

Appendix E

ENVIRONMENTAL OVERVIEW

INTRODUCTION

The purpose of this *Environmental Overview* is to identify the environmental conditions in the Hillsboro Airport environs that could potentially be affected by proposed airport improvements shown in the 2018 Hillsboro Airport Master Plan Update (Master Plan). An environmental overview is not a replacement for the analysis associated with environmental review and compliance (i.e. the National Environmental Policy Act (NEPA), and any requisite permitting). Rather, the scope for this environmental overview relies on existing published environmental conditions and data available from the Port of Portland; no new environmental investigations were conducted for the Master Plan. Master plans, per Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5070-6B – *Airport Master Plans*, contain an environmental overview to ensure that the airport sponsor is considering potential environmental effects early in the planning process to: (1) enable avoidance of adverse effects, if possible; (2) enable mitigation measures to be identified to reduce effects, and (3) ensure that mitigation needs and costs are captured as sponsors move to implement the development recommendations.

This analysis presents environmental considerations that may require further study as a result of implementing the Port’s Capital Improvement Program (CIP) included in the Master Plan. The plan’s alternatives analysis was informed by the extensive amount of information that the Port maintains on Hillsboro Airport. In the case of this Master Plan, the extensive knowledge of the staff of the Port of Portland assisted the planners in avoiding sensitive environmental resources where possible.

This environmental overview discusses the existing conditions associated with the environmental features in FAA Orders 1050.1F, *Environmental Impacts: Policies and Procedures*, and 5050.4B, *National*

Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions, that would be considered during future environmental review processes. FAA NEPA guidance notes consideration of:

1. Air Quality
2. Biological Resources
3. Climate
4. Coastal Resources
5. Farmlands
6. Hazardous Materials, Solid Waste, and Pollution Prevention
7. Historical, Architectural, Archaeological, and Cultural Resources and DOT 4(f)
8. Land Use
9. Natural Resources and Energy Supply
10. Noise and Noise Compatible Land Use
11. Socioeconomic, Environmental Justice, and Children's Environmental Health and Safety Risk
12. Water Resources

The subsections below address the categories above and provide considerations based on the proposed implementation of the 2018 Hillsboro Airport Master Plan Update.

1. AIR QUALITY

The U.S. Environmental Protection Agency (USEPA) has established National Ambient Air Quality Standards (NAAQS) for criteria pollutants including carbon monoxide (CO), ozone (O₃), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter less than 10 micrometers in aerodynamic diameter (PM₁₀), particulate matter less than 2.5 micrometers in aerodynamic diameter (PM_{2.5}), and lead (Pb). The Oregon Department of Environmental Quality (ODEQ) has established similar standards. HIO is located in the Portland-Vancouver Air Quality Maintenance Area (AQMA), which is in attainment for all pollutants, meaning that the region currently meets the NAAQS for all criteria pollutants.¹

The Airport currently contributes emissions to the region from aircraft, ground support equipment, stationary sources (energy consumed by facilities/buildings and generators), and ground access vehicles. An emissions inventory was prepared using the Aviation Environmental Design Tool (AEDT), the model required by the FAA. The model inputs are based upon the existing (2016) activity level as well as for Master Plan forecast year 2036 and associated fleet mixes. **Table E-1** shows those emissions inventories for aircraft activity. Further documentation on the AEDT model analysis is provided in the Master Plan Appendix C.

TABLE E-1
HIO Emissions Inventory (tons per year)

| Year | CO | VOC | NO _x | SO _x | PM ₁₀ | PM _{2.5} | Lead |
|-----------------|-------|-----|-----------------|-----------------|------------------|-------------------|------|
| 2016 (existing) | 478.8 | 5.2 | 14.9 | 2.0 | 0.6 | 0.6 | 0.69 |
| 2036 (forecast) | 558.2 | 6.3 | 19.8 | 2.6 | 0.7 | 0.7 | 0.74 |

Source: Master Plan Appendix C, Table C4. Coffman Associates

¹ Per an email to David Breen (Port of Portland) from David Collier, Air Quality Planning Manager at ODEQ on December 4, 2017 noting that the area was no longer designated as attainment-maintenance for carbon monoxide.

The Master Plan projects, if undertaken, would result in construction-related emissions. Once operational, these new facilities would create emissions. For projects that would replace or demolish an existing facility, an energy savings would be expected from more energy-efficient new facilities. For projects that are not replacing an existing facility, added energy consumption would be expected along with associated emissions. A review of operating emissions associated with the proposed Master Plan recommendations may be needed in subsequent NEPA analysis to determine if the projects would result in a net increase or a decrease in emissions.

Community input during the Master Plan, and earlier efforts at HIO, suggested that lead is a pollutant of local concern. Aircraft operating at HIO consume leaded fuel (AvGas) that results in emissions containing lead. An unleaded replacement fuel that meets the needs of the entire GA fleet does not currently exist. Although a few existing fuel formulas may meet the minimum octane requirement that could be used in some aircraft, no existing fuel can match every essential performance characteristic of the leaded fuel currently used in the majority of piston aircraft. As a result, the FAA established a program and goal to develop an unleaded replacement fuel that is usable by most general aviation aircraft. As noted on the FAA's web site² "June 4, 2018: Unleaded Avgas Progress Update":

The FAA continues to be committed to evaluating suitable replacement unleaded fuels to support general aviation. Phase Two testing of unleaded avgas continues, having completed two and a half years of testing and evaluation since the FAA's selection of the two finalists in the Piston Aviation Fuels Initiative (PAFI) replacement unleaded fuels program. To date, the flight test program is approximately one-third complete, while the engine test program is about halfway complete.

Differences in the two PAFI fuels as compared to 100LL are being evaluated for impacts and mitigations. While these issues are assessed, PAFI flight testing and some engine testing have been halted. Both fuel producers, Shell and Swift, are currently evaluating options to mitigate the impacts that these differences will present in fuel production, distribution, and operation in the GA fleet. These evaluations will take time and ultimately affect the schedule of the test program. Based on current projected activities and timelines, the testing completion date for the PAFI program will be December 2019 (previously December 2018).

The FAA and industry are interested in pursuing all alternatives while issues are assessed including evaluating high-octane unleaded fuels currently being developed outside of the PAFI program. The FAA invited the fuel producers currently developing high-octane unleaded fuels to bring their data to the FAA for evaluation and consideration for possible detonation, operability, and performance testing at the FAA's William J. Hughes Technical Center. Fuel producers offering alternatives determined to have potential viability as an unleaded replacement for 100LL will be invited to participate in a Cooperative Research and Development Agreement with the FAA, which will be conducted on a non-interference basis with the PAFI program."

² <https://www.faa.gov/about/initiatives/avgas/>

As **Table E-1** shows, emissions of all criteria pollutants from aircraft operations are expected to increase slightly in the future due to the increase in the forecast activity. In addition, construction of additional facilities at the Airport would result in short-term construction equipment emissions. In accordance with FAA Orders, before starting improvements the projects will undergo appropriate environmental review. The environmental review associated with FAA approval of future airport development projects would consider those emissions both without the Master Plan recommendations (No Action) and with the recommendations (With Project).

2. BIOLOGICAL RESOURCES

The 2010 Final Environmental Assessment for the Runway 12L/30R³, as well as subsequent environmental reviews for projects such as a categorical exclusion prepared for the rehabilitation of Runway 13R/31L⁴ provided the most recent characterization of the biological conditions at HIO. Biological resources include fish, plants, and wildlife.

