or Ponderosa Pine forest	No forests located within project area
Seely's silene <i>Silene seelyi</i>	Plant	FCo	--	Shaded crevices in ultramafic to basaltic cliffs and rock outcrops, slopes ranging from 15 to 20	No cliffs or rock outcrops located within project area
Showy stickseed <i>Hackelia venusta</i>	Plant	FE	--	Dry, loose granitic sand and crevices in granite or talus, slopes ranging from 25 to 70 degrees	Project area unlikely habitat (insufficient slopes)
Thompson's clover <i>Trifolium thompsonii</i>	Plant	FCo	--	Open Ponderosa pine woods to areas dominated by grasses, shrubs, and sagebrush	Endemic to southeastern Chelan County and adjacent Douglas County, project area unlikely habitat
Two-spiked moonwort <i>Botrychium paradoxum</i>	Plant	FCo	--	Late seral western Red Cedar forests on floodplains, stream terraces near perennial or intermittent streams	No forests or surface water located within project area
Ute ladies' tresses <i>Spiranthes diluvialis</i>	Plant	FT	--	Riparian and wetland habitat; close affinity to areas of high groundwater	No moist or wetland habitat in project area
Wenatchee larkspur <i>Delphinium viridescens</i>	Plant	FCo	--	Moist meadows, moist microsites in open coniferous forests, springs, seeps, and riparian areas	No moist meadows or forests located within project area
Wenatchee mountains checker-mallow <i>Sidalcea oregano var. calva</i>	Plant	FE	--	Moist meadows with surface water or saturated upper soil profiles	No moist meadows or surface water located within project area
Whitebark pine <i>Pinus albicaulis</i>	Plant (tree)	FCo	--	Upper subalpine forests	No forests located within project area

**Table 4 - Chelan County Listed Species**

<b>Common Name / Scientific Name</b>	<b>Type</b>	<b>Federal</b>	<b>State</b>	<b>Expected Habitat</b>	<b>Project Area Information</b>
Whited's milk-vetch <i>Astragalus sinuatus</i>	Plant	FCo	--	Rocky hillsides, known only from an area of less than 10 square miles within southern Chelan County	Project area unlikely habitat

- FE = Federal Endangered
- FT = Federal Threatened
- FC = Federal Candidate
- FCo = Federal Species of Concern
- SE = State Endangered
- ST = State Threatened
- SC = State Candidate
- SS = State Sensitive
- SM = State Monitored



### 5.6.1 Preferred Alternative

**Direct and Indirect Impacts:** Native vegetation around the existing airport and proposed project area include big sagebrush and bluebunch wheatgrass, indicative of areas classified as shrub steppe or grassland. The lack of trees, forest, surface water, or wetlands assures that most of the listed species in Table 4 are not likely to be found around the existing airport or proposed project area because of unsuitable habitat. The steppe shrub and grassland however, do provide potential habitat for four bird species and three animal species, including the Columbia sharp-tailed grouse, loggerhead shrike, sage sparrow, sage thrasher, black-tailed jackrabbit, Merriam's shrew, and white-tailed jackrabbit.

The USFWS, WDFW, and WSDNR agencies were consulted regarding the potential impacts of the proposed project. Mr. Jeff Krupka of USFWS responded via phone on January 4, 2011, and said that the described project seemed to be low risk to fish and wildlife as both the existing airport and the proposed project area have had previous ground disturbing activities. It is likely that most species moved on when the airport, road, and orchards were first developed. The safety concerns of having birds or burrowing animals nest near the airfield have resulted in proactive management to keep these species from returning to the vicinity of the airport. No response was received from WDFW or WSDNR. Coordination with National Aeronautical and Atmospheric Administration (NOAA) revealed no species within their jurisdiction in the project study area.

The Preferred Alternative is unlikely to result in the taking of species or loss of habitat. No fish, wildlife, or critical habitat of protected species would be impacted by this alternative.

### 5.6.2 No Action

**Direct and Indirect Impacts:** The No Action alternative would not result in the loss of vegetation from construction. Development of the airport, roads, and orchards are likely to have already resulted in loss of habitat for native species. Proactive management is used by the airport to prevent species from nesting near the airfield. No fish, wildlife, or critical habitat of protected species would be impacted by this alternative.

