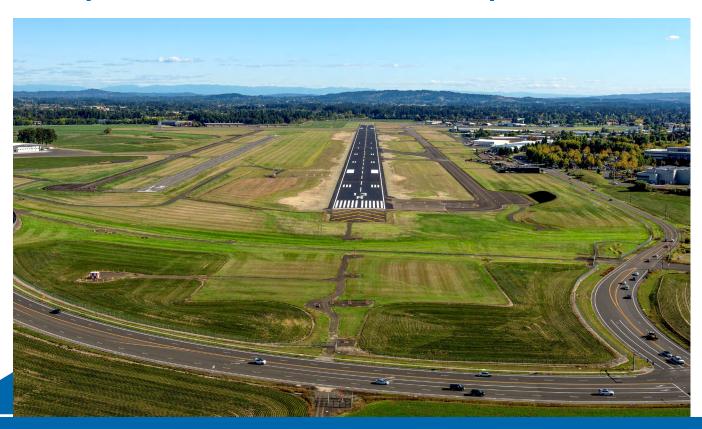
Environmental Assessment for the Proposed HIO 13R-31L RSA Improvements



Draft EA

Hillsboro Airport (HIO), Hillsboro, Oregon | April 2021

Appendix A: Figures

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Figure 1. Project Vicinity Map

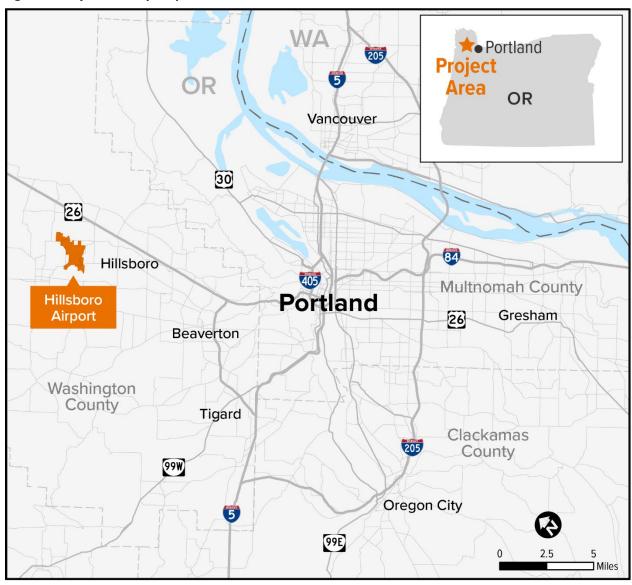


Figure 2. HIO Property Boundaries and RSA

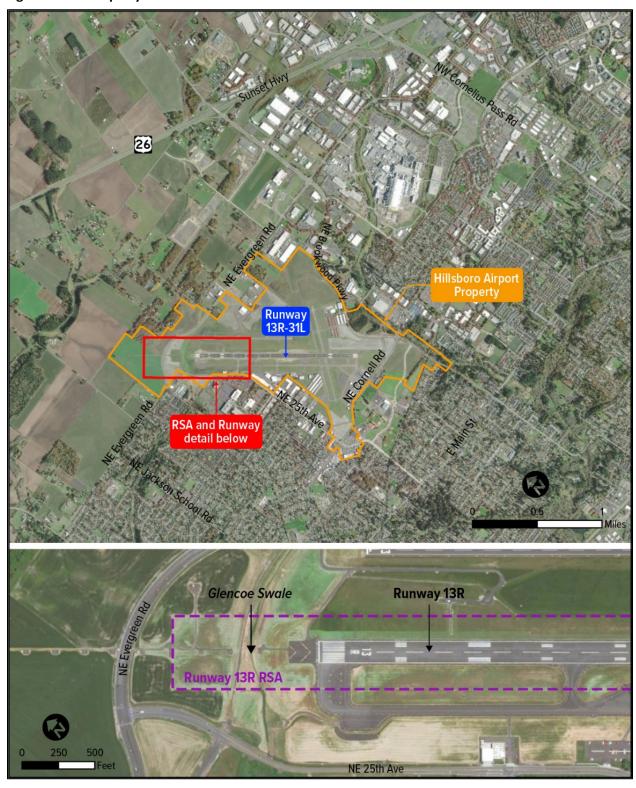
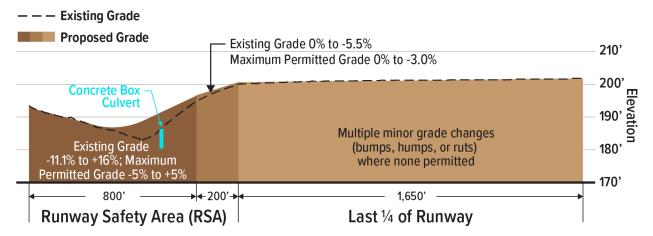


Figure 3. Proposed Action: Cross-Section of Existing Grade and Proposed Gradient Corrections



Sources: Maximums permitted from FAA 2014; existing grades from January 2019 survey conducted by the Port Note: Illustration not to scale

Figure 4. Runway 13R-31L RSA Dimensions

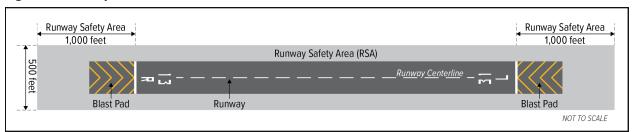


Figure 5. Alternative 1: Reduce Runway 13R-31L Length

- Accommodates standard 1,000-foot Runway 13R RSA
- Relocates Runway 13R threshold 740 feet south
- Reduces Runway 13R-31L length by 740 feet to 5,860 feet
- Relocates Runway 13R RPZ and MALSR/NAVAIDS
- Relocates or tunnels 0.5 mile of NE Evergreen Road and 0.25 mile of NE 25th Avenue from Runway 13R RPZ
- Regrades Runway 13R and Runway 13R RSA south of Glencoe Swale/wetlands/ vegetated corridor

- Reduced runway length to 5,860 feet is not compatible with critical aircraft
- Not retained for detailed analysis due to incompatibility with critical aircraft

