IN THE UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

No. 10-70718

MICHELLE BARNES, an individual; PATRICK CONRY, an individual; BLAINE ACKLEY, an individual,
Petitioners
v.
UNITED STATES DEPARTMENT OF TRANSPORTATION; RAY LAHOOD, Secretary of Transportation; FEDERAL AVIATION ADMINISTRATION; J. RANDOLPH BABBITT, Administrator, Federal Aviation Administration; DONNA TAYLOR, Regional Administrator, Federal Aviation Administration, Northwest-Mountain Region; CAROL SUOMI, District Manager, Federal Aviation Administration Seattle Airports District; and CAYLA MORGAN, Environmental Specialist, Federal Aviation Administration Seattle Airports District,
Respondents

Petitioners' Excerpts of Record

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PETITIONERS' EXCERPTS OF RECORD

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Part 1: Finding of No Significant Impact

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
Finding of No Significant Impact

Hillsboro Airport (HIO)
New Parallel Runway 12L/30R
Hillsboro, Oregon

The Port of Portland prepared a Draft and Final Environmental Assessment (EA) for the proposed construction of a new parallel runway (12L/30R) and related actions at Hillsboro Airport.

I. Introduction

Hillsboro Airport is located in the city of Hillsboro in Washington County, Oregon, approximately 2 ¼ miles from Hillsboro city center and 12 miles west of downtown Portland. The Port of Portland owns and operates Hillsboro Airport. The Airport and surrounding Port-owned property occupy approximately 965 acres of land. The Airport boundaries are generally NE Brookwood Parkway to the east, NE 25th Avenue to the west, NW Evergreen Road to the north, and NE Cornell Road to the south. While the Airport is located almost entirely within the city of Hillsboro, it is located on the northern boundary of the city, and Port-owned lands north of NW Evergreen Road are within unincorporated Washington County.

Hillsboro Airport (the Airport or HIO) is the busiest general aviation (GA) airport in Oregon, and since 2008, it has also become the state's busiest airport. The FAA's National Plan of Integrated Airport Systems (NPIAS) lists HIO as a designated GA reliever airport for Portland International Airport (PDX).

II. The Proposed Agency Action and Approvals

The Port of Portland proposes to build new Runway 12L/30R, which consists of the following components: 1) construction of Runway 12L/30R and associated taxiways, 2) the relocation of the existing Charlie Helipad, and 3) associated infrastructure improvements.

The Port proposes to initiate construction of the proposed runway and associated taxiways in 2010, with completion at the end of 2011. The relocated Charlie Helipad would be under construction in 2014, and would be in operation by 2015. Specifically, the proposed improvements include the following, as shown in **Figure 1-4** in the attached Final EA:

- The proposed Runway 12L/30R would be parallel to and 700 feet east of Runway 12/30 (to be re-designated Runway 12R/30L), the Airport's main runway. The new runway would be 3,600 feet long and 60 feet wide, consistent with the runway's intended use by fixed-wing, piston-engine, and propeller-driven airplanes. This new runway would occupy the location of the existing Charlie Helicopter Landing and Take-Off Pad, commonly known as the Charlie Helipad.
- Taxiway D would be parallel to and 240 feet east of the new Runway 12L/30R and would connect to Taxiway C. Taxiway D would provide access to aircraft landing and taking off from

the new Runway 12L/30R. Taxiway D would also be used as an interim replacement for the existing Charlie Helipad.

- Charlie Helipad would be constructed as identified in either Alternative 2 or 3 location.

The FAA actions, determinations, and approvals necessary for this project to proceed to completion include the following:

- A determination under 14 CFR Part 157 (49 USC 40113(a)) on whether there are objections to the airport development proposal from an airspace perspective, based on aeronautical studies;
- A determination through the aeronautical study process under 14 CFR 77 (40 USC 40103(b), 40133) regarding obstructions to navigable airspace;
- Determinations under 49 U.S.C. Sections 47106 and 47107 pertaining to FAA approval of the airport layout plan (ALP), 49 U.S.C. §47107(a)(16) environmental approval (see 42 U.S.C.§§4321-4347 and 40 CFR §1500-1508), and determinations under other statutes and regulations discussed in this Finding of No Significant Impact (FONSI).

III. Purpose and Need

The purpose of the proposed action is to reduce congestion and delay at HIO in accordance with planning guidelines established by the FAA. The FAA National Plan of Integrated Airport Systems (NPIAS) states: "Current FAA guidance recommends that capacity planning start when aircraft activity reaches 60 to 75 percent of an airport's capacity." Aviation activity forecasts, described in EA Section 1.1.3 and the accompanying delay analysis in EA Section 1.1.4, demonstrate that the current level of activity and the mix of aircraft types at HIO exceed FAA planning criteria, which creates undesirable levels of delay as aircraft activity levels have nearly reached the capacity of the existing airfield. Forecast growth will further increase congestion and delay.

As noted in Section 1.1.4, the average delay per operation at HIO is projected to increase from 1.2 minutes in 2007 to 6 minutes in 2025 without airfield capacity improvement. This increased delay will in turn increase aircraft operation time and operating costs due to increased fuel consumption resulting in commensurate air emissions. In 2007, aircraft delay amounted to 3,321 hours annually. By 2025, total delay is forecast to reach 24,900 hours annually.

As a GA reliever airport for PDX, HIO is an important element of the National Airspace System (NAS) and the regional airport system. The Port and the FAA have consistently worked to maintain the Airport's capability to serve as an attractive, safe, and efficient alternative to PDX for diverse GA users. As congestion and delay increase, the Airport's ability to serve as an attractive, safe and efficient GA reliever airport will diminish. The proposed action is needed because the HIO airfield is currently operating at close to 100 percent of Annual Service Volume (ASV) and current Airport activity levels exceed FAA capacity planning criteria. Forecast activity levels will substantially exceed the ASV of the current airfield in the future with corresponding levels of congestion and delay as demand increases.

IV. Alternatives Analysis

A wide range of alternatives was considered to meet the Purpose and Need. Alternatives included several new runway locations and configurations and non-development alternatives. The area in which a runway meeting the minimum length requirements could be built is limited by existing site constraints including the existing runway 12/30 to the west, Evergreen Road to the north, runway 2/20 and existing GA facilities to the south. Within this envelope, impacts for various runway locations were determined to be virtually the same. Non-development alternatives included elimination of local training flights, diversion

of traffic to other airports, demand management, and use of new technologies. These alternatives were evaluated with respect to their ability to meet the Purpose and Need for the proposed action, site constraints, and environmental factors. Three build alternatives were identified in Chapter 3 *Alternatives* of the EA as meeting the purpose and need. The alternatives screening analysis in the EA concluded that the non-development alternatives would not meet the purpose and need (EA section 3.1.3). Briefly, the alternatives carried forward for detailed environmental review in the EA are:

- **Alternative 1 – No Action.** NEPA requires consideration of the No Action Alternative. 40 CFR 1502.14(d) (agencies shall "include the alternative of no action"). This alternative also serves as the basis of comparison for other reasonable alternatives.
- **Alternative 2 – Proposed Runway 12L/30R with Charlie Helipad Option A.** This alternative includes the improvements described above. In this alternative, the relocated Charlie Helipad would be located at the southern end of the area available for siting.
- **Alternative 3 – Proposed Runway 12L/30R with Charlie Helipad Option B.** This alternative differs from Alternative 2 only in the location of the relocated Charlie Helipad. In this alternative, the relocated Charlie Helipad would be located at the northern end of the available area.

The Port has selected as operationally preferred either Alternative 2 or 3. As is shown in the Chapter 5, *Environmental Consequences* – all of the build alternatives (Alternative 2 or 3) would affect wetlands, each requiring the filling of 2.22 acres of wetland. Impacts to other resource categories are essentially the same with either alternative.

V. Environmental Consequences

Consistent with the requirements of FAA Orders 1050.1E, Change 1, and 5050.4B, the following sections summarize the impacts of the project alternatives as they relate to the specific environmental resource categories.

Noise

No residential or other noise-sensitive land uses would be within the DNL 65 contours that define significant aircraft noise exposure for any of the alternatives under consideration. No noise-sensitive land uses would experience significant project-related aircraft noise impacts or significant noise exposure from construction activities. The 65 DNL and greater contours all remain on airport property.

Compatible Land Use

None of the alternatives under consideration would generate a significant noise impact, and no residential or other noise-sensitive land uses would fall within the DNL 65 contours for any of these alternatives. The Airport is noted within the City of Hillsboro and Washington County land use plans and policies and thus is a consistent land use. None of the alternatives would require change of use approval, annexation or relocation that would disrupt land use patterns in the Airport environs. The project alternatives would not therefore create non-compatible land use.

Historical, Architectural, Archeological, and Cultural Resources

No archaeological or historic resources on or eligible for the National Register of Historic Places were found in the project Area of Potential Effect. The background research and field observations conducted in this analysis indicate that a "No Properties Affected" determination by the FAA in consultation with the Oregon State Historic Preservation Office (SHPO) is appropriate. The SHPO concurred with this determination on June 12, 2009.

DOT Section 4(f) Resources

No potential DOT Section 4(f) or Land and Water Conservation Fund Section 6(f) properties are present within the existing or future DNL 65 noise contours. No property would be acquired as part of this project and the 65 DNL noise contour would remain entirely within the Airport property for all the alternatives. Therefore, no significant direct or indirect impacts to potential Section 4(f) or Section 6(f) resources would occur.

Socioeconomic Impacts, Environmental Justice, Children's Environmental Health and Safety Risks

No significant adverse socioeconomic impacts or disproportionate risks to children's environmental health and safety are expected due to the proposed project. None of the alternatives would result in the relocation of any residences or businesses, division or disruption of any communities in the surrounding area, or change in surface transportation facilities or traffic volumes. Neither Alternative 2 nor 3 would result in adverse impacts on environmental resources that could lead to disproportionately high and adverse impacts on minority and/or low-income populations.

Secondary (Induced) Impacts

No significant adverse secondary impacts would occur because of the proposed project.

Air Quality

Construction of either Alternative 2 or Alternative 3 would temporarily increase air emissions due to construction of the proposed runway, taxiways, and the Charlie Helipad. These construction emissions would not be significant. Once constructed, the project alternatives would reduce airfield congestion and aircraft delay compared to the No Action Alternative, resulting in long-term, ongoing emissions reductions. The project alternatives would not cause significant air quality impacts. The project emissions are de-minimis.

Water Quality

Surfaces at Hillsboro Airport drain to Glencoe Swale, a tributary of McKay Creek, on the north and Dawson Creek on the south. Both Alternative 2 and Alternative 3 would represent an increase in impervious surface of 15.3 acres, a 42% increase in impervious area draining to Glencoe Swale relative to the No Action and an approximate 0.9% increase in the impervious area draining to Dawson Creek. Because the increase in impervious area for Dawson Creek is below the margin of error for modeling and the increase in flows and pollutants would not be measurable, impacts to Dawson Creek are considered negligible. Increased flow to Glencoe Swale would be approximately 5.9% in a 10-year storm event and approximately 4.0% in a 100-year storm event, which does not exceed the defined threshold of significance. Thus, with respect to water *quantity*, no significant impacts are expected under either Alternative 2 or 3.

Storm water runoff from the new impervious surface in Alternatives 2 and 3 would be treated through a vegetated filter strip to reduce pollutant levels to below water quality criteria. Downstream pollutant concentrations in Glencoe Swale would be lower for Alternatives 2 and 3 compared to the No Action Alternative because the receiving water concentrations would be diluted by the increased runoff. Thus, no significant water *quality* impacts are expected with either Alternative 2 or 3.

Fish, Wildlife, and Plants

No significant impacts on fish, wildlife, or plants are expected from Alternative 2 or Alternative 3. Approximately 6.3 acres of vegetated corridor, or wetland buffer, will be converted to airport use by either alternative. Washington County Clean Water Services regulates these sensitive areas, and requires mitigation for impacts. No federally listed threatened or endangered plant or animal species are present in the study area. FAA has determined the project would have "no effect" on federally listed fish species. There would be no impacts on any federal or state listed threatened or endangered species.

Wetlands

Alternative 2 and Alternative 3 would both result in permanent loss of 2.22 acres of scattered, low value wetlands. Wetlands that would be affected range in size from 0.01 acre to 1.71 acres, with the largest wetland being only partly impacted. All wetlands that would be impacted are vegetated primarily, if not exclusively, by non-native grasses and opportunistic weedy species.

Floodplains
No work is proposed within the 100-year floodplain for Glencoe Swale or Dawson Creek or any other floodplain under any alternative.

Hazardous Materials, Pollution Prevention, and Solid Waste
As part of its sustainability practices, the Port reduces waste generation through its waste management program, which includes waste segregation, recycling, and energy recapture programs. No significant impacts related to hazardous materials, pollution prevention, or solid waste were identified for the proposed project.

Farmlands
With respect to farmlands classified as prime, unique, or of statewide importance, as defined by the US Department of Agriculture Natural Resource Conservation Service (NRCS), approximately 50 acres of prime farmland or farmland of statewide importance would be directly or indirectly converted to non-farmland use with Alternative 2 or 3. Coordination with the NRCS under the Farmland Protection Policy Act resulted in a Farmland Conversion Impact Rating Score of 107, which is below the threshold of significance of 200. No further action other than documentation for record with the NRCS is required.

Energy Supply, Natural Resources, and Sustainable Development
Implementation of either Alternative 2 or Alternative 3 would decrease demand for energy by decreasing congestion and delay at the airport and would not lead to increased activity at HIO compared to the No Action Alternative. Implementation of Alternative 2 or 3 would therefore have a beneficial effect in reducing consumption of aviation fuel, and would have a neutral effect on demand for most other sources of energy. The runway and taxiway would increase the airfield's demand for electrical power by 31 KW, or about 18 percent. This additional demand could be accommodated by Portland General Electric, the local energy provider. In addition, the Port reduces waste generation through its waste management program, as described above in Hazardous Materials, Pollution Prevention, and Solid Waste. Construction and operation of the project alternatives would not, therefore, cause significant impacts with respect to energy supply, natural resources, and sustainable development.

Light Emissions and Visual Impacts
Construction and operation of the project alternatives would not cause significant impacts with respect to light emissions and visual impacts.

Cumulative Impacts
Construction and operation of the project alternatives would not contribute cumulatively to significant impacts on any environmental resource.

Mitigation
The project would result in the loss of 2.22 acres of scattered wetlands and the conversion of approximately 6.3 acres of Vegetated Corridor that is regulated by Washington County Clean Water Services. These impacts would be mitigated through restoring 2.22 acres of wetlands and approximately 6.3 acres of vegetated buffer at the nearby Jackson Bottom Wetland Preserve. This restored wetland would provide several wetland functional characteristics that would exceed the functions of the impacted wetlands. They would be higher functioning in characteristics of native vegetation, wildlife habitat, fish habitat, floodwater storage, sediment retention, and possibly removal or storage of nutrients. The vegetated corridor would consist of native vegetation and would also be higher functioning in wildlife

habitat, flood storage, sediment retention than the area impacted by the project. Permits required by various agencies for these impacts have been applied for and mitigation plans are under review.

VI. Agency Conditions and Findings

Conditions: Construction of the proposed runway is conditioned upon the receipt of a 404 permit from the US Army Corps of Engineers and a Removal/Fill permit from the Oregon Department of State Lands for the filling of 2.22 acres of wetland necessary for the proposed runway. In the event that any artifacts are discovered during construction activities, the Port of Portland will immediately halt construction in such areas and the Oregon State Historic Preservation Officer (SHPO) and other proper authorities (including Native American tribes) will be contacted within 24-hours. This will be done so that the findings could be recorded and the level of significance determined. If findings of significance were made, mitigation measures would be developed through a Memorandum of Agreement among FAA, the SHPO, Advisory Council on Historic Preservation, and others.

Finding:
I have carefully and thoroughly considered the facts in the attached Draft EA and supplement. Based on that information, I find the proposed federal action is consistent with existing national environmental policies and objectives of Section 101(a) of the *National Environmental Policy Act of 1969* (NEPA), and other applicable environmental requirements subject to these conditions. I also find that proposed federal action with the required mitigation discussed above will not significantly affect the quality of the human environment or include any condition requiring any consultation pursuant to Section 102(2)(c) of NEPA. As a result of these findings, the FAA will not prepare an Environmental Impact Statement for this project.

PREPARED BY: _____ Date: 1-8-2010

Cayla Morgan,
U.S. Department of Transportation, Federal Aviation Adminstration

APPROVED BY: _____ Date: 1/8/10

Carol Suomi, Manager
Seattle Airports District Office

FONSI 2 12/17/09

Part 2: Changes to Environmental Assessment

The following changes amended the text of Sections 1.1 and 5.9 in response to comments received on the Draft EA. New text is underlined and text to be removed is crossed out. These changes replace the existing text in the affected sections and, together with the unchanged sections of the Draft EA, constitute the Final EA.

1.1 Background

Hillsboro Airport (the Airport, or HIO) is the busiest general aviation (GA) airport in Oregon, and is currently (2008) the busiest airport in the State. ~~the state's second busiest airport.~~ Aircraft operations at the HIO and Portland International Airport (PDX) have been nearly equal over the last several years as shown below.

- 2007: PDX = 264,518; HIO = 236,885
- 2008: PDX = 252,572; HIO = 259,263
- 2009 (through 10/31/09): PDX = 190,877; HIO = 195,311

The FAA's National Plan of Integrated Airport Systems (NPIAS) lists HIO as a designated GA reliever airport for Portland International Airport (PDX). The NPIAS1 describes the role of GA reliever airports in the National Airspace System (NAS) as follows.

> *Due to different operating requirements between small general aviation aircraft and large commercial aircraft, general aviation pilots often find using a congested commercial service airport can be difficult. In recognition of this, FAA has encouraged the development of high capacity general aviation airports in major metropolitan areas. These specialized airports, called relievers, provide pilots with attractive alternatives to using congested hub airports. They also provide general aviation access to the surrounding area.*

The following sections describe the existing facilities at HIO and the Port's planning efforts to ensure that HIO continues to serve as an effective GA reliever airport. As a part of its planning process, the Port conducted a Master Plan to identify future development needs based on forecasts of aviation activity and capacity estimates for the existing airfield at HIO.

5.9 Fish, Wildlife and Plants

Oregon Administrative Rules 635-043-051 to 0115

Under OAR 635-0430951 to 0115, a property owner must obtain a Wildlife Harassing Permit from ODFW before harassing any wildlife on their property. Harassment is defined as any act that frightens or chases, but does not kill, wildlife. Harassment can be employed for scientific purposes pursuant to an ODFW program; to offer protection

against a threat to human safety; to offer protection of land or property from damage; for wildlife management purposes pursuant to ODFW programs; or for rehabilitation of sick, injured, or orphaned wildlife. A Wildlife Harassing Permit is not required of those persons possessing a valid federal migratory bird permit authorizing harassment of migratory bird species. ~~The current federal migratory bird permit that the Port maintains on an annual basis meets the ODFW state requirements under OAR 635-043-051 to 0115.~~It is not expected that there will be any need for a scientific taking of any species for the proposed project; consequently a Scientific Taking Permit is not required.

Goals for Tonight's Open House

- Present results of the environmental assessment analyses
- Provide opportunity for comments from public

Purpose & Need

- Reduce congestion and delay at HIO in accordance with FAA planning guidelines
- FAA guidance: initiate planning for capacity enhancement at 60-75 % of ASV
- Airfield currently at 100% of ASV and will substantially exceed ASV in the near future

3. Miki Barnes, November 10, 2009, Written Comments Submitted at Public Hearing

Date: November 10, 2009

Subject: Hillsboro Airport Environmental Assessment (EA) Testimony

From: Miki Barnes

Basic Premise of EA Based on Inaccurate and Misleading Data

To be credible with members of the public it is essential that the information provided in the Hillsboro Airport Parallel Runway 12L/30R Draft Environmental Assessment be accurately and painstakingly researched. Unfortunately this report does not begin to meet this most basic standard. From the outset the rationale in favor of a third runway is based on erroneous data that cannot be substantiated with hard evidence. For example, the first paragraph of the Executive Summary opens with the following:

Hillsboro Airport (HIO) is the busiest general aviation (GA) in the State of Oregon, and relative to total operations, is the second busiest airport in the state behind Portland International Airport (PDX).

