

APPENDIX A

***Federal Aviation Administration Standards Relevant to
Proposed Action***

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1 Introduction

The purpose of this appendix is to describe the Federal Aviation Administration's (FAA) standards as outlined in Advisory Circular (AC) 150/5300-13B, *Airport Design*. The standards outlined in this appendix are standards that Harvey Field does not currently meet and aims to correct with the Proposed Action. Section 1.1. describes the runway standards for which Harvey Field is deficient and Section 1.2 describes the taxiway standards for which Harvey Field is deficient. For more information regarding the Proposed Action, see Chapter 1 of the Environmental Assessment.

1.1 Runway Standards

According to the FAA Advisory Circular (AC) 150/5300-13B, *Airport Design*, a runway's width needs to be able to accommodate an aircraft's performance both during takeoff and landing operations, while considering a variety of weather and runway surface conditions. The runway's width should be based on an airport's critical aircraft. The current FAA standard for the RDC B-II (small) for runway width is 75 feet wide. The Airport's current Runway 15L/33R width is only 36 feet wide and is deficient by 39 feet (see **Figure 1-1**).

According to the FAA AC 150/5300-13B, *Airport Design*, a runway's centerline to parallel taxiway centerline needs to be able to accommodate wingtip clearance between aircraft. The current FAA standard for the RDC B-II (small) for runway centerline to parallel taxiway centerline separation is 240 feet. The Airport's current Runway 15L/33R runway centerline to the partial parallel taxiway centerline separation is 110 feet for the Runway 15L end and 91 feet for the Runway 33R end. The runway is deficient by 130 feet for the Runway 15L end and 149 feet for the Runway 33R end (see **Figure 1-2**).

According to FAA AC 150/5300-13B, *Airport Design*, aircraft parking positions need to be located in a manner that does not conflict with the ROFA, TOFA, or Taxilane Object Free Area (TLOFA). The Airport has aircraft parking positions in a grass tie-down area that are currently inside the Runway 15L/33R ROFA and inside the TOFA (see **Figure 1-3**).

According to FAA AC 150/5300-13B, *Airport Design*, runway holding position markings need to be 125 feet from the runway centerline to ensure aircraft do not accidentally enter an active runway in error. The current FAA standard for the RDC B-II (small) for runway holding position markings is 125 feet from the runway centerline. Three of the four existing runway holding position markings at the Airport are less than 125 feet from the runway centerline (see **Figure 1-4**).

1.1.1 Runway Safety Area Standards

According to FAA AC 150/5300-13B, *Airport Design*, an RSA enhances the safety of aircraft that undershoot, overrun, or veer off the runway, and provides greater accessibility for aircraft rescue and fire fighting (ARFF) equipment during such incidents. The current FAA standard for the RSA for a RDC B-II (small) runway is 150 feet wide and extends 300 feet beyond the end of the runway. Runway 15L/33R's existing RSA is 150 feet wide but only extends 200 feet beyond the end of the runway's displaced thresholds (see **Figure 1-5**).

1.1.2 Runway Protection Zone Standards

The RPZ is a trapezoidal area at ground level prior to the threshold or beyond the runway end. The RPZ serves to enhance the protection of people and property on the ground by keeping the area clear of incompatible objects and activities.¹ For the RDC B-II (small), the RPZ should extend from a point 200 feet from the runway threshold and measure 1,000 feet long, have an inner width of 250 feet, an outer width of 450 feet. According to FAA AC 150/5190-4B, *Airport Land Use Compatibility Planning*, FAA encourages airport sponsors to control land uses in RPZs through:²

- Ownership of the RPZ property in fee simple
- Possessing sufficient interest in the RPZ property through easements, deed restrictions, etc.
- Possessing sufficient land use control authority to regulate land use in the jurisdiction containing the RPZ
- Possessing and exercising the power of eminent domain over the property
- Possessing and exercising permitting authority over proponents of development within the RPZ (e.g., where the sponsor is a State).