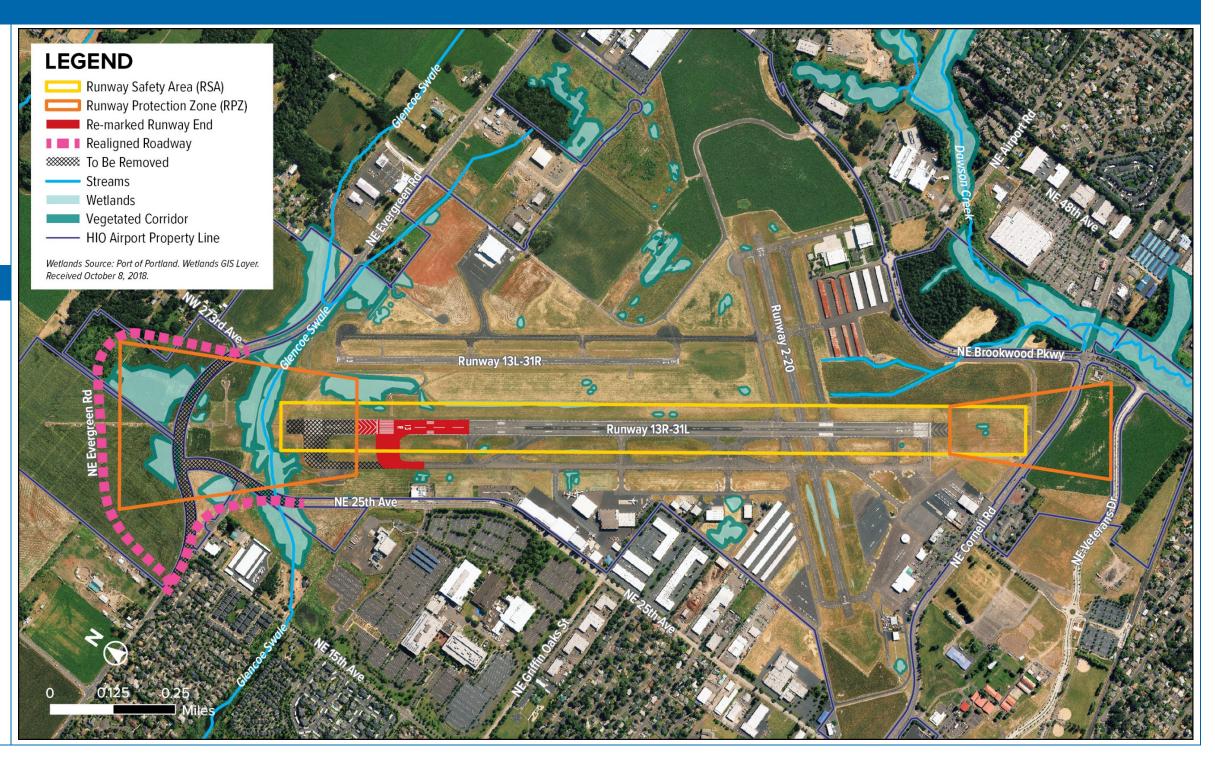
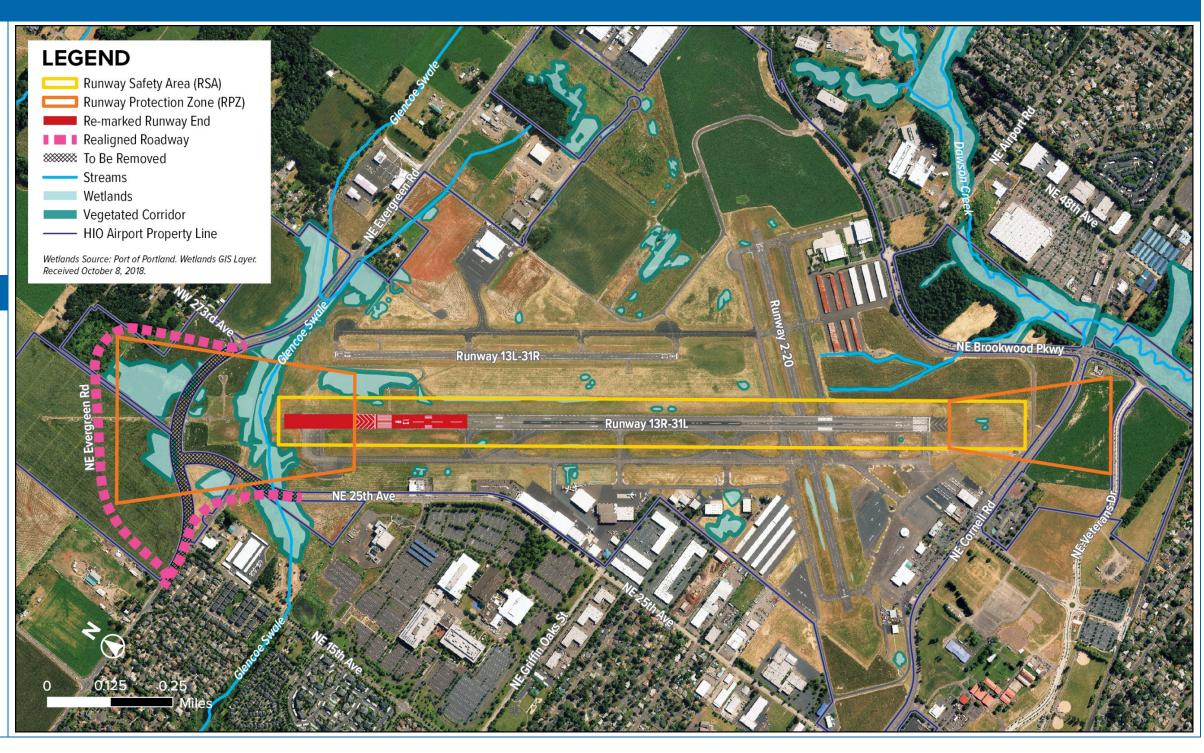


Figure 6. Alternative 2: Runway 13R Declared Distances

- Accommodates standard 1,000-foot Runway 13R RSA
- Reduces landing distance on Runway 13R and takeoff distance on Runway 31L to 5,860 feet
- Maintains 6,600 feet for takeoffs on Runway 13R and landings on Runway 31L
- Relocates Runway 13R Runway 13R RPZ and MALSR/NAVAIDS
- Relocates or 0.5 mile of NE Evergreen Road and 0.25 mile of NE 25th Avenue from Runway 13R RPZ
- Regrades Runway 13R and Runway 13R RSA south of Glencoe Swale/wetlands/ vegetated corridor

- Reduced available landing distance on Runway 13R to 5,860 feet is not compatible with critical aircraft
- Not retained for detailed analysis due to incompatibility with critical aircraft