2 In fact, Hillsboro Airport has *more* operations than PDX, but, as I will explain, these are mostly private flights that provide no public benefit and as such should not be subsidized by public money.

Abundance of Capacity at Port Owned and Operated Facilities

3 According to the PDX June 09 fiscal year report (See Exhibit 1 in Supporting Documentation Section), HIO logged 256,304 operations during the 2008-2009 fiscal period, nearly 15,000 more than PDX, the primary commercial airport in the region. Thus HIO, which is less than 1/3 the size of PDX in terms of acreage, now logs more annual operations than any other airport in the entire state.

This same report indicates that during fiscal year 2008-09 the Port of Portland's total operational count, including PDX, Hillsboro, and Troutdale, dropped by 8.3% which equates to over 50,000 operations system wide. At -10.4% with a total of 235,773 annual operations, PDX experienced the steepest decline, more than 27,000 fewer operations than last year, thereby plummeting PDX to a 22-year low. The operational count at PDX peaked in calendar year 1997 at 329,745 annual operations (See Exhibit 2 in Supporting Documentation Section), thus this airport now accommodates 28.5% fewer flights than it did just 12 years ago.

The PDX Monthly Traffic Report for July, August, and September 2009 (See Exhibit 3 in supporting Documentation Section) reveals that this pattern of declining usage is continuing into the new fiscal year. PDX has seen a drop each of these months of 12.8%, 12.8%, and 12.3% respectively compared to 2008. The declines at Hillsboro Airport were even more dramatic 15.3% in July, 15.7% in August, and 14.6% in September while Troutdale dropped by 25 to 26% during each of the summer months.

S10-091117-004

Pettiford, Marie (OST)

From: Miki Barnes [miki@psg.com]
Sent: Friday, November 13, 2009 3:32 PM
To: LaHood, Ray (OST)
Subject: Hillsboro Airport EA Third Runway

EAHIOTestimony11 1009-updated.p...

To: Secretary Ray LaHood

This letter is a record of the treatment I received on November 10, 2009 when I attended an event in Hillsboro, Oregon that was billed as an Open House and Hearing on the Hillsboro Airport third runway draft environmental assessment. It should be noted that this runway is intended to serve primarily general aviation hobbyists and Hillsboro Aviation, a for-profit flight training company - hardly the types of activities that taxpayers should be required to fund.

Having attended a number of hearings in the past offered by various county and city jurisdictions, I expected to be given an opportunity to offer oral public testimony and to listen to the concerns of others in attendance. After all, when an organization expects taxpayers to shell out $17 million for a project of this magnitude, it is a common courtesy to insure that the people footing the bill have a voice in the process.

In the days leading up to the event I spent many hours researching the issue and preparing my comments. Yet upon my arrival, I was informed that those who wanted to offer verbal testimony were to dictate their concerns to a stenographer located in a corner of the room. In other words there was no public hearing! In fact it now appears that the use of the term "hearing" was simply a public relations gimmick so that an erroneous claim can later be made that a hearing was held and public input was sought.

Deliberately misleading and excluding the public in this way casts suspicion on the entire undertaking. One could reasonably assume that the Port of Portland, the Federal Aviation Administration (FAA), and the Hillsboro Airport Issues Roundtable (HAIR) are not the least bit interested in how their questionable schemes impact the community.
And even more troubling, perhaps they have something nefarious to hide. One might also suspect that their primary goal is to gouge taxpayers to the greatest extent possible in an effort to fund their for-profit self serving business agendas.

Since my only oral testimony option was to dictate my concerns to the stenographer I went to the designated location. I was told that if other people in the room wanted to hear my what I had to say they could follow me to this table. Most unfortunately though, due to the considerable noise generated by the open house, the stenographer had a very difficult time hearing what I had to say. I was eventually told to hold the microphone as close to my face as possible to facilitate the process. Even so, 5 to 10 minutes into my testimony, the Port began a presentation/slide show on the environmental assessment just a few yards from the stenographers table. This, in turn, made it completely impossible for the recorder to hear me. She then suggested that we wait until after Port presentation was completed before resuming.

If I had been fully informed at the outset that there would be no oral testimony, I would not have

P-R-O-C-E-E-D-I-N-G-S

MS. BARNES: I would like to state my opposition to the way this hearing is being handled. Every other time where I have been informed there is going be a hearing there was an opportunity to go before the public and speak, and the people present had the decency to sit and listen. The fact that the Port and the City of Hillsboro and other people involved seem to be making an effort to shut down public comment and dialogue within the community is an affront to the very process of democracy. 1

Okay. Are we ready for the rest of the testimony?

MS. L'AMOREAUX: Yes, please.

MS. BARNES: Okay. The Basic Premise of the Environmental Assessment by the Hillsboro Airport is based on inaccurate and misleading data.

To be credible with members of the public it is essential that the information provided in the Hillsboro Airport parallel runway 12L/30R Draft Environmental Assessment be accurately and painstakingly researched. Unfortunately, this report does not begin to meet this most basic standard. From the outset the rationale in favor of a third 2

1. Background and Proposed Action

This chapter describes Hillsboro Airport and the planning background for the proposed project. The Port of Portland (the Port) is the sponsor for the Hillsboro Airport Parallel Runway Project 12L/30R. This chapter also describes the project that the Port is proposing to build to reduce airfield congestion and delay at Hillsboro Airport. This chapter also explains how the project relates to the Airport Layout Plan (ALP) amendment for which the Port will seek Federal Aviation Administration (FAA) approval, and the planned schedule for implementation of the proposed improvements.

1.1 Background

Hillsboro Airport (the Airport, or HIO) is the busiest general aviation (GA) airport in Oregon, and is the state's second-busiest airport. The FAA's National Plan of Integrated Airport Systems (NPIAS) lists HIO as a designated GA reliever airport for Portland International Airport (PDX). The NPIAS[1] describes the role of GA reliever airports in the National Airspace System (NAS) as follows.

> *Due to different operating requirements between small general aviation aircraft and large commercial aircraft, general aviation pilots often find using a congested commercial service airport can be difficult. In recognition of this, FAA has encouraged the development of high capacity general aviation airports in major metropolitan areas. These specialized airports, called relievers, provide pilots with attractive alternatives to using congested hub airports. They also provide general aviation access to the surrounding area.*

The following sections describe the existing facilities at HIO and the Port's planning efforts to ensure that HIO continues to serve as an effective GA reliever airport. As a part of its planning process, the Port conducted a Master Plan to identify future development needs based on forecasts of aviation activity and capacity estimates for the existing airfield at HIO.

1.1.1 Existing Facilities

Exhibit 1-1 shows the existing facilities at HIO. The existing airfield includes the primary Runway 12/30, which is 6,600 feet long and 150 feet wide, and crosswind Runway 2/20, which is 4,049 feet long and 100 feet wide. Three taxiways parallel these runways. Taxiway A runs parallel to the west of Runway 12/30, Taxiway B runs parallel to the south side of Runway 2/20, and Taxiway C runs parallel to the north side of Runway 2/20, west of Taxiway A. These runways and taxiways accommodate fixed-wing aircraft flown by corporate, private, and instructional users. In addition to fixed-wing aircraft, HIO accommodates a large amount of helicopter training activity. Helicopter training flights use three designated training patterns identified as the Alpha, Bravo, and Charlie patterns (see Section 5.1, Noise). These are separate and distinct from the fixed-wing traffic patterns.

[1] National Plan of Integrated Airport Systems 2007-20011, FAA, September 29, 2006, page 8.

the TAF, and a 10-year forecast within 15 percent of the TAF. For this project, 2013 would be the fifth year, and 2018 would be the tenth year. Exhibit 1-2 shows that the Master Plan forecast of aircraft operations falls outside of the FAA's recommended range of variation from the 2007 TAF[4] at the 5-year period (2013), but is within recommended parameters for the 10-year period (2018). As a result of this difference, additional consultation was conducted between the FAA and the Port of Portland. Based on FAA's independent review, the Port's Master Plan forecasts were approved for use in this Environmental Assessment.[5]

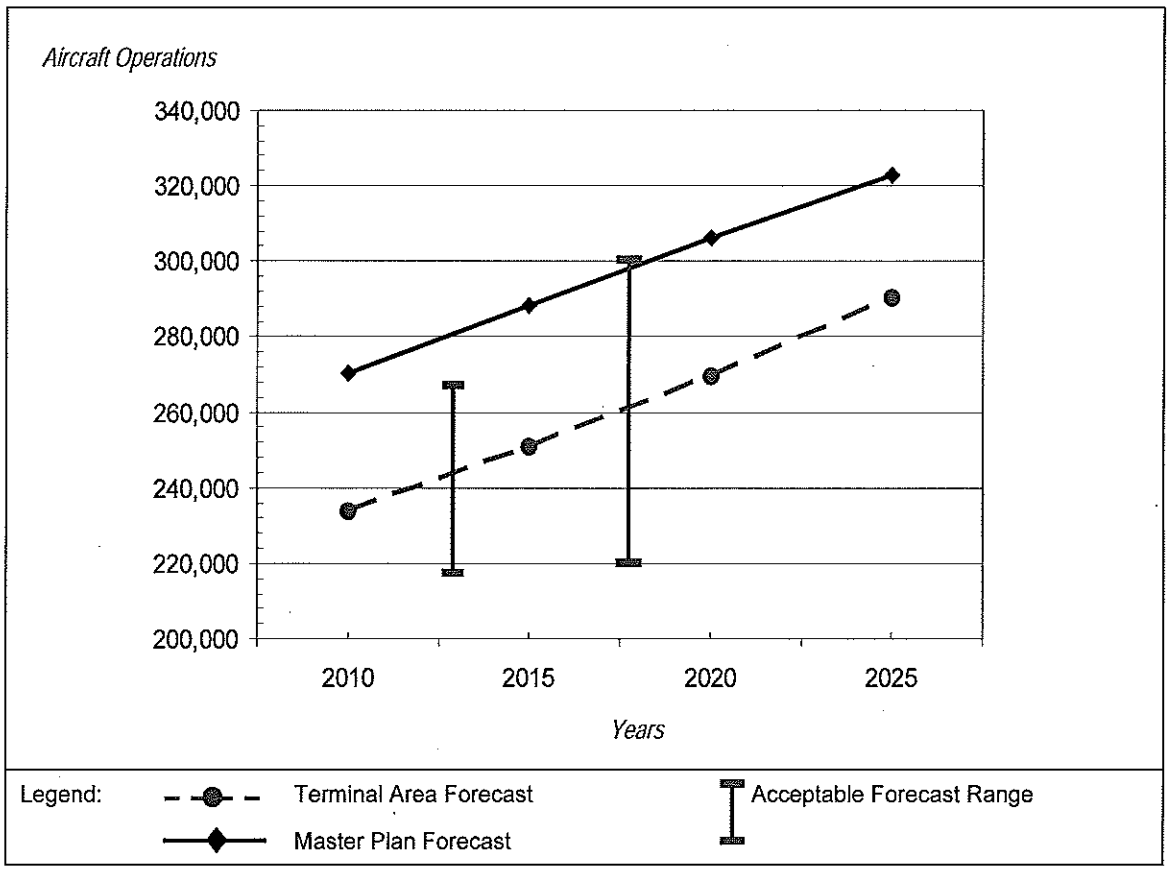


Exhibit 1-2
Comparison of FAA Terminal Area Forecast and Master Plan Forecast

The Master Plan forecast is appropriate to use for the following reasons:

- Existing activity levels at HIO already exceed FAA capacity planning criteria.
- The need for the project is based on existing activity levels, not the forecast activity levels.
- The Master Plan forecast represents a conservative basis for environmental analysis and is consistent with the facility requirements analyses reflected in the Master Plan. For the purposes of this EA, "conservative" means that the expected impacts based

[4] Downloaded from FAA website January 2008

[5] E-mail from Don M. Larson to TJ Stetz, 04/24/2008 02:53 PM (see Appendix A).

on a higher forecast level would tend to be greater than those based on a lower level, and therefore impacts identified would represent the high end of a range of potential impacts.

Alternative forecast scenarios were examined to assess the effects of lower levels of demand on the need for the project. This examination confirmed the continued need for airfield capacity enhancement to maintain acceptable levels of service at HIO. Further information on the development and evaluation of forecasts, their consistency with the FAA TAF, and their effect on the need for the project is provided in Appendix B.1, Hillsboro Airport Forecast Update and Verification.

Although the forecast guidance in FAA Order 5050.4B also applies to the consistency of passenger forecasts with the TAF, passenger activity levels would not affect the need for the proposed improvements, which are solely related to aircraft operations levels. The TAF does not forecast passenger activity at the Airport, nor does the Master Plan address passenger activity. For these reasons, the consideration of forecast consistency with the TAF is limited to the aircraft operations factors discussed above.

1.1.4 Airfield Capacity and Delay

Aircraft operations have an important effect on airfield capacity—not only the total number of annual operations, but also the manner in which they are conducted. The percent of operations occurring during peak periods, the number of touch-and-go operations, and the percent of arrivals during peak periods affect the number of annual operations that can be conducted at an airport over a sustained period. For planning purposes, airfield capacity is often described in terms of the ASV—the number of operations that an airport could accommodate over a year under anticipated conditions and at acceptable levels of service. The ASV calculated for an airport is based on a number of factors, including:

- Airfield characteristics - The layout of the runways and taxiways directly affects an airfield's capacity. This not only includes the location and orientation of the runways, but also the percent of time that a particular runway or combination of runways is in use and the length, width, weight-bearing capacity, and instrument approach capability of each runway.
- Meteorological conditions – Airfield capacity is diminished as weather conditions deteriorate and cloud ceilings and visibility are reduced. As weather conditions deteriorate, the separation of aircraft must increase to provide allowable margins of safety. This increased distance between aircraft has the effect of reducing the total number of aircraft that can operate during any given period. This consequently reduces overall airfield capacity.
- The types or "mix" of aircraft using the airport – Aircraft mix refers to the speed, size, and flight characteristics of aircraft operating at an airport. As the mix of aircraft operating at an airport increases to include larger aircraft, airfield capacity begins to diminish. This is due to larger separation distances that must be maintained between aircraft of different speeds and sizes.
- Demand characteristics - Both the total number of annual operations and the manner in which they are conducted have an important effect on airfield capacity. Peak operational

TABLE 1-1
HIO Current Airfield Capacity Summary

Year	ASV[a]	Annual Runway Operations[b]	Total Forecast Operations	Percent Capacity	Average Delay (minutes)	Total Aircraft Delay (hours/year)
2007[c]	169,000	166,033	240,735	98	1.2	3,321
2010[d]	176,000	196,600	270,300	112	1.9	6,200
2012[e]	174,000	203,594	277,294	117	2.3	7,804
2015[d]	174,000	214,600	288,300	123	3.6	12,900
2025[d]	171,000	249,300	323,000	146	6.0	24,900

[a] ASV varies with changes in fleet mix over the forecast period.
[b] Runway operations = total operations less estimated helicopter training operations.
[c] 2007 = historical operations.
[d] 2010, 2015, and 2025 = Hillsboro Airport Master Plan Forecast.
[e] 2012 = CH2M HILL analysis.
Source: Hillsboro Airport Master Plan, Final Technical Report Tables 3AA, 4G, and 4H; and CH2M HILL analysis.

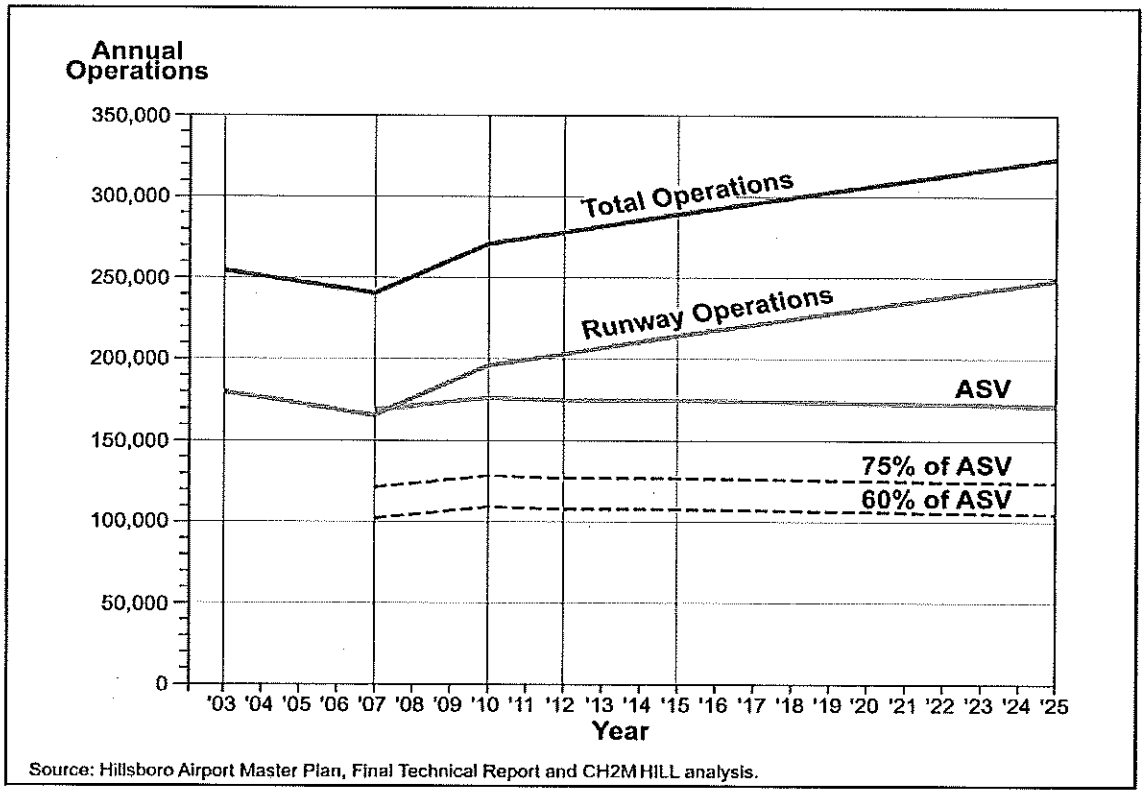


Exhibit 1-3
Annual Operations and Annual Service Volume (ASV)

The proposed Runway 12L/30R would be parallel to and 700 feet east of Runway 12/30 (to be re-designated Runway 12R/30L), the Airport's main runway. This new shorter runway would occupy the location of the existing Charlie Helicopter Landing and Take-Off Pad, commonly known as the Charlie Helipad, which is currently used for helicopter training operations. This runway would be 3,600 feet long and 60 feet wide. These dimensions are consistent with the runway's intended use by fixed-wing, piston-engine, propeller-driven airplanes.

The project would include construction of the following taxiways:

- Taxiway D, parallel to and 240 feet east of the new Runway 12L/30R and connecting to the Taxiway C. Taxiway D would provide access to aircraft landing and taking off from the new Runway 12L/30R. Taxiway D would also be used as an interim replacement for the existing Charlie Helipad (see operations discussion below).
- Four runway exit taxiways to new Taxiway D.
- One connector taxiway crossing Runway 12R/30L and providing access to the ramp area via Taxiway A3.[6]

The proposed configuration would be subject to FAA airspace review. Construction of the proposed Runway 12L/30R and associated taxiways would begin in 2010 and they would be in operation by the end of 2011. Helicopter training flights would initially use the new Taxiway D as an interim replacement for the Charlie Helipad. A replacement Charlie Helipad would be constructed as fixed-wing aircraft traffic levels increase to the level where continued use of Taxiway D for helicopter training activity would no longer be practicable. In order to avoid these conflicts, it is assumed that the relocated helipad would need to be operational by 2015.