## 5.7 Floodplains

The Federal Emergency Management Agency (FEMA) through Executive Order 11988 *"requires Federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of flood plains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative."* More specifically, *"each agency shall provide leadership and shall 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 the flood plains in carrying out its responsibilities..."*

The flood insurance rate map (FIRM) was found using FEMA's online map service center, community panel number 530015 0075 B. This panel was last revised June 5, 1989. The FIRM depicts the area to the north of the existing airport facilities as being within the 100-year flood zone (Zone A). The existing airport and proposed project area are recorded as being areas of minimal flooding (Zone C). See Appendix E for a copy of the FIRM map.



### 5.7.1 Preferred Alternative

**Direct and Indirect Impacts:** The project area is not located within the areas of the 100-year floodplain as depicted on the FIRM. The nearest boundary of Zone A occurs north of the intersection of Airport Way and Apple Acres Road. To prevent any disturbances of the floodplain, all mobilization, stockpiling, and other associated construction activities will be restricted from occurring north of this intersection.

### 5.7.2 No Action

**Direct and Indirect Impacts:** The No Action alternative would not impact floodplains.

## 5.8 Hazardous Materials, Pollution Prevention, and Solid Waste

The WSDOE Integrated Site Information System (ISIS) Web Reporting database and the WSDOE Facility Site Identification System database were researched for potential hazardous waste sites located within the vicinity of the existing airport and proposed project area. The specific databases that were searched included all hazardous waste sites within 0.5 miles of the airport, Brownfields sites within Chelan County, the Uniform Environmental Covenants Act (UECA) Registry within Chelan County, Leaking Underground Storage Tanks (LUSTs) List for Chelan County, Cleanup Sites List for Chelan County, Confirmed and Suspected Contaminated Sites List (CSCSL) for Chelan County, No Further Action (NFA) Site List for Chelan County, Regulated Underground Storage Tanks (USTs) Site List for City of Chelan, and Tank Data Summary for City of Chelan. From these databases, the following four sites were found:

- **Azwell Orchard Facility:** Located approximately 1.3 miles northeast of the existing airport property, this site appeared in the hazardous waste sites map, cleanup sites list, NFA site list, regulated USTs list, and tank data summary information. A 500-gallon diesel tank was removed in 1997 and a 1,000-gallon gasoline tank was removed from the site in 1999. The NFA status was established in January 2002. No USTs remain on site.
- **Lake Chelan Airport Board:** This site appeared in the hazardous waste sites map, regulated USTs, and tank data summary information. Two tanks are listed as operational containing aviation fuel including an 8,000-gallon tank installed in 1964 and a 5,000-gallon tank installed in 1981. The location provided for these tanks in the databases depicts these tanks as being approximately 0.5 miles northeast of the airport property. The actual location of these tanks is south of the airport terminal/office on the west side of the refueling pad.
- **USWCOM Chelan TL Radio Bldg:** This site is located approximately 0.3 miles west of the southeast corner of the airport property. The site was found in the hazardous waste sites map as a hazardous waste generator. The start date is listed as March 1981 with an end date of October 1993.
- **WA DOT Chelan SR 97:** This site is located approximately 0.3 miles southeast of the southeast corner of the airport property. The site was found in the hazardous waste sites map as a hazardous waste generator. The state date is listed as July 1989 with an end date of December 1991.

There are no known solid waste facilities located within 5 miles of the existing airport property or proposed project area.



### 5.8.1 Preferred Alternative

**Direct and Indirect Impacts:** The Preferred Alternative is not anticipated to impact, encounter, or generate hazardous waste. The proposed project would not increase the generation of solid waste from the property. The Preferred Alternative does not include any direct relationship to hazardous materials handling, collection, control, or disposal, other than that associated with the construction. Should pesticides or herbicides be stored or used during construction, they will be used and applied by licensed individuals in conformance with state and federal regulations and product limitations.

### 5.8.2 No Action

**Direct and Indirect Impacts:** The No Action alternative would not impact, encounter, or generate hazardous waste.

## 5.9 Historical, Architectural, Archeological, and Cultural Resources

The National Historic Preservation Act (NHPA) of 1966 established the Advisory Council on Historic Preservation (ACHP) and the National Register of Historic Places (NRHP) within the National Park Service (NPS). Section 106 of the NHPA requires federal agencies to consider the effects of their undertaking on properties on or eligible for inclusion in the NRHP. Section 106 also 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 NRHP listing.

The Area of Potential Effect (APE) for this project includes the areas at both ends of the runway for the 470 ft shift northeast including the new RPZ, as well as the proposed new alignments for Howard Flats Road, Airport Way, and Chelan Airport Road. The proposed project will include ground disturbances in the areas of construction.