- Accommodates standard 1,000-foot Runway 13R RSA
- Relocates Runway 13R-31L 740 feet south
- Maintains existing Runway 13R-31L length of 6,600 feet
- Relocates Runway 13R Runway 13R RPZ and MALSR/NAVAIDS
- Relocates Runway 31L RSA, RPZ and NAVAIDS
- Regrades Runway 13R and Runway 13R RSA south of Glencoe Swale/wetlands/vegetated corridor
- May regrade Runway 31L RSA
- Relocates or tunnels 660 feet of Cornell Road from Runway 31L RSA
- Relocates or tunnels 830 feet of Veterans Drive and 500 feet of Brookwood Parkway from Runway 31L RPZ
- Relocates or tunnels 0.5 mile of NE Evergreen Road and 0.25 mile of NE 25th Avenue from Runway 13R RPZ

- Maintains 6,600-foot runway length; compatible with critical aircraft
- Increases RPZ non-compliance: Veterans Drive and Brookwood Parkway in Runway 31L RPZ would require relocation or tunnel
- Creates high-energy runway intersection
- Wildlife hazard moves from the RSA to the RPZ
- Increases obstructions in Part 77 surfaces at Runway 31L end
- Cornell Road is in Runway 31L RSA and would require relocation or tunnel
- Avoidance of water resources in Runway 13R RSA would result in equal or greater water resource impact to Dawson Creek from relocation or tunneling of Brookwood Parkway from Runway 31L RSA
- Relocation or tunneling of Cornell Road from Runway 31L RSA and Veterans Drive from RPZ would result in extraordinary property takes and/or community disruption
- Environmental and social impacts of clearing Runway 31L RSA and RPZ are extraordinary in comparison with Alternative 5, without any additional benefit or advantage
- Not retained for detailed analysis due to the accumulation of impacts that collectively reach extraordinary magnitudes

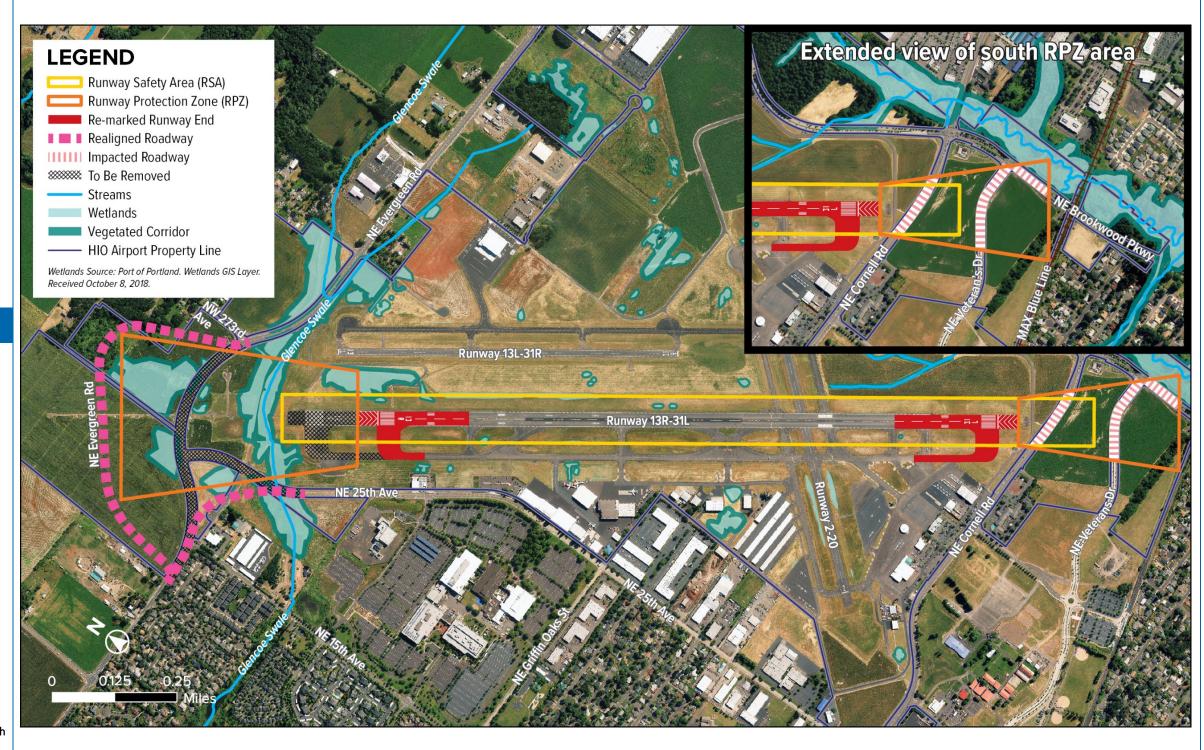


Figure 8. Alternative 4: Install Engineered Material Arresting System (EMAS)

- Meets safety area requirement for Runway 13R RSA by installing EMAS
- Relocates Runway 13R threshold 500 feet south
- Reduces Runway 13R-31L length by 500 feet to 6,100 feet
- Relocates Runway 13R RPZ and MALSR/NAVAIDS
- Relocates or tunnels 0.5 mile of NE Evergreen Road and 0.25 mile of NE 25th Avenue from Runway 13R RPZ
- Regrades Runway 13R

- Reduced runway length to 6,100 feet is not compatible with critical aircraft
- Not retained for detailed analysis due to incompatibility with critical aircraft