Additional infrastructure, including electrical infrastructure for lighting and signage, an access roadway, and drainage facilities for new impervious surfaces, would be developed as part of the airfield improvements described above. The proposed new runway would be a visual runway only and would not require any navigational aids as a part of this action. Infrastructure improvements would be constructed concurrently with the initial components starting in 2010, although they would be designed to accommodate the entire project described above. In addition, these infrastructure elements would be designed to accommodate future hangar development planned for the northeast quadrant of HIO. While the hangar development would be privately funded and is not part of the proposed development, it would be prudent to design and build infrastructure to accommodate future needs.

[6] This taxiway connector is currently not on the FAA AIP funding list.

2. Purpose and Need

Consistent with FAA Order 5050.4B, paragraph 706b, the statement of purpose and need describes the FAA's statutory objectives related to the approval of the sponsor's proposed development, summarizes the benefits of FAA's decision, and describes the proposed time frame for carrying out the action.

2.1 Statement of Purpose and Need

The FAA is responsible for the safe and efficient operation of the National Airspace System (NAS). As part of this responsibility, the FAA designated HIO as a GA reliever airport to provide pilots with a safe, efficient, and attractive alternative to using PDX, and to provide general aviation access to the surrounding area. The FAA has also established planning criteria for initiating planning for capacity enhancement as activity levels reach airfield capacity.

The purpose of the proposed action is to reduce congestion and delay at HIO in accordance with planning guidelines established by the FAA. The NPIAS states: "Current FAA guidance recommends that capacity planning start when aircraft activity reaches 60 to 75 percent of an airport's capacity."[1]

Sections 1.1.3, Aviation Activity Forecasts, and 1.1.4, Airfield Capacity and Delay, demonstrate that the current level of activity and the mix of aircraft types at HIO exceed FAA planning criteria which creates undesirable levels of delay as aircraft activity levels have nearly reached the capacity of the existing airfield. Forecast growth will further increase congestion and delay. As a GA reliever airport for PDX, HIO is an important element of the NAS and the regional airport system. The Port and the FAA have consistently worked to maintain the Airport's capability to serve as an attractive, safe, and efficient alternative to PDX for diverse GA users. As congestion and delay increase, the Airport's ability to serve as an attractive, safe and efficient GA reliever airport will diminish.

The proposed action is needed because the HIO airfield is currently operating at close to 100 percent of ASV and current Airport activity levels exceed FAA capacity planning criteria. Forecast activity levels will substantially exceed the ASV of the current airfield in the future with corresponding levels of congestion and delay as demand increases.

As noted in Section 1.1.4, the average delay per operation at HIO is projected to increase from 1.2 minutes in 2007 to 6 minutes in 2025 without airfield capacity improvement. This increased delay will in turn increase aircraft operation time and operating costs due to increased fuel consumption. In 2007, aircraft delay amounted to 3,321 hours annually. By 2025, total delay is forecast to reach 24,900 hours annually. Although not part of the proposed need, an additional benefit of reduced airfield congestion and delay is the associated reduction of air emissions, as discussed in Section 5.7. For example, operation of

[1] U.S. Department of Transportation, FAA (2004), *Report to Congress, National Plan of Integrated Airport Systems (NPIAS) 2005-2009*, Chapter 2, page 12.

south of Runway 2/20, on-airport development effectively limits the relocation of the Charlie Helipad to the area east of Runway 12/30 and north of Runway 2/20.

- Controllers in the FAA air traffic control tower (ATCT) must have a clear line of sight to the helipad, which would prevent any future hangar development between the ATCT and the helipad. For this reason, the Charlie Helipad location recommended in the 2005 Master Plan was not considered in this analysis because future Airport development would obstruct the controllers' view of the helipad.
- As shown in Exhibit 3-1, the Port is evaluating two different Charlie Helipad options. Option A (southern location) is approximately 500 feet to the northeast and centered on the proposed parallel runway. Option B (northern location) is approximately 450 feet north of Option A. Either option would affect 0.13 acre of one wetland; however, a portion of that wetland would already be affected by construction of the parallel runway. These options are described in greater detail in Sections 3.2.2 and 3.2.3.

3.1.3 Other Alternatives Considered but Not Recommended

The following discussion examines five additional alternatives that were considered but not carried forward because they do not meet the purpose and need, as defined in Section 2.1.

3.1.3.1 Elimination of Local Training Flights

At some congested airports, training activity involving multiple landings and takeoffs is restricted. Even when not restricted, the ability to conduct training activity at busy air carrier airports is often limited by the high volume of air carrier aircraft operations, increasing the time required to conduct multiple training operations. In such cases, training activity is effectively diverted to other airports. Local operations (consisting largely of training activity) currently represent about 68 percent of total operations at HIO. In contrast, local operations account for less than 1 percent of the aviation activity at PDX. While limiting training flights may sometimes be necessary at air carrier airports primarily intended to provide passenger or air cargo service, it would not be consistent with the role of HIO as a GA reliever for PDX. In addition, if training activity were to be limited at HIO, other airports would need to accommodate the associated air traffic. It is possible that some diversion of training activity could occur under the No Action Alternative as congestion and delay increase and users seek less congested facilities. Eliminating local training flights would not be consistent with the role of the Airport and would not meet the purpose and need.

3.1.3.2 Diversion of Traffic to Other Airports

As a recipient of federal grants, the Port is required to make the Airport available to all aeronautical users on a non-discriminatory basis and therefore does not have the authority to require pilots and owners to use other facilities. Diversion of users from HIO either by Port management actions (such as restricting access), or as a natural consequence of congestion that would arise from taking No Action, would be inconsistent with the purpose and need.

3.1.3.3 Demand Management

The capacity of an airfield is greatly influenced by the distribution of demand over time. If aircraft activity is highly concentrated in short periods of time, delays will increase sharply, leading to higher average delays (see Appendix B.2, Hillsboro Airport Airfield Capacity Update and Validation, for a discussion of peaking effects on capacity). In concept, it may be possible to distribute activity over a longer period of time to reduce delays. As previously stated, the Port is required to make the Airport available to all aeronautical users on a non-discriminatory basis and

- **Runway 2/20 Operations.** The cross-wind runway would continue to be used by transient and local aircraft operations when wind conditions do not permit use of the primary runway. As smaller and lighter aircraft are more sensitive to cross-wind conditions, they are more likely to use this runway in lieu of the primary runway.
- **Alpha Pattern Operations.** The Alpha Pattern would continue to be used by primarily by transient helicopters.
- **Bravo Pattern Operations.** The Bravo Pattern would continue to be used by training and transient helicopters when Runway 2/20 is in use.
- **Charlie Pattern Operations.** The Charlie Pattern, and its dedicated helipad, would continue to be used primarily by helicopters conducting training operations in a local training pattern.
- **Extended Taxiway C.** When extended, this taxiway would provide access to and egress from Runway 2/20 along its entire length in addition to simplifying and shortening taxi routes for aircraft transiting between the east and west sides of the Airport.

In the absence of additional airfield capacity, delays at HIO would be expected to continue to increase, with anticipated increases in use. Today, activity at HIO represents about 98 percent of ASV. By 2025, the projected level of activity will be about 146 percent of ASV, increasing the amount of delay experienced by Airport users. By 2025, total aircraft delay would amount to nearly 25,000 hours per year. Although the increased delay would cost the users additional time and operating costs, these costs would not reduce demand at HIO within the forecast period. Aircraft traffic patterns in the Airport environs would not be changed as a result of this alternative, although increasing levels of delay could cause the patterns to extend as aircraft need to wait for landing. Section 5.1 describes the flight tracks associated with the No Action Alternative.

3.2.2 Alternative 2 – Proposed Runway 12L/30R with Charlie Helipad Option A

The Port's proposed project described in Section 1.2 includes the development of a new runway and supporting taxiways as well as the relocation of the Charlie Helipad used for helicopter training operations. In this alternative, the existing runway 12/30 would be re-designated 12R/30L. The Taxiway C extension and street vacations described in the No Action Alternative, and shown in Exhibit 3-3, would also occur with Alternative 2. Descriptions of the proposed improvements and the operational changes associated with the new development follow.

3.2.2.1 Physical Characteristics

As previously described in Section 1.2 and shown on Exhibit 3-4, Alternative 2 includes the following improvements:

- **Parallel Runway 12L/30R.** This runway would be 3,600 feet long and 60 feet wide. These dimensions are consistent with the runway's intended use by piston-engine, propeller-driven airplanes.
- **Taxiway D.** This taxiway would be parallel to the new runway on the east at a distance of 240 feet and would extend to the southeast, where it will connect to the extension of Taxiway C.

- **Relocated Charlie Helipad.** The relocated Charlie Helipad would be parallel to and 500 feet east of Runway 12L/30R. The relocated pad would be 1,500 feet long, the same length as the current pad. The relocated Charlie Helipad would be centered at about the mid point of the new parallel runway.

Additional infrastructure, including electrical service for lighting and signage, an access roadway, and drainage facilities for new impervious surfaces, would be developed as part of the airfield improvements described above.

3.2.2.2 Operational Characteristics

Alternative 2 would reduce aircraft congestion and delay compared to the No Action Alternative. Average delays per aircraft are expected to decrease to less than 30 seconds through 2025. Total aircraft operations would be the same as under the No Action Alternative. Section 5.1.3.2 describes the flight tracks associated with this alternative. The changes in aircraft operations would include:

- **Runway 12L/30R Operations.** The new parallel runway would be used for a majority of the Airport's touch-and-go training flights.
- **Runway 12R/30L Operations.** At present, most aircraft conducting local operations on Runway 12R/30L follow a rectangular traffic pattern located on the east side of the airfield. Most local operations would move to the new parallel runway and would continue to use a similar pattern in the same general area on the east side of the airfield.
- **Taxiway D.** In addition to providing access for fixed-winged aircraft to the proposed runway, this taxiway would be used as an interim replacement for the Charlie Helipad until the relocated helipad is in operation by 2015.
- **Relocated Charlie Helipad.** The relocated helipad is expected to open by 2015. At that time, the centerline of the Charlie Helicopter Pattern would shift about 500 feet to the east and 520 feet north from its current location.

3.2.3 Alternative 3 – Proposed Runway 12L/30R with Charlie Helipad Option B

As shown in Exhibit 3-5, Alternative 3 differs from Alternative 2 only in the location of the proposed Charlie Helipad. In this alternative, the proposed location of the new helipad would be approximately 450 feet to the northeast of the relocated helipad shown in Alternative 2. As in Alternative 2, the helipad would be separated from the new Runway 12L/30R by 500 feet, but it would be located further to the north to provide additional room for future GA development in the northeast quadrant of the Airport. As in Alternative 2, the other projects described in the No Action Alternative would be in place. Alternative 3 would reduce aircraft congestion and delay compared to the No Action Alternative to the same degree as would Alternative 2. When the relocated helipad opens, the centerline of the Charlie Helicopter Pattern would shift about 500 feet to the east, and 1,400 feet north of its current location. Section 5.1 describes the flight tracks associated with this alternative.

4.3.1 Existing Land Use and Development

Exhibit 4-2 shows that HIO lies along the northern edge of Hillsboro's urbanized area near the southwestern end of a broad corridor of industrial development extending to the northeast along the Brookwood Parkway. Areas to the west and south of this corridor are generally developed in residential uses with commercial development at the intersections of major roadways. Areas to the north and west of this corridor remain in generally agricultural uses. Areas to the north and east include the 534-acre Evergreen Special Industrial District, which has been added to the Urban Growth Boundary to provide industrial land capacity. Exhibit 4-2 also shows schools, libraries, parks and recreational areas, and known historic sites within this area.

4.3.2 Land Use Plans and Regulations

Zoning is the means by which municipalities define the specific type of uses that are permitted on a given piece of land. These uses are identified and governed by the enacting of local zoning ordinances. The City of Hillsboro and Washington County are the two municipalities that have jurisdiction on the lands in the immediate areas surrounding HIO. A discussion of zoning patterns around HIO follows.

Currently, the land to the north of the airfield is mostly zoned as rural. The rural zoning classification is comprised of a combination of permitted uses including exclusive farm use, with an 80-acre minimum lot size; agriculture and forestry, with an 80-acre minimum lot size; and future development, with a 20-acre minimum lot size.

The land to the east of the Airport is mostly zoned as mixed-use employment. The mixed-use employment zoning is an employment district that generally allows for offices, retail stores, warehouse distribution, and light industrial activities.

The land immediately south of the Airport is zoned as commercial. Residential zoning is located further south and southwest of the commercial area. The residential zoning closest to the Airport contains established medium-density neighborhoods with limited available space for future residential infill. A second large area zoned mixed-use employment is located to the southeast.

The land west of the Airport is similar to the land east of the Airport and consists of mixed-use employment and residential. The residential zoning closest to the Airport contains established medium-density neighborhoods with limited available space for future residential infill. The area of mixed use employment lies directly along the western edge of the Airport property, while the residential areas are farther to the west and consist mostly of single and multi-family homes.

In 1993, the Port prepared the Hillsboro Airport Compatibility Study which identified a series of noise abatement and land use planning measures intended to ensure that the land uses surrounding HIO remain compatible with Airport operations. In 2005, the Port conducted an update to this study. The update provided additional recommendations, including the establishment of an Airport Noise Overlay Zone.

Subsequent to the 2005 study update, the Hillsboro Airport Issues Roundtable (HAIR) developed a subcommittee to study the land-use recommendations of the Compatibility Study. In 2007 and 2008, this sub-committee held approximately 20 public planning meetings as well as

3 public open houses to solicit input and comments on draft language for an Airport Use Zone and an Airport Safety and Compatibility Overlay Zone. These two zone change recommendations were developed in accordance with the Oregon Airport Planning rule (OAR 660-13), as well as inputs from the states of Washington and California airport land use planning handbooks. Currently, the recommendations of the HAIR land use subcommittee are being considered by the Hillsboro Planning Commission who will then forward these on to the Hillsboro City Council for adoption. It is anticipated that the City process will be complete by the end of 2009. The County plans to review this issue during their next hearings season in the spring of 2010. It will be the responsibility of the City of Hillsboro and Washington County to implement any changes to the local zoning codes.

4.4 Historical, Architectural, Archeological, and Cultural Resources

No properties on or potentially eligible for the National Register of Historic Places are located within the project Area of Potential Effect (APE). The APE is defined as the area of significant noise impact which is within the 2015 DNL 65 contour for the proposed project because historic buildings could be adversely affected by increases in noise levels. Pedestrian surveys were also conducted in the area that would be disturbed by construction associated with the proposed project described in Chapter 3. These pedestrian surveys, conducted in August and September 2008, found no prehistoric or historical archaeological artifacts, features, or sites (see Appendix C.2).

4.5 DOT Act Section 4(f) Resources

Section 4(f) of the Department of Transportation (DOT) Act of 1966 provides for the protection of certain publicly owned resources. DOT Section 4(f) resources include public parks; recreational areas; wildlife and waterfowl refuges of federal, state, or local significance; and any land from a historic site of federal, state, or local significance. The study area used for this analysis is the same as the noise study area, which encompasses the existing and future DNL 65 noise contours, and is large enough to include any areas potentially affected directly or indirectly by any of the alternatives. Exhibit 4-2 identifies the nearest parks and historic site, none of which are within the DNL 65 noise contour.

4.6 Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks

This section identifies regional and local population and employment trends and demographics. The description of the economic conditions in the project area was derived from historical and projected population, household, and employment data provided by Portland Metropolitan Transportation Organization (METRO), economic data reported by state and federal agencies, and economic data developed by local organizations involved in the economic development of the area. The study area for these analyses included the Census Tract Block Groups within approximately one-half mile of the HIO boundaries and was developed to include all Census Tract Block Groups adjacent to airport and to include areas that are most likely to be affected by

a network of ambient air monitoring stations throughout the Portland-Vancouver AQMA; the monitoring station nearest to HIO is about 16 miles away.

Of growing concern is the impact of proposed projects on climate change. Greenhouse gases are those that trap heat in the earth's atmosphere. Both naturally occurring and anthropogenic (man-made) greenhouse gases include water vapor (H_2O), carbon dioxide (CO_2),[3] methane (CH_4), nitrous oxide (N_2O), and ozone (O_3).[4]

Research has shown that there is a direct link between fuel combustion and greenhouse gas emissions. Therefore, sources that require power/fuel at an airport are the primary sources that would generate greenhouse gases. Aircraft are probably the most often cited air pollutant source, but they produce the same types of emissions as cars. Aircraft jet engines, like many other vehicle engines, produce carbon dioxide (CO_2), water vapor (H_2O), nitrogen oxides (NOx), carbon monoxide (CO), oxides of sulfur (SOx), unburned or partially combusted hydrocarbons (also known as volatile organic compounds [VOCs]), particulates, and other trace compounds.

According to most international reviews, aviation emissions comprise a small but potentially important percentage of anthropogenic (human-made) greenhouse gases and other emissions that contribute to global warming. The Intergovernmental Panel on Climate Change (IPCC) estimates that global aircraft emissions account for about 3.5 percent of the total quantity of greenhouse gas from human activities.[5] In terms of U.S. contribution, the U.S. General Accounting Office (GAO) reports that aviation accounts "for about 3 percent of total U.S. greenhouse gas emissions from human sources" compared with other industrial sources, including the remainder of the transportation sector (23 percent) and industry (41 percent).[6]

The scientific community is developing areas of further study to enable them to more precisely estimate aviation's effects on the global atmosphere. The FAA is currently leading or participating in several efforts intended to clarify the role that commercial aviation plays in greenhouse gases and climate change. The most comprehensive and multi-year program geared towards quantifying climate change effects of aviation is the Aviation Climate Change Research Initiative (ACCRI) funded by FAA and NASA. ACCRI will reduce key scientific uncertainties in quantifying aviation-related climate impacts and provide timely scientific input to inform policy-making decisions. FAA also funds Project 12 of the Partnership for Air Transportation Noise & Emissions Reduction (PARTNER) Center of Excellence research initiative to quantify the effects of aircraft exhaust and contrails on global and U.S. climate and atmospheric composition. Finally, the Transportation Research Board's (TRB) Airport Cooperative Research Program (ACRP) project 02-06 developed a guidebook on preparing airport greenhouse gas emission inventories.

[3] All greenhouse gas inventories measure carbon dioxide emissions, but beyond carbon dioxide different inventories include different greenhouse gases.
[4] Several classes of halogenated substances that contain fluorine, chlorine, or bromine are also greenhouse gases, but they are, for the most part, solely a product of industrial activities. For example, chlorofluorocarbons and hydrochlorofluorocarbons are halocarbons that contain chlorine, while halocarbons that contain bromine are referred to as bromofluorocarbons (i.e., halons) or sulfur (sulfur hexafluoride).
[5] IPCC Report as referenced in the GAO Environment: Aviation's Effects on the Global Atmosphere Are Potentially Significant and Expected to Grow; GAO/RCED-00-57, February 2000, p. 4.
[6] Ibid, p. 14; GAO cites available EPA data from 1997.

5.6.3.1 Alternative 1 - No Action

The No Action Alternative would not entail acquisitions or additional physical development. Although aviation activity would continue to increase compared to existing conditions, the No Action Alternative would not alter land use or transportation patterns and would not exceed thresholds of significance for noise, air quality, or water quality. In the absence of physical development or significant environmental impacts, this alternative would not cause shifts in the existing patterns of population growth, public service demands, or business and economic activities, and therefore it would not lead to secondary impacts.

5.6.3.2 Alternative 2 - Runway 12L/30R with Charlie Helipad Option A

This section describes the impacts associated with Alternative 2 during construction and operation. No significant secondary (induced) impacts were identified for Alternative 2.