A Cultural Resource Survey was completed by Plateau Archaeological Investigations in August 2010. The report indicated the project would have no effect on historic properties and no known Native American Cultural sites were identified within the APE. FAA has sought concurrence with this finding under Section 106 and during government to government consultation with the SHPO, and the Confederated Tribes of the Colville Reservation. Concurrence has not yet been received from the SHPO or the Tribes. See Appendix F for this correspondence and Appendix G for the Cultural Resource Survey report.

### 5.9.1 Preferred Alternative

**Direct and Indirect Impacts:** No historic resources have been recorded within the project area.

### 5.9.2 No Action

**Direct and Indirect Impacts:** The No Action alternative would not affect historical, archaeological, or cultural resources.

## 5.10 Light Emissions and Visual Effects

Potential impacts from light emission and visual effects must be considered in an EA if there is a possibility changes in service or appearance could create an annoyance among people in the vicinity or interfere with their



normal activities. Aesthetic impacts are considered to ensure that there are no contrasts with the existing environment or that the contrasts are acceptable to the jurisdictional agency.

Existing lighting systems for the Lake Chelan Airport include MIRLS, threshold lighting at the displaced threshold location, a two-light PAPI for Runway 20, and a rotating beacon operated on an automatic dusk-dawn photocell switch. Currently there is no lighting for the taxiways.

### 5.10.1 Preferred Alternative

**Direct and Indirect Impacts:** The runway extension will require additional runway lighting to be installed. New runway end identification lights (REILs) and replacement of the PAPI are also planned to be installed as part of the Preferred Alternative.

No new structures are planned with the Preferred Alternative. In addition no large cuts or fills will be required for the planned construction. Visual impacts will be minimal as a result of the Preferred Alternative, resulting mainly from the removal of trees in the project area.

### 5.10.2 No Action

**Direct and Indirect Impacts:** The No Action alternative would have no new lighting or visual impacts.

## 5.11 Natural Resources and Energy Supply

Conservation of natural resources and energy along with the use of renewable energy sources are key items of consideration in Executive Order (EO) 13123. Current energy requirements for the airfield include the lighting system, the beacon, and the PAPI (airport terminal/office and hangars excluded). The Airport receives power from Chelan County Public Utility District (PUD), which owns and operates three hydroelectric projects to generate clean energy.

### 5.11.1 Preferred Alternative

**Direct and Indirect Impacts:** The shifting of the runway will require additional runway surface to be added at the north end of the runway and pavement to be removed at the south end. Asphalt pavement and crushed aggregate will be used in the construction of the runway extension. It is possible that some recycled asphalt pavement (RAP) may be used in the pavement section or for construction of the shoulders. Other materials, including crushed aggregate and asphalt pavement, will be encouraged to be sourced locally.

New MIRLS and REILs are planned as part of the Preferred Alternative for the runway shift. The net change in energy load from the lighting will most likely cause a slight increase energy consumption.

### 5.11.2 No Action

**Direct and Indirect Impacts:** The No Action alternative would not impact energy supplies or natural resources.

## 5.12 Secondary (Induced) Impacts

Secondary impacts are those that affect the surrounding communities caused by a federal action and are later in time or farther removed in distance but are still reasonably foreseeable. Examples of secondary impacts may



include shifts in patterns of population movement and growth, public service demands, and changes in business and economic activity to the extent influenced by the airport development.

### 5.12.1 Preferred Alternative

**Direct and Indirect Impacts:** The Preferred Alternative will result in major changes to the existing road alignments within the vicinity of the Airport. Approximately 2,630 linear feet of Howard Flats Road will be rerouted to accommodate the northeasterly shift in the runway. This will impact many of the residents and agricultural workers who use Howard Flats Road both temporarily during construction and permanently with the new alignment. It is estimated that six residences and two businesses currently use this section of Howard Flats Road as their primary access to Highway 97A. The new alignment will increase safety to both those using Howard Flats Road and patrons of the airport as new alignment of Howard Flats Road will no longer interfere with the runway critical surfaces.

Two other surface transportation routes will also be altered by the Preferred Alternative. The existing airport entrance near the intersection of Apple Acres Road and Highway 97A will be removed and relocated and approximately 0.45 miles north to Airport Way and a new access point for Chelan Airport Road will be built from Highway 97A approximately 0.2 miles east of Apple Acres Road. Removing the existing airport entrance will increase safety by eliminating the vehicle traffic through the RPZ and improve the control of access to the airport facilities by establishing one main entrance. Hangars on the northwest side of the airfield would be accessed from Airport Way while hangars located on the southeast side of the runway will be accessed from the new Chelan Airport Road entrance. The reconfiguration of Airport Way and Chelan Airport Road will only impact patrons of the airport.