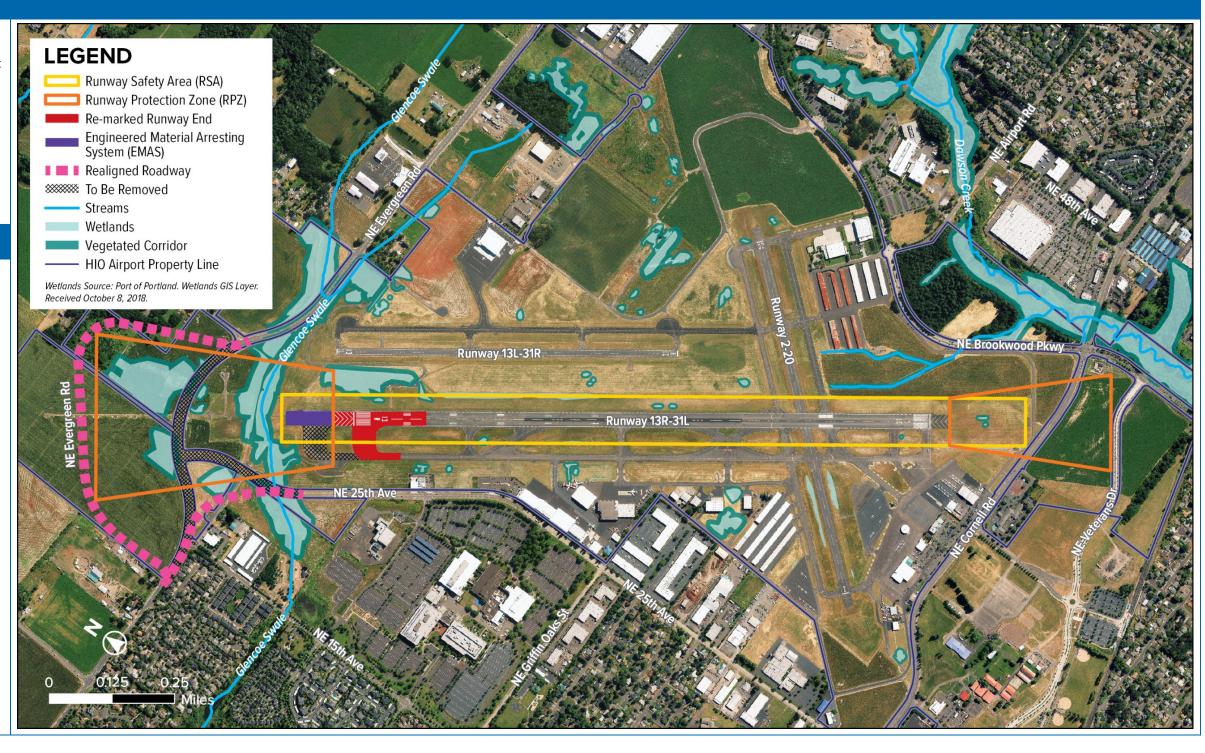


Figure 9. Alternative 5: Underground Conveyance

- Accommodates standard 1,000-foot Runway 13R RSA
- Conveys Glencoe Swale under Runway 13R RSA in a conduit
- Maintains existing 6,600-foot runway length in existing location
- Removes MALSR and other NAVAIDS from Runway 13R RSA during construction and replaces in same locations
- Regrades Runway 13R and Runway 13R RSA, including Glencoe Swale/wetlands/ vegetated corridor

- Maintains 6,600-foot runway length; compatible with critical aircraft
- Would not cause safety or operational problems
- Impacts up to 8 acres of wetlands and up to 7 acres of vegetated corridors same as Alternative 6
- Retained for detailed analysis

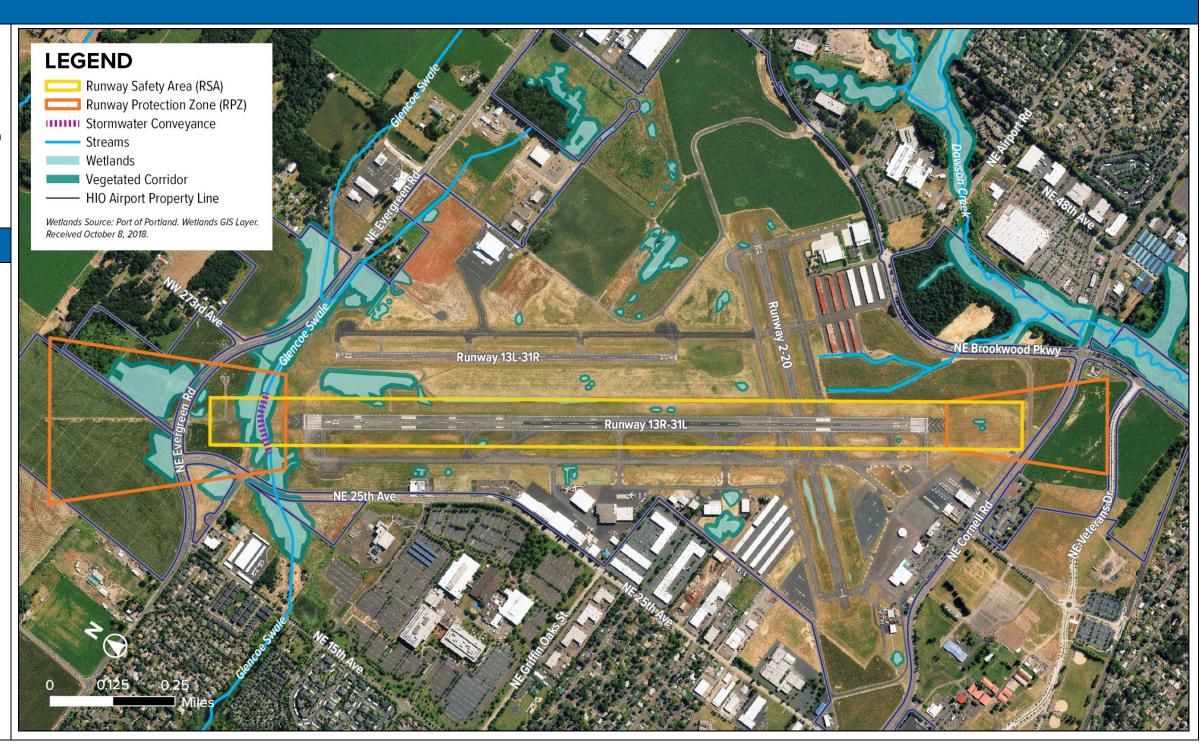
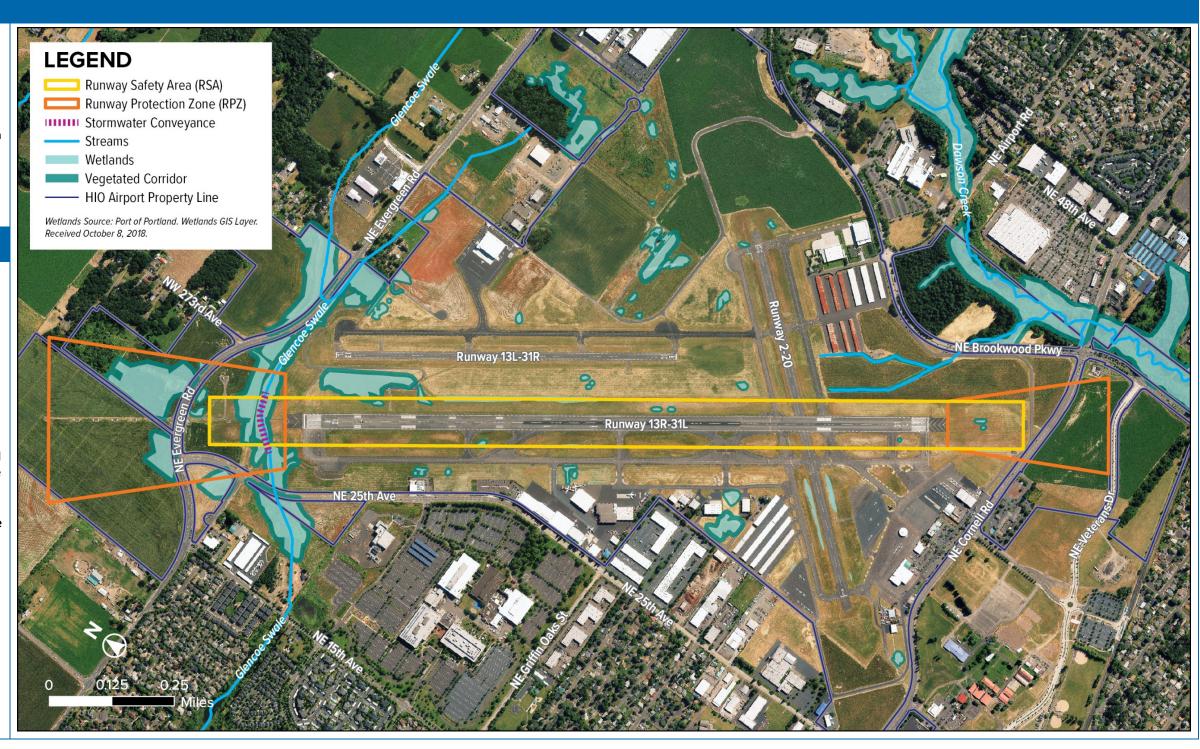