Additionally, the FAA encourages airport sponsors to take all possible measures to protect against, remove, or mitigate incompatible land uses.³ Examples of incompatible land uses within the RPZ include:

- Buildings and structures
- Recreational land uses
- Transportation facilities (rail, public roadways, vehicle parking lots)
- Fuel storage facilities
- Hazardous material storage facilities
- Wastewater treatment facilities
- Above-ground utility infrastructure

The RPZ at the Runway 33R end contains obstructions and incompatible land uses: the Airport perimeter fence and Airport Way (a roadway) within 10 feet of the runway pavement. The RPZ at the Runway 15L end contains obstructions and incompatible land uses with the RPZ: the BNSF railroad tracks and powerlines.⁴ As previously discussed, transportation facilities, such as rail and roadways, are considered to be incompatible land uses within an RPZ and airport sponsors should try to minimize and mitigate incompatible land uses. One mitigation measure for rail and roadways within an RPZ could include relocating those facilities outside of the RPZ, if feasible (see **Figure 1-6**).

¹ FAA. (2022, March 31). Advisory Circular 150/5300-13B, *Airport Design*, Table G-3. Retrieved September 2022, from FAA: https://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentID/1040834.

² FAA. (2022, September 16). FAA Advisory Circular 150/5190-4B, *Airport Land Use Compatibility Planning*.

³ FAA. (2022, September 16). FAA Advisory Circular 150/5190-4B, *Airport Land Use Compatibility Planning*.

⁴ Jviation. (2018). Airport Master Plan, Harvey Field Airport, Snohomish, WA.

According to FAA AC 150/5300-13B, *Airport Design*, runway holding position markings need to be outside of the RPZ. There is a runway holding position marking at the Runway 15L end that is inside the RPZ (see **Figure 1-6**).

1.1.3 Runway Object Free Area Standards

According to FAA AC 150/5300-13B, *Airport Design*, the ROFA is a clear area limited to equipment necessary for air and ground navigation and provides wingtip protection in the event of an aircraft excursion from the runway. The ROFA should be clear of above-ground objects protruding above the elevation of the nearest point of the RSA and parked aircraft, except for equipment necessary for air navigation and aircraft ground maneuvering. The ROFA at the Airport does not meet these requirements as there are structures, the perimeter fence, and aircraft parking areas currently inside the ROFA (see

Figure 1-7).

1.1.4 Obstacle Free Zone Standards

According to FAA AC 150/5300-13B, *Airport Design*, the OFZ is a design and an operational surface kept clear during aircraft operations. This clearing standard does not allow aircraft and other object penetrations, except for locating frangible NAVAIDs in the OFZ because of their function. The standard width and length beyond the runway end for RDC B-II (small) is 250 feet and 200 feet, respectively. The existing Runway 15L/33R OFZ meets the width and length beyond runway end requirements. However, the Airport does not allow for clear surfaces in the OFZ. The Airport has taxiways with runway hold markings within the OFZ (see **Figure 1-8**).⁵

1.1.5 Approach and Departure Surfaces

Displaced thresholds are used as mitigation for non-standard conditions when it is impractical to locate a threshold at the beginning of the runway, such as when FAA land use incompatibility guidelines cannot be met for the RPZ at an airport to ensure vertical separation from obstructions.^{6 7} Runway 15L/33R has displaced thresholds on both ends to accommodate existing obstructions. Runway 15L has a displaced threshold to clear the railroad tracks on the north end of the airfield. This displacement is approximately 452 feet to the south of the runway pavement end. Runway 33R has a threshold displacement approximately 241 feet to the north of the existing pavement end to clear Airport Way. While the runway pavement prior to a displaced threshold is not available to landing aircraft, the pavement prior to a displaced threshold remains available for departing aircraft from either runway end (see **Figure 1-9**).

⁵ Jviation. (2018). Airport Master Plan, Harvey Field Airport, Snohomish, WA.

⁶ FAA. (2022, March). Advisory Circular 150/5300-13B, *Airport Design*. Retrieved October 2, 2022, from FAA: https://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentID/1040834.

⁷ According to the FAA Advisory Circular 150-5300-13B, *Airport Design*, the Runway Protection Zone (RPZ) is "an area at ground level prior to the threshold or beyond the runway end to enhance the safety and protection of people and property on the ground."

1.2 Taxiway Standards

The Airport has one partial parallel taxiway for Runway 15L/33R and connector taxiways. Current FAA standards recommend a full parallel taxiway.⁸ According to FAA AC 150/5300-13B, *Airport Design* the taxiway width standard for TDG 1A is 25 feet. The Airport's partial parallel taxiway is 20 feet wide (Figure 1-10).