The Preferred Alternative will alter the current primary access route to Highway 97A for several residents and businesses. The new alignment of Howards Flats Road will increase safety to both the road users and airport patrons.

Close coordination with three jurisdictions will be required for the design and construction of the reconfiguration of these roads. Chelan County has jurisdiction over Howard Flats Road and Chelan Airport Road. The re-alignment will be designed to their standards and the right of way dedicated to the county for acceptance into the county road system. City of Chelan has jurisdiction over Airport Way. The reconfiguration will be designed to city standards. The right of way will remain under city jurisdiction. WSDOT has jurisdiction over Highway 97A. WSDOT will require the new access point connecting Chelan Airport Road to be designed to their standards and may require additional right of way. WSDOT may also require payment of fees for granting the access permit.

### 5.12.2 No Action

**Direct and Indirect Impacts:** The No Action alternative poses several safety concerns as the current layout of the runway has several major interferences with the runway critical surfaces on both ends of the runway. This may result in a decrease to the available runway length for arrivals and departures thereby limiting the size and types of aircraft that would be able to land. The No Action Alternative may result in a decrease in patronage for the Airport over time.



### 5.13 Socioeconomic Impacts, Environmental Justice, and Children’s Environmental Health and Safety Risks

There are several items of consideration for this subcategory of potential environmental consequences:

- Impacts for property acquisition including displacement of homes or businesses.
- Local zoning, transportation, economic development, and housing impacts.
- Any disproportionately high or adverse impacts to minority or low-income populations.
- Impacts that may increase health or safety impacts for children.

The area surrounding the Airport is mainly used for agricultural purposes, with residences built on 2.0- to 2.5-acre lots. Main transportation routes located around the Airport include Apples Acres Road and Howard Flats Road, both of which are accessed from Highway 97A.

#### 5.13.1 Preferred Alternative

**Direct and Indirect Impacts:** The Preferred Alternative will result in the displacement of one resident and acquisition of 38.2 acres as well as removal of 36.7 acres of land currently used for orchards to accommodate the 470 ft shift of the runway. The proposed RPZ for the northern end of the runway will overlap with 11.7 acres of orchard that is proposed for land acquisition by the Airport. The orchards located within the RPZ would not necessarily be removed. One option being considered is that the land be leased back from the Airport so that it could still be used for agricultural purposes. The residence to be displaced is not considered low income, but the orchards surrounding the residence do employ minorities. The overall net reduction in usable orchard land as a result of the Preferred Alternative is 36.7 acres. The Relocation Act will be followed for all displaced residents or businesses.

It is estimated that six residences and two businesses currently use Howard Flats Road as their primary access to Highway 97A. During construction of the new alignment, residents and workers will be required to use a detour from Apple Acres Road. Safety will be increased for those traveling on Howard Flats Road and for patrons of the airport by eliminating the interference with the airport critical areas.

The percentage of acreage lost compared to the land currently used for commercial agriculture in the Howard Flats vicinity is relatively small. The Relocation Act will be followed for all displaced residents or businesses. The Preferred Alternative and future airport projects cumulatively may increase local employment and economic activity. The Preferred Alternative is not expected to increase risks to children’s environmental health and safety.

Economic impacts as a result of the Preferred Alternative would include temporary increases in employment during construction.

There are no anticipated impacts to children’s environmental health or safety.

#### 5.13.2 No Action

**Direct and Indirect Impacts:** The No Action alternative would not cause environmental justice or increase children’s environmental health and safety risks. The No Action alternative does not address safety deficiencies including intrusions to the existing runway critical surfaces for both ends of the runway. This alternative may



have an adverse impact on the future economic viability of the Airport as patronage is lost to neighboring airports.

## 5.14 Water Quality

Water quality impacts that must be considered include actions that might impair water quality or quantity to ground or surface water sources. The nearest body of water to the airport is the Columbia River, which is located approximately 0.75 miles southeast of the airport. The difference in elevation between the Airport and the river is approximately 540 ft. Lake Chelan Airport does not discharge to any bodies of water belonging to the United States. Water is supplied to the Airport by wells located on Airport property. Wastewater from the Airport terminal/office and hangars is treated by individual septic systems. Stormwater is allowed to drain from the paved and gravel areas into swales and infiltrate.