Figure 10. Alternative 6: Reroute Swale Around Runway Safety Area

- Accommodates standard 1,000-foot Runway 13R RSA
- Reroutes Glencoe Swale north around under Runway 13R RSA
- Maintains existing 6,600-foot runway length in existing location
- Removes MALSR and other NAVAIDS from Runway 13R RSA during construction and replaces in same locations
- Regrades Runway 13R and Runway 13R RSA, including Glencoe Swale/wetlands/ vegetated corridor

- Maintains 6,600-foot runway length; compatible with critical aircraft
- Wildlife hazard moves from the RSA to the RPZ
- Impacts up to 8 acres of wetlands and up to 7 acres of vegetated corridors same as Alternative 5
- Conflicts with FAA recommendations and Port policy by increasing wildlife hazard attractants in the air operations area
- Unlikely to be approved for required permits due to poor quality and likelihood of success of on-site mitigation versus use of an off-site mitigation bank for Alternative 5
- Not retained for detailed analysis because unlikely to be approved for required permits



500 Feet NE 25th Ave **LEGEND Project limits** Taxiway A2 removal **Existing Glencoe Swale** Glencoe Swale re-alignment Runway grade correction RSA grade correction Excavated compensatory Blast pad reconstruction Culvert flood storage area Taxiway A grade adjustment Stormwater pipe replacement Utility access road Taxiway A1 reconfiguration Water quality filter strips **NAVAID** improvements

Figure 11. Proposed Action: Permanent Project Elements

Note: Two additional areas within the project limits are located southeast of the area shown in this figure; however, no project elements are proposed in the additional areas, they are stockpile areas to be used as a fill material source during construction. The two additional project limit areas are shown in Figure 12.

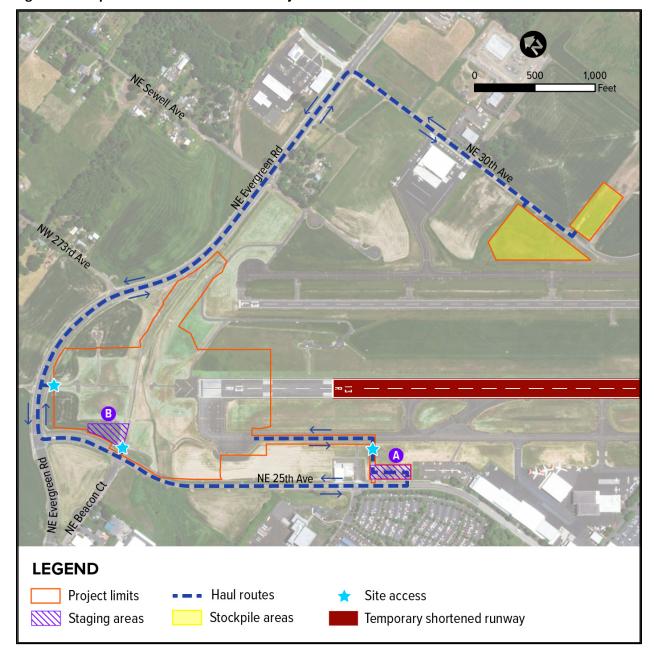


Figure 12. Proposed Action: Construction Project Elements

Figure 13. Habitat Types within Study Area

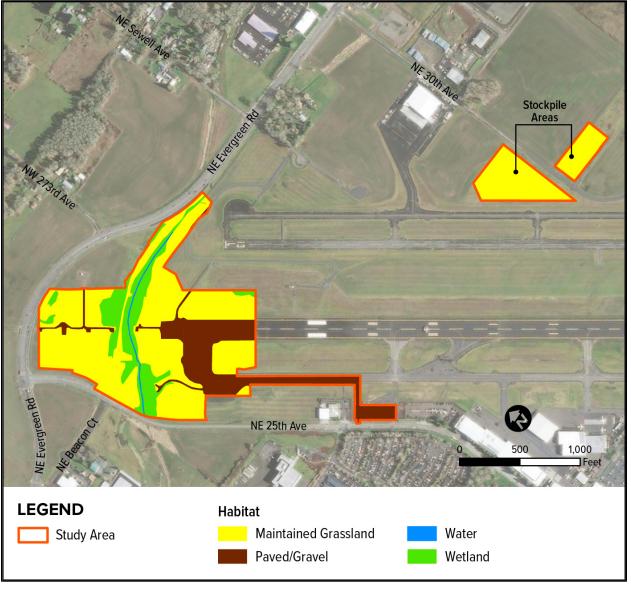
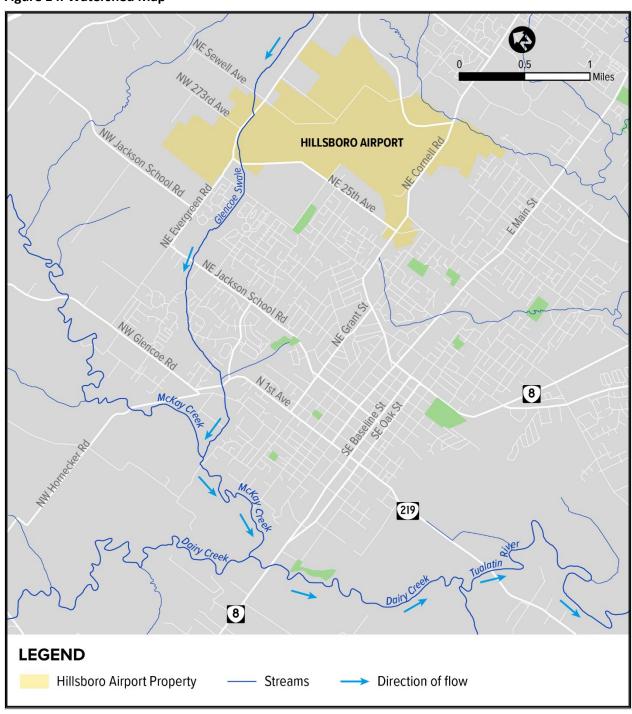