HIO and other Port-owned lands in the vicinity encompass approximately 965 acres. Within Port owned land, there are multiple stream habitats which are associated with Glencoe Swale and Dawson Creek. Glencoe Swale is an intermittent stream that is a small tributary of McKay Creek. Glencoe Swale crosses the north end of the Airport and enters McKay Creek approximately 2.75 miles from the Airport. Another 1.5 miles downstream, McKay Creek enters Dairy Creek, which is in turn a tributary to the Tualatin River, which joins the Willamette River at approximately river mile 28.5, south of Portland. At the southeast corner of HIO, a stormwater ditch located on the airfield conveys stormwater to Dawson Creek (located east of NE Brookwood Parkway), which flows to Rock Creek, a tributary of the Tualatin River.

According to the 2010 Final EA for Runway 13L/31R, fish species listed as threatened or endangered under the federal Endangered Species Act in the HIO vicinity include the Upper Willamette River Distinct Population Segment (DPS) steelhead and the Upper Willamette River Evolutionarily Significant Unit (ESU) Chinook salmon. A 2016 environmental review conducted for the rehabilitation of Runway 13R/31L indicated that the ESU list of anadromous fish within the Willamette and Lower Columbia Rivers Domain had expanded. It is important to note that the more recent listing indicates species that may be in the area, but Port evaluations note that they are not in or adjacent to the Airport. The 2016 information noted:

- Columbia River chum salmon (*Oncorhynchus keta*)— Threatened
- Lower Columbia River Chinook salmon (*O. tshawytscha*)— Threatened
- Lower Columbia River coho salmon (*O. kisutch*)— Threatened
- Lower Columbia River steelhead (*O. mykiss*)— Threatened
- Upper Willamette River Chinook salmon — Threatened
- Upper Willamette River steelhead — Threatened

³ Due to magnetic declination (changes in the earth magnetic fields), this runway has been renumbered 13L/31R. However, during the planning stage, this new runway was known as 12L/30R.

⁴ FAA approved a categorical exclusion under NEPA for this project on February 9, 2018.

Additionally, the 2016 review found DPS of National Marine Fisheries Service-listed aquatic species that occur in the Willamette River system including:

- Southern DPS eulachon (*Thaleichthys pacificus*)— Threatened
- Southern DPS green sturgeon (*Acipenser medirostris*)— Threatened

The open habitats at the Airport attract a variety of wildlife species throughout the year that are seeking foraging, roosting, loafing, nesting, and migratory stop-over sites as noted in the 2015 Wildlife Hazard Management Plan. Birds are the most abundant wildlife at the Airport and vicinity. Approximately 61 different bird species and six mammal species have been observed at or near the Airport. Birds accounted for 99.7 percent of the 22,248 observations reported during this monitoring period between November 2004 and October 2006.

Canada geese also breed onsite in the grass/forb areas and upland herbaceous fields. Ducks and shorebirds also congregate at the north end of Runway 13R/31L in the wetlands and along Glencoe Swale. Mallards, the most common duck onsite, nest in the wetlands and grassy areas. Killdeer are abundant in the spring and lay eggs in a modest “scrape” or depression on barren land, graveled surfaces, and pavement at the Airport.

Large mammals (such as deer) are seldom observed at HIO due to a lack of suitable cover and a security fence around the airfield. Medium sized mammals (primarily coyotes) can and occasionally do access the airfield at HIO because there is no coyote exclusion barrier on the perimeter fence. Reptiles and amphibians are either absent or present in low numbers due to the highly disturbed habitats onsite and the lack of year-round surface water.

The Port of Portland obtained an IPaC Trust Resources Report (dated November 2016) using information from the U.S. Fish & Wildlife Service and Oregon Fish and Wildlife Office for the environmental review conducted for the rehabilitation of the Runway 13R/31L. **Table E-2** summarizes the list of species that the IPaC report indicated were possibly occurring in the area. However, the 2010 Final EA noted that no rare, threatened, or endangered terrestrial species were documented by the Oregon Natural Heritage Information Center⁵ as occurring on Airport. Similar findings have been noted in subsequent environmental reviews for projects at HIO by the Port of Portland.

Existing vegetative communities on the Airport are generally classified into four types: Emergent and Herbaceous Wetlands, Improved Pasture (areas where Perennial Grass Seed/Hay are purposefully grown), Mowed Grasses/Forbs, and Mixed Conifer-Hardwood Forest. All the vegetative communities have been disturbed by mowing, planting, and clearing, or by the presence of roads, airfield movement surfaces and access ways.

The Mowed Grasses/Forbs habitat, encompassing most of the Airport, is present along the runway and taxiway corridors and along the tributary to McKay Creek. The Improved Pasture habitat areas are further away from the runway and taxiways on the undeveloped lands around HIO. These areas are seeded and harvested yearly with rotating crops, according to Airport staff. Small pockets of wetland are present within HIO property. In addition, there are several patches of remnant forest located across

⁵ https://oregonexplorer.info/data_files/OE_topic/wildlife/documents/2007_t&e_book.pdf

NE Brookwood Parkway in the Dawson Creek corridor, as well as on Airport properties to the east of HIO.

Some of the Master Plan recommendations, when implemented/constructed, would convert presently undeveloped lands into aviation and non-aviation facilities. In the environmental review prior to initiating projects, a review of current biological conditions will examine the effects of any proposed development on biotic communities.

TABLE E-2
IPaC Species Identified as Potentially in the HIO Area

| Birds |
|--|
| Marbled Murrelet (<i>Brachyramphus marmoratus</i>), threatened species, critical habitat |
| Northern Spotted Owl (<i>Strix occidentalis caurina</i>), threatened species, critical habitat |
| Streaked Horned Lark (<i>Eremophila alpestris strigata</i>), threatened species, critical habitat |
| Yellow-billed Cuckoo (<i>Coccyzus americanus</i>), threatened species, critical habitat |
| Flowering Plants |
| Bradshaw’s Desert-Parsley (<i>Lomatium bradshawii</i>), endangered species, critical habitat |
| Golden Paintbrush <i>Castilleja levisecta</i>), threatened species, critical habitat |
| Kincaid’s Lupine (<i>Lupinus sulphureus</i> var. <i>kincaidii</i>), threatened species, critical habitat |
| Nelson’s Checker-mallow (<i>Sidalcea nelsoniana</i>), threatened species, critical habitat |
| Water Howellia (<i>Howellia aquatilis</i>), threatened species, critical habitat |
| Willamette Daisy (<i>Erigeron decumbens</i>), endangered species, critical habitat |
| Insects |
| Fender’s Blue Butterfly (<i>Icaricia icarioides fender</i>), endangered species, critical habitat |
| Mammals |
| Red Tree Vole (<i>Arborimus longicaudus</i>), candidate species, critical habitat |
| Fish |
| Steelhead (<i>Oncorhynchus mykiss</i>), critical habitat |

Note: IPaC identifies species that may occur or could potentially be affected by activities in the HIO area
 Source: IPaC V3.0.9 dated 11-16-2016 obtained for the Airport Runway 13R/31L Rehabilitation project

3. CLIMATE

Research has shown that there is a direct correlation 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. In terms of relative U.S. contribution, the U.S. General Accounting Office (GAO) reports that aviation accounts “for about 3% of total U.S. greenhouse gas emissions from human sources, according to EPA data” compared with other industrial sources, including the remainder of the transportation sector (20%) and power generation (41%).⁶ Of the three percent, the majority of the greenhouse gases are attributed to commercial aviation. The International Civil Aviation Organization (ICAO) also estimates that greenhouse emissions from aircraft account for roughly three percent of all

⁶ 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. 14; GAO cites available EPA data from 1997.

anthropogenic greenhouse gas emissions globally. Climate change due to greenhouse gas emissions is a global phenomenon, so the affected environment is the global climate.⁷

The scientific community is continuing efforts to better understand the impact of aviation emissions on the global atmosphere. The FAA is leading and participating in several initiatives intended to clarify the role that commercial aviation plays in greenhouse gas emissions and climate. The FAA, with support from the U.S. Global Change Research Program and its participating federal agencies (e.g., NASA, NOAA, USEPA, and DOE), developed the Aviation Climate Change Research Initiative (ACCRI) to advance scientific understanding of regional and global climate impacts of aircraft emissions. FAA also funds the Partnership for Air Transportation Noise and 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. Similar research topics are being examined at the international level by the ICAO.⁸

As part of the Master Plan, an existing and forecast inventory of greenhouse gas emissions was prepared, as provided in Appendix C of this Master Plan. **Table E-3** summarizes the results of that emissions inventory.