Temporary water quality impacts will be minimized by implementing erosion and sediment control plans with use of BMPs in the field. Changes in impervious and pervious area will result in minor alterations to the existing stormwater drainage patterns. No significant impacts to water quality or quantity are anticipated as result of the Preferred Alternative.

### 5.14.1 Preferred Alternative

**Direct and Indirect Impacts:** The Preferred Alternative may result in temporary impacts to water quality during construction and will alter stormwater drainage patterns with the demolition of existing pavement and construction of new pavement for the 470 ft shift of the runway. Erosion and sediment control plans will be used along with BMPs (see Section 5.4.1) to minimize water quality impacts during construction. Drainage facilities will be designed in accordance with WSDOE's *Stormwater Management Manual* for Eastern Washington for storage and treatment of runoff.

### 5.14.2 No Action

**Direct and Indirect Impacts:** The No Action alternative would not cause water quality impacts.

## 5.15 Wetlands

Federal agencies are required to ensure that their actions minimize the destruction, loss, or degradation of wetlands under EO 11990. This EO also assures the protection, preservation, and enhancement of the Nation's wetlands to the fullest extent possible during the planning, construction, funding, and operation of transportation facilities and project.

Wetlands determinations are dependent on certain types or presence of vegetation, soils, and hydrology within an area. An online mapping tool is available from USFWS of their National Wetlands Inventory (NWI). A search of the Howard Flats area identified the nearest wetlands to the Airport are located over 0.3 miles south and approximately 500 ft below the southwest end of the existing runway below Highway 97A. Another very small wetland area is located approximately 0.7 miles northeast of the existing northeast end of the runway. See Appendix E for a printout of the NWI mapping tool for the project area.



### 5.15.1 Preferred Alternative

**Direct and Indirect Impacts:** The Preferred Alternative does not include construction within 200 ft of either identified wetland. The Preferred Alternative will not impact these wetland areas.

### 5.15.2 No Action

**Direct and Indirect Impacts:** The No Action alternative would not impact wetlands.



## 6 CUMULATIVE IMPACTS

Cumulative impacts are the impacts on the environment that result from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions. This section explores known actions and their potential cumulative impacts in the project area.

### 6.1 Past, Present and Reasonably Foreseeable Future Actions

A number of known actions are relevant for review in this EA. Projects in the vicinity of the Airport include:

#### 6.1.1 Past Projects (3 to 5 years):

- Construction of hangars (2008-2010)
- Installation of weather reporting equipment (2009)
- Taxiway and apron crack sealing, fog sealing, signing and marking project (2010)

#### 6.1.2 Present Projects:

- New and replacement hangar construction by tenants of the Airport
- Construction of an equipment maintenance building
- Repairs to the Airport rotating beacon
- Updates to the Chelan County Airport Overlay District

#### 6.1.3 Potential Future Projects (less than 5 years):

- Removal of obstructions from critical surfaces (RSA/OFA/OFZ) and airspace (RPZ/Approaches/Part 77)
- Additional hangar site development including development of taxiways, taxilanes, and utilities
- Perimeter fencing
- Periodic and annual maintenance

### 6.2 Planned Future Actions (beyond 5 years)

It should be noted that some projects are planned for the project area but are not considered reasonably foreseeable for the purpose of evaluating the cumulative impacts of those projects. For this reason the projects described below were not analyzed for their impacts in this document.

Long-term development of Airport facilities to implement the ALP is considered beyond the threshold of reasonably foreseeable. See the ALP in Appendix A for more information on these projects.

Another future action is the intersection improvements planned by WSDOT for the intersection of Apple Acres Road and Highway 97A. For this project WSDOT is considering the addition of acceleration and deceleration lanes from Highway 97A onto Apple Acres Road. This project is in the long range plan and is not funded at this time. A similar project for the intersection of Howard Flats Road and Highway 97A is listed in the Chelan County Comprehensive Plan Transportation Element, May 2009 prepared by TranspoGroup.

A third future action is the development of a business corridor in the Howard Flats Sub-Area near the airport as described in the Preliminary Draft of the Lower Lake Chelan Basin Regional Strategic Action Plan prepared by Maul Foster Alongi dated February 27, 2009.



### 6.3 Known Impacts

Known impacts from the accumulation of actions can be summarized for the Preferred Alternative. See the following discussion. The No Action alternative does not increase the effects of any separately proposed action, so it is not discussed below.