Construction Impacts

As noted in Section 5.5, construction of Alternative 2 would be completed in phases with improvements to the runway occurring first, in 2010 and 2011, followed by relocation of the Charlie Helipad, planned for 2014. Construction effects would end when construction activities have been completed. Construction activities would not require any relocations or the division or disruption of communities. There would be short-term economic benefits related to construction employment; however, this temporary increase in employment would not result in any permanent changes in the population in the HIO area. Construction-related truck traffic and employee trips would not affect surface traffic patterns because contractors would be required to use County-designated haul routes that already have high traffic volumes. Construction effects would end when construction activities have been completed and would not result in any land use, noise, or direct social effects; therefore, there would not be any secondary impacts.

Operational Impacts

The proposed Runway 12L/30R and Charlie Helipad Option A would be located on property that is currently owned by the Port of Portland and adjacent to the existing airfield. Proposed improvements would not extend beyond the existing HIO boundaries, and as a result, would not affect land use or surface transportation. As described in Section 3.2.2, Alternative 2 would not lead to increased aviation activity compared to the No Action Alternative. As described in Sections 5.1, Noise and 5.8, Air Quality, operation of the new facilities would not cause significant impacts to noise or air quality. In the absence of induced off-airport development, increased levels of aviation activity, or significant environmental impacts, this alternative would not lead to secondary impacts with respect to shifts in patterns of population movement and growth, public service demands, or changes in business and economic activities.

5.6.3.3 Alternative 3 - Runway 12L/30R with Charlie Helipad Option B

This section describes the secondary impacts associated with Alternative 3 during construction and operation. No significant secondary (induced) impacts were identified for Alternative 3.

Construction Impacts

The construction impacts from Alternative 3 would be the same as Alternative 2.

Operational Impacts

The operational impacts from Alternative 3 would be the same as Alternative 2.

are less than *de minimis* and project-related emissions are not regionally significant, a conformity determination is not required.

5.7.3.5 Toxic Air Contaminants and Hazardous Air Pollutants

Toxic air contaminants (TACs) and hazardous air pollutants (HAPs) are components of VOC and particulate emissions. Alternatives 2 and 3 would reduce aircraft-related VOC and particulate emissions compared to the No Action Alternative. Operation of Alternatives 2 and 3 would therefore reduce TAC/HAP emissions.

5.7.3.6 Greenhouse Gases

Based on FAA data, operations activity at Hillsboro Airport, relative to aviation throughout the United States, represents less than 1 percent of U.S. aviation activity. Therefore, assuming that greenhouse gases occur in proportion to the level of activity, greenhouse gas emissions associated with existing and future aviation activity at Hillsboro Airport would be expected to represent less than 0.03 percent of U.S.-based greenhouse gases. Therefore, we would not expect the emissions of greenhouse gases from this project to be significant.

5.7.4 Mitigation and Measures to Avoid and Minimize Impacts

Because the proposed project would not result in significant air quality impacts, no mitigation is required. Although construction emissions would not require mitigation, measures to minimize construction emissions could include incorporating the provisions of FAA Advisory Circular 150/5370-10C, Standards for Specifying Construction of Airports, in project specifications.

are likely to be present, are calculated to be 0.18 percent and 0.12 percent for the 10-year and 100-year storms, respectively. These increases were found to be insignificant.

Stormwater from the increased impervious surface would be conveyed to stormwater treatment facilities to improve water quality prior to discharge into Glencoe Swale or the stormwater ditch that drains to Dawson Creek in the southeast part of HIO. Although water temperature is a concern for fish, both the Glencoe Swale and the stormwater ditch have intermittent flows that primarily convey stormwater during the rainy season and do not flow in the summer when elevated ambient water temperature are a concern. Therefore no project-related impact on water temperature is expected. Similarly, dissolved oxygen levels are typically low when water temperatures are high. As neither Glencoe Swale nor the stormwater ditch contributes flow to McKay Creek or Dawson Creek, respectively, during summer, the development of Alternative 2 is not expected to affect dissolved oxygen levels in those systems during the summer and would not impact fish species in these creeks.

As discussed in Section 5.8, Water Quality, downstream ambient concentrations for other water quality parameters important for fish, including total suspended solids, total copper, total lead, and total zinc would be less than under Alternative 1, and would be well below state criteria for these pollutants. Because aircraft operations would not increase as a result of the proposed project, the quantity of pollutants directly associated with aircraft operations such as jet fuel and hydraulic oil would not be altered over the baseline condition.

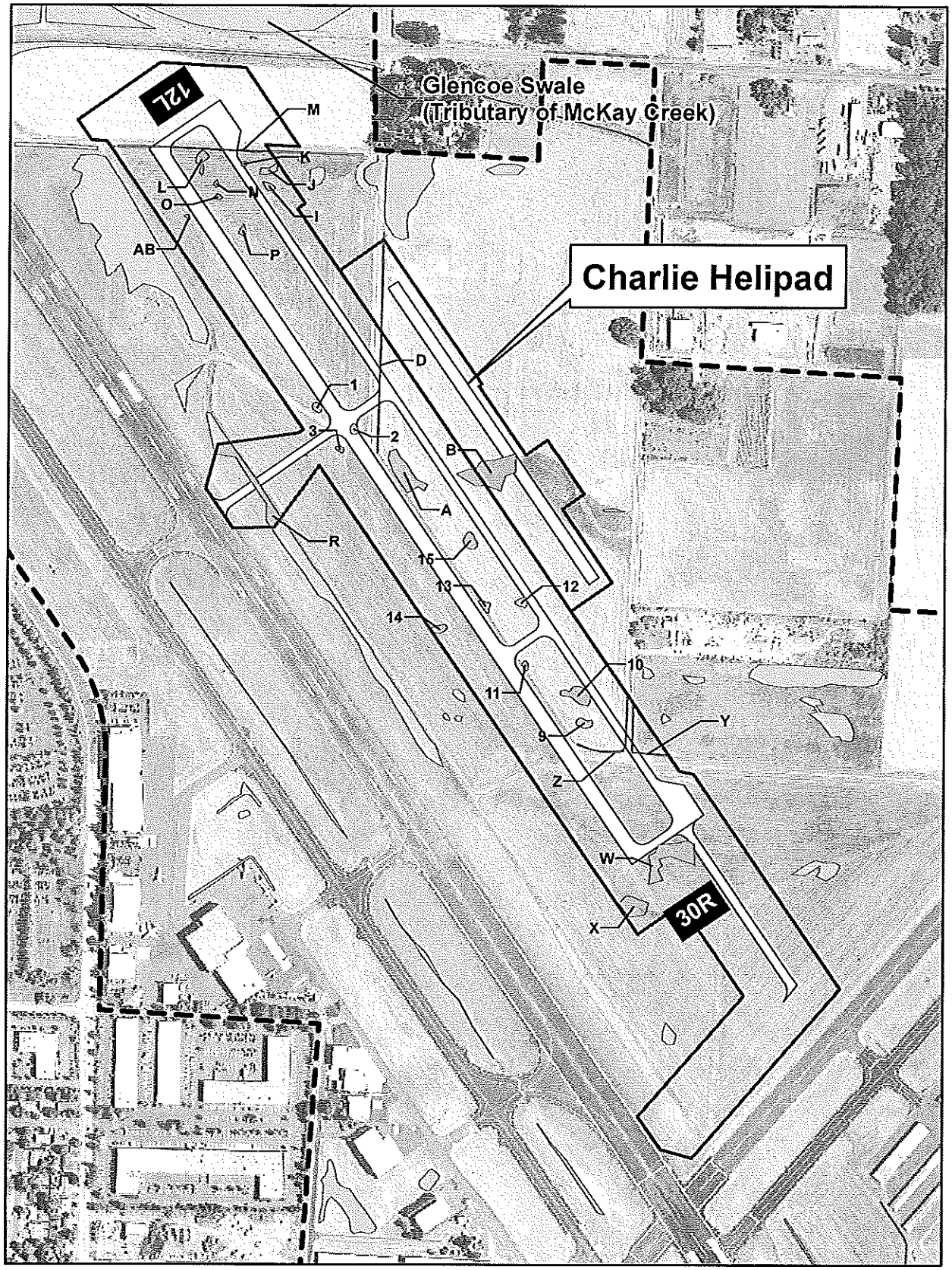
Based on the reasons provided below, FAA has determined the project would have "no effect" on federally-listed fish species or their habitats (see No Effects Memorandum, Appendix C.5).

A determination of no effect for Upper Willamette River DPS steelhead is appropriate because:

- No steelhead are documented or known to occur in Glencoe Swale or the drainage ditch to Dawson Creek.
- The nearest potential suitable habitat is 2.8 miles downstream in McKay Creek; and in Dawson Creek.
- The nearest critical habitat is 6.0 miles downstream from HIO, and extends upstream in the Tualatin River from that point.
- No construction is proposed within ordinary high water (OHW) of Glencoe Swale or within the drainage ditch to Dawson Creek.
- There would be negligible changes to flow attributable to the proposed project, in the receiving waters.
- The project would decrease concentrations of potential contaminants in the receiving waters, compared to Alternative 1.

A determination of no effect for Upper Willamette River ESU Chinook Salmon is appropriate because:

- No Chinook salmon are documented or known to occur in Glencoe Swale or the drainage ditch to Dawson Creek.



LEGEND

- Port Property
- Limits of Construction Disturbance
- Surveyed Wetlands
- Potential Wetland Impacts
- Proposed Runway and Helipad

0 200 Feet

N

EXHIBIT 5.10-1
Potential Wetlands Impacts Alternative 2
Hillsboro Airport Parallel Runway 12L/30R Environmental Assessment

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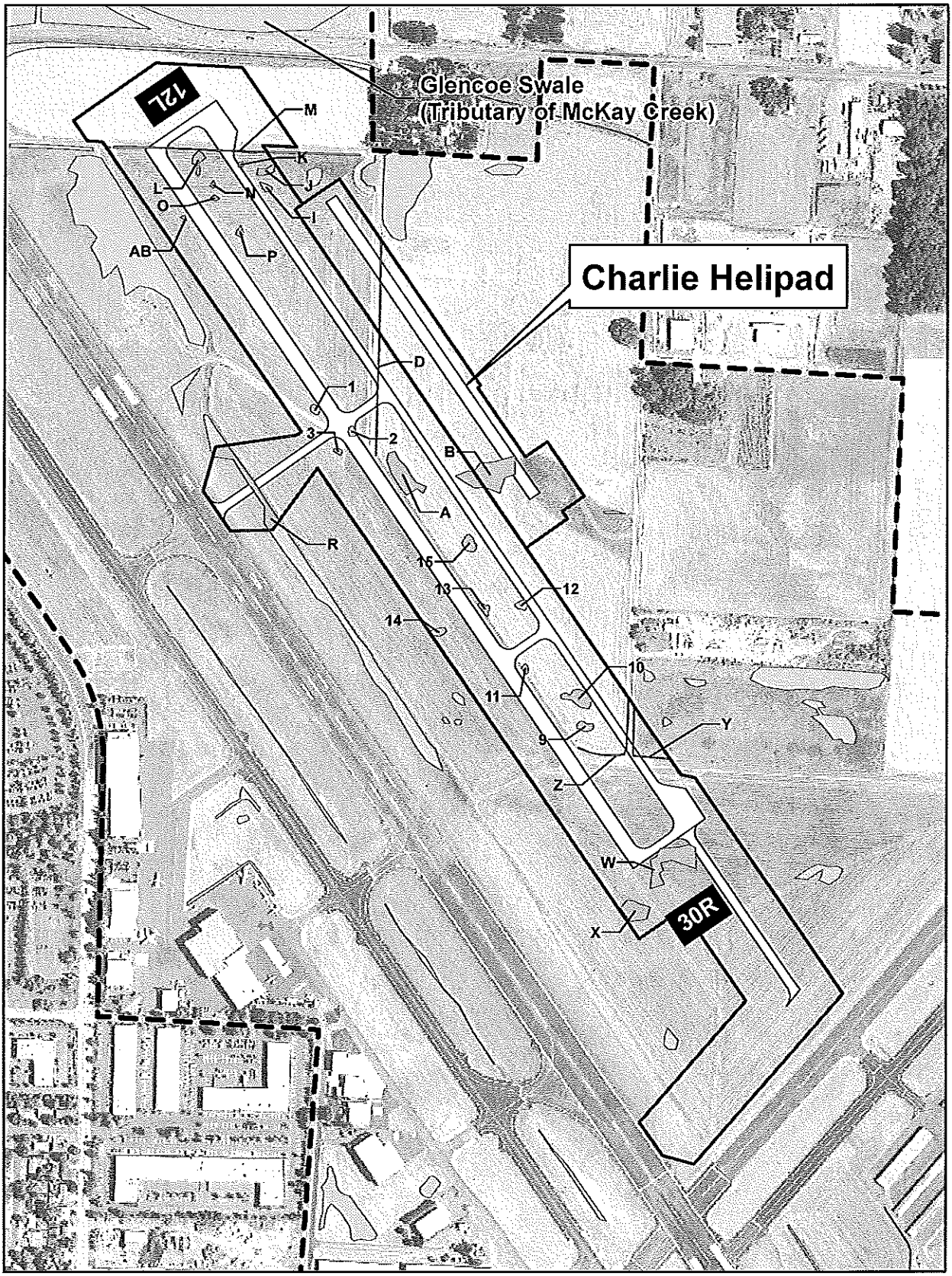

LEGEND

- Port Property
- Limits of Construction Disturbance
- Surveyed Wetlands
- Proposed Runway and Helipad

0 200 Feet

N

EXHIBIT 5.10-2
Potential Wetlands Impacts Alternative 3
Hillsboro Airport Parallel Runway 12L/30R Environmental Assessment

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stormwater conveyance, and generally lack vegetation. The bottoms of the ditches consist of gravel, silts, and mud. Due to the low function and value of the stormwater conveyance ditches, mitigation is not being proposed for these impacts.

5.10.3.3 Alternative 3 - Proposed Runway 12L/30R with Charlie Helipad Option B

This alternative differs from Alternative 2 only in the location of the proposed Charlie Helipad. Development of Runway 12L/30R and the relocated Charlie Helipad would cause permanent wetland impacts. These wetland impacts would exceed the thresholds of significance identified in Section 5.10.2.2.

Construction Impacts

Construction impacts attributable to Alternative 3 are anticipated to be the same as for Alternative 2.

Operational Impacts

Operational impacts attributable to Alternative 3 would be the same as for Alternative 2. The components of the two alternatives are nearly identical, with the difference being in the location of the Charlie Helipad. Impacts on wetlands and other waters from the two alternatives would be the same, the permanent loss of 2.22 acres of jurisdictional wetlands and 0.09 acre of regulated roadside ditches (Table 5.10-1, Exhibit 5.10-2, and Table 5.10-2).

5.10.4 Mitigation and Measures to Avoid and Minimize Impacts

Many construction and operational impacts on wetlands can be avoided or minimized through site planning and construction best management practices (BMPs). No practicable alternative that would avoid or minimize all wetland impact is available. Alternatives 2 and 3 minimized wetland impacts to the extent practicable. Compensatory wetlands mitigation described in Section 5.10.4.1 would be provided for 2.22 acres of permanently impacted wetlands.

5.10.4.1 Mitigation

Compensatory wetland mitigation would be provided for all unavoidable wetland impacts. The proposed mitigation involves restoring historic wetlands and enhancing existing wetlands at an offsite location at a ratio of 1:1 impact to mitigation for restoration and at a ratio of 3:1 for enhancement. The restored and enhanced wetlands would provide several wetland functional characteristics and values that would exceed the functions and values of the impacted wetlands. They would be higher functioning in characteristics of native vegetation, wildlife habitat, fish habitat, flood water storage, sediment retention, and possibly removal or storage of nutrients.

The compensatory wetland mitigation site is located within the Jackson Bottom Wetland Preserve, a large wetland complex in the Tualatin River floodplain (Exhibit 5.10-3). The mitigation project would result in the restoration of former wetlands and enhancement of existing wetlands within the larger habitat unit of the wetland preserve.

...the availability of data often determines how far back past effects are determined. Although certain types of data (e.g., forest cover) may be available for extensive periods of the past (i.e., decades), other data (e.g., water quality data) may be available for much shorter periods. Because the data describing past conditions are usually scarce, the analysis of past effects is often qualitative.

6.2.1.1 HIO Projects

The Hillsboro Airport Master Plan summarized past development of the Airport since its founding as a private airport in 1925. At that time, the Airport had two turf runways on 100 acres of land. The City of Hillsboro leased the Airport and, between 1933 and 1938, constructed two runways: one 3,000 feet long oriented northeast to southwest and one 2,800 feet long oriented northwest to southeast. The City purchased the Airport in 1935. During World War II, the federal government invested over $600,000 on improvements including grading, drainage, and the installation of lighting equipment. The Airport site was also expanded by 280 acres.

Since assuming ownership of the Airport on February 1, 1966, the Port, with federal assistance, has made extensive improvements including the construction of two runways, an air traffic control tower, and terminal buildings as well as the installation of a precision instrument landing system (ILS). Table 6-1 lists the improvements and property acquisitions for future uses that the Port has made at HIO over the last 10 years. Some of these improvements affect the same resources that would be affected by the alternatives under consideration. The construction projects listed in Table 6-1 have increased the area of impervious surface on the Airport and, in some cases, have required wetland fill. The effects of the acquisitions listed in this table will depend upon the design of the facilities built on the acquired land.

6.2.1.2 Regional Development

As described in Section 4.3, the Airport is on the current edge of urban development in the Portland metropolitan area and has experienced extensive urban development over the last several decades. As a part of this development process, Washington County has established a program of roadway improvements including eight capital projects and seven maintenance projects within 5 miles of the Airport. The capital projects, which have the greatest potential to contribute to cumulative impacts, include extensions of local streets, rail crossings, and drainage improvements. These projects were programmed for funding between 2006 and 2008.

The City of Hillsboro is also planning new infrastructure to accommodate projected growth in the region. The City's Public Facilities Plan issued in December of 2001 lists 349 projects ranging from new sidewalks to roadway extensions and widening, as well as water, drainage, and sewer extensions. A total of 125 of these projects were programmed for completion in the last 5 years, and the remaining projects are programmed for completion through 2020.

The City of Hillsboro has programmed 194 public works projects for completion between 2006 and 2020. The five projects shown in Table 6-4 are roadway projects that would increase impervious surfaces in within a mile of the Airport boundaries and would therefore be most likely to affect the same resources affected by the project alternatives.

TABLE 6-3
Current Port of Portland Projects

Project	Year	Potential to Contribute to Cumulative Effects
Taxiway C Extension	2009	Taxiway developed in area previously cleared and graded as part of airfield: increased impervious surface (4.2 acres).
NW 264th & NW Airport Road Street Vacation	2009	Would not materially affect level of service on surrounding roadways.
City of Hillsboro - Construct New Fire Station	2010	Fire station to be built in previously cleared and graded area adjacent to NE 25th Street: increased impervious surface, possibly increased noise and traffic on NE 25th Street.
Aero Air Hangar Expansion	2010	Hangar would be built in area previously cleared for Airport development: increased impervious surface.

Source: Port of Portland, March 2009.

TABLE 6-4
Current and Future City of Hillsboro Projects

231st, 234th St. Extension	2006-2020	Increased impervious surface; other potential impacts dependent upon site conditions and project design
Baseline Rd. Widening	2006-2020	Increased impervious surface; other potential impacts dependent upon site conditions and project design
Cornell Rd. Widening	2006-2020	Increased impervious surface; other potential impacts dependent upon site conditions and project design
Jackson School Rd. Widening	2006-2020	Increased impervious surface; other potential impacts dependent upon site conditions and project design
US 26/Cornelius Rd. Interchange Ramp Improvements	2006-2020	Increased impervious surface; other potential impacts dependent upon site conditions and project design

Note: City of Hillsboro transportation projects within 1 mile of HIO.

Sources: Washington County; Washington County Roadwork, 2008; City of Hillsboro Public Facilities Plan, 2006; City of Hillsboro Transportation System Plan, Street Improvement Plan, 2001.