The current standard for the taxiway centerline to fixed or moveable objects is 62 feet for ADGII. Currently, Buildings 7, 11, 20, and 21 are within 62 feet from the taxiway centerline (see **Figure 1-11**).

1.2.1 Taxiway Safety Area Standards

According to FAA AC 150/5300-13B, *Airport Design*, the TSA is equal to the maximum wingspan of the ADG operating at an airport and is symmetrical about the taxiway centerline straight segments. The TSA is a defined surface prepared to support the occasional passage of aircraft and ARFF equipment.⁹ For the Airport, the current TSA standard is 79 feet wide. The existing TSA at the Airport is 79 feet wide; however, Buildings 7 and 11 intersect the TSA, which does not meet current FAA standards (see **Figure 1-12**).

1.2.2 Taxiway Object Free Area Standards

According to FAA AC 150/5300-13B, *Airport Design*, the TOFA is an area adjacent to the TSA that is clear of objects not fixed-by-function to provide vertical and horizontal wingtip clearance. The TOFA width for ADGII is 124 feet. Currently, Buildings 7, 11, 20, 21, and helipads are inside the TOFA, which is incompatible with current FAA standards (see **Figure 1-13**).

1.3 Runway Length

Although not a standard as required by the FAA, the FAA has recommendations for runway length based on the airport fleet mix and critical aircraft.

There are two methods for analyzing runway length:

- FAA AC 150/5325-4, *Runway Length Requirements for Airport Design*, Chapter 2, Section 205, Figure 2-1, which determines the runway length needed to serve 100 percent and 95 percent of the small aircraft fleet (maximum gross weight of less than 12,500 pounds) with fewer than 10 passenger seats at an airport.
- FAA AC 150/5325-4, *Runway Length Requirements for Airport Design*, Chapter 4, which determines runway length requirements for specific aircraft using the individual Aircraft Flight Manual (AFM) and/or the Pilot Operating Handbook (POH).

When using FAA AC 150/5325-4, *Runway Length Requirements for Airport Design*, Chapter 2, the runway length analysis from the 2018 MP determined that a runway length of 3,400 feet would serve 100 percent of the Airport's fleet mix while a runway length of 2,850 feet would

⁸ FAA. (2022, March). Advisory Circular 150/5300-13B, *Airport Design*. Retrieved May 9, 2023, from FAA: https://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentID/1040834.

⁹ FAA. (2022, March). Advisory Circular 150/5300-13B, *Airport Design*. Retrieved October 2, 2022, from FAA: https://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentID/1040834.

serve 95 percent of the Airport's fleet mix.¹⁰ When using FAA AC 150/5325-4B *Runway Length Requirements for Runway Design*, Chapter 4, the runway length analysis from the 2018 MP determined that a runway length of 2,600 feet was needed.¹¹ Using both methods from the FAA AC 150/5325-4, the 2018 MP analyzed in detail the 3,400-foot runway length, the 2,850-foot runway length, and the 2,600-foot runway length. However, according to the 2018 MP, physical or environmental constraints at an airport can require adjustments to runway length. The 2018 MP recommended at runway length of 2,400 feet given the physical and environmental constraints at the Airport (i.e., the Snohomish County Code (SCC) density fringe requirements¹²), as that is the runway length that would satisfy SCC density fringe requirements, and is also the minimum runway length recommended for the Airport.¹³

¹⁰ Jviation. (2018). Airport Master Plan, Harvey Field Airport, Snohomish, WA.