Figure 14. Watershed Map



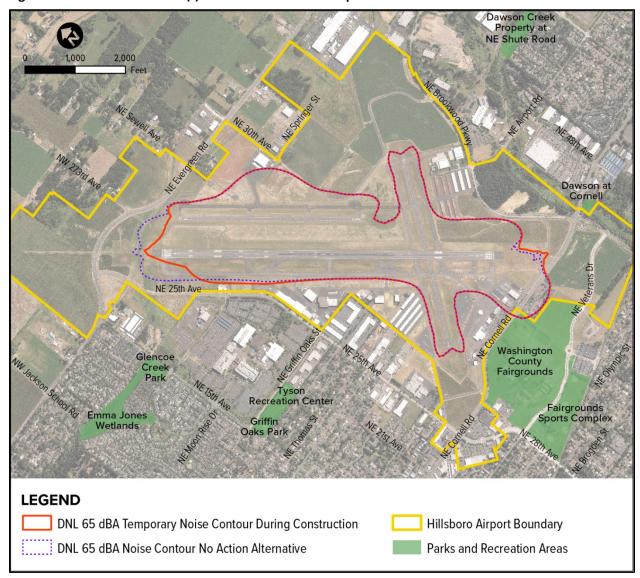


Figure 15. Potential Section 4(f) Resources and Noise Exposure Levels

15 2 1,000 Feet NE Sewell Ave 15 15 2 2 15 15 13 41 45B 2027A NE 25th Ave 45B 15 45A 45B 45A **LEGEND** Study Area Leased Farmland **Soil Type Descriptions** Area # Soil Type 2 - Amity silt loam 13 - Cove silty clay loam **Farmland Ratings** 15 - Dayton silt loam All areas are prime farmland 41 - Urban land Farmland of statewide importance 45A - Woodburn silt loam, 0 to 3 percent slopes Prime farmland if drained **45B** – Woodburn silt loam, 3 to 7 percent slopes Not prime farmland **2027A** – Verboort silty clay loam, 0 to 3 percent slopes

Figure 16. Farmland Categorizations by Soil Type and Active Farmland



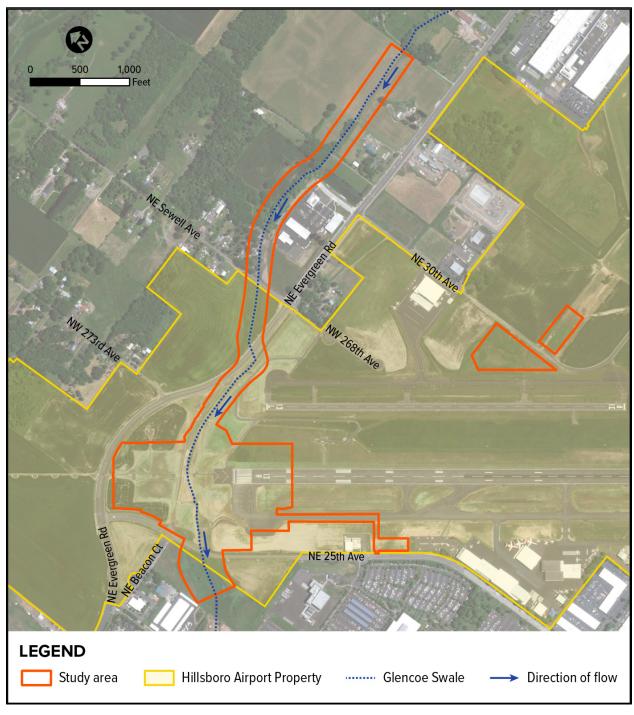
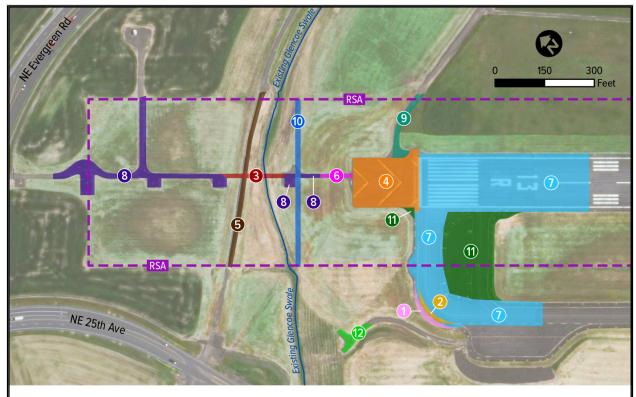


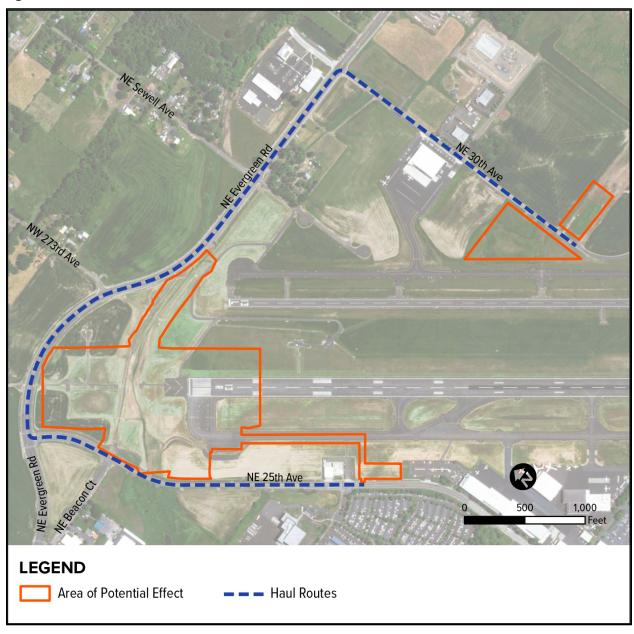
Figure 18. Changes in Impervious Surfaces



