



## RECOMMENDED DEVELOPMENT CONCEPT

An overall recommended development concept has been prepared. The concept, depicted on **Exhibit 36**, offers capital facility improvements to both airside and landside needs determined in analysis contained in the previous sections. The purpose of this section is to outline these proposed facilities which are needed to accommodate projected demand and meet the program requirements.

The alternatives in the previous section examined various airside and landside options, including the potential to decommission one of the runways, determination of a primary runway, runway extension options, various configurations for the taxiway system, and apron/taxilane layouts to support new land-side infrastructure. Following discussion with Ector County, the Planning Advisory Committee, TxDOT, and the FAA, it was determined that maintaining the existing three-runway configuration is the preferred alternative and will establish the remainder of the recommended development concept.

A re-evaluation of the ultimate Runway Design Code (RDC) for each runway was also conducted. Previous data available suggested that potential existed for an ultimate RDC C-III design on the primary runway, with B-II design standards maintained for the crosswind and additional (third) runways. Since that time, additional data has become available, and, following discussions with and recommendations from airport stakeholders, a determination of RDC C-II for the ultimate RDC on the primary runway has been designated. The crosswind and additional runways will continue to be planned to meet RDC B-II design standards in the ultimate condition.

In the previous section, each runway was thoroughly evaluated to determine which was most suitable to serve as the primary, crosswind, and additional runway. Several factors must be considered when making these designations, including the best alignment based on wind coverage, surrounding land uses, previous investments in a particular runway, and greatest potential for future development. Runway 11-29 has historically been considered the primary runway, and investments have been made that support such a designation (i.e., longest and widest runway available, approach lighting systems on each runway end, and lowest approach minimums). However, this runway also has the least favorable alignment based on wind coverage,<sup>25</sup> and surrounding land uses may impede development potential. Following discussion with airport stakeholders, the preferred option is to plan for the flexibility for either Runway 11-29 OR Runway 2-20 to meet C-II design standards in the future. This planning flexibility concept is somewhat unconventional, but it is the best approach to maintain the option to choose at a later date when demand warrants and justification presents. Additionally, given the uncertainty surrounding future land use development around the airport and existing constraining factors on both runways, this flexibility ensures that Ector County can continue to meet evolving aviation demand in the region and continue to serve as a good neighbor to the community. **It should be stated very clearly that this concept does not include a plan to maintain both runways as RDC C-II runways but retains the potential to develop one of these runways, either Runway 11-29 or Runway 2-20, to meet C-II design standards at some point in the future. Until such time, Runway 11-29 will continue to serve as the primary runway designation.**

<sup>25</sup> Refer to Exhibit 4. In 13-knot conditions, Runway 11-29 offers 87.44 percent coverage, while Runway 2-20 provides 93.43 percent coverage and Runway 16-34 provides 92.30 percent coverage. In 16-knot conditions, which is the allowable crosswind component for C-II, each runway provides greater than 95 percent coverage.



The applicable RDC and critical design aircraft for the existing and future conditions are summarized in **Table 40**. The following sections will describe the actual physical facilities needed to accommodate projected demand and meet the program requirements.

**TABLE 40 | Airfield Design Parameters**

	EXISTING	ULTIMATE
Airport Reference Code (ARC)	B-II	C-II
<b>RUNWAY 11-29<sup>1</sup></b>		
Airport Design Aircraft	King Air 200/300/350	Gulfstream 280
Runway Design Code (RDC)	B-II-4000	C-II-4000
Approach Reference Code (APRC)	D/IV/4000 D/V/4000	D/IV/4000 D/V/4000
Departure Reference Code (DPRC)	D/IV D/V	D/IV D/V
Taxiway Design Group (TDG)	2A	2A
<b>RUNWAY 2-20<sup>1</sup></b>		
Airport Design Aircraft	King Air 200/300/350	Gulfstream 280
Runway Design Code (RDC)	B-II-5000	C-II-2400
Approach Reference Code (APRC)	B/III/4000 D/II/4000	B/IV/2400 D/V/2400
Departure Reference Code (DPRC)	B/III D/II	D/IV D/V
Taxiway Design Group (TDG)	2A	2A
<b>RUNWAY 16-34<sup>2</sup></b>		
Airport Design Aircraft	King Air 200/300/350	King Air 200/300/350
Runway Design Code (RDC)	B-II-VIS	B-II-5000
Approach Reference Code (APRC)	B/III/4000 D/II/4000	B/III/4000 D/II/4000
Departure Reference Code (DPRC)	B/III D/II	B/III D/II
Taxiway Design Group (TDG)	2A	2A
<sup>1</sup> Ultimate C-II design standards are intended ONLY for the runway that will function as the AIP-eligible primary runway. Once identified, the other (non-primary) runway will serve as the AIP-eligible crosswind runway and should be planned to meet B-II-5000 design standards.		
<sup>2</sup> Runway 16-34 is planned to be self-funded by Ector County as an 'additional' runway.		

Source: FAA AC 150/5300-13B; Coffman Associates analysis

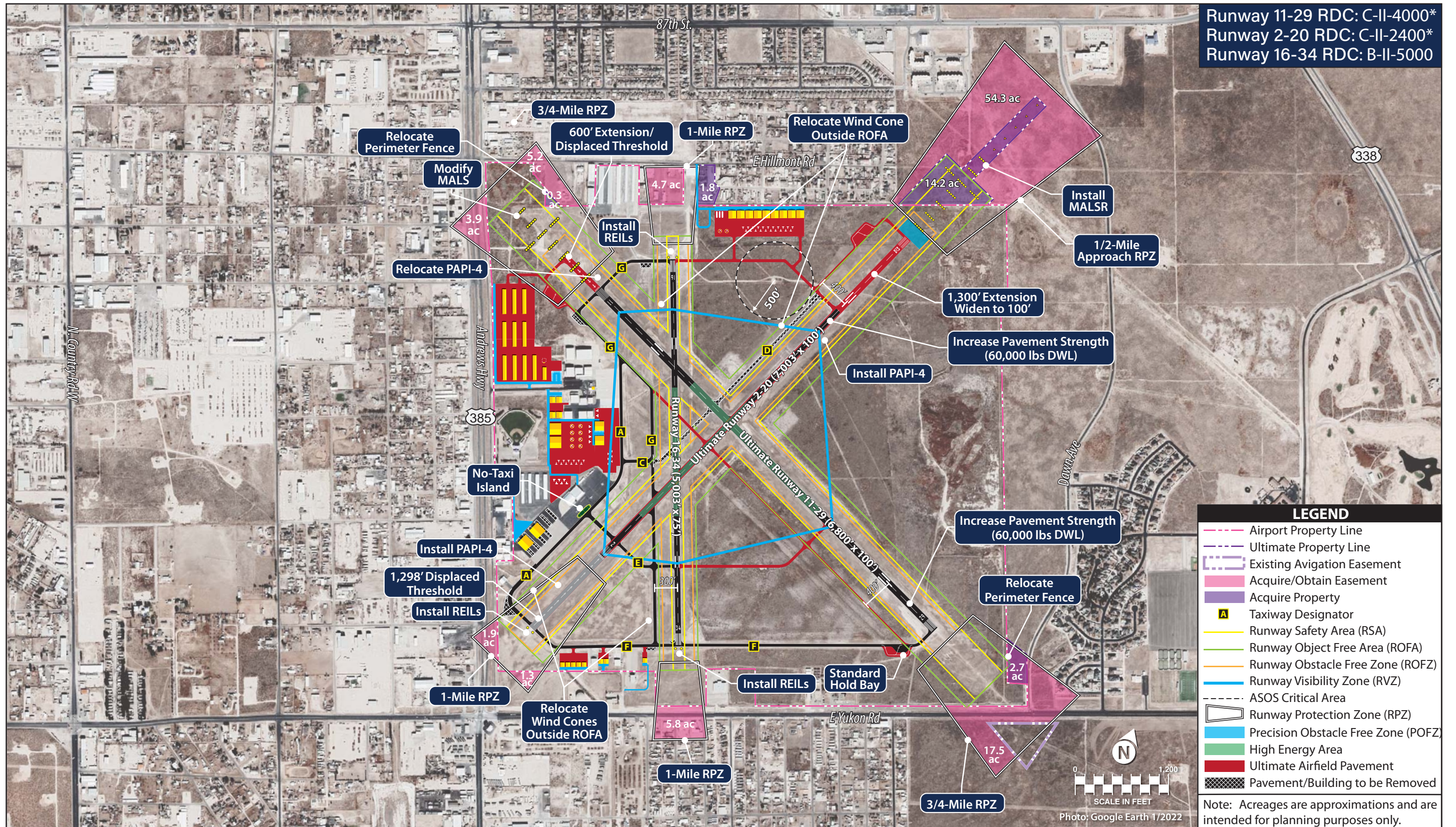
The recommended development concept, as shown on **Exhibit 36**, presents a long-term configuration for the airport, which preserves and enhances the role of the airport while meeting FAA design standards. The phased implementation of the recommended development concept will be presented in the next chapter. The following subsections describe the key details of the recommended development concept.