6.2.3 Reasonably Foreseeable Actions and Projects

In addition to the proposed actions under consideration, future development projects recommended in the Master Plan update include:

- Development of additional hangars and associated ramp areas and connecting taxiways in the northeast quadrant of the Airport east of the proposed Runway 12L/30R and the relocated Charlie Helipad.
- Redevelopment of existing GA facilities in the southeast quadrant of the Airport south of existing Runway 2/20.

- Redevelopment of existing GA and vehicular parking facilities in the southwest quadrant of the Airport south of Runway 2/20 and west of Runway 12/30.
- Taxiway improvements and redevelopment of existing GA and vehicular parking facilities in the northwest quadrant of the Airport west of Runway 2/20 and north of Runway 12/30.

Table 6-5 lists projects planned by the Port through 2014 that are not included in the alternatives under consideration. These projects would not affect airfield capacity or alter activity levels at the Airport. Their effects would generally be limited to the construction footprints of individual projects. These projects would increase the amount of impervious surface on HIO by approximately 13.5 acres. Depending upon final design, individual future projects might also require wetland fill. Any wetland fill would be mitigated, most likely with higher functioning wetlands.

TABLE 6-5
Reasonably Foreseeable Future Port of Portland Projects

Project	Year	Potential to Contribute to Cumulative Effects
Construct East Access Road	2010	Additional impervious surface and stormwater runoff, possible wetland impacts.
12R-30L RSA Modifications	2011	Wetland impacts.
Aircraft Wash Rack	2011	No potential for cumulative impacts.
Construct Taxiway M - Phase 1	2012	Additional impervious surface and stormwater runoff, possible wetland impacts.
Taxiway A3 Extension	2013	Additional impervious surface and stormwater runoff, possible wetland impacts.
Construct East Apron - Phase 1	2013	Additional impervious surface and stormwater runoff, possible wetland impacts.
Reconstruct/Shift/Extend RW 2-20, Taxiway C, & Taxiway B	2014	Additional impervious surface and stormwater runoff, possible wetland impacts.
Relocate Taxiway C	2014	Additional impervious surface and stormwater runoff, possible wetland impacts.
Future Ramp and Hangar Development in NE Quadrant	Ongoing	Additional impervious surface and stormwater runoff, possible wetland impacts.

Source: Port of Portland, March 2009.

As noted in Section 4.17, the Metro Urban Growth Boundary has recently been extended beyond HIO to provide additional land for industrial growth. As a part of this extension, an agricultural area immediately north of the Airport, the Evergreen Special Industrial District (ESID) shown in Exhibit 4-2, will be eligible for redevelopment in industrial and employment uses. The specific nature of this development will depend upon the actions of the City of Hillsboro, Washington County, other parties (such as Metro), and private developers. The timing and pattern of development cannot be predicted at this time.

Implementing either Alternative 2 or Alternative 3 would not alter surface traffic patterns or traffic volumes on the roadways surrounding HIO and would not, therefore, contribute to cumulative increases in surface traffic noise.

6.3.2 Air Quality

A significant impact to air quality could occur if the project alternatives, when considered in combination with other past, present, or reasonably foreseeable actions, would exceed a NAAQS or would not conform to the SIP.

The analysis documented in Section 5.7 shows that the operation of either Alternative 2 or Alternative 3 would reduce air pollutant emissions compared to Alternative 1, No Action. The operation of either project alternative would decrease the concentration of air pollutants in the HIO environs and would therefore improve air quality in the Airport area and would not result in a cumulative adverse air quality impact.

With respect to greenhouse gas emissions, because aviation activity at the Airport represents such as small amount of U.S. and global emissions, and because of the related uncertainties involving the assessment of such emissions regionally and globally, the incremental contribution of this proposed action cannot be adequately assessed given the current state of the science and assessment methodology.[3]

6.3.3 Water Quality

A significant cumulative impact on water quality could occur if the project alternatives, when considered in combination with other past, present, or reasonably foreseeable actions, would exceed water quality standards, cause water quality problems that could not be avoided or satisfactorily mitigated, or result in difficulty in obtaining a permit or authorization.

Surfaces at Hillsboro Airport drain to Glencoe Swale, a tributary of McKay Creek, on the north and Dawson Creek on the south. Glencoe Swale has an overall tributary drainage area of 753 acres, of which 71 percent, or approximately 537 acres, are on Airport property. The Dawson Creek drainage area is 1,420 acres, of which 30 percent, or 427 acres, is on Airport property. Approximately 13.3 acres of the new impervious surface from Alternatives 2 and 3 would be within the Glencoe Swale drainage area, and 2 acres would be in the Dawson Creek drainage area. The quantity and quality of stormwater runoff from Alternative 2 or 3 in both basins would be mitigated through treatment of all runoff from new impervious surfaces with vegetated filter strips, which decrease flow velocities and remove pollutants.

Both Alternative 2 and 3 would increase the impervious surface draining to Dawson Creek by less than 1 percent. Because the increase in impervious area for Dawson Creek is below the margin of error for modeling and the increase in flows and pollutants would not be measurable, impacts on Dawson Creek are considered negligible and would not contribute to any cumulative impacts in this basin.

Either project alternative would represent a 42 percent increase in impervious area draining to Glencoe Swale relative to the No Action Alternative. As a result of the additional pavement, overall pollutant levels in Glencoe Swale would be marginally higher compared to Alternative 1

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[3] NEPA Regulations, Council on Environmental Quality, 40 CFR 1502.22, *Incomplete or unavailable information.*

northeast quadrant of the Airport, the construction noise analysis documented in Section 5.1 concluded that predicted construction noise levels would range from DNL 49 to 59, well below the federal threshold of significant impact. To reach the threshold of significant impact (DNL 65+), construction activity for other concurrent projects would need to more than equal that of the project alternatives because a doubling of activity would increase noise levels by 3 dB, increasing cumulative noise levels to DNL 52 to 62.

No off-airport improvements in the vicinity of the northeast quadrant have been identified that would overlap in time with the proposed project. Private development is likely at some time in the future as agricultural areas are developed for industrial use in accordance with local land use plans. Although the timing and nature of such private development is not reasonably foreseeable, it is unlikely that the intensive off-airport development that would be necessary to generate significant noise impacts would occur concurrently with construction of the proposed project alternatives.

6.3.9.2 Air Quality

As noted in Section 5.7, either Alternative 2 or Alternative 3 would temporarily increase emissions during construction. As described in Section 5.7.3.2, peak-year emissions for each pollutant would be less than 7 tons per year. As noted above, no off-airport improvements in the vicinity of the northeast quadrant have been identified that would overlap in time with the proposed project. The currently available information indicates that the reasonably foreseeable future on-airport projects would involve approximately 5.6 acres of new development, or 36 percent of the area affected by the project alternatives. Assuming that the construction emissions are roughly proportional to the area affected, the direct and indirect emissions of the project alternatives, combined with those of the other projects that could be under construction during construction of the project alternatives, would be less than 10 tons per year, well below the 100-ton *de minimis* threshold for the carbon monoxide maintenance area, indicating that no significant air quality impacts would occur.

6.3.9.3 Water Quality

As noted in Section 5.8, construction impacts on water quality associated with the project alternatives would primarily consist of sediment release through stormwater runoff. Measures to prevent construction impacts associated with erosion and sediment would be required and enforced through the Port's NPDES 1200-CA permit. Compliance with these requirements would preclude the construction impacts of the project alternatives from contributing to potentially significant cumulative impacts to water quality. In addition, other projects in the area would have similar permit requirements.

Hillsboro Airport Airfield Capacity Update and Validation

PREPARED FOR: Port of Portland

PREPARED BY: CH2M HILL

DATE: February 10, 2009

This memorandum documents the review, validation and update of the 2005 Hillsboro Airport (HIO) Master Plan demand/capacity analysis for use in the Environmental Assessment of the proposed parallel Runway 12L/30R at HIO. The analysis first examines the airfield capacity, and then determines the ratio of demand to forecast levels of activity in the FAA-approved Master Plan. These analyses are consistent with the Annual Service Volume (ASV) methodology defined in Advisory Circular (AC) 5060-5, *Airport Capacity and Delay.*[1]

The annual service volume is an estimate of an airport's annual operating capacity, or the number of aircraft operations an airfield could accommodate in the course of a typical year. Using the methodology defined in FAA AC 5060-5, the annual service volume at HIO could range from 180,000 to 230,000 operations for the existing airfield layout, and 260,000 to 355,000 operations for future conditions with approved development, such as the high-speed exits on the existing Runway 12/30 and the proposed project (including the parallel runway and relocated Charlie pad), depending upon a number of conditions. To obtain a more precise annual service volume estimate, the annual service volume is calculated manually using the FAA's Capacity Manual[2] and also using the FAA's Airport Capacity Model software. The manual calculation allows inputs to be manipulated to reflect more accurate conditions at HIO, whereas the Capacity Model uses gross assumptions for the purposes of computing hourly capacity and average delays.[3] The ratio of annual operations to the annual service volume, the demand-capacity ratio, is an indication of airfield congestion, as measured in average delay.[4] FAA Order 5090.3C, *Field Formulation of the National Plan of Integrated Airport Systems* (NPIAS) recommends that planning for additional airfield capacity commence when an airfield's annual demand levels exceed 60-75 percent of the estimated annual service volume.[5]

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[1] FAA Advisory Circular 5060-5, *Airport Capacity and Delay*, September 23, 1983.

[2] FAA Advisory Circular 5060-5, *Airport Capacity and Delay*, September 23, 1983.

[3] Model assumptions include (1) arrivals equals departures, (2) percent of touch-and-go operations are less than 20 percent[3], (3) a full-length parallel taxiway, (4) ample runway entrance/exit taxiways, (5) the airspace is not constrained, (6) at least one runway is equipped with an ILS, (7) IFR weather occurs approximately ten percent of the time, (8) roughly 80 percent of the time the airport is operated with the runway-use configuration which produces the greatest hourly capacity, and (9) the airspace is otherwise not constrained.

[4] Delay levels for the existing airfield and proposed airfield are provided in the subsequent technical memorandum, *Hillsboro Airport Delay Projections.*

[5] FAA Order 5090.3C, Table 3-2, December 2000.

Master Plan Analysis

Exhibit 1 shows the ASV results for the existing airfield and the proposed project. Fiscal Year 2003 is the base year used in the Master Plan study.[6] Runway operations include all operations, except rotary-wing training operations. annual service volume in 2003 and 2007 was adjusted to reflect airport conditions, which include the reduction of annual service volume by 6 percent for lack of adequate exit taxiways, and 1 percent for lack of radar coverage. Future annual service volume calculations assume that the planned additional exit taxiways would be operational, but that radar coverage would still not be available. The analysis conducted for the Master Plan concluded that, even with the appropriate number and location of exit taxiways, without the proposed runway project, HIO would operate at 117 percent of capacity in 2012 and 123 percent of capacity in 2015. With the proposed project, the demand-capacity would be reduced to 65 percent and 69 percent in 2012 and 2015, respectively.

EXHIBIT 1

HIO Airfield Capacity Summary – Manual Calculation Method

Year (1)	Annual Service Volume (2)	Annual Runway Operations (3)	Total Airport Operations	Percent of Annual Service Volume
Master Plan Forecast – Existing Airfield				
2003	169,000	180,147	253,847	107%
2007	169,000	166,033	240,735	98%
2010 (Short-term)	176,000	196,600	270,300	112%
2012	174,000	203,594	277,294	117%
2015 (Intermediate)	174,000	214,600	288,300	123%
2025 (Long-term)	171,000	249,300	323,000	146%
Master Plan Forecast – Proposed Project				
2010 (Short-term)	312,000	196,600	270,300	63%
2012	312,000	203,594	277,294	65%
2015 (Intermediate)	310,000	214,600	288,300	69%
2025 (Long-term)	308,000	249,300	323,000	81%

Notes:
1. 2003 and 2007 = Historical Operations; 2010, 2015 and 2025 = Hillsboro Airport Master Plan Forecast; 2012, 2008 CH2M HILL analysis .
2 Annual Service Volume varies with changes in fleet mix and airport conditions over the forecast period.
3. Master Plan Forecast runway operations = total operations less local helicopter training operations.
Source: Hillsboro Airport Master Plan, Final Technical Report Tables 3AA, 4G and 4H; and CH2M HILL analysis.

References

Port of Portland, Oregon. 2005. *Final Airport Master Plan Technical Report.* adopted June 8, 2005.

[6] Technical Memorandum: Hillsboro Airport Forecast Update and Verification, CH2M HILL, September 2008.

Air Quality Existing Conditions

Hillsboro Airport is located in Washington County in the city of Hillsboro, about 15 miles west of downtown Portland. The Airport and its surrounding communities are part of the Portland/Vancouver attainment/maintenance region for the carbon monoxide (CO) standard. The State of Oregon's SIP for this area includes a regional maintenance plan for CO demonstrating that it will continue to achieve attainment for carbon monoxide. The following subsections summarize existing conditions with a review of available air quality monitoring data in the general vicinity of the Airport and estimates of emissions for existing (2007) Airport operations.

Regional Air Quality Monitoring

The Oregon DEQ operates a network of ambient air monitoring stations throughout the Portland-Vancouver Air Quality Management Area. Exhibit 1 lists the maximum measured pollutant levels for the pollutants of interest for this project, measured at the nearest monitoring location from 2002 to 2006. The southeast Lafayette air quality monitor is the nearest fully instrumented site, but it is located about 17 miles east of Hillsboro. Compliance with air quality standards is based on a statistical summary of concentrations, which varies by pollutant and averaging time.

Airport Emissions Inventory

Emission estimates for existing conditions using operational data from 2007 are shown in Exhibit 2. The Air Quality Analysis Assumptions Technical Memorandum in this appendix describes the assumptions incorporated in this emissions inventory. Aircraft activity represents the largest source of all criteria pollutants. Aircraft piston engines require leaded aviation gasoline and are the only source of lead emissions at HIO. Although only aircraft-related emissions would differ among the alternatives under consideration, the inventory in Exhibit 2 also includes emissions from ground support equipment (GSE) and auxiliary power units (APU), surface vehicle parking and on airport roadways, and stationary sources.

The decline in aircraft shipments is not expected to last long. According to the National Business Aviation Association (NBAA), there are more than 2,700 aircraft still on order. NBAA cites a study by Honeywell that aircraft shipments will recover to record levels by 2004 and that 8,400 business aircraft will be delivered over the next 10 years.

On February 5, 2002, the FAA published a notice of proposed rulemaking (NPRM), titled *Certification of Aircraft and Airmen for the Operation of Light-Sport Aircraft*. The rulemaking would establish new light-sport aircraft categories and allow aircraft manufacturers to build and sell completed aircraft without obtaining type and production certificates. Instead, aircraft manufacturers would build to industry consensus standards. This reduces development costs and subsequent aircraft acquisition costs. This new category places specific conditions on the design of the aircraft to limit them to low performance aircraft. New pilot training times are reduced and offer more flexibility in the type of aircraft which the pilot would be allowed to operate. Viewed by many within the general aviation industry as a revolutionary change in the regulation of recreational aircraft, this new rulemaking is anticipated to significantly increase access to general aviation by reducing the time required to earn a pilot's license and the cost of owning and operating an aircraft. These regulations are aimed primarily at the recreational aircraft owner/ operator. This new rulemaking is expected to add between 300 and 500 new aircraft each year to the national fleet beginning in 2006. By 2015, there is expected to be 20,915 of these aircraft in the national fleet (including approximately 15,300 existing aircraft which will now be included in the active fleet beginning in 2004).

At the end of 2003, the nation's total pilot population, including student, private, commercial, and airline transport, was estimated by the FAA to decline to 625,011 from the 625,358 pilots in 2002. However, the total pilot population is expected to grow 1.6 percent annually over the next 12 years. A large portion of this growth is from the expected certification of approximately 16,100 currently unrated pilots between 2004 and 2005 as sport-rated pilots. Excluding this influx of pilots due to new regulations (many of these are existing ultralight pilots which now are not certificated), the annual growth rate for pilots is 1.4 percent. Student pilots increased 1.5 percent in 2003. The number of student pilots is projected to increase by 1.9 percent annually through 2015.

While impacting aircraft production and delivery, the events of 9/11 and economic downturn have not had the same negative impact on the business/corporate side of general aviation. The increased security measures placed on commercial flights have increased interest in fractional and corporate aircraft ownership, as well as on-demand charter flights. According to GAMA, the total number of corporate operators increased by 471 operators in 2003. Corporate operators are defined as those companies that have their own flight departments and utilize general aviation airplanes to enhance

productivity. **Table 3B** summarizes the number of U.S. companies operating fixed-wing turbine aircraft since 1991.

TABLE 3B
U.S. Companies Operating Fixed-Wing Turbine Business Aircraft And Number Of Aircraft, 1991-2003

Year	Number of Operators	Number of Aircraft
1991	6,584	9,504
1992	6,492	9,504
1993	6,747	9,594
1994	6,869	10,044
1995	7,126	10,321
1996	7,406	11,285
1997	7,805	11,774
1998	8,236	12,425
1999	8,778	13,148
2000	9,317	14,079
2001	9,709	14,837
2002	10,191	15,569
2003	10,661	15,870

Source: GAMA/NBAA

CORPORATE OWNERSHIP TRENDS

The growth in corporate operators comes at a time when fractional aircraft programs are experiencing significant growth. Fractional ownership programs sell 1/8 or greater shares in an aircraft at a fixed cost. This cost, plus monthly maintenance fees, allows the shareholder a set number of hours of use per year and provides for the management and pilot services associated with the aircraft's operation. These programs guarantee the aircraft is available at any time, with short notice. Fractional ownership programs offer the shareholder a more efficient use of time (when compared with commercial air service) by providing faster point-to-point travel times and the ability to conduct business confidentially while flying. The lower initial startup costs (when compared with acquiring and establishing a flight department) and easier exiting options are also positive benefits.

Since beginning in 1986, fractional jet programs have flourished. **Table 3C** summarizes the growth in fractional shares since 1986. The number of aircraft in fractional jet programs has grown rapidly. In 2001 there were 696 aircraft in fractional jet programs. This grew to 776 aircraft in fractional jet programs at the end of 2002 and 823 in 2003.

TABLE 3C
Fractional Shares
1986-2003

Year	Number of Shares
1986	3
1987	5
1988	26
1989	51
1990	57
1991	71
1992	84
1993	110
1994	158
1995	285
1996	548
1997	957
1998	1,551
1999	2,607
2000	3,834
2001	4,071
2002	4,232
2003	4,515

Source: GAMA/NBAA

Manufacturer and industry programs and initiatives continue to revitalize the general aviation industry with a variety of programs. For example,

wind flows from the west and the preferential runway use program. For this capacity analysis, Runway 30 was assumed to be used most of the time. However, the use of both Runway 12-30 and Runway 2-20 simultaneously was assumed. During periods when wind conditions require the use of Runway 2-20 for small general aviation aircraft, larger aircraft may need to use Runway 12-30 due to its longer length. During these periods, aircraft are sequenced to allow for departures and landings to both runways.

Exit Taxiways: Exit taxiways have a significant impact on airfield capacity since the number and location of exits directly determines the occupancy time of an aircraft on the runway. Runway 12-30 has eight exit taxiways, while Runway 2-20 has four exit taxiways.

The airfield capacity analysis gives credit to exits located within a prescribed range from a runway's threshold. This range is based upon the mix index of the aircraft that use the runway. The exits must be at least 750 feet apart to count as separate exits. For Hillsboro Airport, the exit taxiways must be within 2,000 to 4,000 feet from the runway threshold. Following this criteria, each runway is credited with only two exits. This reduces capacity by approximately six percent.