The Port of Portland is a member of the Airports Council International (ACI) Airport Carbon Accreditation (ACA) program. The Port has obtained certification at Level 2 for Hillsboro Airport, noting that the Port has a carbon management plan and has mapped/documentated its Scope 1 and 2 emissions for HIO. In the environmental review prior to initiating projects, a review of current climate impacts will examine the effects of any proposed development on greenhouse gas emissions.

TABLE E-3
HIO Greenhouse Gas Inventory

| Year | CO ₂ e Emissions (tons/year) |
|------|---|
| 2016 | 4,411.1 |
| 2036 | 5,721.4 |

Source: Master Plan Appendix C, Table C5, Coffman Associates

4. COASTAL RESOURCES

HIO is not within the Oregon Coastal Management system.

⁷ As explained by the U.S. Environmental Protection Agency, "greenhouse gases, once emitted, become well mixed in the atmosphere, meaning U.S. emissions can affect not only the U.S. population and environment but other regions of the world as well; likewise, emissions in other countries can affect the United States." Climate Change Division, Office of Atmospheric Programs, U.S. Environmental Protection Agency, *Technical Support Document for Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act 2-3* (2009), available at <http://epa.gov/climatechange/endangerment.html>.

⁸ Lourdes Q. Maurice and David S. Lee. *Chapter 5: Aviation Impacts on Climate*. Final Report of the International Civil Aviation Organization (ICAO) Committee on Aviation and Environmental Protection (CAEP) Workshop. October 29th November 2nd 2007, Montreal. http://www.icao.int/icaonet/cnfrst/CAEP/CAEP_SG_20082/docs/Caep8_SG2_WPIO.pdf

5. FARMLANDS

Farmlands classified as prime, unique, or of statewide or local significance are monitored under the Farmland Protection Policy Act of 1981 (FPPA). The purpose of the FPPA is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses, and to establish a threshold of significance.

Table E-4 below, from the 2010 Final Environmental Assessment for Runway 12L/30R, provides a summary of farmland as classified by the U.S. Department of Agriculture Natural Resource Conservation Service for Port property at Hillsboro Airport. This is the most recent detailed evaluation of farmland conducted for lands at HIO.

**TABLE E-4
HIO Farmland Classification**

| Farmland Classification | Acres |
|---|--------------|
| Prime Farmland if drained | 360.9 |
| All areas of prime farmland | 90.5 |
| Farmland of statewide importance | 182.9 |
| Not prime farmland | 330.9 |
| Total Airport Land (Farmland and non-farmland) | 965.2 |

Table 4-4, *Final Environmental Assessment Hillsboro Airport Parallel Runway 12L/30R* (runway was renamed later as 13L/31R) dated January 2010.

Projects affecting classified farmlands require notification of the U.S. Department of Agriculture Natural Resource Conservation Service (NRCS). As noted in **Table E-4**, there are prime farmlands designated on HIO. Accordingly, a review of the land relative to prime farmland requirements would need to establish the effects of converting currently listed prime farmlands.

6. HAZARDOUS MATERIALS, SOLID WASTE, AND POLLUTION PREVENTION

Hazardous materials, solid waste, and pollution prevention as an impact category includes an evaluation of the following:

- Waste streams that would be generated by a project, potential for the wastes to impact environmental resources, and the impacts on waste handling and disposal facilities that would likely receive the wastes;
- Potential hazardous materials that could be used during construction and operation of a project, and applicable pollution prevention procedures;
- Potential to encounter existing hazardous materials at contaminated sites during construction, operation, and decommissioning of a project; and
- Potential to interfere with any ongoing remediation of existing contaminated sites at the proposed project site or in the immediate vicinity of a project site.

The U.S. Environmental Protection Agency’s (USEPA) NEPAassist⁹ contains a list of parties that have reported to the USEPA that they generate, transport, treat, store, or dispose of hazardous waste. This information provides a base for identifying potential locations where hazardous waste might be located, given the current or past occupant had obtained from USEPA a Resource Conservation and Recovery Act (RCRA) identifier. **Figure E-1** shows the information noted in NEPAassist. RCRA provides an inventory of

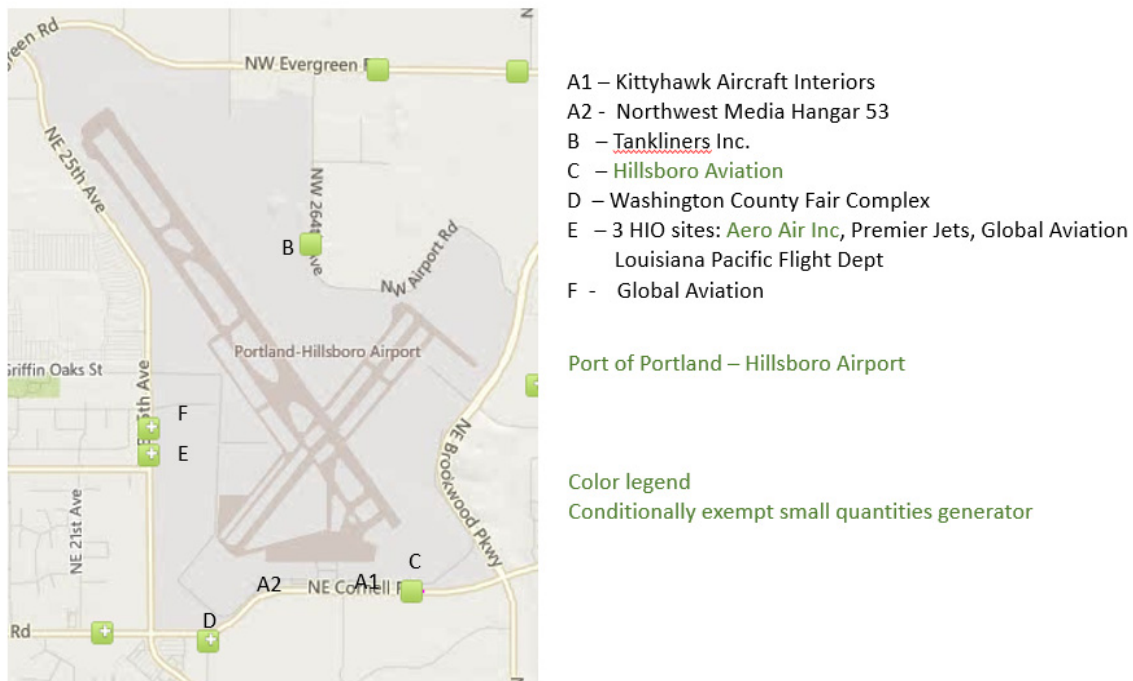
⁹ <https://www.epa.gov/nepa/nepassist>

“all generators, transporters, treaters, storers, and disposers of hazardous waste” that are/were historically required to provide information about their activities. Noted in the map are some companies that no longer operate at HIO. However, because they are listed in NEPAassist, they are noted here to facilitate potential future reviews. Over the years, the Port has conducted a number of site assessments for Port owned land. No superfund sites were identified in NEPAassist at HIO.