## AIRSIDE DEVELOPMENT

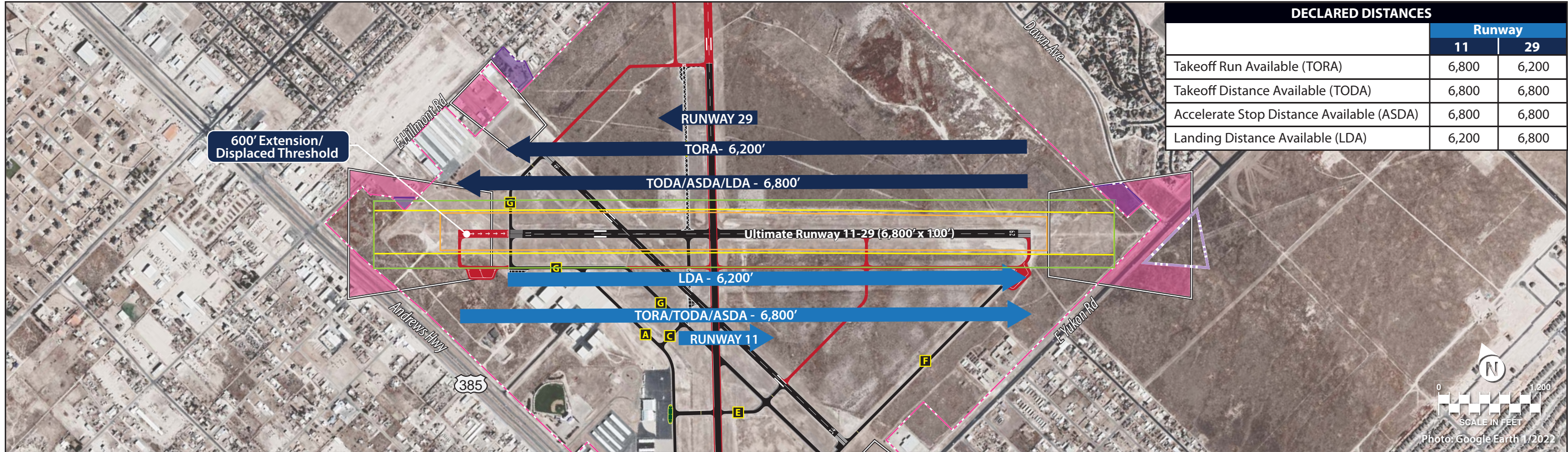
### DESIGN STANDARDS

Runway design standards are based upon the types of aircraft anticipated to operate at the airport in the future, as well as the instrument approach capability of the runway. As detailed above, the recommended development concept includes an option to plan either Runway 11-29 or Runway 2-20 as the

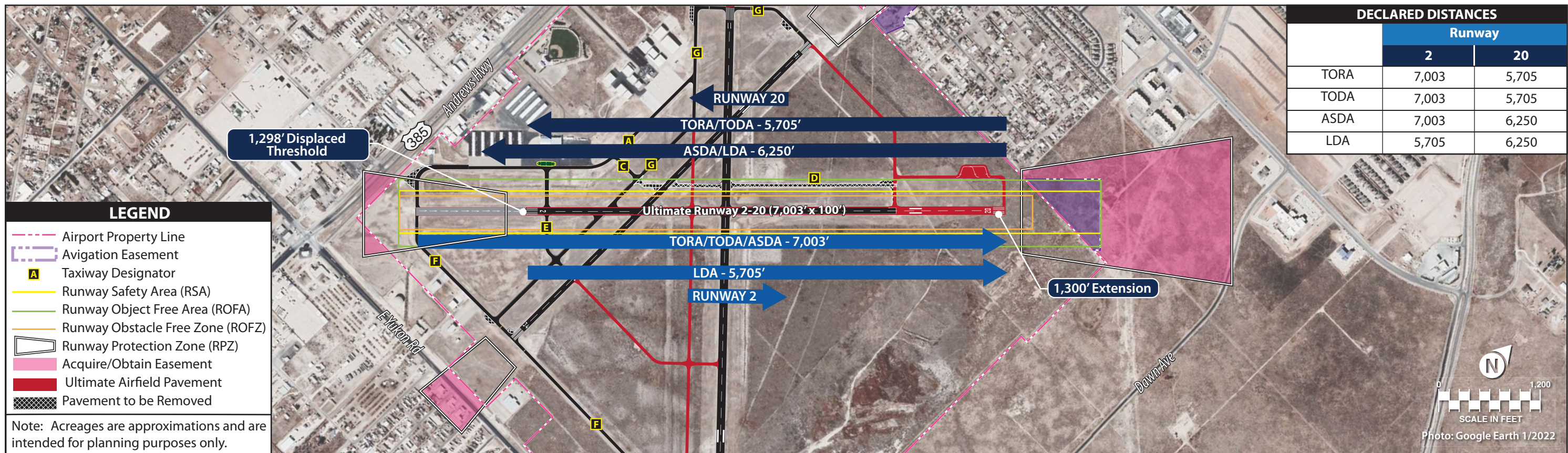
Runway 11-29 RDC: C-II-4000\*  
 Runway 2-20 RDC: C-II-2400\*  
 Runway 16-34 RDC: B-II-5000



\* Ultimate C-II design standards are intended ONLY for the runway that will function as the AIP-eligible primary runway. Once identified, the other (non-primary) runway will serve as the AIP-eligible crosswind runway and should be planned to meet B-III-5000 design standards.



	DECLARED DISTANCES	
	Runway	
	11	29
Takeoff Run Available (TORA)	6,800	6,200
Takeoff Distance Available (TODA)	6,800	6,800
Accelerate Stop Distance Available (ASDA)	6,800	6,800
Landing Distance Available (LDA)	6,200	6,800



	DECLARED DISTANCES	
	Runway	
	2	20
TORA	7,003	5,705
TODA	7,003	5,705
ASDA	7,003	6,250
LDA	5,705	6,250

- LEGEND**
- Airport Property Line
  - Avigation Easement
  - Taxiway Designator
  - Runway Safety Area (RSA)
  - Runway Object Free Area (ROFA)
  - Runway Obstacle Free Zone (ROFZ)
  - Runway Protection Zone (RPZ)
  - Acquire/Obtain Easement
  - Ultimate Airfield Pavement
  - Pavement to be Removed

Note: Acreages are approximations and are intended for planning purposes only.



primary runway designed to meet RDC C-II standards in the ultimate conditions. If Runway 11-29 continues to remain as the primary runway, it should be planned to meet RDC C-II-4000.<sup>26</sup> If Runway 2-20 is ultimately selected as the primary runway, then it should be planned to meet RDC C-II-2400<sup>27</sup> design standards. Whichever runway is not selected as the primary runway is intended to serve as the AIP-eligible crosswind runway and should be planned to meet B-II-4000 standards. Runway 16-34 is planned to meet RDC B-II-5000<sup>28</sup> design standards in the ultimate condition and will serve as the Ector County-funded “additional” runway.

## RUNWAY DESIGNATIONS

A runway’s designation is based upon its magnetic headings, which are determined by the magnetic declination for the area. As discussed in the Facility Requirements section, Runway 11-29 should be redesignated as Runway 12-30 in approximately 8-10 years. To maintain consistency in this planning document, the runway will continue to be referred to as Runway 11-29; however, it will be noted on the ALP drawing that a redesignation is planned to occur at some point in the ultimate condition. The designations for Runways 2-20 and 16-34 should be planned to remain throughout the planning period.