Radar Coverage: Radar coverage improves air traffic control sequencing during poor weather conditions. Since the air traffic controller has positive contact with an aircraft, closer separation distances can be maintained. Without radar coverage, additional spacing and control measures must be implemented to ensure aircraft safety. Hillsboro Airport currently lacks radar coverage to the surface. This diminishes the annual service volume by less than one percent. In poor weather conditions, hourly capacity is reduced by nearly eight percent

- METEOROLOGICAL CONDITIONS

Weather conditions can have a significant affect on airfield capacity which is usually at its peak during clear weather (i.e., flight visibility is at its best). Airfield capacity is diminished as weather conditions deteriorate and cloud ceilings and visibility are reduced. As weather conditions deteriorate, the spacing of aircraft must increase to provide allowable margins of safety. The increased distance between aircraft reduces the number of aircraft which can operate at HIO during any given period. This consequently reduces overall airfield capacity.

FAA AC 150/5060-5, *Airport Capacity and Delay*, defines three categories of meteorological conditions for use in determining capacity analysis. The meteorological conditions are defined by reported cloud ceiling and flight visibility. Visual Flight Rules (VFR) conditions exist whenever the cloud ceiling is greater than 1,000 feet above ground level (AGL), and visibility is greater than three statute miles. VFR conditions permit pilots to approach, land or takeoff by visual reference, and to see and avoid other aircraft. Airfield capacity is highest during

- CALCULATION OF ANNUAL SERVICE VOLUME

The preceding information was used in conjunction with the airfield capacity methodology developed by the FAA to determine airfield capacity for Hillsboro Airport.

Hourly Runway Capacity: The first step in determining annual service volume involves the computation of the hourly capacity of each runway in use configuration. The percentage use of each runway, the amount of touch-and-go training activity, and the number and locations of runway exits become important factors in determining the hourly capacity of each runway configuration. The hourly capacity calculations for Hillsboro Airport (assuming the existing airfield configuration) are summarized in *Appendix C* to this report.

Annual Service Volume: Once the hourly capacity is known, the annual service volume can be determined. Annual service volume is calculated by the following equation:

Annual Service Volume = C x D x H
C = weighted hourly capacity D = ratio of annual demand to average daily demand during the peak month H = ratio of average daily demand to average peak hour demand during the peak month

Following this formula, the current and future annual service volume for Hillsboro Airport has been estimated. **Table 4G** summarizes annual service volume data for Hillsboro Airport through the planning period assuming the existing airfield configuration as well as three capacity-enhancing scenarios of development.

Exhibit 4B compares annual service volume for the existing airfield configuration to 2003 and forecast operational levels. As evident on the exhibit, HIO is currently operating slightly beyond its existing conditions annual service volume. The 2003 total of 180,147 fixed wing and itinerant helicopter operations represents 107% of the annual service volume. By the end of the planning period, without any capacity improvements, the total annual operations can be expected to represent 154% of annual service volume.

FAA Order 5090.3B, *Field Formulation of the National Plan of Integrated Airport Systems (NPIAS)*, indicates that improvements for airfield capacity purposes should be considered when operations reach 60 percent of the ASV. Capacity improvements should be implemented when an airport exceeds 80 percent of the ASV. At current operational levels, methods to improve ASV should be included in facility planning.

TABLE 4G Annual Service Volume Comparison				
Planning Horizon	**Weighted Hourly Capacity**	**Annual Service Volume**	**Annual Operations**	**Percent Capacity**
Existing Conditions				
2003	110	169,000	180,147	107%
Short Term	109	167,000	196,600	118%
Intermediate Term	108	165,000	214,600	130%
Long Term	106	162,000	249,300	154%
Add Radar Coverage Only				
2003	110	170,000	180,147	106%
Short Term	109	168,000	196,600	117%
Intermediate Term	108	166,000	214,600	129%
Long Term	106	163,000	249,300	153%
Add Exit Taxiways Only				
2003	115	178,000	180,147	101%
Short Term	114	176,000	196,600	112%
Intermediate Term	113	174,000	214,600	123%
Long Term	111	171,000	249,300	146%
Add Parallel Runway, Radar Coverage, Exit Taxiways				
2003	205	315,000	180,147	57%
Short Term	204	313,000	196,600	63%
Intermediate Term	202	311,000	214,600	69%
Long Term	201	309,000	249,300	81%

- CAPACITY ENHANCEMENT

As noted previously, HIO's ASV is reduced by the lack of radar coverage and the number/placement of exit taxiways on Runway 12-30. As shown in **Table 4G**, adding radar coverage could increase the airport's ASV by 1,000 annual operations. Adding two exit taxiways to Runway 12-30 could increase the airport's ASV by 9,000 annual operations. Combined, both improvements could increase HIO's ASV by 10,000 compared to the do-nothing condition. While the Port can design and install additional exit taxiways, the installation of radar coverage is an FAA responsibility. The FAA has attempted in the past year to gain radar coverage at Hillsboro Airport using existing regional radar systems. However, terrain features prevent full coverage at HIO.

While adding radar coverage and exit taxiways can increase airfield capacity, neither improvement alone (or combined) can significantly increase an airport's ASV. The goal of airfield capacity improvements is to increase ASV to a point where annual operations represent between 60 and 80 percent of the ASV. This level of improvement at HIO can only be achieved with the development of a runway parallel to Runway 12-30. The intent of the parallel runway would be to segregate small training

aircraft operations to a separate runway away from the larger business aircraft operations. Airfield capacity increases since a parallel runway provides for simultaneous operations. As shown in Table 4G, adding a parallel runway (along with radar and exit taxiways since these capacity improvements are anticipated to have been implemented by the time a parallel runway is operational) increases airfield capacity by 146,000 annual operations and the ratio of operations to ASV between 57 and 81 percent.

- DELAY

Delay is the by-product of the operation of the airport and the best descriptor of adverse effects of high annual operations to ASV ratios. As more aircraft attempt to access the airport at the same time, some aircraft operations must be slowed to allow sufficient time and distance between other aircraft operating in the vicinity of the airport. This causes delay. For example, delays for arriving aircraft occur as some aircraft must hold prior to landing or incur other air traffic control measures for sequencing and separations such as 360-degree turns, extending downwind legs, or speed reductions. Departure delays include longer hold times at the end of the runway prior to departure. Capacity enhancements are considered to minimize delays to the extent practicable.

According to the FAA capacity model used in this analysis, delay can be experienced at airports that are operating at only 10 percent of their ASV. This is caused by peak hour demand where more than one aircraft are attempting to land at the airport at one time. At this ratio of demand to ASV at general aviation airports, the average delay to aircraft is less than 6 seconds per aircraft operation. However, as the ratio of annual demand to ASV increases, delay to aircraft arriving and departing the airport increases. At 50 percent of ASV, delay is 12 seconds per aircraft operation. At 70 percent of ASV, delay increases to 18 seconds per aircraft operation. At 90 percent of ASV delay is 36 seconds per aircraft operation, at 100 percent ASV, the delay averages one minute per aircraft operation.

Delay is expressed in terms of the average delay per aircraft operation and the cumulative annual hours of delay. **Table 4H** summarizes the average delay per aircraft operation and the cumulative annual hours of delay based on the operation of Hillsboro Airport in its existing condition and assuming the three capacity enhancing scenarios describe above.

As shown in the table, while the airport is exceeding its estimated annual capacity by seven percent, delay is averaging only 1.9 minutes per aircraft operation. As stated previously, delay is inherent to the operation of an airport, especially during peak periods when multiple aircraft are attempting to operate at the same time. At less than two minutes per operation, this delay may not be totally noticeable by the pilot. However, without capacity enhancements, delay would increase to 2.5 minutes at the operational levels shown for the Short Term Planning

ALTERNATIVE DEVELOPMENT CONSIDERATIONS

The issues to be considered in this analysis are summarized on **Exhibit 5A**. The issues are summarized by functional category - airfield and landside. These issues are the result of the findings of the Aviation Demand Forecasts and Aviation Facility Requirements evaluations, and include input from the PAC and Port staff.

AIRFIELD ISSUES

Airfield Capacity

The need to increase airfield capacity was a primary finding of the aviation facility requirements analysis. As detailed in Chapter Four, Hillsboro Airport is currently operating at 107 percent of its annual service volume (ASV). This imposes an ***average*** delay per aircraft operation (either a takeoff or a landing) of approximately 1.9 minutes. Without the implementation of airfield capacity improvements, this delay can be expected to increase to 6.7 minutes ***on average*** per aircraft operation (assuming the Long Term Planning Horizon level of annual operations).

Three potential methods of improving airfield capacity were analyzed: adding radar coverage, adding exit taxiways, and constructing a parallel runway for small (less than 12,500 pound) aircraft. Adding radar coverage would improve capacity during poor visibility and cloud ceiling conditions, and improve instrument departures delays. However, this has limited impact on overall annual airfield capacity, adding approximately 1,000 operations to the airport's calculated annual service volume. While its impact is only limited on annual service volume, improved radar coverage will reduce controller workload, expedite instrument departures, and allow the ability to track aircraft operations near the airport. While some instrument departure delays will be reduced by adding radar coverage, instrument departures will still need to be sequenced with PDX aircraft. Depending on overall air traffic in the region, some delays may still occur for instrument departures. The FAA has responsibility for implementing this improvement. Therefore, this improvement will not be analyzed within this chapter.

The capacity analysis revealed that there are not sufficient exit taxiways on Runway 30. A total of four exit taxiways between 2,000 and 4,000 feet from the Runway 30 threshold are needed to maximize capacity on that runway. The alternatives to follow will consider both acute-angled and right-angled exit taxiways. The primary advantage of acute-angled exit taxiways is that they allow aircraft to exit a runway at higher speeds compared to right-angled exit taxiways. Taxiway A5 is an existing acute-angled taxiway. Since Runway 30 is used over 90 percent of the time, exit taxiway improvements are primarily needed for this runway.

While adding exit taxiways and improving radar coverage would improve airfield capacity by as many as 10,000

annual operations, these improvements would not significantly reduce delay, especially if operational levels were to grow as forecast through the Year 2025. The capacity analysis confirmed previous planning efforts from the 1990 and 1996 Hillsboro Airport Master Plan updates and concluded that a runway for use by small general aviation aircraft exclusively is the best method available for reducing delays. The proposed parallel runway (Runway 12L/30R) is considered in each of the three airfield alternatives to follow. The proposed parallel runway would be aligned east of Runway 12-30, on land the Port has been acquiring primarily for this purpose since completion of the 1996 Master Plan Update.

Runway 2-20 Extension

A 151-foot extension of Runway 2-20 is considered in the alternatives analysis. This extension would bring Runway 2-20 up to 4,200 feet as recommended by the FAA for aircraft types expected to utilize this runway. Three alternatives can be considered for the runway extension: place the entire extension on the Runway 20 end, place the entire extension on the Runway 2 end, or split the extension between each end. Since land is available for the entire 151-foot extension to be accommodated at either runway end, it is neither necessary nor practical to consider splitting the extension.

Taxiways

Several taxiway improvements are considered. This includes extending Taxiway B to the southwest to the Runway 2 end. Presently, Runway 2-20 is not served by a full-length parallel taxiway. Full-length parallel taxiways reduce taxi times and the potential for pilot disorientation on the airfield. Presently, reaching the Runway 2 end from areas south of Runway 2-20 requires using a taxiway which extends through aircraft parking areas near the main terminal building. This taxiway bisects aircraft parking areas and reduces available parking area on the apron. Extending Taxiway B to the Runway 2 end would eliminate the need for this taxiway and give pilots a direct taxi route to the Runway 2 end. The Runway 2 entrance taxiway is recommended to be reconfigured at a right angle to the Runway 2 end. This is the preferred method for intersecting the runway as it allows the pilot to have a better view of both the approach area and departure area.

Taxiway C is planned to be relocated 40 feet north to meet current FAA runway centerline to taxiway centerline separation distances. Presently, the location of Taxiway C obstructs the Runway 2-20 obstacle free zone (OFZ). Relocating Taxiway C will require closing Taxiway CC because once relocated, Taxiway C would be located too close to Taxiway CC for simultaneous use. The extension of Taxiway C to the Runway 20 end is also considered. Extending Taxiway C to the Runway 20 end not only provides a connection to the future parallel runway, but also eliminates a required runway crossing for aircraft located north of Runway 2-20 that are trying to reach either the Runway 2 or Runway 20 end.

agement Practices (i.e., storm water treatment) are already required and will continue to be required. Stormwater quality may also be a cumulative impact concern for surface waters since the Tualatin River is Total Maximum Daily Load (TMDL) limited for temperature, bacteria, dissolved oxygen & total phosphorus. Stormwater runoff from Hillsboro Airport drains into tributaries of the Tualatin River.

Air Quality: Hillsboro Airport is located in an area that has been designated by EPA as a Carbon Monoxide Maintenance Area. As a result, a General Conformity demonstration will be required for the construction and operational phases in accordance with 40 Code of Federal Regulations (CFR) Part 93 Subpart B.

The Federal Clean Air Act Amendment of 1990 requires federal agencies to ensure that their actions (in this case the approval of an airport layout plan by the FAA) conform to the State Implementation Plan (SIP) for the airshed in which the action would take place. The SIP is a comprehensive plan that provides for implementation, maintenance, and enforcement of the National Ambient Air Quality Standards (NAAQS) and includes emission limitations and control measures to attain and maintain compliance with the NAAQS.

General Conformity is defined as demonstrating that a project conforms to the SIP's purpose of eliminating or reducing the severity and frequency of violations of the ambient air quality standards and achieving expeditious attainment of such standards. This demonstration will be conducted for the preferred alternative.

Hillsboro Airport currently operates above its annual service volume. The average delay per aircraft operation is forecast to increase from 1.9 minutes to 6.7 minutes in 2025. As such, all alternatives or "build scenarios" would reduce air quality impacts relative to the "no-build scenario" by relieving congestion and reducing delay.

New fuel storage tanks may trigger New Source Performance Standards under 40 CFR Part 60. Installation of emergency generators may also be necessary. These changes may trigger the obligation to obtain an Air Contaminant Discharge Permit from the Oregon Department of Environmental Quality. These impacts are consistent among the alternatives.

Section 4F Impacts: The project area does not contain any 4F resources based on consultation with the City of Hillsboro, Washington County and the Tualatin Valley Parks and Recreation Department.

Cultural Resources: The project area is a highly disturbed site. Historical uses include aviation and agriculture. Previous cultural resource surveys conducted in the vicinity found no significant resources. This lack of impact is consistent among the alternatives.

Biotic Communities: Each alternative other than the 1996 Master Plan includes development in the sensitive habitat types along Brookwood Park-

- Up to 10 presentation boards based on previously developed graphics for each of up to five briefings
- Attendance at up to five briefings with up to three staff per meeting

Responsibility:

This subtask will be conducted by CH2M HILL with participation by other CH2M HILL Team members.

Task 2. Public and Agency Coordination

FAA guidance encourages coordination with the public and interested agencies early in the planning and environmental review process. As directed by the Port, the Consultant shall recommend a public involvement program to meet the requirements of public and agency outreach. At a minimum, the public outreach program shall include the conduct of a scoping session for the EA (although not required by FAA guidance) and a Public Hearing upon release of the Draft EA. The Consultant will suggest other forms of outreach to support the needs of the project. The consultant will coordinate the content for EA related input to the Port web site with Port Community Affairs Staff throughout the duration of the EA.

2.1 Public and Agency Coordination Plans

Agency coordination will focus on project related issues of interest to specific resource and regulatory agencies. In this task, the Consultant shall consult with the Port to develop a list of agencies to be consulted during the NEPA process, identify Port and Consultant team members responsible for the technical issues, and establish protocols and schedules for agency coordination. Subsequent agency coordination efforts will be initiated by the Port and are incorporated in the relevant environmental investigations described in Task 5.

The Consultant shall recommend the timing, duration, media, information outlets, as well as initial and ongoing responsibilities for public coordination. throughout the NEPA process. The public coordination plan will identify specific opportunities to work in conjunction with the Port's Hillsboro Airport Issues Roundtable (HAIR) in pursuing outreach efforts and gathering stakeholder input. It is anticipated that HAIR will advise on proposed outreach activities and may participate in community outreach activities.

- Agency Identification. The Consultant will work with the Port staff to identify agencies with interest or special expertise with regard to the proposed improvements at the Airport.
- Community Organizations. The Consultant will work with the Port staff to identify neighborhood associations and/or other community organizations in the General Study Area. It is anticipated that routine briefings of the HAIR will be included in this effort.
- Mailing Lists. The Consultant will work with the Port staff to prepare mailings and maintain lists of federal, state, and local regulatory agencies, as well as neighborhood associations, and their respective points of contact, with whom the Port intends to maintain regular contact during the NEPA process.

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Include Draft Scope of Work on the title and a date so we know what it is and the version.

Include a table of contents.

Impact categories - make sure all factors from our orders are included. If not relevant so state and be done with it. Document commensurate with the impact to that resource category.
Coordination with agencies on these factors - The FAA will do the coordination with the tribes and SHPO for historic/cultural resources and tribal interests with information developed by your consultants. You do the lead coordination (like scoping) with the other agencies on the other categories. Please revise to clarify this throughout the scope.

Suggest getting input and agreement with the local communities on what noise metrics will be evaluated before starting noise analysis. This may save you from going back and doing more analysis later. Find out what their real concerns are and deal with them - seems that helicopter training is a big concern to the locals.

Section 1.6 - Can you use the Port's existing web site(s)?

Section 1.7 and elsewhere - we agree coordination is important in the NEPA process, but it seems at first blush like there are a lot of meetings planned.

Task 2 - Coordination - we suggest using existing coordination processes you have established with the local communitities as much as possible. Build on what you have and don't create a 'shadow' coordination process/structure.

Section 3.5 - Flight tracks - make sure enough time is in the schedule to deal with this and public comments that may come up on this. Adequate time needs to be factored in for ATO (Air Traffic Organization) to get this information together and to evaluate it with you. ATO needs to make the determination of creation of a new traffic pattern or not.

4.1 Alternatives Screening - 2nd para - up to 3 alternatives will be considered in the EA - you can't limit the number of alternatives down arbitrarily. You need to consider any viable alternatives and evaluate them to an appropriate degree to detemine if they are appropriate for further analysis. This needs to be corrected throughout the document.

5.7 Fish, Wildlife and Plants - only do the assessments as needed. I thought that there were no impacts to aquatic resources with this project - am I misunderstanding this?

5.8 Hazardous Materials.. - Solid Waste - Is limiting the assessment to Port operations appropriate? Is it too limiting?

6.2 Historical...Resources - 3rd bullet, mitigation - this seems odd and out of context in this location. Clarify for me if I'm in error.

6.6 Air Quality - Do we need to assume/consider a worst case scenario for maximum use of the 3rd runway?

Please give me a call if you have questions or need clarification on these comments. Thx, TJ

T.J. Stetz
Environmental Protection Specialist
Federal Aviation Administration
Northwest Mountain Region
Airports Division
1601 Lind Ave. SW, Suite 315
Renton, WA 98057-3356

Preliminary analysis of the Master Plan and current (2007) TAF indicate that under the no action alternative, annual average delay levels might limit growth in aircraft operations. If required, the results of Task 3.2.2 will be used to identify increased levels of aircraft activity by category of user that would be associated with the proposed action. It is not expected that the potential increase in GA activity levels at HIO will generate impacts in the categories identified above.

While the proposed actions would involve limited acquisition or potential to generate the types of secondary or induced impacts described in FAA Order 1050.1E, the neighbors of Hillsboro Airport have expressed concerns about aircraft noise. The EA will therefore address the probable environmental impacts of the proposed actions on the neighborhoods around the airport. Further, notable changes to the local environs would be identified in accordance with FAA guidance.

Input from Port:

Not applicable

Deliverables:

Draft section to be included as a section of the Environmental Consequences chapter of the Administrative Draft EA

Responsibilities:

This subtask will be conducted by CH2M HILL.