In preparing the Master Plan environmental overview, Port staff noted that Hangar 53 has an area of soil contamination that was left in place when the underground fuel storage tanks at the Mushroom (building 3417) were decommissioned. A “No Further Action” determination from the Oregon Department of Environmental Quality was subsequently received regarding the tank decommissioning and remaining contamination. Note this is shown as site A2 in **Figure E-1**.

As noted, further investigation may be warranted at sites where RCRA identifiers are located as well as at Hangar 53. An environmental review of hazardous materials should precede proposed Master Plan development in areas where contamination is known or suspected from current and historical operations.

Figure E-1 Potential Hazardous Waste Sites



Labels/legend added by Synergy Consultants, based upon information in NEPAassist
 Locations identified by NEPAassist
 Source: USEPA NEPAassist

The Airport and its tenants generate solid waste, much of which is disposed in landfills. In some cases, spent adsorbents are picked up for energy recovery while used oil is placed in an above ground storage

tank and is recycled. The Port of Portland's Waste Minimization Program encourages waste reduction through material salvage, reuse, and recycling. Technical assistance and outreach is provided by the Port's Waste Minimization Team. The Port provides collection of landfill-bound waste and mixed recycling for all HIO tenants. Mixed recycling includes cardboard, paper, plastic bottles and tubs, and scrap metal and containers. In addition, electronic and universal waste, including bulbs and batteries, are properly collected and recycled.

During the environmental review process that will be completed before implementation of Master Plan recommendations, consideration of the potential to disturb areas of hazardous materials will occur. At that time, it is likely that the Port would conduct a Phase I Site Assessment(s), and where warranted, conduct soil and ground water investigations.

7. HISTORICAL, ARCHITECTURAL, ARCHEOLOGICAL, AND CULTURAL RESOURCES AND DOT 4(f) LANDS

Section 106 of the National Historic Preservation Act (NHPA) requires that a federal agency having direct or indirect jurisdiction over a proposed federal or federally assisted undertaking, or issuing licenses or permits, must consider the effect of the proposed undertaking on historic properties. An historic site or property may include a prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP). Sites that are eligible or may be eligible for the NRHP would require compliance with the NHPA under Section 106 and 303 before they could be altered as part of the Master Plan recommendations. In addition, depending on their significance, they may be protected under the Department of Transportation Act Section 4(f) rules.¹⁰

A State Historic Preservation Office website provides information on historical, archaeological, and cultural resources in the State of Oregon.¹¹ While no sites on Hillsboro Airport property are currently included in the database, three sites in the vicinity of the Airport were noted: A) Washington County Fair Complex, National Guard Armory (noted as not eligible for the NRHP); B) the Nine Oak Tree Marking the Richard Williams DLC (circa 1841 noted as eligible/contributing); and C) Sewell Clay Works (1880 with undetermined eligibility for the NHP). The Hillsboro area (largely west of the Airport) also has a number of homes dating to the late 1800s that are noted as eligible for the NRHP.

A cursory review of Port data concerning the age of HIO facilities¹² indicates that there are several structures, in addition to those noted above, that are suspected to be 50 years or older. These buildings may warrant further study as to NRHP eligibility to comply with the NHPA Section 303: Building 3155 (a hangar dating back to the early days of HIO), Building 3417, Building 1040 (HIO Maintenance); Building 2010 (Teufel Hangar - tenant space); Buildings 3301 and 3301-A (Hangars); Building 3565 (Hillsboro Aviation tenant); Building 3999 (NE T-Hangars).

¹⁰ The Department of Transportation Act Section 4(f)/303 states that the Secretary of Transportation may not take a historic site or public park, forest preserve, or wildlife refuge unless there are no other prudent and feasible alternatives and all steps to reduce harm have been taken.

¹¹ <http://maps.prd.state.or.us/histsites/historicsites.html>

¹² Port of Portland GIS.

Over the years, the Port of Portland has conducted numerous pedestrian surveys of Airport lands. As part of the Environmental Assessment conducted for Runway 13L/31R, a pedestrian survey concluded “no prehistoric or historical archaeological artifacts, features, or sites” were found. As part of a recent evaluation for rehabilitation Runway 13R/31L, a similar investigation was conducted with similar findings.

The Master Plan improvements could affect several sites noted above. Improvements associated with the Terminal Area could affect both the Mushroom Fueling and the Hangar 35 as well as Buildings 3301, 3301-A and 3565. Master Plan development is not expected to directly impact Building 1040. Development of the Corporate General Aviation Reserve (southern portion) on the east side of the airfield could have an effect on Buildings 3999 (NE T-Hangars). Because much of the undeveloped lands at HIO consist of native soils, and the presence of buildings that are either suspected of having historical significance or being 50 years and older, further investigation and potential coordination with the State Historic Preservation Office and the Native American Tribes may be needed before undertaking development in these areas.

DOT Section 4(f) provides projections for historic sites and public parks/recreation/forest preserves. There are not any parks located on HIO and the Master Plan does not propose any off-airport park acquisition. If the Master Plan recommendations were to result in a direct taking of DOT 4(f) lands associated with historic sites, a DOT Section 4(f) Evaluation could be required. In addition, indirect effects of the Master Plan development would be considered in an environmental review to determine if such effects would constitute a constructive use.

Consistent with public input, the Master Plan includes a recommendation for a community view point that would allow the public to observe Airport operations. Such viewpoints often become designated as parks and thus, before creating a viewpoint on HIO property, the Port should acknowledge that this area might take on a recreational designation or be designated as a DOT 4(f) property. Care should be taken to ensure that the viewpoint would not become future DOT 4(f) land. Consistent with City of Hillsboro Community Development Code requirements (CDC12.50.420), and consistent with the city’s Transportation System Plan (Policy T 2.7 and 2.8), the bike and pedestrian paths along Springer Street should be clearly noted as required transportation facilities (not recreation facilities) thereby appropriately designating these facilities and avoiding potential future DOT 4(f) constraints.

8. LAND USE

The purpose of examining land use, which includes zoning designations, was to consider whether the proposed Master Plan recommendations could conflict with existing land use and zoning of the area.

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 Brookwood Parkway. Areas to the west and south of this corridor are generally developed with residential or light industrial uses with commercial development at the intersections of major roadways. Areas to the north and west of this corridor remain in generally agricultural uses, although these uses are expected to transition to industrial uses over time. Areas to the north and east include the Evergreen Special Industrial District, which provides industrial land capacity.

The City of Hillsboro and Washington County are the two jurisdictions that control land use in the immediate areas surrounding HIO. Within a mile of the Airport, the land to the east is mostly zoned by the City of Hillsboro as I-P (Industrial Park), and C-G (Commercial – General), with pockets of MFR-1 and MFR-2 (Multi-Family Residential), and SFR-7 and SFR-10 (Single Family Residential). The land immediately south of the Airport is zoned SCFI (Station Community Fair Complex Institutional), SC-BP (Station Community-Business Park) and C-G. Low-density (SFR-7 and SFR-10) single-family residential zoning is located further south and southwest of the commercial area. Land immediately to the east is also zoned I-P (Industrial Park), and a little further east is zoned SFR-7.¹³ **Figure E-2** shows the current zoning in the immediate area of the Airport.