## RUNWAY DIMENSIONS

**Runway 11-29** | Runway 11-29 is currently 6,200 feet long by 100 feet wide, meeting RDC C-II-4000 design standards for runway width. If this runway is chosen as ODO’s primary runway, a 600-foot extension is planned for Runway 11, bringing the total runway length to 6,800 feet. This is the maximum extension achievable to maintain the ultimate runway safety area (RSA) and runway object free area (ROFA) on airport property, as discussed previously in the Alternatives section. A small portion of the property within the ultimate ROFA (approximately 0.3 acres) is planned to be acquired. To extend this runway and maintain the runway protection zone (RPZ) in its existing location, as requested by TxDOT Aviation and to be discussed in the Safety Areas section, the Runway 11 end is planned to be displaced by 600 feet. This extension and displacement will necessitate a modification to the MALS system at the Runway 11 end, with the threshold lights and three of the light bars planned to be inlaid on the extended runway pavement. The PAPI-4 serving the approach to Runway 11 is also planned to be relocated due to the runway extension.

It should be noted that, if Runway 11-29 is not selected as the primary runway and instead is planned to function as a B-II-4000 crosswind runway, it would exceed the runway width standard of 75 feet.

<sup>26</sup> RDC C-II-4000 is reflective of an instrument approach procedure with visibility minimums down to ¾-mile. Due to existing constraints at each runway end, Runway 11-29 is not planned for an approach with lower minimums, regardless of whether it serves as the primary runway or not.

<sup>27</sup> RDC C-II-2400 is reflective an instrument approach procedure with visibility minimums down to ½-mile (i.e., LPV GPS). Runway 2 is the only runway end at ODO that currently has the potential for this type of approach.

<sup>28</sup> RDC B-II-5000 is reflective an instrument approach procedure with visibility minimums down to 1-mile. Runway 16-34 is currently a visual runway with no published instrument approach procedures; however, a GPS approach with visibility minimums not lower than 1-mile is under review for Runway 16 at the time of this writing (April 2023). As such, the recommended development concept reflects this potential.



Maintenance of the additional 25 feet would likely become the responsibility of Ector County if they wished to maintain the existing 100-foot-wide surface.

**Runway 2-20** | Runway 2-20 is currently 5,703 feet long by 75 feet wide. The current dimensional conditions meet the design standard for runway width for a B-II runway with instrument approach procedures down to ¾-mile. Currently, Runway 20 offers a GPS approach with visibility minimums down to 1-mile. If Runway 2-20 is selected as the primary runway to be planned to meet C-II-2400 standards, the width standard increases to 100 feet. As such, the recommended development plan depicts an option to widen Runway 2-20 to 100 feet to meet this standard.

As shown on **Exhibit 36**, the plan also includes an option to extend Runway 20 by 1,300 feet, bringing the ultimate length on Runway 2-20 to 7,003 feet. To extend this runway, consideration will need to be given to meeting the line of sight and gradient standards associated with airplane design group (ADG) C. As discussed previously in the Facility Requirements section, gradient standards become more stringent for runways designed to accommodate ADG C aircraft, with a 0.8 percent maximum gradient tolerance for the first and last quarters of the runway. Runway 20 currently exceeds the gradient standard by 0.48 percent, so any extension project must include plans to correct the existing issue and ensure that the extended portion of the runway is within the 0.8 percent tolerance for the last quarter of the runway. Other connected actions to the extension, as they relate to safety areas and Taxiway D, will be discussed in later sections.

**Runway 16-34** | Runway 16-34 is currently 5,003 feet long by 75 feet wide, meeting runway width standards for B-II-5000. No changes to these runway dimensions are planned. Runway 16-34 is planned to be the additional runway which means that it will not be eligible to qualify for state and/or federal grant-in-aid funding assistance. Thus, all costs associated with its operation and maintenance will be entirely borne by Ector County.

***It should be noted that runway extensions on Runway 11-29 and Runway 2-20 are included for planning purposes only and are not currently justified. An extension project would require additional aircraft operations that demonstrate the need for increased runway length before TxDOT or the FAA will offer grant funding assistance for its construction.***

## **SAFETY AREAS**

An important consideration when planning the future of an airport is to identify any adjacent property that may need to be acquired to accommodate potential growth or to protect the airport from encroachment. Fee simple acquisition is not always possible, and in such cases the airport should consider acquisition of an aviation easement or employ restrictive height and hazard zoning to protect the airspace. **Exhibit 36** depicts areas planned for fee simple acquisition (purple shading) or protection via an aviation easement (pink shading) in the ultimate conditions. The paragraphs further detail each of these areas along with plans for mitigating any existing safety area obstructions.



In the existing B-II-4000 condition, the RSA and ROFA are fully contained on airport property, while portions of both RPZs extend beyond the airport’s boundary.

**Runway 11-29** | The safety areas associated with Runway 11-29 in a C-II-4000 environment, as pictured on the exhibit, are larger than what currently exist in the B-II-4000 condition. If Runway 11-29 continues to be planned as the primary runway, the sponsor should acquire fee simple approximately 0.3 acres of property to the west and approximately 2.7 acres of property to the east to control/protect the ultimate C-II-4000 ROFA (both runway ends) and a portion of the Runway 29 RPZ. Additionally, approximately 9.1 acres of the Runway 11 RPZ and 17.5 acres of the Runway 29 RPZ are planned to be protected via avigation easements.

Previously, Alternatives 1A and 3A were considered that included runway extension options which would have shifted the RPZs, resulting in a greater area of unprotected property than what currently exists. Secondary alternatives that included threshold displacements to bring safety areas, including RPZs onto airport property were also evaluated. Ultimately, following discussions with the airport sponsor and TxDOT, it was determined that none of these options were desirable or feasible at this time, and preference was given to maintaining the RPZs in their current locations, regardless of existing incompatibility located within them (i.e., roads, businesses, and residential [Runway 29 RPZ]). As such, the recommended development concept depicts a plan to acquire property in fee or protect it via avigation easement, as described above, but not take significant action to mitigate existing RPZ incompatibilities. As part of this planning process, the existing height/hazard zoning ordinance will be updated to limit the height of new development, including in the RPZs.

With the 600-foot planned extension to Runway 11, which would normally result in a shifted RPZ, an option to displace the Runway 11 threshold in its current location is presented to prevent the RPZ from extending onto additional incompatible land uses. Declared distances must be implemented, as shown on the second page of **Exhibit 36** and discussed previously in the Alternatives section. With a 600-foot displacement, aircraft departing from Runway 11 would have the full 6,800 feet of runway available, but landing operations on Runway 11 would be reduced to 6,200 feet (the current runway length). The take-off run available for aircraft departing Runway 29 would also be reduced to 6,200 feet, but the TODA, ASDA, and LDA would be published as the full 6,800 feet.

The plan also includes relocation of the airport’s perimeter fencing around the ultimate C-II ROFA for Runway 11-29 at each runway end.

**Runway 2-20** | Similar to Runway 11-29, the safety areas associated with Runway 2-20 would become larger in size if Runway 2-20 is selected as the primary runway. Further, if the runway is extended as shown on the north end, these safety areas would extend off airport property. Currently, the existing B-II-5000 safety areas are fully contained on the airport, with the exception of the Runway 2 RPZ. To plan for the potential for Runway 2-20 to serve as a C-II-2400 runway, the plan includes the fee simple acquisition of approximately 14.2 acres of property off the Runway 20 end, with property within the RPZs protected by avigation easement (54.3 acres in the Runway 20 RPZ and 3.2 acres in the Runway 2 RPZ).



On the Runway 20 end, the acquisition of 14.2 acres of property is necessary for the airport to control land within the ultimate RSA and ROFA, as well as the property on which planned the approach lighting system (MALSR) equipment would be located (MALSR to be discussed).

On the Runway 2 end, a C-II-2400 RSA and ROFA would extend beyond the airport’s property and over adjacent roadways and buildings. As such, the plan as presented also includes the displacement of the Runway 2 threshold. This displacement is also based upon maintaining the RPZ in its existing location in terms of uncontrolled property. **Exhibit 36** depicts an option to implement a GPS approach with 1-mile visibility minimums, which would increase the size of the RPZ. In order to NOT introduce additional incompatible land uses with the RPZ, the Runway 2 threshold must be displaced by 1,298 feet. The resulting declared distances are detailed on the second page of **Exhibit 36**. With a planned 7,003-foot-long runway surface, aircraft departing Runway 2 would have the full length of pavement available, but landing operations to this runway would be reduced to 5,705. Both takeoff and landing operations on Runway 20 would be reduced, with TORA and TODA set at 5,705 feet and ASDA and LDA set at 6,250 feet.

In terms of ultimate safety area obstructions, the concept plans to relocate the wind cones located near each end of Runway 2-20 outside of the ROFA.