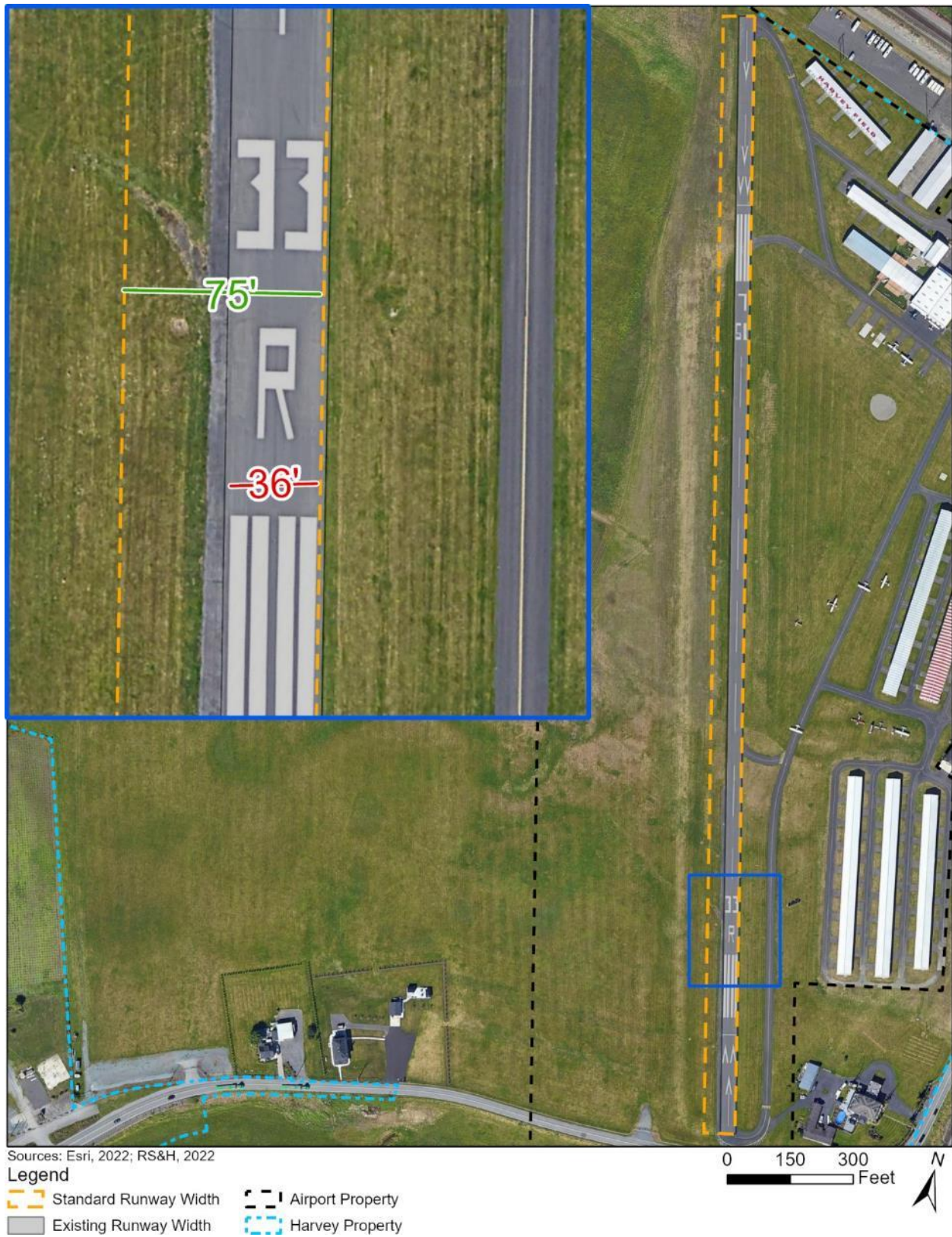
¹¹ Jviation. (2018). Airport Master Plan, Harvey Field Airport, Snohomish, WA.

¹² The Snohomish County Code (SCC) Density Fringe Area limits development on land in floodplains to two percent of the land area and limits maximum width of all new construction to not exceed 15 percent of the length of a line drawn perpendicular to the known floodwater flow direction. Any project cannot be constructed without meeting these requirements. See Section 3.15.2 of the Environmental Assessment for more information.

¹³ Jviation. (2018). Airport Master Plan, Harvey Field Airport, Snohomish, WA.