**Compatible Land Use Impacts:** The Preferred Alternative taken together with other reasonably foreseeable actions will impact land use in the Airport area. The City and County are together proactively addressing land use issues that may arise from projects in the Airport area. The City and County have implemented changes to the UGA and the respective comprehensive plans. The City and County are in the process of implementing additional changes to update the AOD pending the FAA finding on this document. If the Preferred Alternative is confirmed the AOD will be shifted 470 along the runway alignment. This will impact an estimated 10 parcels which were not previously subject to the additional requirements of the AOD. The impact from shifting the AOD is not expected to be significant.

**Construction Impacts:** The Preferred Alternative taken together with other reasonably foreseeable actions will cause impacts from construction. Mitigation of construction impacts will be incorporated into the design and construction of the Preferred Alternative so that construction impacts will be minimal. The incremental addition of the Preferred Alternative to other actions is not expected to be significant.

**Fish, Wildlife, and Plants Impacts:** The Preferred Alternative taken together with other reasonably foreseeable actions will cause impacts to the flora and fauna in the Airport area. Any construction project will require the disturbance of land and potential habitat. However impacts to listed threatened, endangered and candidate species will be insignificant, based on the known species in the area and their preferred habitat.

**Historical, Architectural, Archeological, and Cultural Resources Impacts:** The Preferred Alternative taken together with other reasonably foreseeable actions will cause impacts to historic and pre-historic resources in the project area. However, based on the Cultural Resources Report included in Appendix F, there are no significant resources in the project area in this category. Therefore the cumulative impact of the Preferred Alternative will be insignificant.

**Light Emissions and Visual Impacts:** The Preferred Alternative taken together with other reasonably foreseeable actions will cause visual impacts and an increase in light emissions in the project area. The visual changes in the project area include removal of trees and structures, relocation of the roads, and a shift in where the runway lights are located in the general vicinity of the Airport. Night-time light emissions will increase. The project elements will be seen from areas that do not currently see the airport. The overall impacts to this category are considered minor because the change in landscape and increase in night-time light will be an incremental increase of less than 10 %.

**Natural Resources and Energy Supply Impacts:** The Preferred Alternative taken together with other reasonably foreseeable actions will cause impacts to natural resources and energy supplies. The preferred alternative will require additional energy and natural resources. However, the local project area has adequate supplies of energy and natural resources for all the foreseeable projects. Therefore the impact will be insignificant.

**Secondary (Induced) Impacts:** The Preferred Alternative taken together with other reasonably foreseeable actions will cause secondary impacts. Creation of a new access point to Highway 97A will cause an increase in the number of intersections in the highway corridor creating an impact to traffic in the area. The number of



vehicles accessing the airport via this access point is expected to be less than 2% of the total traffic on the highway. Therefore the impact will be insignificant.

**Socioeconomic Impacts, Environmental Justice, and Children’s Environmental Health and Safety Risks Impacts:**

The Preferred Alternative taken together with other reasonably foreseeable actions will cause socioeconomic impacts. None of the known actions will cause impacts related to Environmental Justice, and Children’s Environmental Health and Safety Risks Impacts. Socioeconomic impacts will include changes to the travel patterns in the area and a decrease in the number of orchard businesses operating in the area. Access for users of Howard Flats Road and access to the airport hangar development areas will be maintained with the Preferred Alternative. Orchards will be taken out of production. However, the number of acres lost will be insignificant in comparison to the number of acres in production in the region.

**Water Quality Impacts:** The Preferred Alternative taken together with other reasonably foreseeable actions has the potential to cause impacts to water quality. However, mitigation measures will be incorporated into the design and construction of the Preferred Alternative so that construction impacts will be minimal. The incremental addition of the Preferred Alternative to other actions is not expected to be significant.



## 7 PUBLIC INVOLVEMENT AND AGENCY COORDINATION

### 7.1 Summary

Public involvement and agency coordination requirements for this project began in 2009 and are ongoing. This document is in the agency review stage prior to publication for public review. Agency comments will be received and comments will be incorporated into a Draft EA. A public comment period will be allowed for review of the Draft EA.

The FAA and Lake Chelan Airport will announce the availability of the draft EA for the proposed runway shift improvements at Lake Chelan Airport in early 2011 by posting the availability of the document on the City website and by publishing a newspaper advertisement. Copies of the draft EA will be made available for review at the following locations:

City of Chelan  
135 E Johnson  
Chelan, WA 98816

Port of Chelan County  
238 Olds Station Rd, Ste A  
Wenatchee, WA 98801

Federal Aviation Administration  
Northwest Mountain Region-Airport Division  
1601 Lind Avenue, SW Suite 315  
Renton, WA 98057-3356

Table 5 outlines the tasks and activities undertaken. Records of correspondence are included in Appendix F. Appendix F will contain all comments received in future iterations of the EA.