A review of the Washington County zoning map for the area near HIO indicates that the area immediately north of the Airport, between Evergreen Road and Groveland Drive, is mainly zoned FD-20 (Future Development – 20 acres). North of Groveland Drive and west of Jackson School Road the area is mainly zoned EFU (Exclusive Farm Use). The portion of the area to the north of HIO that is within the City of Hillsboro is zoned ANX (recent annexation) and I-S (Industrial Sanctuary). Currently, the ANX lands are either undeveloped or developed for industrial purposes.

The current zoning ordinance in Hillsboro, adopted in 2014, is the Community Development Code (Hillsboro Municipal Code Chapter 12). The Airport resides entirely within the boundaries of the City of Hillsboro, although some small areas of land identified as potential acquisitions for approach protection north of the Airport reside outside of City limits. Airport lands are zoned I-G (Industrial General) and I-P (Industrial Park). Master Plan development would occur on either I-G or I-P lands, with a couple of exceptions. The relocation of NE 25th Avenue out of the Runway Object Free Area, would place that roadway on land zoned I-S and a small portion of land to relocate Cornell Road would be on SCFI (Station Community Fair Complex Institutional). The redevelopment of a hotel, south of Cornell Road and east of 34th Street would occur on land zoned SCFI. Land to be acquired in the future along NE Evergreen Road near NE Sewell Avenue is zoned I-P. The proposed Master Plan uses would be consistent with the zoning designations.

To implement the recommendations of the Master Plan, the Port anticipates collaborating with the City to evaluate and potentially update the base zoning for all or some airport land and, to adopt a compatibility overlay. Noise and land use compatibility are discussed in a later section.

9. NATURAL RESOURCES AND ENERGY SUPPLY

Activities at HIO consume water, and natural gas and other fuels on a regular basis. During construction, and normal maintenance activities, sand, gravel and wood are also consumed.

HIO activities would be expected to continue to consume natural resources in the future. With proposed Master Plan improvements, consumption of additional natural resources and energy would be expected. The quantities of these resources could be quantified as the scope of specific projects are further defined and undergo preliminary engineering. However, the consumption of unique or rare natural resources would not be expected.

¹³ <http://hbmaps.hillsboro-oregon.gov/> and <https://www.hillsboro-oregon.gov/departments/planning/maps/zoning-atlas>

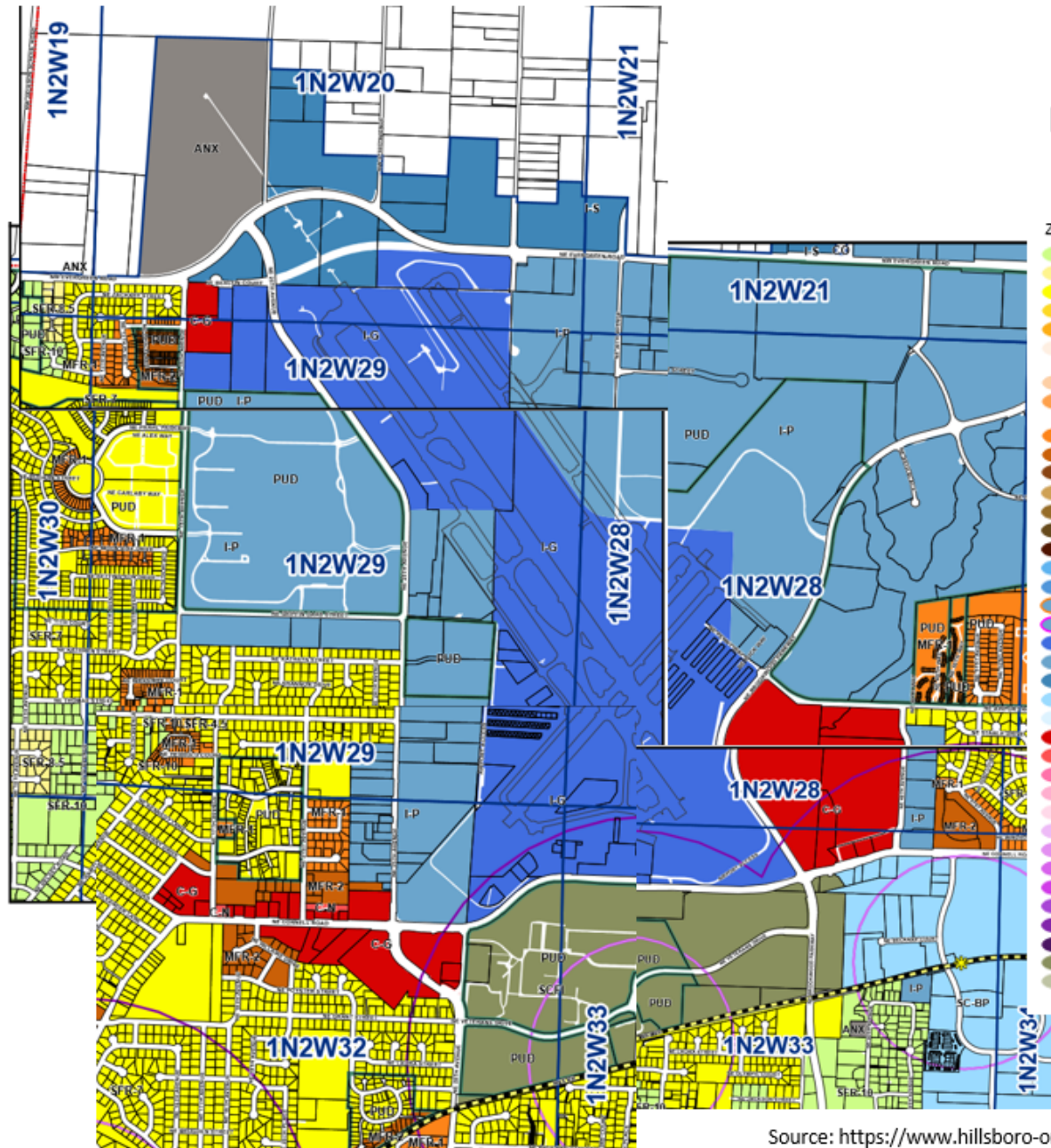


Figure E-2 Zoning Map

Zoning Designations:

- SFR-10 Single Family Residential
- SFR-8.5 Single Family Residential
- SFR-7 Single Family Residential
- SFR-6 Single Family Residential
- SFR-4.5 Single Family Residential
- SCR-OTC Station Community Residential - Orenco Townsite Conservation
- SCR-LD Station Community Residential - Low Density
- SCR-DNC Station Community Residential - Downtown Neighborhood Conservation
- MFR-1 Multi-Family Residential
- MFR-2 Multi-Family Residential
- MFR-3 Multi-Family Residential
- SCR-MD Station Community Residential - Medium Density
- SCR-HD Station Community Residential - High Density
- SCR-V Station Community Residential - Village
- UC-RM Urban Center - Residential Medium Density
- ESID Evergreen Special Industrial District
- HSID Helvetia Special Industrial District
- SSID Shute Road Special Industrial District
- SID I-P Special Industrial District
- I-G Industrial - General
- I-P Industrial Park
- I-S Industrial Sanctuary
- SC-BP Station Community Business Park
- SCI Station Community Industrial
- C-G Commercial - General
- C-N Commercial - Neighborhood
- SCC-DT Station Community Commercial - Downtown
- SCC-MM Station Community Commercial - Multi Modal
- SCC-SC Station Community Commercial - Station Commercial
- UC-OR Urban Center - Office / Research
- UC-AC Urban Center - Activity Center
- UC-NC Urban Center - Neighborhood Center
- MU-N Mixed-Use - Neighborhood
- UC-MU Urban Center - Mixed-Use Urban Density
- MU-C Mixed-Use - Commercial
- MU-VTC Mixed-Use - Village Town Center
- SCFI Station Community Fair Complex Institutional
- UC-RP Urban Center - Research Park