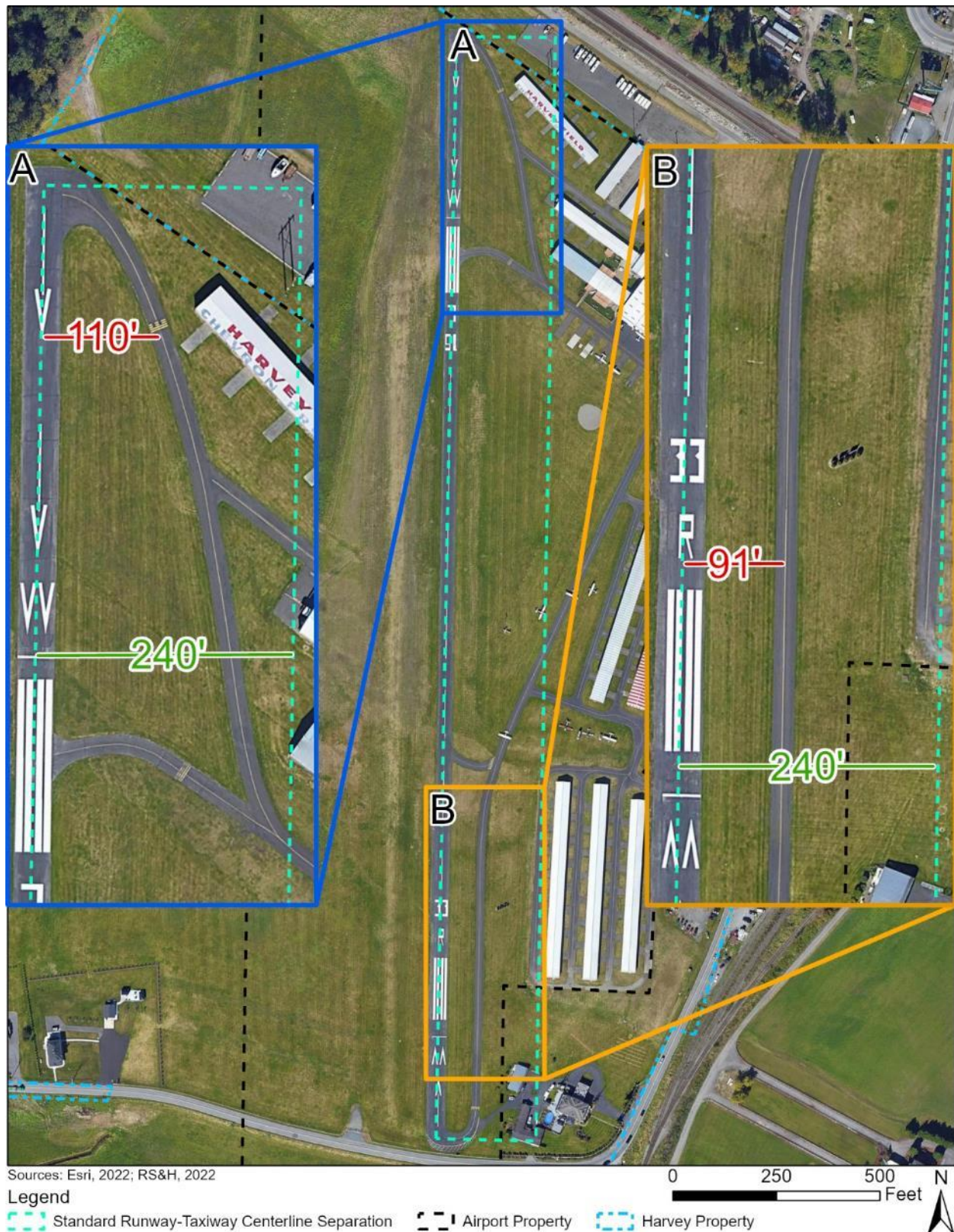
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Figure 1-1 Standard Runway Width and Existing Non-standard Runway 15L/33R Width



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Figure 1-2 Standard Runway Centerline to Parallel Taxiway Centerline Separation and View of Non-standard Runway 15L/33R Centerline to Partial Parallel Taxiway Centerline



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Figure 1-3 Runway 15L/33R Standard Runway Object Free Area and Taxiway Object Free Area and Existing Non-standard Aircraft Parking Positions