**Table 5 - Public Involvement and Agency Coordination**

Date/Time	Activity	Description
April 1, 2010	Site Meeting	USKH met with Plateau Archaeologists and City representatives to discuss project.
March 12, 2010	Agency Scoping Letters	USKH mailed letters to City, County, state, and federal agencies describing the project and soliciting scoping comments.
May 2010	Follow up phone calls	USKH called each letter recipient to confirm receipt of scoping package and remind them of the comment deadline.
October 2010	Public Information Meeting	USKH presented alternatives to the City Council, Airport Board, and Port representatives in a public meeting.
January 25, 2011	Agency Draft EA	Submitted to FAA and Sponsors to review. Comments have been incorporated into a Draft EA for public review.



**Table 5 - Public Involvement and Agency Coordination**

<b>Date/Time</b>	<b>Activity</b>	<b>Description</b>
March 10, 2011	Draft EA	Will be available for public review. Comments will be incorporated into the Final EA.
TBD	Final EA	Will be submitted to FAA for determination



## **8 LIST OF PREPARERS**

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Todd Combs, P.E., USKH Inc., Preliminary Engineering

Ursula Dickeson, USKH Inc., Document Preparation

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## 9 REFERENCES

*All About Birds*. The Cornell Lab of Ornithology, 2009. Web. 10 Jan. 2011.  
<<http://www.allaboutbirds.org/NetCommunity/Page.aspx?pid=1189>>.

Council on Environmental Quality (CEQ) - Regulations for Implementing NEPA, Terminology and Index, 40 CFR, Pt. 1508.8 (1978).

*"Chelan County - Farm Soils."* Map. Washington State Department of Ecology, 01 May 2008. Web. 18 Jan. 2011. <<http://www.ecy.wa.gov/services/gis/maps/county/soils/soils4.pdf>>.

Chelan County GIS Data. Using: ArcGIS. Accessed 2009.

*"Chelan County, Washington - Fact Sheet."* 2005-2009 American Community Survey. U.S. Census Bureau. Web. 6 Jan. 2011.  
<[http://factfinder.census.gov/servlet/ACSSAFFacts?\\_event=ChangeGeoContext&geo\\_id=05000US53007&\\_geoContext=&\\_street=&\\_county=chelan&\\_cityTown=chelan&\\_state=04000US53&\\_zip=&\\_lang=en&\\_sse=on&ActiveGeoDiv=&\\_useEV=&pctxt=fph&pgsl=010&\\_submenuId=factsheet\\_1&ds\\_name=ACS\\_2009\\_5YR\\_SAFF&\\_ci\\_nbr=null&q\\_r\\_name=null&reg;=null:null&\\_keyword=&\\_industry=>](http://factfinder.census.gov/servlet/ACSSAFFacts?_event=ChangeGeoContext&geo_id=05000US53007&_geoContext=&_street=&_county=chelan&_cityTown=chelan&_state=04000US53&_zip=&_lang=en&_sse=on&ActiveGeoDiv=&_useEV=&pctxt=fph&pgsl=010&_submenuId=factsheet_1&ds_name=ACS_2009_5YR_SAFF&_ci_nbr=null&q_r_name=null&reg;=null:null&_keyword=&_industry=>)>.

*"Coldwater Fish Species."* Pacific Northwest Fisheries Program. US Department of Agriculture (USDA) Forest Service. Web. 10 Jan. 2011. <<http://www.fs.fed.us/r6/fishing/regional/fishresources/coldwater.html>>.

*Custom Soil Resource Report for Chelan County Area, Washington (Parts of Chelan and Kittitas Counties) Lake Chelan Airport*. Rep. *Custom Soil Resource Report for Chelan County Area, Washington (Parts of Chelan and Kittitas Counties) Lake Chelan Airport*. United States Department of Agriculture National Resources Conservation Service, 18 Nov. 2009. Web.

*Development Standards*. Chelan County Code, 9 Nov. 2010. Web. 4 Jan. 2011.  
<<http://www.codepublishing.com/wa/ChelanCounty/html/Chelco15/Chelco1530.html>>.