Plot Date: February 1, 2019

Source: <https://www.hillsboro-oregon.gov/services/maps/zoning-atlas>

10. NOISE AND NOISE COMPATIBILITY LAND USE

As part of the Master Plan, noise contours were developed as reflected in Master Plan **Appendix C**. FAA guidance requires the preparation of noise contours showing the Day-Night Average Sound Level (DNL) for 65 DNL and greater noise levels. **Exhibit C7** in the Master Plan shows noise contours for 55 DNL and greater levels that were prepared using the FAA's Aviation Environmental Design Tool (AEDT). **Exhibit C7** depicts the existing condition (2016) whereas **Exhibit C8** shows the future 2036 condition following implementation of the Master Plan's recommendations. As outlined in the State of Oregon's *Airport Land Use Compatibility Handbook*, 2003, the Oregon Department of Environmental Quality (ODEQ) standards for noise control, abatement, and mitigation are included in Oregon Administrative Rules Chapter 340, Division 35. The standards outline recommended mitigation methods (soundproofing, land acquisition, etc.) for noise-sensitive land uses exposed to 55 DNL and above; however, there is no funding currently available for these types of projects.

With the Master Plan in 2036, **Appendix C** notes,

“...land uses within the 55 DNL noise contour include industrial, commercial, agricultural, and residential land uses in all quadrants of the airport vicinity. The future 75 DNL remains entirely on airport property. There is one home that falls within the future 70 and 65 DNLs which extend slightly across airport property to the north near the intersection of NE 268th Avenue and NE Evergreen Road. The northern limits of the 65 DNL noise contour are influenced by the addition of two helipads and associated helicopter training activity. The location of the Preferred Alternative helipads is shown on the **Exhibit C8**. The 65 DNL noise contour approaches the property boundary of a residence on NW Sewell Avenue, but does not encompass the residence on this property.”

As part of the applicable environmental review that would be conducted before approval of future development, consideration would be given to current and future activity at the time of the study as aircraft use patterns often change. The study would evaluate the effects that aircraft noise would have on land use.

11. SOCIOECONOMIC, ENVIRONMENTAL JUSTICE, AND CHILDREN'S ENVIRONMENTAL HEALTH AND SAFETY RISKS

Hillsboro Airport is the source of jobs, payroll, and regional economic expenditures. The Oregon Department of Aviation completed a draft economic impact study in 2014 that noted HIO was responsible for 2,680 statewide jobs, 804 of which were located on-airport. Resulting state-wide wages associated with HIO were \$140 million. Total business sales statewide were estimated at \$429 million annually, with \$407 million occurring locally in 2014.

The USEPA’s NEPAassist tool EJSscreen¹⁴ identifies minority and low-income populations in the vicinity of HIO which is shown in **Figures E-3 and E-4**.

The Master Plan recommendations include a limited amount of property acquisition necessary to enable relocation of the roadways (NW 25th Avenue and Cornell Road), as well as a small parcel of land along Evergreen Road near NW Sewell Avenue. In addition, the recommendations include acquiring a small amount of land within the Runway Protection Zone (RPZ). All land that would be acquired is undeveloped and thus, would not result in the displacement of residences or businesses. Further evaluation of any environmental justice effects or effects on Children’s Environmental Health Risk would be conducted as part of the environmental review process.

FIGURE E-3 - HIO Minority Populations relative to National Averages, May 18, 2018

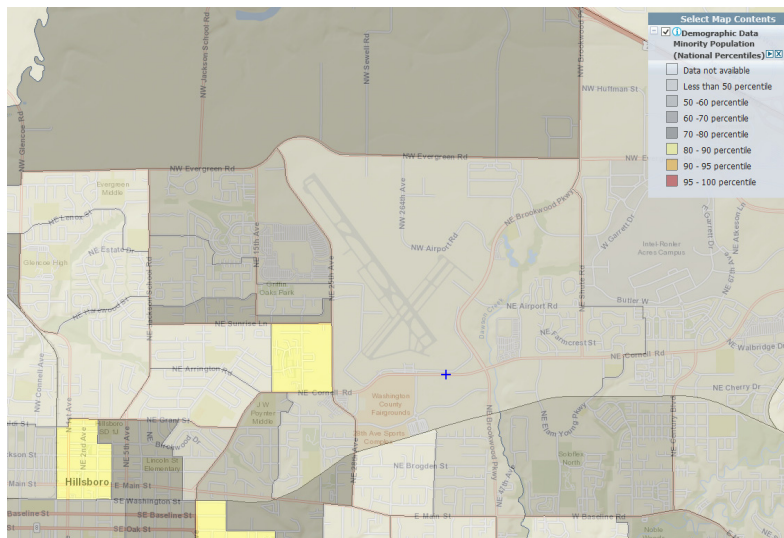
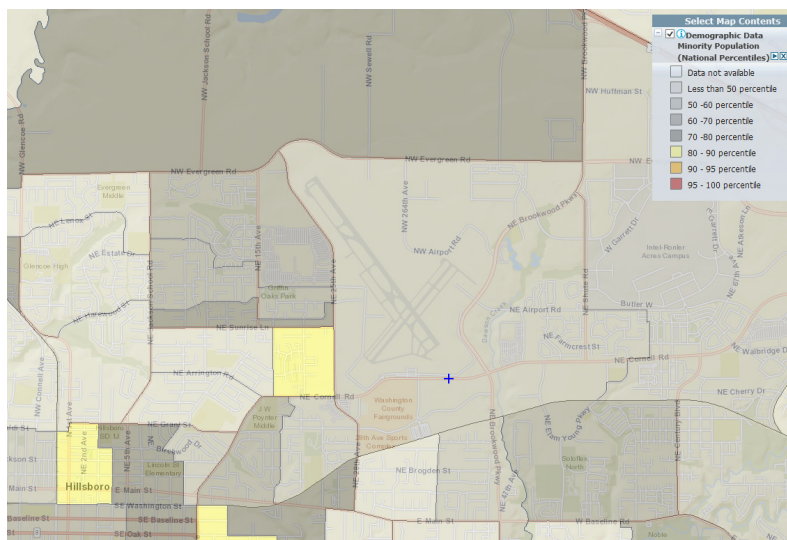