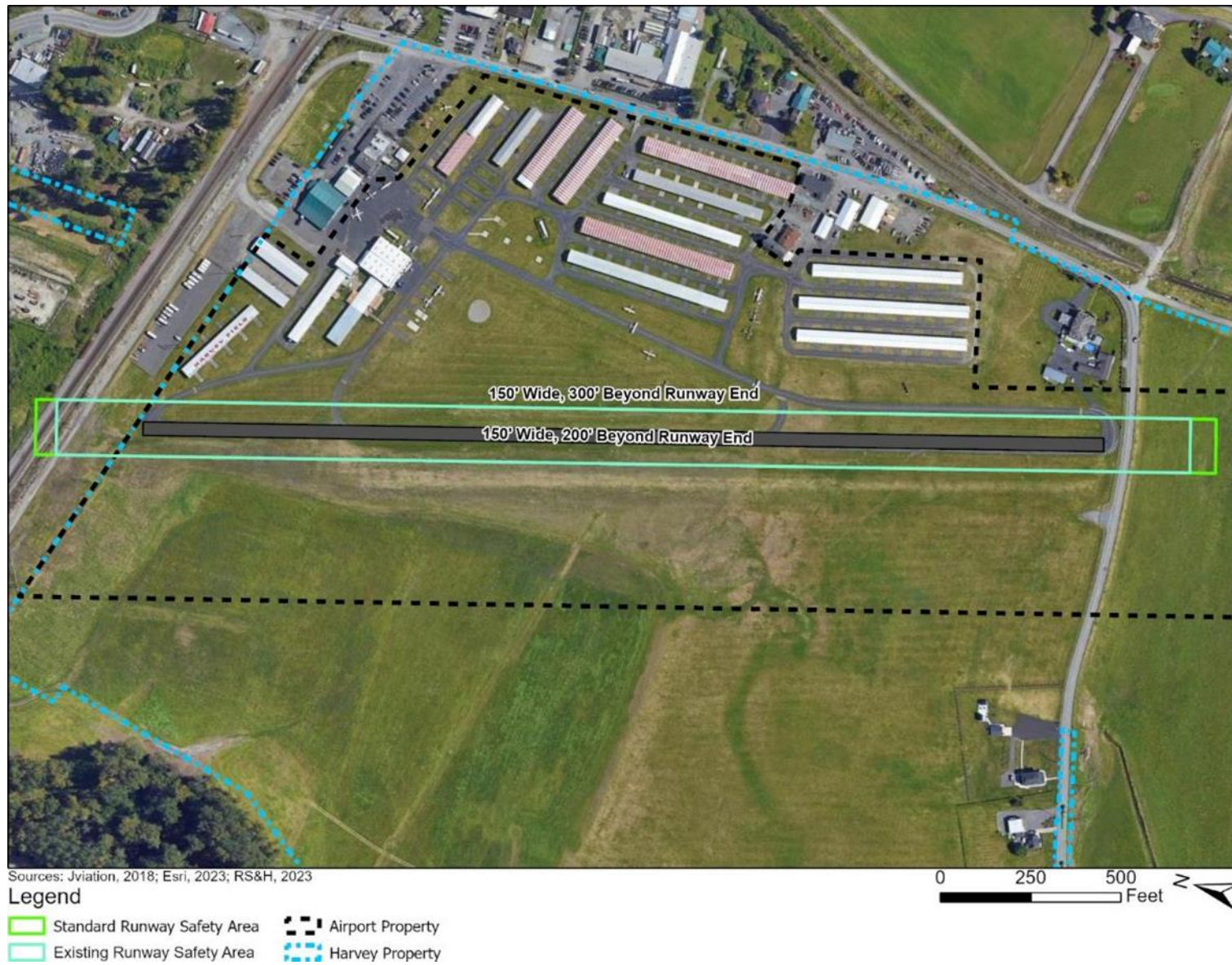
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Figure 1-4 Standard Runway Holding Position Markings Distance and Existing Non-standard Runway 15L/33R Runway Holding Position Markings



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Figure 1-5 Standard Runway Safety Area and Existing Non-standard Runway Safety Area