6.6 Air Quality

The air quality impact analysis will include evaluation of potential impacts associated with emissions from aviation sources, transportation, stationary source, and construction activities under the project and other reasonable alternatives. Significance of air quality impacts will be evaluated by calculating potential net emissions increases and decreases for the proposed project. Significance criteria to be considered for criteria pollutants include NAAQS, and applicable General Conformity *de minimis* thresholds. Because new large stationary sources (such as a large fuel farm) are not included in the proposed project, New Source Review (NSR) and Prevention of Significant Deterioration (PSD) emission thresholds and increments will not be addressed in this analysis.

The proposed action is expected to reduce aircraft emissions compared to the no action alternative, but it is possible that construction of the third runway would remove a constraint to growth in aircraft activity. The analysis of the action and no action alternatives will consider total aircraft activity and annual average delay per aircraft to estimate changes in total emissions. Preliminary analyses indicate that the degree of delay reduction per operation associated with the proposed action would more than offset the potential increase in aircraft operations. It is therefore assumed that total emissions will be reduced and that a dispersion analysis will not be required for aircraft-related sources.

Air Quality Analysis Protocol. The Consultant shall develop a methodology report for analysis of air quality impacts for criteria pollutants associated with potential growth in activities of aircraft, surface access vehicles, ground support equipment, and stationary

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Dave Roberts/ANM/FAA
ANM-SEA-ADO, Seattle, WA

03/13/2008 10:19 AM

To Carol Key/ANM/FAA@FAA
cc Stan Allison/ANM/FAA@FAA, TJ Stetz/ANM/FAA@FAA
bcc
Subject Hillsboro forecast

Port of Portland has sent in a formally request to use the master plan forecast in the environmental work associated with the Hillsboro third runway.
This forecast differs from the TAF but would result in a more conservative noise model evaluation. I don't think we will need this forecast to provide justification for the third runway because they were already overcapacity back in 2005 and it is just getting busier.
Can we ask Don to review this request and write a letter so we can keep everything documented? Don is the one most familiar with the master plan that was done in 2005.

Thanks

Dave Roberts
FAA Seattle ADO
1601 Lind Ave. SW, #250
Renton, WA 98055
(425) 227-2629
dave.roberts@faa.gov

Summary and Conclusions

- HIO is working toward developing a parallel runway, the most effective capacity-enhancing feature an airfield can provide.
- HIO has full-length parallel taxiways for its primary runway, which preclude reductions in runway capacity by avoiding the need for back-taxiing.
- HIO is developing capacity-enhancing high-speed exit taxiways for its primary runway, the most effective means to maximize runway capacity by reducing runway occupancy time (ROT) after landings.
- HIO has precision approach capability on its primary runway with an instrument landing system (ILS), thereby enhancing airfield capacity during instrument meteorological conditions.
- Despite all of the above, by 2015, operational demand will again exceed 60% of annual service volume (ASV), the threshold at which planning should be underway for additional capacity-enhancing improvements; and within 20 years, it will again exceed 80% of ASV, when additional capacity improvements should ideally be in place.

Consultant will prepare an administrative Draft EA for review by the Port. Upon acceptance of the administrative Draft EA by the Port, the Port will coordinate the Draft EA with the FAA, with the assistance of the Consultant. The Consultant shall participate in up to five working sessions with Port staff and FAA to prepare the Draft EA for public and agency review.

Upon approval of the Port, the Consultant will receive authorization to produce 50 copies of the Draft EA and to distribute the document to the public, agencies, and libraries for a minimum of 30-day public review and comment. In addition, the Consultant will provide the Port with a copy of the document (text, tables and graphics) on CD-ROM in MS Word and Adobe PDF formats. A copy of the Executive Summary (in PDF format) will be available for the Port's placement on its web site (www.PortofPortland.com).

Input from Port:

Compiled and reconciled Port comments on initial Administrative Draft

Deliverables:

- Administrative Draft EA for Port review and comment – 3 hard copies and up to 10 CD copies
- Revised Administrative Draft with track changes for Port confirmation of changes – 3 CD copies
- Revised Administrative Draft for FAA review – 3 hard copies
- Revised Administrative Draft with track changes for FAA confirmation of changes – 3 CD copies
- Draft EA for public and agency distribution –20 hard copies, 10 CD copies

Responsibilities:

This task will be conducted by CH2M HILL.

Task 9. Public Hearing

A public hearing will be conducted no sooner than 30 days following release of the Draft EA for purpose of receiving public comments. The Consultant would be responsible for placing all public advertisements about the hearing and for preparing all materials that would be used at the hearing. The Consultant will coordinate with Port Community Affairs staff concerning the logistics of the public hearing, but will be responsible for securing a location, hearing officer, court stenographer, publication of hearing notices, etc. Comments concerning the Draft EA will be sent to the Port of Portland, who will make copies for the Consultant.

Input from Port:

- Direction regarding notification and publication
- Copies of comments received during the public hearing and comment period

Deliverables:

- Support for the Port in hearing logistics – includes cost of room rental
- Draft and final hearing notices in up to 2 local papers

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TJ Stetz/ANM/FAA
ANM-610, Planning, Environmental & Financial

06/19/2009 12:55 PM

To Renee.Dowlin@portofportland.com, terri.burk@portofportland.com
cc TJ Stetz/ANM/FAA@FAA, Patricia Deem/ANM/FAA@FAA, Carolyn Read/ANM/FAA@FAA
bcc
Subject Fw: Recommended GHG Text

Renee/Terri - sending you this comment seperately from others we will provide, seemed easier. Please replace section 5.7.3.6 Greenhouse Gases (GHG) and other sections in the document that discuss GHG with the language from HQ attached below. If you have concerns or questions on this please call me. TJ
---- Forwarded by TJ Stetz/ANM/FAA on 06/19/2009 12:48 PM ----

TJ Stetz/ANM/FAA
ANM-610, Planning, Environmental & Financial

08/28/2008 02:06 PM

To Cayla Morgan/ANM/FAA@FAA, Gary Gates/ANM/FAA@FAA, John Styba/ANM/FAA@FAA, TJ Stetz/ANM/FAA@FAA, Kevin Luey/ANM/FAA@FAA, Hans Anker/ANM/FAA@FAA, Paul Holmquist/ANM/FAA@FAA, Renee Hall/ANM/FAA@FAA, Deepeka Parashar/ANM/FAA@FAA, Patricia Deem/ANM/FAA@FAA, Patrick Walsh/ANM/FAA@FAA
cc
Subject Fw: Recommended GHG Text

In case you haven't seen this. TJ
---- Forwarded by TJ Stetz/ANM/FAA on 08/28/2008 02:05 PM ----

Jake Plante/AWA/FAA
APP-400, National Planning and Env Division

08/05/2008 10:21 AM

To Jackie Sweatt-Essick@FAA, Patricia Sullivan@FAA, John Silva@FAA, Dean Mcmath@FAA, Dave Kessler@FAA, Ernest Gubry/AGL/FAA@FAA, Glen Orcutt/AGL/FAA@FAA, Camille Garibaldi/AWP/FAA@FAA, Elisha Novak/AWP/FAA@FAA, Tim Tandy/ASW/FAA@FAA, Peggy Kelley/ASO/FAA@FAA, Rod Nicholson/ASO/FAA@FAA, Virginia Lane/ASO/FAA@FAA, Cayla Morgan/ANM/FAA@FAA, Barry Franklin/AWP/FAA@FAA, Gordon Wong/AWP/FAA@FAA, Maria Stanco/AEA/FAA@FAA, Richard Doucette/ANE/FAA@FAA, Patricia Dressler/AGL/FAA@FAA, Gary Gates/ANM/FAA@FAA, Andrew Brooks/AEA/FAA@FAA, Bonnie Baskin/ASO/FAA@FAA, Susan McDonald/AEA/FAA@FAA, TJ Stetz/ANM/FAA@FAA, Paul Blackford/ASW/FAA@FAA, Lance Key/ASW/FAA@FAA, Jennifer Mendelsohn/AEA/FAA@FAA, Marie Jenet/AEA/FAA@FAA, Amy Hanson/AGL/FAA@FAA, Edward Gabsewics/AEA/FAA@FAA, Kristi Ashley/ASO/FAA@FAA, Lindy McDowell/ASO/FAA@FAA, Todd Madison/ACE/FAA@FAA, Lindsay Butler/AGL/FAA@FAA, Kevin Luey/ANM/FAA@FAA, Bobb Beauchamp/AGL/FAA@FAA, Brad N Davidson/AGL/FAA@FAA, Tom Jensen/AGL/FAA@FAA, Daniel J Millenacker/AGL/FAA@FAA, Al Fenedick/AGL/FAA@FAA
cc Ashraf Jan/AWA/FAA@FAA, Edward Melisky/AWA/FAA@FAA, Vicki Catlett/AWA/FAA@FAA, Tom Bennett/AWA/FAA@FAA, Jim Byers/AWA/FAA@FAA, Shamira Jones/AWA/FAA@FAA, Julie

Unland/AWA/FAA@FAA, Ralph Thompson/AWA/FAA@FAA
Subject Recommended GHG Text

I took an IOU at CMEL to distribute the recommended GHG text to everyone. This text should be used if GHGs need to be addressed in an environmental document and until AEE provides further agency guidance on handling the subject for NEPA purposes. I've also attached Patti's version used in the Sitka DEIS. The Sitka text is slightly modified and has a few additional words for sea level rise. Please do not create anything different from these references unless you consult with APP-400.

If there's a new EPS I've missed on the mailing list, please forward.

Thanks, Jake


Draft Text_GHGs_4-08.doc


Sitka_DEIS_GHG sections.doc

Recommended Text for Addressing Climate Change and Greenhouse Gases

Affected Environment

Climate Change/Greenhouse Gases: Of growing concern is the impact of proposed projects on climate change. Greenhouse gases are those that trap heat in the earth's atmosphere. Both naturally occurring and anthropogenic (man-made) greenhouse gases include water vapor (H_2O), carbon dioxide (CO_2),[1] methane (CH_4), nitrous oxide (N_2O), and ozone (O_3).[2]

Research has shown that there is a direct link between fuel combustion and greenhouse gas emissions. Therefore, sources that require fuel or power at an airport are the primary sources that would generate greenhouse gases. Aircraft are probably the most often cited air pollutant source, but they produce the same types of emissions as cars. Aircraft jet engines, like many other vehicle engines, produce carbon dioxide (CO_2), water vapor (H_2O), nitrogen oxides (NOx), carbon monoxide (CO), oxides of sulfur (SOx), unburned or partially combusted hydrocarbons (also known as volatile organic compounds (VOCs)), particulates, and other trace compounds.

According to most international reviews, aviation emissions comprise a small but potentially important percentage of anthropogenic (human-made) greenhouse gases and other emissions that contribute to global warming. The Intergovernmental Panel on Climate Change (IPCC) estimates that global aircraft emissions account for about 3.5 percent of the total quantity of greenhouse gas from human activities.[3] In terms of U.S. contribution, the U.S. General Accounting Office (GAO) reports that aviation accounts "for about 3 percent of total U.S. greenhouse gas emissions from human sources" compared with other industrial sources, including the remainder of the transportation sector (23 percent) and industry (41 percent).[4]

The scientific community is developing areas of further study to enable them to more precisely estimate aviation's effects on the global atmosphere. The FAA is currently leading or participating in several efforts intended to clarify the role that commercial aviation plays in greenhouse gases and climate change. The most comprehensive and multi-year program geared towards quantifying climate change effects of aviation is the Aviation Climate Change Research Initiative (ACCRI) funded by FAA and NASA. ACCRI will reduce key scientific uncertainties in quantifying aviation-related climate impacts and provide timely scientific input to inform policy-making decisions. FAA also funds Project 12 of the Partnership for AiR Transportation Noise & Emissions Reduction (PARTNER) Center of Excellence research initiative to quantify the effects of aircraft exhaust and contrails on global and U.S. climate and atmospheric composition. Finally, the Transportation Research

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[1] All greenhouse gas inventories measure carbon dioxide emissions, but beyond carbon dioxide different inventories include different greenhouse gases (GHGs).

[2] Several classes of halogenated substances that contain fluorine, chlorine, or bromine are also greenhouse gases, but they are, for the most part, solely a product of industrial activities. For example, chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) are halocarbons that contain chlorine, while halocarbons that contain bromine are referred to as bromofluorocarbons (i.e., halons) or sulfur (sulfur hexafluoride: SF_6).

[3] IPCC Report as referenced in U.S. General Accounting Office (GAO) *Environment: Aviation's Effects on the Global Atmosphere Are Potentially Significant and Expected to Grow*; GAO/RCED-00-57, February 2000, p. 4.

[4] Ibid, p. 14; GAO cites available EPA data from 1997.

Board's (TRB) Airport Cooperative Research Program (ACRP) project 02-06 is preparing a guidebook on preparing airport greenhouse gas emission inventories. The results of this effort are expected to be out in late 2008.

Environmental Consequences

Based on FAA data, operations activity at _____ Airport represents less than ___ percent of U.S. aviation activity. Therefore, assuming that greenhouse gases occur in proportion to the level of activity, greenhouse gas emissions associated with existing and future aviation activity at _____ Airport would be expected to represent less than ____ percent of U.S.-based greenhouse gases. Therefore, we would not expect the emissions of greenhouse gases from this project to be significant.

Cumulative Effects

Because aviation activity at _____ Airport represents such as small amount of U.S. and global emissions, and the related uncertainties involving the assessment of such emissions regionally and globally, the incremental contribution of this proposed action cannot be adequately assessed given the current state of the science and assessment methodology.[5]

[5] NEPA Regulations, Council on Environmental Quality, 40 CFR 1502.22, *Incomplete or unavailable information.*

Chapter 3: Affected Environment – Air Quality
pp. 3.17.1 and 3.17.2

Climate Change/Greenhouse Gases: Of growing concern is the impact of proposed projects on climate change. Greenhouse gases are those that trap heat in the earth's atmosphere. Both naturally occurring and anthropogenic (man-made) greenhouse gases include water vapor (H_2O), carbon dioxide (CO_2),[1] methane (CH_4), nitrous oxide (N_2O), and ozone (O_3).[2]

Research has shown that there is a direct link between fuel combustion and greenhouse gas emissions. Therefore, sources that require fuel or power at an airport are the primary sources that would generate greenhouse gases. Aircraft are probably the most often cited air pollutant source, but they produce the same types of emissions as cars. Aircraft jet engines, like many other vehicle engines, produce CO_2, water vapor, nitrogen oxides, carbon monoxide, oxides of sulfur, unburned or partially combusted hydrocarbons (also known as volatile organic compounds (VOCs)), particulates, and other trace compounds.

According to most international reviews, aviation emissions comprise a small but potentially important percentage of human-made greenhouse gases and other emissions that contribute to global warming. The Intergovernmental Panel on Climate Change (IPCC) estimates that global aircraft emissions account for about 3.5% of the total quantity of greenhouse gas from human activities.[3] In terms of relative U.S. contribution, the U.S. General Accounting Office (GAO) reports that aviation accounts "for about 3 percent of total U.S. greenhouse gas emissions from human sources" compared with other industrial sources, including the remainder of the transportation sector (23%) and industry (41%).[4]

The scientific community is developing areas of further study to enable them to more precisely estimate aviation's effects on the global atmosphere. The FAA is currently leading and participating in several efforts intended to clarify the role that commercial aviation plays in greenhouse gas emissions and climate change. The most comprehensive and multi-year program geared towards quantifying climate change effects of aviation is the Aviation Climate Change Research Initiative (ACCRI) funded by FAA and NASA. ACCRI will reduce key scientific uncertainties in quantifying aviation-related climate impacts and provide timely scientific input to inform policy-making decisions. FAA also funds Project 12 of the Partnership for AiR Transportation Noise & Emissions Reduction (PARTNER) Center of Excellence research initiative to quantify the effects of aircraft exhaust and contrails on global and U.S. climate and atmospheric composition. Finally, the Transportation Research Board's (TRB) Airport Cooperative Research Program (ACRP) project 02-06 is preparing a guidebook on preparing airport greenhouse gas emission inventories. The results of the ACRP effort are expected out in late 2008.

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[1] All greenhouse gas inventories measure carbon dioxide emissions, but beyond carbon dioxide different inventories include different greenhouse gases (GHGs).
[2] Several classes of halogenated substances that contain fluorine, chlorine, or bromine are also greenhouse gases, but they are, for the most part, solely a product of industrial activities. For example, chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) are halocarbons that contain chlorine, while halocarbons that contain bromine are referred to as bromofluorocarbons (i.e., halons) or sulfur (sulfur hexafluoride: SF_6).
[3] IPCC Report as referenced in U.S. General Accounting Office (GAO) *Environment: Aviation's Effects on the Global Atmosphere Are Potentially Significant and Expected to Grow*; GAO/RCED-00-57, February 2000, p. 4.
[4] Ibid, p. 14; GAO cites available EPA data from 1997.

Projects have the potential to both affect climate change and be affected by climate change. As discussed above, changes to resource categories such as air quality and natural resources and energy supply can potentially affect climate change (e.g. by increasing the amount of green house gases emitted), but projects can also be impacted by climate change (e.g. rising sea levels). At this point, there is no consistent scientific indication of when and how the climate will change.

Chapter 4: Environmental Consequences – Air Quality
p. 4.20.1

Climate Change/Green House Gases: Of growing concern is the impact of proposed projects on climate change. Greenhouse gases are those that trap heat in the earth's atmosphere. Research has shown that there is a direct link between fuel combustion and greenhouse gas emissions. Therefore, sources that require power/fuel at an airport are the primary sources that would generate greenhouse gases. Aircraft are probably the most often cited air pollutant source, but they produce the same types of emissions as cars. Based on FAA data, operations activity at Sitka Airport, relative to aviation throughout the United States, represents less than 1% of U.S. aviation activity. Therefore, assuming that greenhouse gases occur in proportion to the level of activity, greenhouse gas emissions associated with existing and future aviation activity at Sitka Airport would be expected to represent less than 0.03% of U.S.-based greenhouse gases. Therefore, we would not expect the emissions of greenhouse gases from this project to be significant.

As discussed above, changes to resource categories such as air quality and natural resources and energy supply can potentially affect climate change (e.g. by increasing the amount of green house gases emitted), but projects can also be impacted by climate change (e.g. rising sea levels). At this point, there is no consistent scientific indication of when and how the climate will change.

Chapter 5: Cumulative Impacts
p. 5.1

5.3.20 Climate Change and Greenhouse Gases

Because aviation activity at Sitka Airport represents such as small amount of U.S. and global emissions, and the related uncertainties involving the assessment of such emissions regionally and globally, the incremental contribution of this proposed action cannot be adequately assessed given the current state of the science and assessment methodology.[5/] Additionally, because the consequences of climate change are uncertain, the potential affect of climate change on the projects cannot be assessed at this time.