***Again, it should be clearly noted that Runway 11-29 is the current primary runway and could remain as such. The proposed changes to Runway 2-20 would only be necessary if it were determined to be the better choice for primary runway at a later date. If it remains as the crosswind runway, its current design is adequate to meet long term plans.***

**Runway 16-34** | The RSA and ROFA associated with Runway 16-34 are fully contained on airport property and free of obstructions, except for the wind cones located at each runway end. As such, the plan depicts the relocation of the wind cones outside of Runway 16-34’s ROFA. The RPZs at each runway end are located partially off airport property and contain existing incompatibilities. However, as discussed previously, these land uses are planned to remain as there are no changes proposed to this runway. If feasible, the airport should acquire aviation easements over the uncontrolled portions of the RPZs in order to restrict future structure heights.

## **PAVEMENT STRENGTH**

The existing pavement strength rating for Runway 11-29 is 30,000 pounds SWL, while Runways 2-20 and 16-34 are rated at 14,000 pounds SWL. **Exhibit 36** depicts an option to strengthen either Runway 11-29 or 2-20, depending on which runway is ultimately selected to function as the primary runway. This recommendation is based upon the types of aircraft anticipated to utilize the runway most frequently. At ODO, the most frequent C-II operator in recent years has been the Gulfstream 280, with the Citation III and Gulfstream 100/150 also conducting regular operations. These aircraft have maximum takeoff weights that range between 22,000 pounds and 39,600 pounds. As such, the recommended development concept includes a plan to strengthen the ultimate primary runway to 60,000 pounds DWL to better accommodate these and other C-II aircraft. The existing pavement strength for Runway 16-34 is planned to be maintained at 14,000 pounds SWL.





## TAXIWAYS

The existing taxiway system at ODO generally allows for efficient aircraft movements. However, as shown on the recommended development concept, several changes are planned for the purpose of improving efficiency and meeting the FAA's preferred design for taxiways. It should be noted that all taxiways at ODO are at least 35 feet wide, and these surfaces are planned to be maintained at this width at a minimum. Maintenance of taxiway pavement that exceeds 35 feet, which is the standard for Group II design, may be the responsibility of the sponsor. All new taxiway pavement is planned for a width of 35 feet.

**Parallel Taxiway** | The FAA recommends that parallel taxiways be provided for runways with published instrument approach procedures with visibility minimums below 1-mile. Currently, only Runway 11-29 offers this capability, and a partial-parallel taxiway is available (Taxiway G serving the Runway 11 end). Taxiway G is separated from the runway by 400 feet, which meets the minimum runway-to-taxiway separation standard of 300 feet for a C-II-4000 runway. If Runway 11-29 continues to serve as the primary runway, a full-length parallel taxiway should be provided. The recommended development concept includes a plan for Taxiway G to be extended to the east to connect to existing Taxiway F, providing access to the Runway 29 threshold.

Options for a full-length parallel taxiway serving Runway 2-20 were also considered but were ultimately rejected due to the confusion that would result from the additional intersections, as well as the potential for hot spots. Currently, Taxiway D serves as a partial-parallel taxiway to Runway 2-20, separated from the runway by 300 feet and extending south from the Runway 20 end and connecting to Taxiway C at midfield. If Runway 2-20 were ultimately selected as the primary runway with an RDC of C-II-2400, the separation standard for a parallel taxiway would increase to 400 feet. Thus, the recommended plan includes an option to remove existing Taxiway D pavement and construct a new partial-parallel taxiway with a 400-foot separation from Runway 2-20, as pictured on **Exhibit 36**.

**Taxiway E** | Taxiway E currently extends from the south ramp to Runway 16-34. The recommended development concept plans for Taxiway E to be extended across Runway 16-34 to connect to the proposed extension of Taxiway G. This will also allow for an additional exit from Runway 11-29.

**Taxiway G** | As mentioned, Taxiway G is planned to be extended to the east to provide for a full-length parallel runway serving Runway 11-29. Currently, the taxiway section connecting Runway 11 and Runway 16 is also designated as Taxiway G. An extension of this taxiway is planned, crossing Runway 16 and connecting to the existing Runway 20 threshold. This proposed taxiway is planned to provide access to/from Runway 2-20, as well as connect a proposed landside development area to the airfield.

**Geometry Corrections** | As outlined in the Facility Requirements section, there are several non-standard taxiway conditions that exist currently at ODO. Where Taxiway E provides direct access from the south ramp to Runway 2-20, a no-taxi island is planned on the south ramp at the entrance to Taxiway E. Installation of a no-taxi island functions to force pilots to make a turn prior to entering a runway environment, improving situational awareness and reducing the chance for inadvertently crossing the runway. With the planned closure of Taxiway D, other non-standard conditions are mitigated, including high-energy crossings and acute-angled connections. It should be noted that the plan as depicted does not allow for the mitigation of all high-energy crossings or acute-angled intersections, due to the continuance of a three-runway system.



**Taxiway Nomenclature** | Current taxiway designations do not meet FAA Engineering Brief (EB) 89, *Taxiway Nomenclature Convention* standards. According to the EB, stub taxiways associated with a parallel taxiway should be designated with a letter and number, such as A1, A2, A3, etc., beginning with the northernmost stub for north/south taxiways and starting with the westernmost stub for east/west taxiways. Ultimate taxiway designations that meet the EB standards should be planned once the airport sponsor selects a primary runway and the taxiway system to be constructed has been established.

## HOLDING POSITIONS

The separation standard for holding position markings is based upon a runway's RDC. For Runway 11-29 with a potential ultimate transition to RDC C-II-4000, the separation standard is 250 feet. All hold lines leading to this runway are currently separated from the runway centerline by 250 feet, meeting that standard. All proposed taxiways serving this runway are planned to be marked with holding positions separated by 250 feet.

If Runway 2-20 is ultimately selected to serve as the primary runway with an RDC of C-II-2400, the separation standard for holding positions is 250 feet from the runway centerline. Currently, holding positions are separated from this runway by 200 feet, with the exception of the Taxiway G crossing which has hold lines 300 feet from the centerline. As such, the plan includes the re-marking of holding positions serving Runway 2-20 to be at least 250 from the centerline. Proposed taxiway pavement would also be marked with hold lines located 250 feet from the Runway 2-20 centerline.

The separation standard for holding positions serving Runway 16-34 is 200 feet, which is currently met. New taxiway pavement is planned to be marked with holding positions 200 feet from this runway's centerline.

## HOLDING BAYS

Each runway end at ODO has a holding bay for aircraft to perform pre-flight engine checks. However, these holding bays are of a non-standard design. The FAA has published preferred design standards for holding bays that include clear entrance/exit points and independent parking areas separated by islands or are clearly marked with centerlines to allow for independent aircraft movements. The recommended development concept plans for the existing non-standard hold bays on each runway end to be removed, with new standard holding bays planned on Taxiway G at the Runway 11 end, on Taxiway F at the Runway 29 end, and on the new Taxiway D pavement at the extended Runway 20 end.

## INSTRUMENT APPROACH PROCEDURES

Currently, there are three published instrument approach procedures offered at ODO. Each end of Runway 11-29 has an LPV GPS approach with visibility minimums not lower than  $\frac{3}{4}$ -mile, while Runway 20 offers an LNAV GPS approach with 1-mile visibility minimums. The alternatives in the previous section



examined several options for improved instrument approach capability at the airport. Ultimately, it was determined that the runway with the greatest potential of providing an approach with minimums below  $\frac{3}{4}$ -mile was Runway 20, due to the current lack of development on approach to this runway. As such, the recommended development concept maintains the existing instrument capability to Runways 11 and 29, while Runway 20 is planned for the potential of a  $\frac{1}{2}$ -mile LPV GPS approach. Runway 2 is also planned for the potential of a GPS approach with 1-mile visibility minimums. Approaches to 16-34 are planned to remain visual or not lower than 1-mile, though it should be noted that a 1-mile approach is currently under review by the FAA for Runway 16.

## VISUAL AIDS

The airfield at ODO currently offers a variety of visual aids for aircraft on approach to any of the runway ends. Runway 11-29 is equipped with four-box PAPIs at each runway end, and the recommended development concept plans for these to be maintained. If Runway 11 is extended, the PAPI-4 system serving this runway is planned to be relocated at that time. Runway 11-29 is also equipped with approach lighting systems (MALS) at each runway end. These systems are planned to be maintained, with the Runway 11 MALS modified if/when that runway is extended.

Runway 2-20 is planned to be equipped with PAPI-4s to replace the VASI system currently serving each runway end. REILs are planned for Runway 2, while a MALSR approach lighting system is planned for Runway 20 to support the proposed  $\frac{1}{2}$ -mile LPV GPS approach.

Runway 16-34 is presently served by PAPI-2s on each approach end. These are planned to be maintained in the ultimate condition, with REILs added at each runway end.