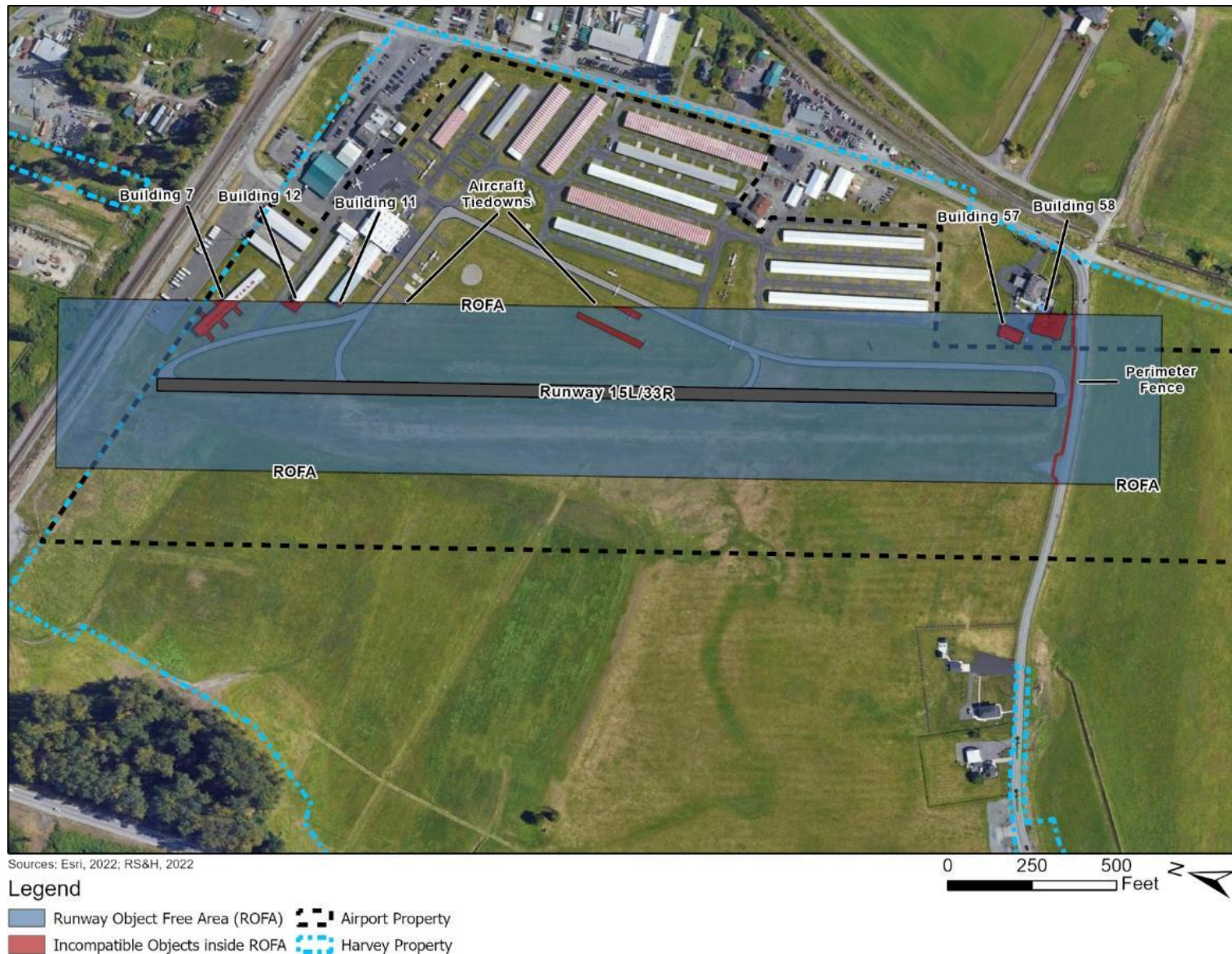
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Figure 1-6 Existing Non-standard Runway 15L/33R Runway Protection Zone Obstructions



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Figure 1-7 Existing Non-standard Runway 15L/33R Runway Object Free Area