[5/] NEPA Regulations, Council on Environmental Quality, 40 CFR 1502.22, *Incomplete or unavailable Information.*

14. Page 5.9-7, there is no connection between the last 2 paragraphs. You need to link the prior paragraph to how you made the conclusion stated in the last paragraph.
15. Page 5.9-8, Need to lay the groundwork as to why you are only looking at these 2 fish species. Do not assume the reader has read through the tech memo.
16. Page 5.9-11, the section under Table 5.9-1 requires more discussion and explanation.
17. Page 5.10-3, Section 5.10.2.2 – first line, add space between Section 18.3 and notes.
18. Page 5.10-4, Sections 5.10.3.1 and 5.10.3.2 – expand discussions. Analysis is cursory.
19. Page 5.10-6, top of the page – Expand this discussion. What wetlands are you talking about? Which wetlands are affected by fill?
20. Page 5.10-6, Section 5.10.4, 2nd sentence – this discussion was pulled from Chapter 3 – need to edit this section now. Last sentence of this paragraph – where is the discussion in Section 5.10.5.2 that is discussed here?
21. Page 5.10-6, Section 5.10.4.1 – second paragraph – need a map of this in the main body of the document.
22. Page 5.12-1, Section 5.12.1 – Rewrite first paragraph based upon comments given on the affected environment.
23. Page 5.12-2, Section following bullet points referencing DEQ rules – Why are we using this rule for this federal document?
24. Page 5.13-1, Section 5.13.1 – Review first sentence – it does not make sense.
25. Page 5.13-2, Section 5.13.2.2 – Delete last sentence in this section regarding the score over 200.
26. Page 5.13-2, Section 5.13.2.3 – Where does this delegation language come from? The FAA does not delegate its authority to anyone regarding farmlands.
27. page 5.13-2, Section 5.13-3 – This entire section is cursory. In addition, simply stating that the form is found in the appendix does not provide any actual analysis to the reader.
28. Page 5.15-3, Section 5.15.3.1 – The first paragraph is missing the rest of a sentence.
29. Chapter 5.15 – This section is redundant and should be deleted. Generally we do not include construction impacts under each impact category and instead leave the discussion of construction impacts to a chapter of its own. Because you have opted to include construction impacts under each impact category, we do not need to rehash those impacts in a separate chapter.
30. Chapter 6 – Overall the cumulative analysis is inadequate. The entire chapter needs to be reviewed. Some specific comments are provided below but this should not be interpreted to mean that the rest of the chapter is fine.
31. Page 6-1, Section 6.1 – first paragraph, first sentence, replace "involves" with "may involve". Delete entire sentence beginning "Although data deficiency is not a reason for ignoring....."
32. Section 6.2 – generally is okay.

(73)

Final Comments on the Hillsboro EA
Patricia Deem – August 2009

1. Global change – Concerned about the new emphasis on construction impacts and the Taxiway C extension in the no action. The entire discussion focuses almost solely on these 2 issues. Construction impacts are normally only a real concern in a handful of impact categories. In addition, the dismissal of no action impacts by stating throughout the document that impacts are less under the no action than the 2 alternatives misses the point of the analysis. This approach is not consistently applied across all impact categories. Overall, the discussion of the no action is inconsistent and at times does not present any comparison to the other 2 alternatives.
2. Global Comment – Very concerned regarding the new slant to the analysis comparing an existing condition with the Alternative 1 and then comparing Alternative 1 to Alternatives 2 and 3. We established up front that the no action was our baseline condition. It was the circumstances under Alt 1 that we were going to compare to the other alternatives. The document is all over the place regarding the actual impacts.
3. Global Comment –Any changes to a section that did not have a specific comment by the agency or changes as a result of a global comment made should be referenced in the Comment guide that is submitted with the revised document.
4. Global Comment – When will the construction on Taxiway C be completed? You are in essence analyzing a project that was reviewed under a catex. Unless the project is under construction when the new runway is under all of this discussion is moot.
5. Page. ES-3, Noise – delete this section. It was not in the draft and not requested that it be inserted into the final. This is a consequences statement, not an affected environment statement.
6. Page ES-3, Air Quality – Why was ozone deleted? What changed?
7. Page 1-6, Section 1.2 – This is a new heading. "Sponsor" has not been defined. Delete "Sponsor" and just call the section Proposed Project.
8. Page 2-1, 1st paragraph, move first sentence to Chapter 1 and delete 2nd sentence.
9. Page 2-1, General comment – Purpose and Need statement remains sparse. The first paragraph under Section 2.1 is really part of the "purpose" and should be combined with the text under 2.1.1 while the 2nd paragraph under Section 2.1 is really part of the "need" and should be combined with 2.1.2.
10. Page 3-2, Runway Separation – It is unclear why this section was edited. Put back the first 3 sentences from this section in the draft and delete "Increasing runway separation above 700 feet would provide little additional benefit at HIQ".
11. Page 3-4, Section 3.1.2.2 – Reinsert the first 3 sentences from the draft. Unclear why this was edited.

179

Dave Roberts/ANM/FAA
ANM-SEA-ADO, Seattle, WA

09/17/2009 09:30 AM

To "Dowlin, Renee" <Renee.Dowlin@portofportland.com>
cc "Burk, Terri" <Terri.Burk@portofportland.com>, stephen.nagy@portofportland.com
bcc TJ Stetz/ANM/FAA
Subject RE: HIO third runway

Thanks for the information.
My only comment is (and I made this at the beginning of the project) that there has to be a FONSI by Jan. 15, 2010 or I am recommending to Carol to drop the project discretionary funding for 2010. This would also include reimbursement for the environmental study.

Dave Roberts
FAA Seattle ADO
1601 Lind Ave. SW, #250
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(425) 227-2629
dave.roberts@faa.gov
"Dowlin, Renee" <Renee.Dowlin@portofportland.com>

"Dowlin, Renee" <Renee.Dowlin@portofportland.com>

09/17/2009 09:05 AM

To Dave Roberts/ANM/FAA@FAA
cc "Burk, Terri" <Terri.Burk@portofportland.com>
Subject RE: HIO third runway

Hi Dave- our revised draft was delivered to Patricia and TJ yesterday. Patricia is planning on reviewing it while TJ is gone and then I believe TJ and Patricia will complete their review by Oct. 1st. We are hoping to begin the public notice period in early October and would ideally have a public hearing around Nov 4-6 etc. We spoke with TJ about the possibility of having a FONSI by early December.
Let me know if you have other questions. Thanks.

Renee

Renee L. Dowlin, AICP
Aviation Environmental Program Manager,
Air Quality & Environmental Planning
Port of Portland
503.460.4566
please consider the environment before printing this email

-----Original Message-----
From: Dave.Roberts@faa.gov [mailto:Dave.Roberts@faa.gov]
Sent: Thursday, September 17, 2009 9:03 AM
To: Dowlin, Renee
Subject: HIO third runway

190

Carol Suomi/ANM/FAA
ANM-SEA-ADO, Seattle, WA

10/14/2009 03:18 PM

To Dave Roberts/ANM/FAA@FAA
cc TJ Stetz/ANM/FAA@FAA
bcc
Subject Re: Fw: Question: HIO EA is now out for public review - finally.

Thanks Dave. I just didn't want to be missing something. Carol

Carol A. Suomi, Manager
Seattle Airports District Office
Northwest Mountain Region
Federal Aviation Administration

425-227-2657
Dave Roberts/ANM/FAA

Dave Roberts/ANM/FAA
ANM-SEA-ADO, Seattle, WA

10/14/2009 02:59 PM

To Carol Suomi/ANM/FAA@FAA
cc TJ Stetz/ANM/FAA@FAA
Subject Re: Fw: Question: HIO EA is now out for public review - finally.

No they are not in line for a new tower. The tower group and SSC group that maintains the navaids does support it and have been involved from the start. The only person who has brought it up is Mr. Miegs. These evidently are new regulations since the tower was built. The tower may be operating under a waiver or the revised regulations may grandfather existing structures. I don't know. An EA has nothing to do with safety. There is no alternative under consideration that would not have the same problem. The only way to eliminate the problem is to put the new runway on top of the old runway. Then since the new runway is shorter the problem might be solved. This may be a backdoor way to get a new tower paid for by AIP.

I believe he was referring to the Order 6480.4A which is the Tower Siting Criteria Order circa 2006. That order is not applicable to this, it is reserved for new or replacement towers not obstruction evaluation. If you apply those numbers then you would need a 65 foot tower to see everything on the existing movement area.

Dave Roberts
FAA Seattle ADO
1601 Lind Ave. SW, #250
Renton, WA 98055
(425) 227-2629
dave.roberts@faa.gov

Carol Suomi So are they getting a new tower in the near futur... 10/14/2009 01:49:35 PM

From: Carol Suomi/ANM/FAA
ANM-SEA-ADO, Seattle, WA
To: Dave Roberts/ANM/FAA@FAA
Cc: Don Larson/ANM/FAA@FAA
Date: 10/14/2009 01:49 PM
Subject: Re: Fw: Question: HIO EA is now out for public review - finally.

So are they getting a new tower in the near future? Do they have problems now with the runway/taxiway surfaces? Does AT support the development of this runway then? Are these new downward angle viewing requirements causing the problem? I am just feeling uncomfortable moving forward on an EA with a preferred alternative that creates a safety issue. Can you fill me in? Thanks. Carol

Carol A. Suomi, Manager
Seattle Airports District Office
Northwest Mountain Region
Federal Aviation Administration

425-227-2657

Dave Roberts/ANM/FAA

Dave Roberts/ANM/FAA
ANM-SEA-ADO, Seattle, WA

10/14/2009 01:37 PM

To Carol Suomi/ANM/FAA@FAA, Don Larson/ANM/FAA@FAA

cc

Subject Re: Fw: Question: HIO EA is now out for public review - finally.

I talked to Don about this right after the RSAT. As I understand it, the existing tower does not meet existing height requirements and as such the view does not meet the new downward angle viewing requirements. That is what Mike is referring to as a line of sight issue. There is a clear view of the new runway even when standing on the ground. I have not actually sat down and done the calculations. Would have to have the actually tower cab elevation to do that.

Don said the angle will actually be better for the new runway because the ends are not as far away as the existing runway ends.

Dave Roberts
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(425) 227-2629
dave.roberts@faa.gov

Carol Suomi | Dave: When Stan and I meet with you, we shoul... | 10/14/2009 11:51:59 AM

From: Carol Suomi/ANM/FAA
ANM-SEA-ADO, Seattle, WA
To: Dave Roberts/ANM/FAA@FAA, Stan Allison/ANM/FAA@FAA
Cc: Carolyn Read/ANM/FAA@FAA
Date: 10/14/2009 11:51 AM
Subject: Fw: Question: HIO EA is now out for public review - finally.

Dave: When Stan and I meet with you, we should talk about this too (see Carolyn's message). I sincerely hope that the new runway will have line-of-sight! Otherwise, we have a huge issue.
Thanks. Carol

Carol A. Suomi, Manager
Seattle Airports District Office

Northwest Mountain Region
Federal Aviation Administration

425-227-2657
---- Forwarded by Carol Suomi/ANM/FAA on 10/14/2009 11:50 AM ----

Carolyn Read/ANM/FAA
10/12/2009 06:56 AM

To Carol Suomi/ANM/FAA
cc
Subject Question: HIO EA is now out for public review - finally.

Carol-
Has your staff addressed the issue that Mike Meiggs brought up regarding Line of Sight from the existing tower? Mike said he was going to have Tech Ops comment on the fact that the new RW is beyond the limits of the tower LOS and should not be constructed. We probably want to cautiously proceed until we address this issue one way or another.
Carolyn T. Read, P.E., ANM-610
Manager, Planning, Environmental, and Financial Programs Branch

(425)227-2608

Please consider the environment before printing this email
---- Forwarded by Carolyn Read/ANM/FAA on 10/12/2009 06:53 AM ----

TJ Stetz/ANM/FAA
ANM-610, Planning, Environmental & Financial

10/09/2009 10:01 AM

To Patricia Deem/ANM/FAA@FAA, Dave Roberts/ANM/FAA@FAA
cc TJ Stetz/ANM/FAA@FAA, Stan Allison/ANM/FAA@FAA, Carol Suomi/ANM/FAA@FAA, Carolyn Read/ANM/FAA@FAA
Subject HIO EA is now out for public review - finally.

Pat / Dave - Copies of this 2 volume set are on your desk. I suggest that FAA attend the hearing to observe public comment. TJ

[attachment "divcopier_LDAP_SMTP_10092009-095040.pdf" deleted by Carolyn Read/ANM/FAA]

T.J. Stetz
Environmental Protection Specialist
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Airports Division
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There is a tendency to confuse construction impacts with the project's impacts in this text.

29. Page 6-9, Air Quality, 3rd paragraph – There is no connection within the text to the conclusion that is reached. Please rewrite and make sure that there is a basis for the conclusion reached.
30. Page 6-10, Water Quality. This section is very convoluted and needs to be rewritten. For example, Glencoe Swale is mentioned once and then never discussed again as to actual impacts.
31. Page 6-11, Section 6.3.9.1. It is unclear what conclusion is being reached and how you got there.
32. Page 6-12, Section 6.3.9.2 – There is no conclusion to the wildlife determination.
33. Page 6-12, Section 6.3.9.3 – You have confused the project's impacts with construction impacts in this category. The loss of vegetation is a direct result of the project, not construction which by its very nature tends to be temporary. This loss is a permanent loss resulting from the needs of the project. This needs to be rewritten. There is also no basis provided for the conclusion reached in this section.
34. Page 6-13, Section 6.3.9.4 – This section is extremely repetitive.
35. Page 6-14, Section 6.3.10 – The wetlands section is cursory.
36. Page 6-15, Section 6.3.12 – There is no link to the actual conclusion reached.
37. Page 6-16, Section 6.3.13 – Again this section is too cursory. It sounds like there is a real potential for a significant impact.
38. Page 6-16, Section 6.3.14 – If there is no impact at all from the project then this section should not be pulled forward into the cumulative discussion.
39. Chapter 7 – Measures to Avoid – Why was all of this text copied from the other sections to this section?

33. Page 6-6, Section 6.3, first sentence, replace "briefly review" with "analyze".
34. Page 6-7, first full paragraph, first sentence, delete "adverse". You mention some resource categories. What about the other resource categories? You need to list any categories that found NO impact under consequences and explain why you then will not be analyzing the project under those categories regarding cumulative impacts.
35. Page 6-7, Section 6.3.1 – 2nd paragraph – We do not do a combined aircraft and surface traffic noise analysis.
36. Page 6-7, Section 6.3.1 – last paragraph, end of the page, why are we discussing noise in excess of DNL 65? We do not have that issue here.
37. Page 6-8, Section 6.3.2 – The first sentence does not make sense. There is no cumulative analysis here.
38. Sections 6.3.3, 6.3.4, 6.3.5 – no cumulative analysis.
39. Page 6-9, Section 6.3.6 – delete "construction of " before "either Alternative 2 or Alternative 3 in the first line. There is not a logical progression to the conclusion here.
40. Global comment – You discuss a case-by-case analysis under several sections. This is not a proper cumulative impacts analysis that requires you to look at the projects together. All of those sections need to be reformulated.
41. Page 7-1, The 2 paragraphs beginning with "compensatory" are redundant.
42.

Response to Miki Barnes:

Comment number	Response
MB-1	The public hearing on the Draft EA was similar in both setting and format to several other public events regarding the Hillsboro's proposed third runway and the environmental issues involving it. The comments provided at this hearing are now part of the record and will receive full consideration when public remarks are tallied. All comments received on the Draft EA will be considered by the FAA in deciding on any future action involving the proposed third runway. We apologize if the commenter's expectations were not met as to how oral remarks would be recorded. Despite any difficulties the commenter felt were present during the recording of comments, the stenographer's equipment picked them up clearly, and they also are part of the record. We understand that the commenter stayed at the hearing to register complaints about the process. These complaints are included in this record.
MB-2.	The Final EA will be revised to state that Hillsboro Airport (HIO) is currently (2008) the busiest airport in the State. Aircraft operations at the two airports have been nearly equal over the last several years as shown below. 2007: PDX = 264,518; HIO = 236,885 2008: PDX = 252,572; HIO = 259,263 2009 (through 10/31/09): PDX = 190,877; HIO = 195,311
MB-3	Recent declines in aircraft activity at PDX do not reduce the benefits that HIO, as a designated reliever airport, provides to the Portland airport system. As a reliever airport, HIO accommodates aircraft that are, in many cases, smaller and slower than the commercial passenger and cargo aircraft operating at PDX. Mixing dissimilar aircraft types requires increased separation between aircraft, resulting in disproportionate increases in congestion and delay, and increased air traffic control complexity. In addition, conducting extensive local training at a commercial airport further increases congestion, delay, and complexity. For these reasons, the FAA encourages the development and improvement of reliever airports and, with the approval of Congress, has established funding priorities for such development as described in the National Plan of Integrated Airport Systems[1] (NPIAS). Troutdale Airport and HIO serve different geographic areas. The Port of Portland is required to make aviation facilities available to all users and can not, therefore, force pilots and aircraft owners to operate or base aircraft at Troutdale or any other airport in lieu of HIO. The EA examined the alternative of not providing the proposed new runway and associated facilities at HIO, the No-Build Alternative. The EA determined the No-Build Alternative would not likely result in decreased HIO activity even though congestion and delay increased.
MB-4	The proposed improvements at HIO are not funded by State or local taxes on property or income, nor by Federal income tax revenue. Airport improvement projects are funded by Federal aviation excise taxes and funds generated by airport sponsors such as the Port of Portland. In both cases, these funds are, by law, raised for the purpose of improving airport infrastructure and may not be used for other purposes. Federal grants used by the Port are drawn on the Aviation Trust Fund, which derives its income from taxes on airline tickets, air cargo waybills, commercial aviation fuel, general aviation gasoline, general aviation jet fuel, international passenger arrivals and departures, frequent flyer awards, and rural airports. These revenues are distributed by the FAA as specified by Congress in the Federal Budget. Port funds used at HIO and PDX are derived from user fees and the sale of bonds backed by such fees. The Port raises funds for airport improvements through property leases, landing fees, parking revenues, and concessions at PDX and HIO. The $6.2 million in State revenue cited in the comment was provided through the *Connect*Oregon program. This program is a lottery bond based initiative by the State of Oregon to invest in air, rail, marine and transit infrastructure to ensure Oregon's transportation system is strong, diverse, and efficient. Applications submitted by the Port of Portland to this program are evaluated for funds based on the criteria of the program, the same as other applicants. Non-stop air services to Asia and Europe are critical to the regional businesses and to the regional economy, yet PDX is one of the smallest markets in the U.S. with service to both of these destinations. Delta's Tokyo flight alone has an annual economic impact of $61.2 million for our region, helping local companies compete in a global marketplace, creating jobs, spending, and tourism

[1] Report to Congress, National Plan of Integrated Airport Systems, 2007-2011, FAA, September 29, 2006

9. FAA response to Miki Barnes

ANM-6

U.S. Department of Transportation
Federal Aviation Administration

Office of the Associate Administrator for Airports

800 Independence Ave., SW.
Washington, DC 20591

DEC 11 2009

Ms. Miki Barnes
P.O. Box 838
Banks, OR 97106

Dear Ms. Barnes:

Secretary LaHood asked me to respond to your November 13 transmittal about Portland-Hillsboro Airport's (HIO) Open House and Hearing held on November 10.

We are very sorry to hear that you felt misled and poorly treated at the public forum. We have forwarded your comments to the Port of Portland. They are now part of the record and will receive full consideration when we evaluate the public remarks. You clearly put a considerable amount of work into your concerns, and we take your efforts seriously as part of this process. Your comments are part of the record that will be weighed in deciding on any future action involving the proposed third runway.

Ms. Renee Dowlin, Aviation Environmental Program Manager of the Port of Portland, says the hearing you attended was similar in both setting and format to several other public events regarding HIO's proposed third runway and the environmental issues involved. However, if we did not meet your expectations as to how we record oral remarks, we again apologize. Despite any difficulties you felt were present during the recording of your comments, the stenographer's equipment picked them up clearly, and they are part of the record as well. We understand that you stayed at the hearing to register your complaint about the process and you should know that you were heard on that point as well.

We hope we have addressed your concerns about oral testimony at the public hearings; we encourage you to continue your participation in the process.

If you have any questions or need additional information, please contact Ms. Renee Dowlin at (503) 460-4566.

I trust this information is helpful.

Sincerely,

Original signed by:
Catherine M. Lang

Catherine M. Lang
Acting Associate Administrator
for Airports

cc: Ms. Renee Dowlin

CERTIFICATE OF SERVICE

I certify that I sent, through certified first class mail, copies of the foregoing Petitioners' Excerpts of Record to each of the following pursuant to FRAP 31-1 on July 12, 2010:

Michael T. Gray
U.S. Department of Justice
Environmental and Natural Res. Div.
Appellate Section
P.O. Box 23795 L'Enfant Plaza Station
Washington, D.C. 20026

Beth Ginsberg
Stoel Rives LLP
600 University Street, Suite 3600
Seattle WA, 98101
Tel. (206) 624-0900

Dated: July 12, 2010

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