## AIRFIELD MARKING, LIGHTING, AND SIGNAGE

The recommended development concept includes the continuation of non-precision runway markings on all runways except for Runway 20. If Runway 2-20 is selected as the primary runway and if an LPV GPS approach with  $\frac{1}{2}$ -mile visibility minimums is implemented, the runway is planned to be re-marked with precision markings at this runway end. This would include the addition of touchdown zone markings and side stripes.

The airfield is currently equipped with medium intensity runway lighting (MIRL). MIRL is planned to be maintained, with new fixtures added to any extended portions of runway pavement. All taxiways on the airfield are planned to be equipped with medium intensity taxiway lighting (MITL), with the existing green centerline reflectors maintained for added visibility.

The plan also maintains all existing airfield signage, with the addition of new LED signage as new pavements are constructed. Any existing incandescent signage is planned to be transitioned to LED lighting when replacements are necessary.



## WEATHER REPORTING EQUIPMENT

Weather reporting equipment at ODO includes a centrally located lighted wind cone, supplemental wind cones located at the ends of Runways 2-20 and 16-34, and a tetrahedron near the south ramp. The airport also has an automated surface observation system (ASOS) located west of Runway 2. All existing equipment is planned to be maintained; however, the supplemental wind cones are planned to be relocated outside of the Runway 2-20 and 16-34 ROFAs, as described previously. The tetrahedron and ASOS are planned to be maintained in their existing locations. The 500-foot critical area associated with the ASOS is currently free from equipment or structures that could interfere with the sensors, and the recommended concept maintains this critical area free from potential interferences.

## LANDSIDE DEVELOPMENT

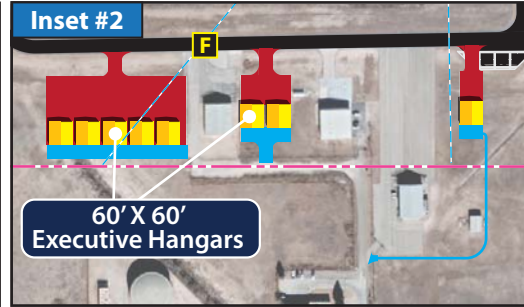
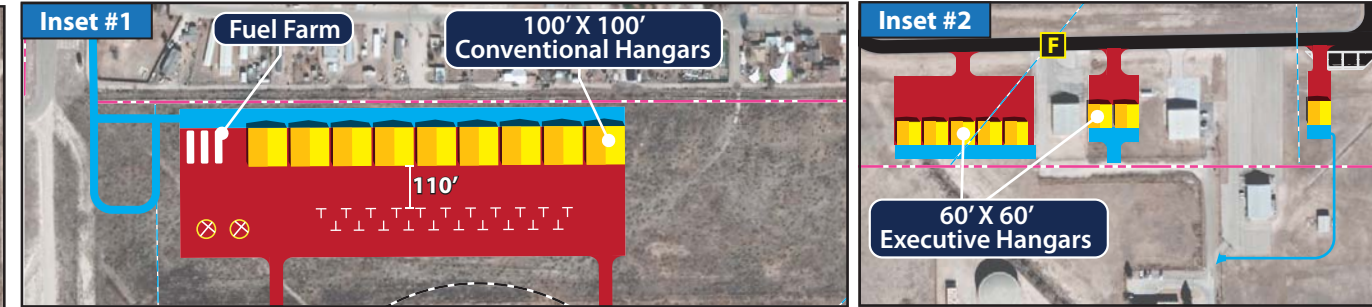
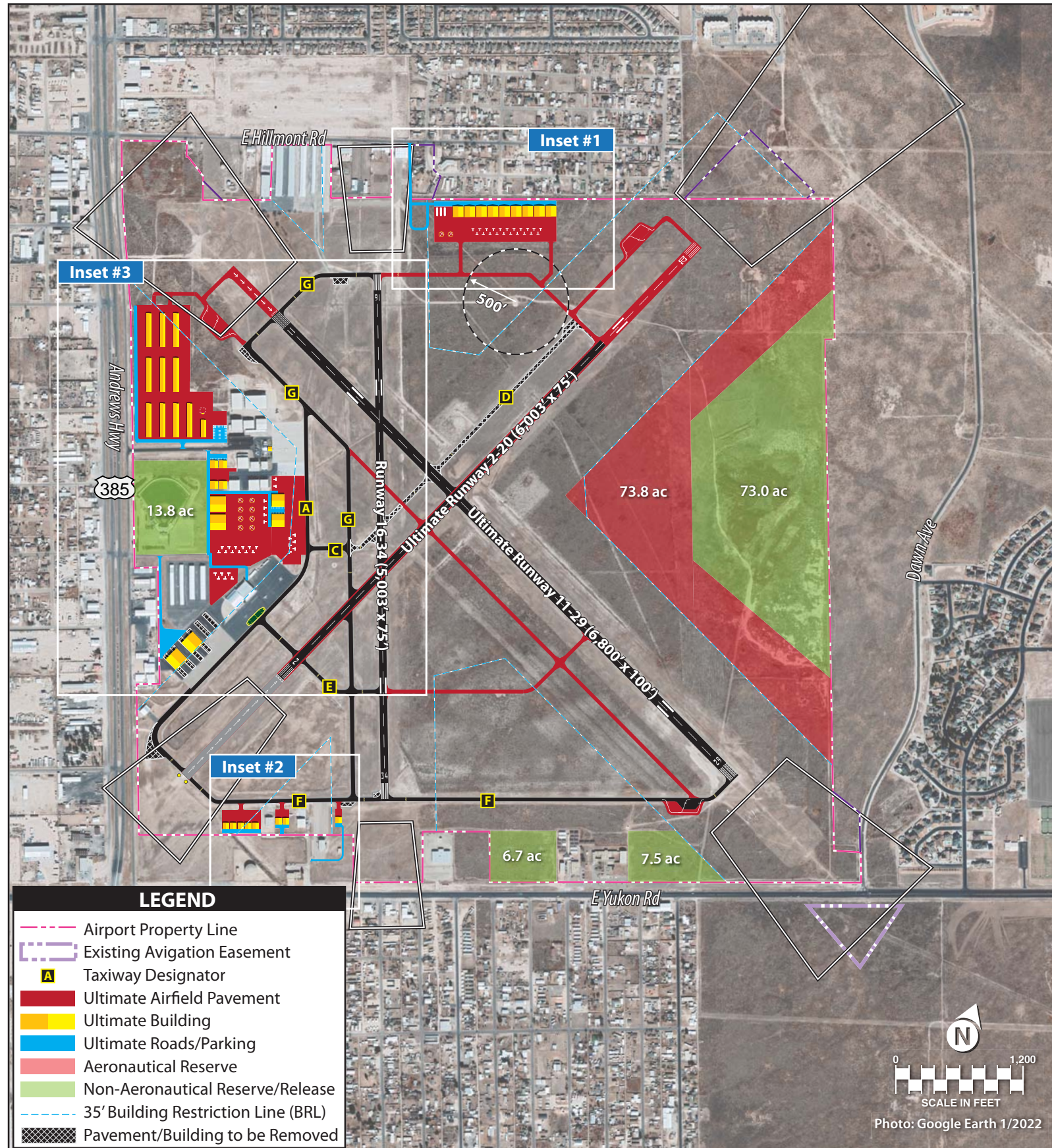
Ultimate landside development at ODO is generally focused on three areas: 1) expanded development in the terminal area; 2) new development on the north side accessible from E. Hillmont Road; 3) and new development on the south side accessible from E. Yukon Road. Additional portions of the airport's property have been identified as suitable for aviation or non-aviation development. The landside development plan is depicted on **Exhibit 37**.

A 35-foot building restriction line (BRL) is depicted on the exhibit, set 745 feet from the Runway 11-29 and Runway 2-20 centerlines, and at 495 feet from the Runway 16-34 centerline. The BRL is based on Part 77 primary and transitional surface clearance requirements and identifies suitable building locations on the airport. It should be noted that the BRL does not serve as a standard, but rather a guideline for vertical development. Structures should generally be planned behind the BRL to ensure they do not penetrate the transitional surface; however, through coordination with FAA, exceptions can be made. Prior to construction of any new structures on the airport, coordination with FAA should be conducted to ensure there are no impacts to Part 77 surfaces.