- 1,950 SF New pavement from taxiway
- 2 **1,400 SF** Reconstructed impervious surface from increased taxiway radius
- **3 2,200 SF** New impervious gravel surface from MALSR access road
- **31,300 SF** Reconstructed impervious from blast pad
- **5 7,000 SF** Airport paved access road from NE 25th Ave
- 6 1,200 SF Gravel surface from MALSR access road

- 139,800 SF Asphalt overlay
- **3 21,350 SF** Reconstructed impervious gravel surface from MALSR access road
- 9 4,250 SF Reconstructed pavement from blast pad access road
- **0 8,150 SF** Buried four-sided culvert
- **41,850 SF** Pavement removal
- **2,800 SF** Reconstructed pavement from airport access road

Figure 19. Area of Potential Effect



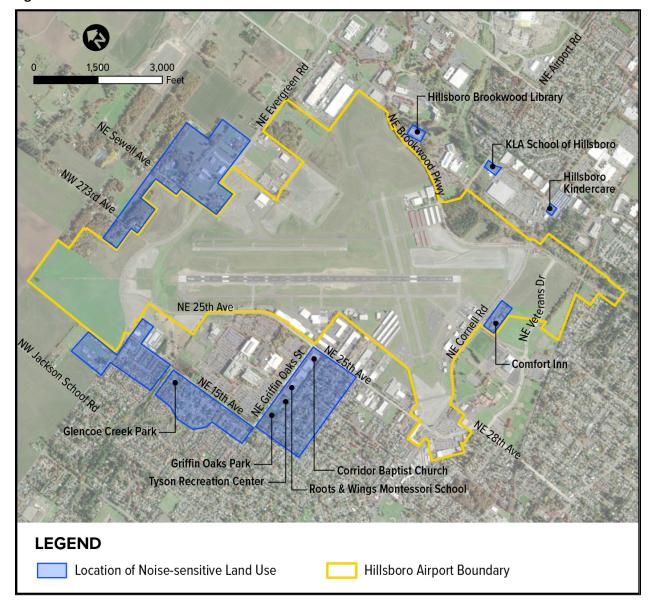


Figure 20. Locations of Noise-Sensitive Land Use

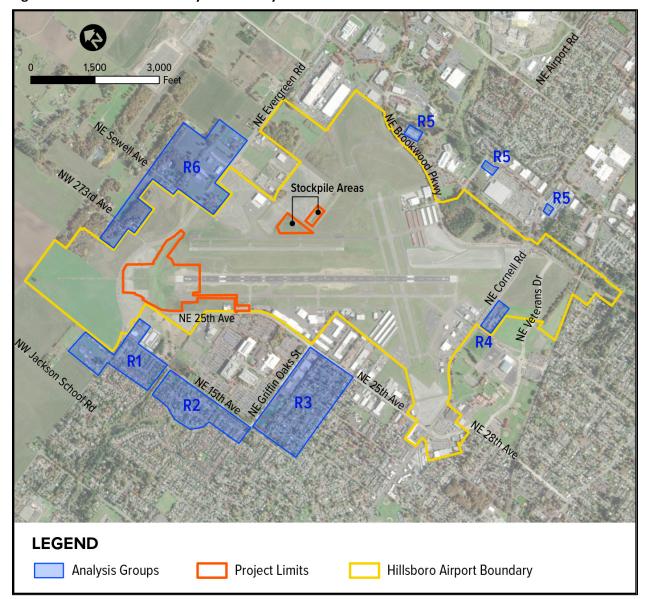


Figure 21. Construction Activity Noise Analysis Locations

Figure 22. Aircraft Noise Emissions: Existing Conditions (No Action Alternative) and Proposed Action DNL Contours During Construction