FIGURE E-4 - Low Income Population, May 18, 2018

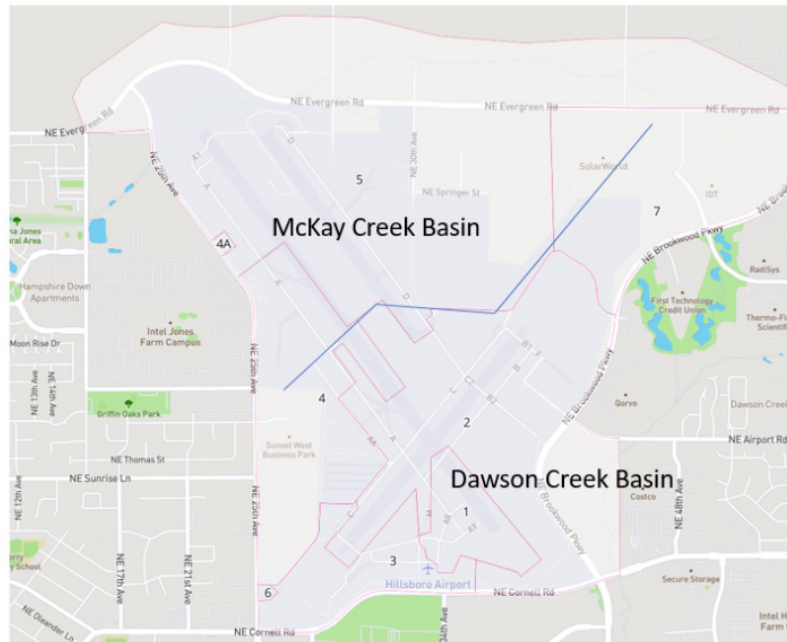


¹⁴ <https://www.epa.gov/ejscreen>

12. WATER RESOURCES

Hillsboro Airport lies on higher ground between two watersheds: the McKay Creek watershed, which includes Glencoe Swale, which drains the northern portion of the Airport; and the Dawson Creek watershed, which drains the southern portion of the Airport. Both watersheds are sub-basins of the Tualatin River watershed. Water resources in the Airport vicinity are shown in Figures E5 and E6.

FIGURE E5 - HIO Stormwater Basins



Source: Port of Portland GIS

Glencoe Swale originates north of NW Evergreen Road and east of the Airport. The swale flows under NW Evergreen Road and onto the Airport through a box culvert. The swale leaves the Airport on the west side through two 4-foot-diameter culverts under NE 25th Avenue, and water occasionally backs up onto Airport property. This small tributary of McKay Creek joins McKay Creek less than 3 miles downstream of the Airport. Dawson Creek lies outside the southeasterly limits of the airfield and is separated from the HIO airfield by NE Brookwood Parkway, but is connected through a drainage ditch located on the southeastern portion of the airfield. Dawson Creek flows through land owned by the Port located east of NE Brookwood Parkway, south to a confluence with Rock Creek.

Wetlands and Vegetated Corridors

According to the 2010 Final EA, there are approximately 51 acres of wetlands on HIO (See **Figure E-6**). Wetlands on HIO are subject to tilling, seeding, and/or mowing on a frequent or regular

basis to minimize wildlife attraction. According to the 2010 Final EA, very little native vegetation remains in the wetlands.

There are four types of state and federally regulated wetland resources within the Airport boundary:

- Palustrine emergent, depressional, isolated wetlands
- Palustrine emergent wetlands in or associated with drainages
- Unvegetated stormwater ditches
- Forested wetlands in the vicinity of the properties known as Solar World and in the Dawson Creek Corridor.

In addition, Clean Water Services (CWS), a local water resources management utility in urban Washington County, Oregon, enforces rules to protect Water Quality Sensitive Areas (wetlands and streams, etc.) from the impacts of development by regulating the Vegetated Corridors (buffers) around sensitive areas.

All of the airfield palustrine emergent wetlands are vegetated with non-native, agricultural or weedy species, with one drainage that was reported to be planted with native grasses.

The Master Plan development recommendations are expected to affect wetland resources. Without preliminary engineering to refine the specifics of projects, it is too early to determine what effects could be avoided or minimized. However, the following identify the larger Master Plan elements that could affect wetlands:

- Eastern parallel taxiway for Runway 13R/31L - has the potential to require fill of a number of wetlands in the airfield, impacting about four acres.
- GA reserve (north), with the proposed potential regional stormwater treatment area - could require the fill of several of the larger wetlands, impacting about four acres.
- Helipad – is in the same vicinity as the GA Reserve (north) and could affect the same wetlands, although because the project is smaller, a smaller quantity of wetlands would be impacted.
- Crossfield Taxiway – this project could affect portions of the same wetlands as the parallel taxiway for Runway 13R/31L. As a stand-alone project, it would impact about two acres.
- Non-aeronautical development in the Northeastern Quadrant of the Airport - there are numerous small wetlands in this area and in total could affect two acres of wetland.
- GA reserve (south) – this development could affect over one acre of wetland.
- Relocation of NE 25th Avenue - this roadway relocation could affect a 1-acre wetland.

Because of wetland impacts, it is likely that many of the Master Plan development projects will require a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers and Removal Fill permits from the Oregon Department of State Lands. While the Port of Portland has conducted many wetland delineations at HIO, it is expected that, due to the timing of the

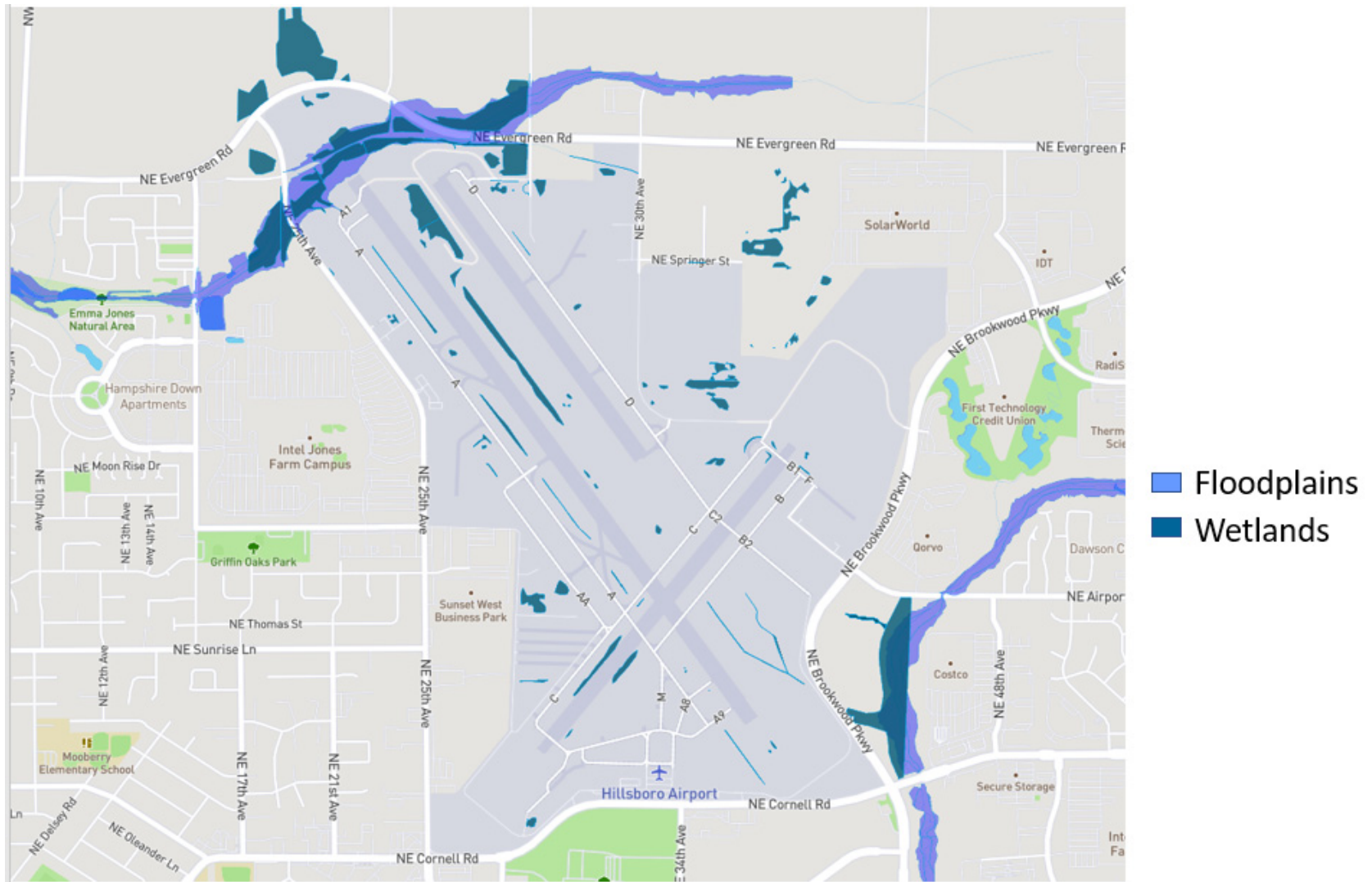
development and the age of those delineation, additional investigations will be required. Those investigations would be part of any further environmental reviews.