**Terminal Area Development** | The bulk of expanded apron and hangar facilities are planned in the terminal area. On the east side of the terminal, the ramp is planned to be expanded to support additional conventional hangars and provide additional parking for both fixed wing aircraft and helicopters. As shown on **Exhibit 37**, the taxiway that extends from the existing terminal ramp is planned to be extended to accommodate additional executive hangars. Vehicle access roads and parking lots are also planned to serve tenants of these proposed facilities.

West of the terminal, a T-hangar complex is proposed. Aircraft would be provided access via an extended taxiway that currently serves the conventional hangars in the area west of the terminal, as well as a pair of proposed taxiways connecting to extended Taxiway G at the Runway 11 end. A new vehicle access road and aircraft wash rack are also planned for tenants in this area.

The Facility Needs identified a need for more space in the terminal building by the end of the 20-year planning period. As such, the recommended concept includes an option to expand the terminal by 1,200 sf, as well as an expansion to the vehicle parking lot.



**LEGEND**

- Airport Property Line
- Existing Avigation Easement
- Taxiway Designator
- Ultimate Airfield Pavement
- Ultimate Building
- Ultimate Roads/Parking
- Aeronautical Reserve
- Non-Aeronautical Reserve/Release
- 35' Building Restriction Line (BRL)
- Pavement/Building to be Removed

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**North Side Development** | Currently, limited development exists on the north side of the airfield. However, there is significant potential in this area for additional landside facilities. A new apron is proposed between the approaches to Runways 16 and 20, with access provided via a new taxiway connecting these runway ends. Development in this area could be accessed by vehicle from E. Hillmont Road, with a new roadway extending south from Hillmont to provide access and parking to tenants. This area also includes marked aircraft parking, as well as a secondary fuel farm.

**South Side Development** | Proposed development on the airport’s south side is concentrated in two areas: expanded box hangar facilities east of Runway 2 and conversion of T-hangars to conventional hangars on the south ramp west of Runway 2. Beginning on the east side of Runway 2, executive hangars are planned along Taxiway F, with new vehicle access roads extended from the existing access serving hangars and other facilities in this area. West of Runway 2, there are several T-hangars that are in poor condition and will need to be refurbished or replaced at some point. When that time comes, the recommendation is for this area be repurposed to provide additional aircraft parking and to support conventional hangars that could be utilized for an aviation-related business.

There are also tiedowns on the south ramp that are located within the TOFA/TLOFA (see Exhibit 27). These parking positions should be reconfigured so they are located outside these taxiway/taxilane safety areas. An additional aircraft parking area is planned adjacent to the existing T-hangars that are planned to remain. The plan calls for an expansion of the pavement serving the T-hangars in this area that will allow for the addition of more tiedowns.

**Reserve Parcels** | The recommended plan also includes potential aviation reserve and non-aeronautical reserve areas. Approximately 73.8 acres along the flightlines of Runways 11-29 and 2-20, shown in orange shading, are planned for future aviation uses. This could include the addition of more landside facilities such as apron space and hangar facilities, as well as the possibility for facilities designed to accommodate unmanned aircraft system (UAS) growth potential. With the emerging market for electric vertical takeoff and landing (EVTOL) aircraft, it is appropriate and prudent to plan for the eventual construction of facilities to support operations in this segment of the industry.

The plan also shows approximately 101.0 acres of property in green shading that is reserved for future non-aeronautical development. This is property that offers less potential for future aeronautical uses, and therefore may be better served for non-aviation uses that can serve to generate revenue for the sponsor. This includes approximately 12.0 acres of property currently being utilized by Odessa College for the operation of Wrangler Field.

## **ENVIRONMENTAL OVERVIEW**

An analysis of potential environmental impacts associated with proposed airport projects is an essential consideration in the airport layout plan update process. The primary purpose of this discussion is to review the recommended development concept (**Exhibit 36**) and associated capital program at the airport to determine whether projects identified in the airport layout plan update could, individually or collectively, significantly impact existing environmental resources. Information contained in this section was obtained from previous studies, official internet websites, and analysis by the consultant.



The *FAA Reauthorization Act of 2018* (Act) changed how the FAA historically operates with respect to airport oversight. Section 163 of the Act limits the FAA’s approval authority over certain projects. Pursuant to Section 163, when a sponsor submits a change to the airport layout plan (ALP) for a project that would not be federally funded, requests a change in land use from aeronautical to non-aeronautical, or requests to dispose of airport-owned land, the FAA would need to determine if the proposal would be subject to the agency’s approval authority. This approval is a two-step process. The FAA exercises its regulatory authority consistent with the Act and separately examines and reaches a determination regarding its authority under both of the following steps. First, the FAA determines if they have ALP approval authority under Section 163 of the Act. The second step is to determine how the land was acquired and if land release obligations are required. Projects depicted on the ALP that were approved prior to the Act must be evaluated to determine whether FAA retains their approval authority.

If FAA retains approval authority over a project, then the project is typically subject to the *National Environmental Policy Act* (NEPA). For projects not categorically excluded under FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, compliance with NEPA is generally satisfied through the preparation of an environmental assessment (EA). In instances where significant environmental impacts are expected, an environmental impact statement (EIS) may be required.

The following portion of the airport layout plan update is not designed to satisfy the NEPA requirements for a specific development project, but it provides a preliminary review of environmental issues that may need to be considered in more detail within the environmental review processes. It is important to note that the FAA is ultimately responsible for determining the level of environmental documentation required for airport actions.

The environmental inventory included in the first section of this report provides baseline information about the airport environs. This section provides an overview of potential impacts to existing resources that could result from implementation of the planned improvements outlined on the recommended development concept.

**Table 41** summarizes potential environmental concerns associated with implementation of the recommended development concept for Odessa Airport-Schlemeyer Field. Analysis under NEPA includes effects or impacts a proposed action or alternative may have on the human environment (see 40 Code of Federal Regulations [CFR] §1508.1). Effects have been recently defined in the Council of Environmental Quality guidelines as changes that are not only reasonably foreseeable but those that have a close causal relationship to the proposed action or alternatives.





**TABLE 41 | Summary of Potential Environmental Concerns**

AIR QUALITY	
<p><b>FAA Order 1050.1F, Significance Threshold/Factors to Consider</b></p>	<p><b>Threshold:</b> The action would cause pollutant concentrations to exceed one or more of the National Ambient Air Quality Standards (NAAQS), as established by the United States (U.S.) Environmental Protection Agency (EPA) under the <i>Clean Air Act</i>, for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations.</p>
<p><b>Potential Environmental Concerns</b></p>	<p><b>Potential Impact.</b> An increase in operations could occur over the 20-year planning horizon of the development concept (<b>Exhibit 36</b>) that would likely result in additional emissions. Ector County currently complies with federal NAAQS requirements; therefore, general conformity review per the <i>Clean Air Act</i> is not required. According to the most recent FAA <i>Aviation Emissions and Air Quality Handbook</i> (2015), an emissions inventory under NEPA may be necessary for any proposed action that would result in a reasonably foreseeable increase in emissions due to plan implementation.</p> <p>For construction emissions, a qualitative or quantitative emissions inventory under NEPA may be required, depending on the type of environmental review needed for projects defined on the development plan concept.</p>
BIOLOGICAL RESOURCES	
<p><b>FAA Order 1050.1F, Significance Threshold/Factors to Consider</b></p>	<p><b>Threshold:</b> The U.S. Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS) determines that the action would be likely to jeopardize the continued existence of a federally listed threatened or endangered species or would result in the destruction or adverse modification of federally designated critical habitat.</p> <p>FAA has not established a significance threshold for non-listed species. However, factors to consider are if an action would have the potential for:</p> <ul style="list-style-type: none"> <li>• Long-term or permanent loss of unlisted plant or wildlife species;</li> <li>• Adverse impacts to special status species or their habitats;</li> <li>• Substantial loss, reduction, degradation, disturbance, or fragmentation of native species' habitats or their populations; or</li> <li>• Adverse impacts on a species' reproductive rates, non-natural mortality, or ability to sustain the minimum population levels required for population maintenance.</li> </ul>
<p><b>Potential Environmental Concerns</b></p>	<p><u>Federally Protected Species</u></p> <p><b>Potential Impact.</b> According to the USFWS Information for Planning and Consultation (IPaC) report, there is the potential for four candidate, threatened, or endangered species within the vicinity of the airport: northern aplomado falcon (<i>Falco femoralis septentrionalis</i>), piper plover (<i>Charadrius melodus</i>), red knot (<i>Calidris canutus rufa</i>), and monarch butterfly (<i>Danaus plexippus</i>).</p> <p>Of the four species listed above, only the northern aplomado falcon and monarch butterfly have potential habitat at the airport. These two respective species may inhabit spaces that contain trees or shrubs and, thus, any projects impacting trees or vegetation have the potential to adversely impact these species.</p> <p>Proposed development in the western and northern portion of the airport related to new hangars and their associated infrastructure (i.e., ultimate airfield pavement and ultimate roads/parking) are in areas populated with vegetation and may be of concern. If trees or other vegetation are removed in these areas, a bird survey may be warranted prior to project approval.</p> <p>In addition to this, monarch butterflies inhabit areas that contain milkweed (<i>Asclepias sp.</i>) and other types of vegetation. Thus, habitat surveys (i.e., botanical surveys) may be necessary prior to project development in vegetated areas.</p> <p><u>Designated Critical Habitat</u></p> <p><b>No Impact.</b> There are no critical habitats at the airport.</p> <p><u>Non-Listed Species</u></p> <p><b>Potential Impact.</b> Non-listed species of concern include those protected by the <i>Migratory Bird Treaty Act (MBTA)</i> and the <i>Bald and Golden Eagle Protection Act</i>. Although, there are no migratory birds of conservation expected to occur at the airport, there may be potential for occurrence for other migratory bird species protected under the MBTA. Bird species protected by the MBTA could be adversely affected if construction occurs during the nesting and breeding seasons (typically May through September). Pre-construction surveys of vegetated areas at the airport are recommended for projects where ground clearing would occur unless happening outside the nesting and breeding seasons. Projects related to proposed hangar development and associated infrastructure in the western and northern portion of the airport contain vegetation and may be areas of concern.</p>