Duncan, Nancy. *Species Fact Sheet*. *Fluminicola Fuscus*. Ed. Rob Huff. 2009. Web. 10 Jan. 2011.

*Facility/Site Database*. Washington State Department of Ecology. Web. 19 Jan. 2011.  
<<http://www.ecy.wa.gov/fs/>>.

*"FIRM Community Panel No. 530015 0075 B."* FEMA Map Service Center. U.S. Department of Homeland Security, 5 June 1989. Web. 11 Nov. 2010.  
<[http://www.msc.fema.gov/webapp/wcs/stores/servlet/info?storeId=10001&catalogId=10001&langId=-1&content=firmetteHelp\\_A&title=FIRMettes](http://www.msc.fema.gov/webapp/wcs/stores/servlet/info?storeId=10001&catalogId=10001&langId=-1&content=firmetteHelp_A&title=FIRMettes)>.

*Geology of Washington - Northern Cascades*. Washington State Department of Natural Resources. Web. 10 Dec. 2009. <<http://www.dnr.wa.gov/ResearchScience/Topics/GeologyofWashington/pages/ncascade.aspx>>.

*Geology of Washington*. Washington State Department of Natural Resources. Web. 10 Dec. 2010.  
<<http://www.dnr.wa.gov/ResearchScience/Topics/GeologyofWashington/Pages/geolofwa.aspx>>.



- Haugerud, Ralph A., and Rowland W. Tabor. "Geologic Map of the North Cascade Range, Washington." *USGS Publications Warehouse*. U.S. Geological Survey, 29 Sept. 2009. Web. 10 Dec. 2010. <<http://pubs.usgs.gov/sim/2940/>>.
- ISIS Web Reporting*. Rep. Washington State Department of Ecology, July 2007. Web. 19 Jan. 2011. <<https://fortress.wa.gov/ecy/tcpwebreporting/Default.aspx>>.
- NatureServe Explorer*. NatureServe, Aug. 2010. Web. 10 Jan. 2011. <<http://www.natureserve.org/explorer/index.htm>>.
- "Rare Plants Information." *Washington Natural Heritage Program*. Washington State Department of Natural Resources. Web. 10 Jan. 2011. <<http://www1.dnr.wa.gov/nhp/refdesk/plants.html>>.
- United States. Federal Aviation Administration. *Environmental Impacts: Policies and Procedures*. 20 Mar. 2006. Web. <[http://www.faa.gov/documentLibrary/media/order/energy\\_orders/1050-1E.pdf](http://www.faa.gov/documentLibrary/media/order/energy_orders/1050-1E.pdf)>.
- United States. U.S. Fish and Wildlife Service. Central Washington Field Office. *Listed and Proposed Endangered and Threatened Species and Critical Habitat; Candidate Species; and Species of Concern in Chelan County*. 15 Dec. 2010. Web. <<http://www.fws.gov/wafwo/pdf/ChelanCounty121510.pdf>>.
- Washington NatureMapping Program*. University of Washington. Web. Nov. 2009. <<http://depts.washington.edu/natmap/>>.
- Washington State Species of Concern Lists*. Washington Department of Fish & Wildlife. Web. 10 Jan. 2011. <<http://wdfw.wa.gov/conservation/endangered/lists/search.php?searchby=All&orderby=AnimalType,CommonNameASC>>.
- Well Logs*. Washington State Department of Ecology. Web. 19 Jan. 2011. <<http://apps.ecy.wa.gov/welllog/>>.
- "West Coast Lamprey Species." *Center for Biological Diversity*. 10 Sept. 2003. Web. 20 Jan. 2011. <<http://www.biologicaldiversity.org/swcbd/SPECIES/lamprey/descriptions.html>>.
- Wetlands Mapper*. U.S. Fish and Wildlife Service, 1 Oct. 2010. Web. 5 Jan. 2011. <<http://www.fws.gov/wetlands/data/Mapper.html>>.

**Appendix A**  
**ALP Drawings (Sheets 1-7)**

**Appendix B**  
**ALP Figure 3-1, Figure 3-2, Figure 4-4**

**Appendix C**  
**WSDOT Airspace Exhibit**

**Appendix D**  
**City of Chelan and Surrounding County Information**

**Appendix E**  
**Flood Insurance Rate Map (FIRM), National Wetlands Inventory Map, NRCS**  
**Soil Map, WSDOE Farm Soils Map,**

**Appendix F**  
**Agency Contact List, Agency and Public Correspondence Documentation**

**Appendix G**  
**Cultural Resources Survey (Report)**