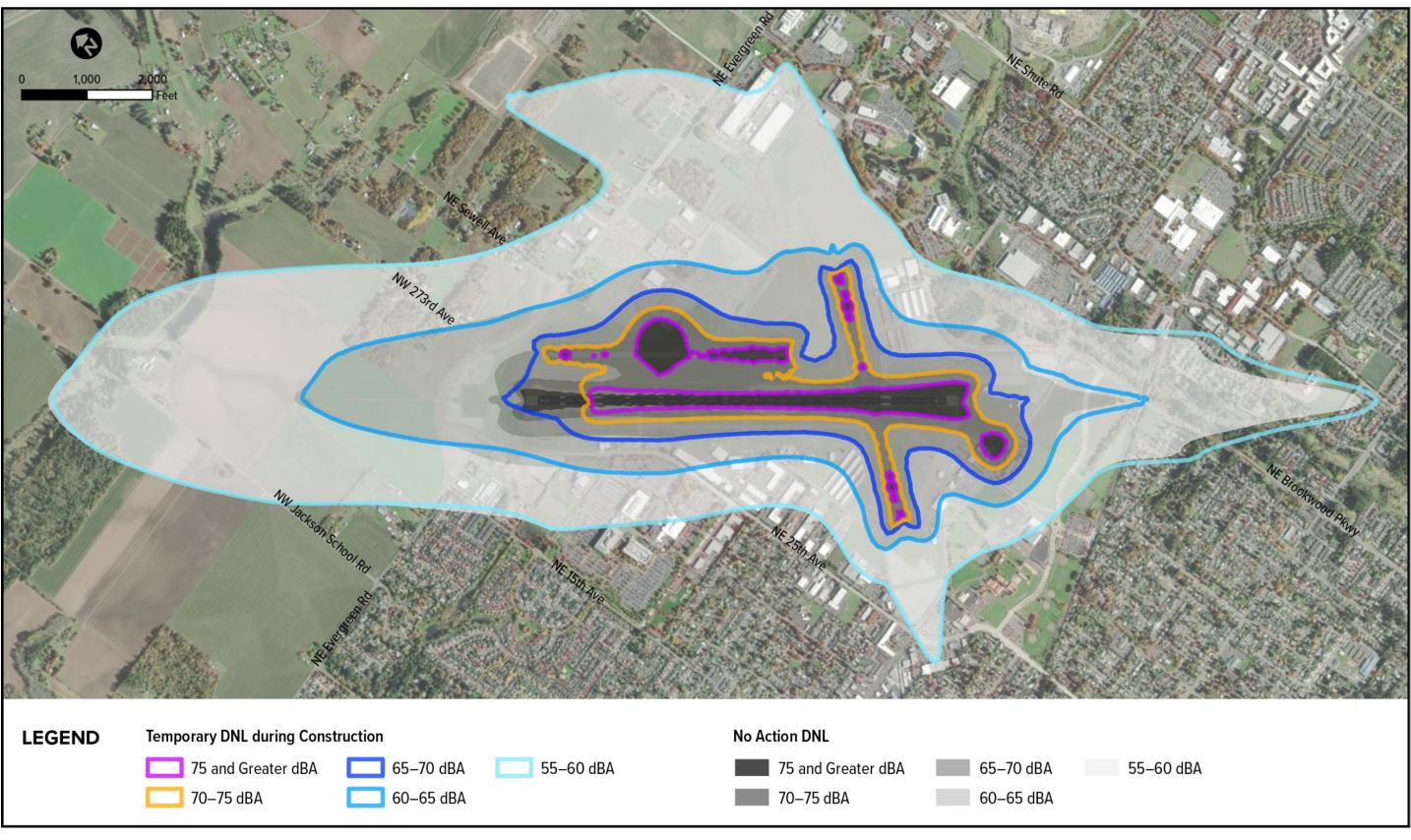
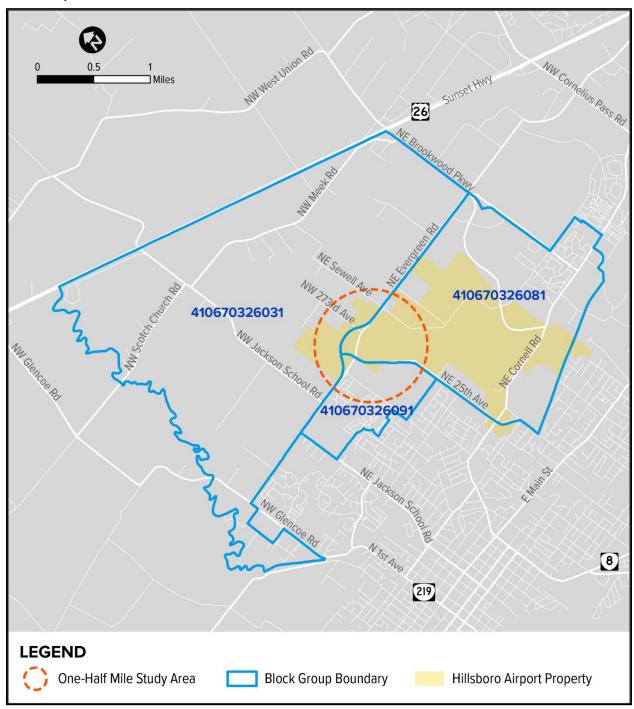


Figure 23. Study Area for Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks



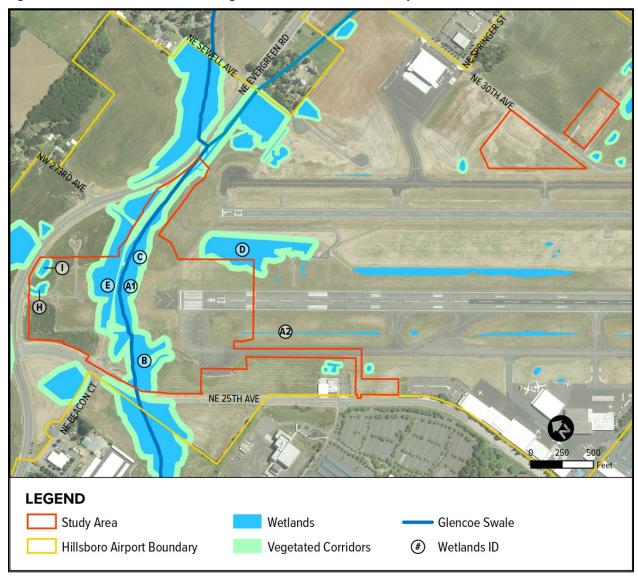
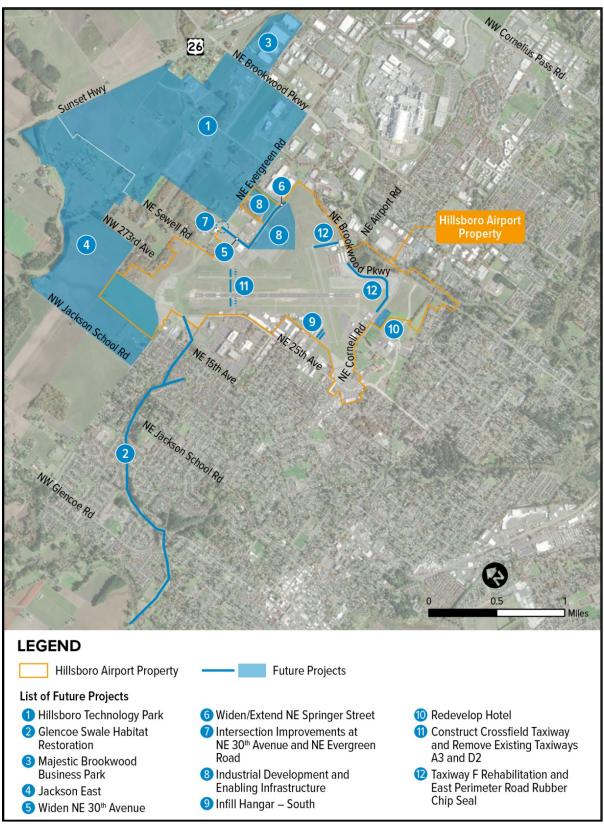


Figure 24. Wetlands, Waters, and Vegetated Corridors in the Study Area

Stockpile Areas NE 30th Ave (A2) NE 25th Ave **LEGEND Project limits** Vegetated corridors – permanent impacts (2.82 acres) **Grading boundary** Vegetated corridors – temporary impacts (1.48 acres) Water – permanent impacts (0.05 acre) Vegetated corridors – no impacts Water – temporary impacts (0.1 acre) Wetlands and vegetated corridors protected with fencing during construction Wetlands – permanent impacts (2.69 acres) Wetlands – temporary impacts (2.83 acres) Wetlands ID Wetlands - no impacts

Figure 25. Wetland and Water Impacts of the Proposed Action

Figure 26. Reasonably Foreseeable Future Projects



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Draft EA

Hillsboro Airport (HIO), Hillsboro, Oregon April 2021