Floodplains

The existing regulatory Federal Emergency Management Agency (FEMA) mapping for the area surrounding the Airport is provided on Flood Insurance Rate Maps (FIRM) from November 2016. The associated floodplains are shown in **Figure E-6**. As the Master Plan was being finalized, coordination between the City of Hillsboro and FEMA to update the floodplain maps is aimed at mapping a smaller floodplain footprint. FEMA's current maps (FIRM panel 41067CO337E) indicate Dawson Creek, east of the Airport, and Glencoe Swale, that flows through the northern part of the Airport, are designated Special Flood Hazard (SFHA) "Zone AE" floodplain. Zone AE is an area subject to inundation by the 1-percent-annual-chance flood event (100-year storm event) determined by detailed methods. Mandatory flood insurance purchase requirements and floodplain management standards apply. The base flood elevations along Glencoe Swale range from 187 feet to 194 feet. Fill impacts associated with any new development within a regulated flood plain must be reviewed and approved by both the City and FEMA in addition to other jurisdiction authorities. Both City and FEMA regulations require all fill in a floodplain to be balanced with the same amount of cut onsite. Cut fill balance calculations and flood plain modeling are required as part of the process to impact a floodway. The FEMA website should always be referenced to verify flood plain impacts when projects are planned. FEMA's website can be accessed by the following link <https://msc.fema.gov/portal/home>. Type in Hillsboro Airport, OR and hit the search button to find the most up to date FIRM panel map.

None of the Master Plan recommendations appear to require meeting the requirements associated with development in a floodplain. The relocation of NE 25th Avenue, however, is close to the floodplain associated with the Glencoe Swale and should be further investigated as that project is defined further.

Figure E-6 - Wetlands and Floodplains



Source: Port of Portland GIS

Surface and ground waters

The HIO lands consists of 6 drainage areas as shown in **Figure E-5**:

Drainage Area 1. Drainage Area 1 drains a portion of Runway 13R/31L, and its respective taxiways, one of Hillsboro Aviation's buildings, and Hillsboro Aviation's tie-down area. Storm water runoff from this basin discharges via a 21-inch pipe into a 60-inch pipe under Cornell Road approximately 100 feet west of the NE Brookwood Parkway intersection. The water flows east under Cornell Road to Dawson Creek. Dawson Creek discharges to the Tualatin River.

Drainage Area 2. Drainage Area 2 drains Runway 2/20 and a portion of both parallel Runways 13/31, their respective parallel taxiways, the northeast hangars, and the Nike hangar. The major outfall from Drainage Area 2 discharges via a 30-inch pipe to a pipe under NE Brookwood Parkway, approximately 1,200 feet north of the Cornell Road intersection. The storm water flows south to Cornell Road, then joins the 60-inch pipe to flow east to Dawson Creek then to the Tualatin River.

Drainage Area 3. Drainage Area 3 drains storm water from the terminal building, the businesses located along NE Cornell Road, and aircraft tie downs. Drainage Area 3 discharges via a 24-inch pipe into a 60-inch pipe under Cornell Road approximately 500 feet east of the intersection of NE 34th Avenue. The storm water then flows east under Cornell Road to Dawson Creek and then to the Tualatin River.

Drainage Area 4. Drainage Area 4 drains hangars and surrounding areas including associated ramps and tie-down areas, the FAA control tower, and some non-Port property. Drainage Area 4 discharges via a 36-inch pipe into a pipe under NE 25th Avenue approximately 500 feet north of the Global Aviation Facility and 3,000 feet south of the NW Evergreen Parkway intersection. The storm water flows west under NE 25th Avenue to McKay Creek then to the Tualatin River.

Drainage Area 5. Drainage Area 5 drains the northeast end of Runways 13/31 and the undeveloped area adjacent to Evergreen Street and NW 268th Avenue. The drainage discharges via a 24-inch pipe and ditch to an unnamed tributary to McKay Creek approximately 500 feet east of where the tributary crosses NE 25th Avenue. McKay Creek discharges into the Tualatin River. Sub-basin 5A, which drains a portion of Taxiway A, also flows to McKay Creek via a 24-inch pipe and ditch located on NE 25th Avenue. The Hillsboro Aviation facility discharges stormwater into the roadway ditch on NE 30th Avenue.

Drainage Area 6. Drainage area 6 drains the Port maintenance compound. It discharges via two 4-inch pipes into a 36-inch pipe under NE 25th Avenue approximately 500 feet north of the intersection with Cornell Road. The storm water flows south to a 54-inch pipe

under Cornell Road where it then heads east under Cornell Road to Dawson Creek (transitioning to a 60-inch pipe). Dawson Creek discharges to the Tualatin River.

The Clean Water Services Design and Construction Standards require that if activities create or modify 1,000 square feet or greater of impervious surfaces, or increase the amount of stormwater runoff or pollution leaving the site, then the responsible party is required to implement or fund permanent water quality approaches to reduce contaminants entering the storm and surface water system. Water quality approaches must be sized to treat all new impervious surfaces and three times the modified impervious surface up to the total existing impervious surface on the site. During the environmental review of proposed Master Plan projects, analysis would determine the expected change in impervious surface in each basin and the ability of the basins to accommodate increased stormwater runoff. The Port will conduct a Stormwater Master Plan for HIO as a Master Plan follow-on study. The plan will identify mitigation alternatives and any additional stormwater infrastructure that would address Master Plan development.

Stormwater

The Port of Portland and Hillsboro Airport tenants together hold a National Pollutant Discharge Elimination System (NPDES) General Industrial Stormwater Discharge Permit (1200-Z) permit for industrial activities that occur at HIO. The permit regulates stormwater discharge from the Airport associated with industrial activity that may reach surface waters of the state directly or discharge through conveyance systems, such as ditches or storm drains, which reach surface waters of the state.

Wild and Scenic Rivers

No wild and scenic rivers are located in the Airport vicinity.

13. CONCLUSION

The prior sections identify the characteristics of the environmental resources on HIO and in the immediate vicinity. As noted earlier, implementation of the Master Plan requires FAA approval of the Airport Layout Plan, triggering compliance with the National Environmental Policy Act (NEPA). The specific approach to NEPA would be determined by the FAA and would depend on the type and timing of development and the significance of the anticipated environmental effects.