**TABLE 41 | Summary of Potential Environmental Concerns (continued)**

CLIMATE	
FAA Order 1050.1F, Significance Threshold/Factors to Consider	FAA has not established a significance threshold for Climate; refer to FAA Order 1050.1F's, <i>Desk Reference</i> , for the most up-to-date methodology for examining impacts associated with climate change.
Potential Environmental Concerns	<b>Unknown.</b> An increase in greenhouse gas (GHG) emissions could occur over the 20-year planning horizon of the airport layout plan update. A project-specific analysis may be required per the FAA Order 1050.1F, <i>Environmental Impacts: Policies and Procedures</i> , based on the parameters of the individual projects; however, at this time FAA does not have an impact threshold to use to determine significance under NEPA.
COASTAL RESOURCES	
FAA Order 1050.1F, Significance Threshold/Factors to Consider	FAA has not established a significant threshold for Coastal Resources.
Potential Environmental Concerns	<b>No Impact.</b> The airport is not located within a coastal zone.
DEPARTMENT OF TRANSPORTATION ACT, SECTION 4(f)	
FAA Order 1050.1F, Significance Threshold/Factors to Consider	<b>Threshold: The action involves more than a minimal physical use of a Section 4(f) resource or constitutes a "constructive use" based on an FAA determination that the aviation project would substantially impair the Section 4(f) resource. Resources that are protected by Section 4(f) are publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, and publicly or privately owned land from an historic site of national, state, or local significance. Substantial impairment occurs when the activities, features, or attributes of the resource that contribute to its significance or enjoyment are substantially diminished.</b>
Potential Environmental Concerns	<b>Potential Impact.</b> There are no wilderness areas, public recreational facilities, or National Register of Historic Places (NRHP)-listed resources that would be impacted by proposed development at the airport. The closest known potential Section 4(f) resource is the Alternative Education Center, located 0.2 mile to the southeast. However, any airport structures 50 years or older should be evaluated for historic significance prior to alteration or demolition. If determined to be a significant historic resource, they would likely qualify as a Section 4(f) resource.
FARMLANDS	
FAA Order 1050.1F, Significance Threshold/Factors to Consider	<b>Threshold: The total combined score on Form AD-1006, <i>Farmland Conversion Impact Rating</i>," ranges between 200 and 260.</b> (Form AD-1006 is used by the U.S. Department of Agriculture, Natural Resources Conservation Service [NRCS] to assess impacts under the <i>Farmland Protection Policy Act</i> [FPPA].)  FPPA applies when airport activities meet the following conditions: <ul style="list-style-type: none"> <li>• Federal funds are involved;</li> <li>• The action involves the potential for the irreversible conversion of important farmlands to non-agricultural uses. Important farmlands include pastureland, cropland, and forest considered to be prime, unique, or statewide or locally important land; or</li> <li>• None of the exemptions to FPPA apply. These exemptions include: <ul style="list-style-type: none"> <li>○ When land is not considered "farmland" under FPPA; such as land already developed or already irreversibly converted. These instances include when land is designated as an urban area by the U.S. Census Bureau or the existing footprint includes rights-of-way.</li> <li>○ When land is already committed to urban development.</li> <li>○ When land is committed to water storage.</li> <li>○ The construction of non-farm structures necessary to support farming operations.</li> <li>○ The construction/land development for national defense purposes.</li> </ul> </li> </ul>
Potential Environmental Concerns	<b>No Impact.</b> According to the NRCS Web Soil Survey (WSS), the airport is designated as not prime farmland.



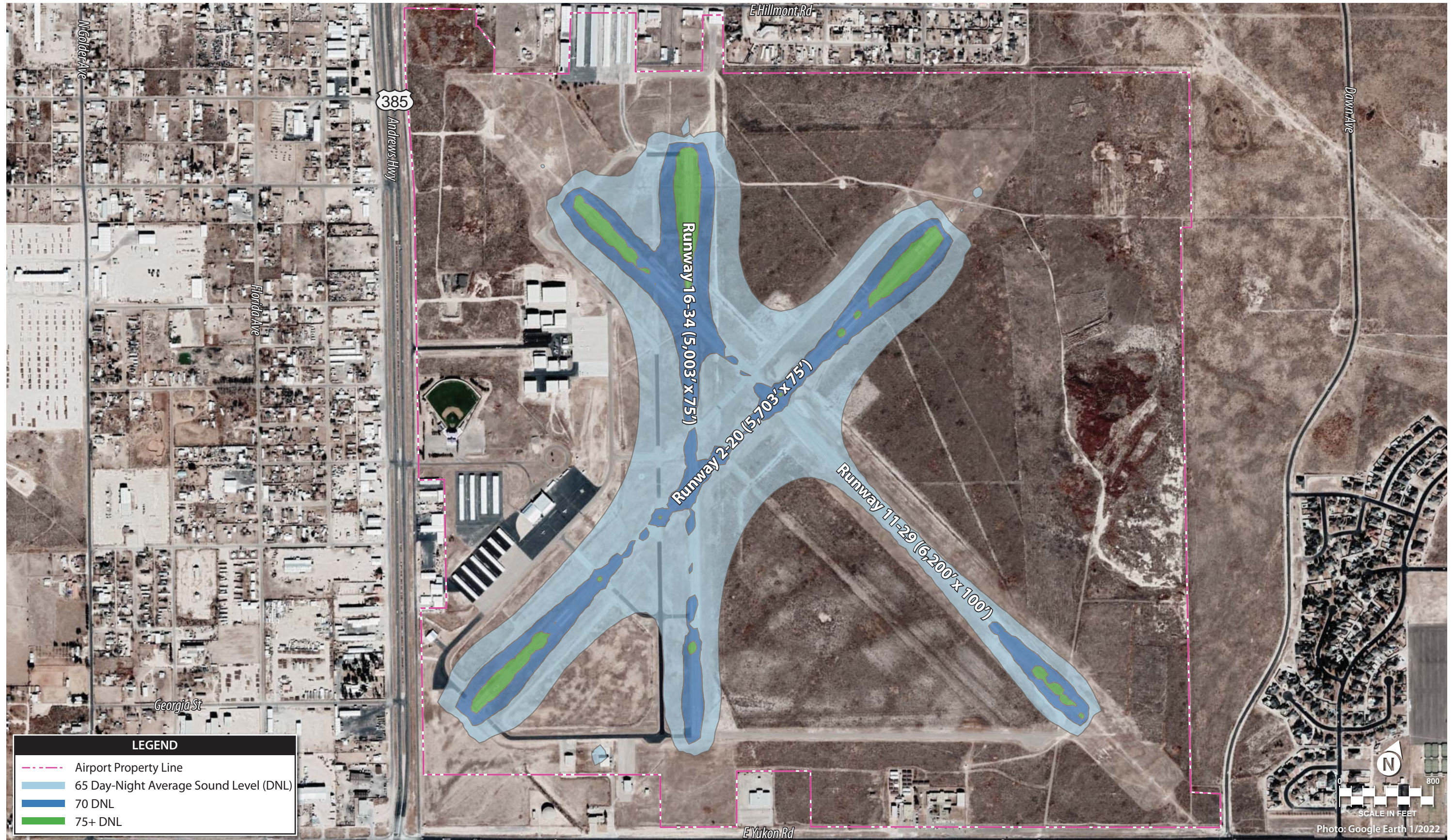
**TABLE 41 | Summary of Potential Environmental Concerns (continued)**