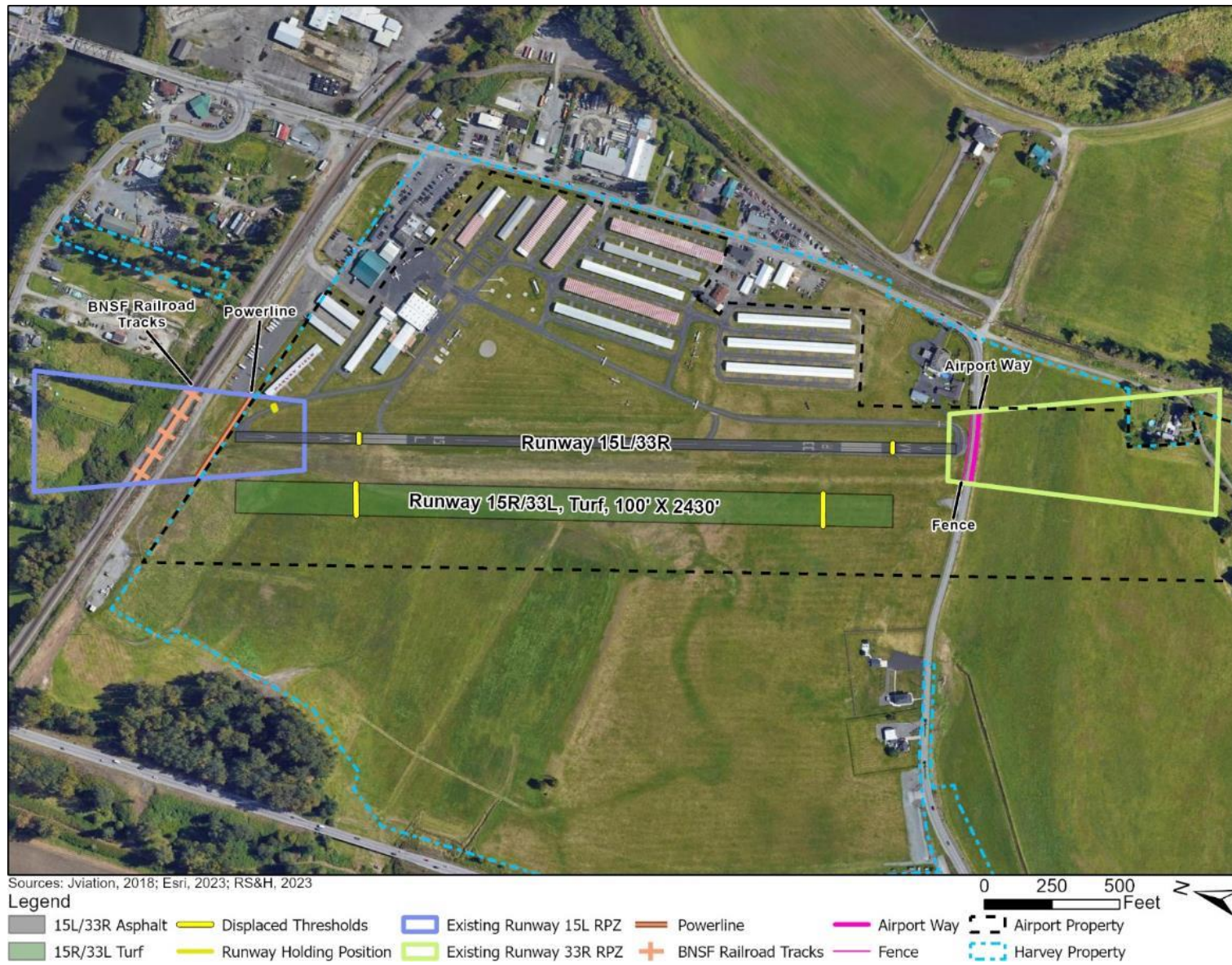
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Figure 1-8 Existing Non-standard Runway 15L/33R Obstacle Free Zone



Appendix A – Federal Aviation Administration Standards Relevant to the Proposed Action

Figure 1-9 Displaced Thresholds



Appendix A – Federal Aviation Administration Standards Relevant to the Proposed Action

Figure 1-10 Standard Taxiway Width and Existing Non-standard Taxiway Width



Appendix A – Federal Aviation Administration Standards Relevant to the Proposed Action

Figure 1-11 Existing Taxiway Centerline to Fixed or Moveable Objects and Non-standard Taxiway Centerline to Fixed or Moveable Objects



Appendix A – Federal Aviation Administration Standards Relevant to the Proposed Action

Figure 1-12 Existing Taxiway Safety Area with Incompatible Objects



Appendix A – Federal Aviation Administration Standards Relevant to the Proposed Action

Figure 1-13 Existing Taxiway Object Free Area with Incompatible Objects