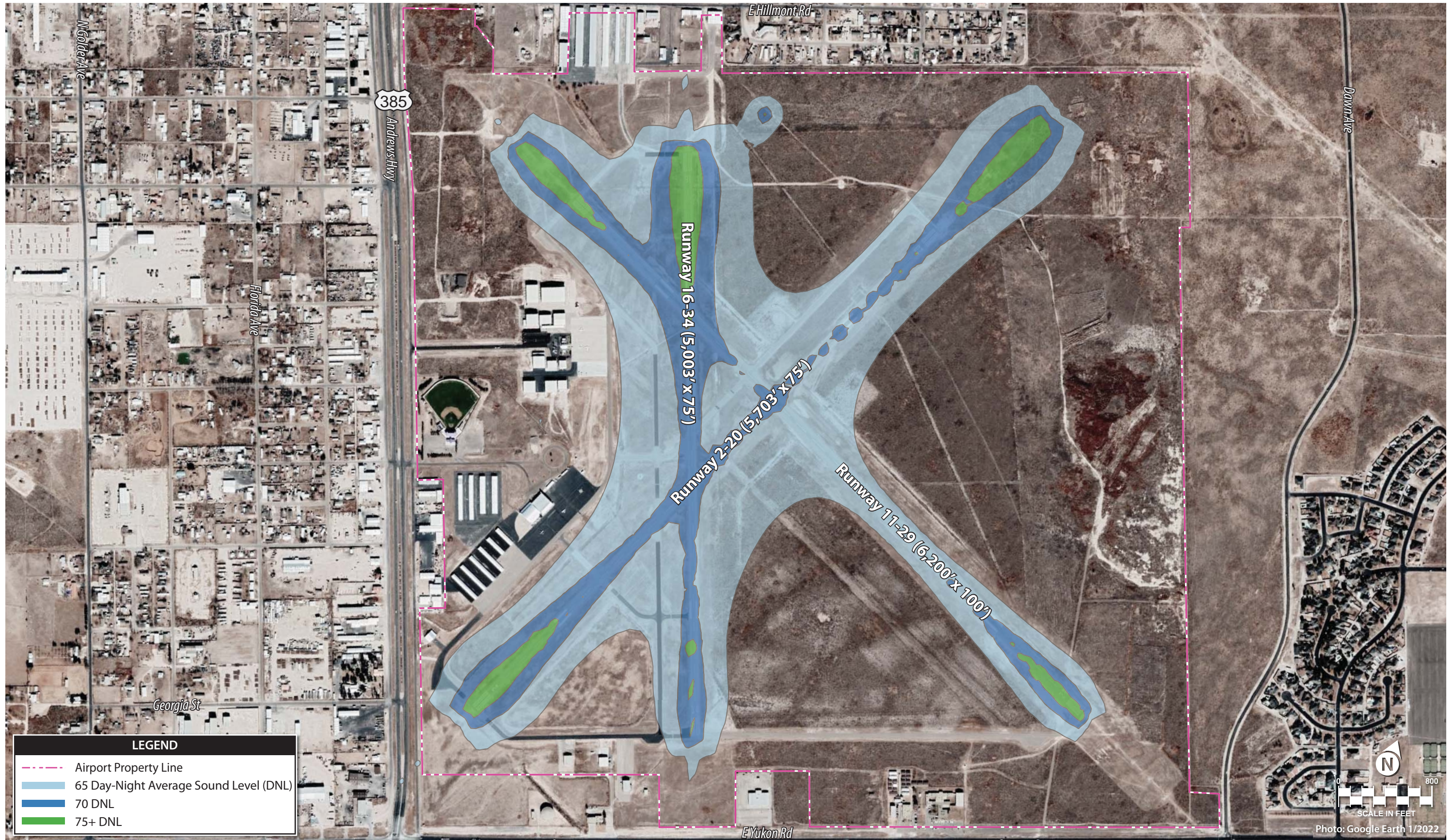
HAZARDOUS MATERIALS, SOLID WASTE, AND POLLUTION PREVENTION	
<p><b>FAA Order 1050.1F, Significance Threshold/Factors to Consider</b></p>	<p>FAA has not established a significance threshold for Hazardous Materials, Solid Waste, and Pollution Prevention. However, factors to consider are if an action would have the potential to:</p> <ul style="list-style-type: none"> <li>• Violate applicable federal, state, tribal, or local laws or regulations regarding hazardous materials and/or solid waste management;</li> <li>• Involve a contaminated site;</li> <li>• Produce an appreciably different quantity or type of hazardous waste;</li> <li>• Generate an appreciably different quantity or type of solid waste or use a different method of collection or disposal and/or would exceed local capacity; or</li> <li>• Adversely affect human health and the environment.</li> </ul>
<p><b>Potential Environmental Concerns</b></p>	<p><b>No Impact.</b> There are no identified brownfields located within a one-mile buffer of the airport. The nearest Superfund is located 0.3 mile south of the airport.</p> <p>Because of the existing regulatory environment regarding hazardous materials and waste and stormwater management, no impacts related to ultimate airport development are anticipated. There is one FBO (Texas Aero) that offers fuel services at the airport. The FBO is required to maintain spill response procedures to minimize non-stormwater discharges from contaminating waterways under federal regulations. Proposed landside development includes a new fuel facility along the north portion of the airport. Similar to the FBO, the proposed fuel facility will be required to manage and maintain spill response procedures (i.e., a Spill Prevention Control and Countermeasure [SPCC]).</p> <p>Ultimate airport improvements could include additional hangars and associated infrastructure, extending Ultimate Runway 11-29 or extending and widening Ultimate Runway 2-20, relocating wind cones, installing new runway lighting, and creating standard holding bays (<b>Exhibit 36</b>). The construction of planned developments would temporarily increase solid waste. The closest landfill, Odessa Landfill, is located more than 11 miles southwest from the airport. No impacts related to solid waste disposal are expected.</p> <p>See discussion on Surface Water for information on water quality pollution prevention.</p>
HISTORIC, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES	
<p><b>FAA Order 1050.1F, Significance Threshold/Factors to Consider</b></p>	<p>FAA has not established a significance threshold for Historical, Architectural, Archaeological, and Cultural Resources. Factors to consider are if an action would result in a finding of “adverse effect” through the Section 106 process. However, an adverse effect finding does not automatically trigger preparation of an EIS (i.e., a significant impact).</p>
<p><b>Potential Environmental Concerns</b></p>	<p><b>No Impact.</b> The closest resource listed on the National Register of Historic Places (NRHP) is the White-Pool House, located five miles south of the airport, and thus, is not located near any proposed airfield improvements.</p> <p>An airport-wide cultural resources survey should be completed to evaluate any other cultural resources at the airport. The FAA would then determine the level of effect that airport projects would have on these historic properties under NEPA and through the <i>National Historic Preservation Act’s</i> Section 106 process. If previously undocumented buried cultural resources are identified during ground-disturbing activities for ultimate airport development, all work must immediately cease within 30 meters (100 feet) until a qualified archaeologist has documented the discovery and evaluated its eligibility for the NRHP, as appropriate. Work must not resume in the area without approval of FAA.</p>



**TABLE 41 | Summary of Potential Environmental Concerns (continued)**

LAND USE	
<p><b>FAA Order 1050.1F, Significance Threshold/Factors to Consider</b></p>	<p>FAA has not established a significance threshold for Land Use. There are also no specific independent factors to consider. The determination that significant impacts exist is normally dependent on the significance of other impacts.</p> <p><b>Potential Impact.</b> Proposed airport improvements include new hangars, a potential runway extension of Runway 11-29, a runway extension/widening of Runway 2-20, acquiring an easement in the RPZs for Runway 16-34, Ultimate Runway 11-29, and Ultimate Runway 2-20, a 1,200 sf terminal expansion, a vehicle parking expansion for the terminal parking lot, new roads/parking, an area for aeronautical reserve, a non-aeronautical reserve/release area, installing new airfield lighting, relocating wind cones, relocating a portion of the perimeter fence on the southeastern portion of the airport, and a new fuel facility. (See <b>Exhibit 36</b>).</p>
<p><b>Potential Environmental Concerns</b></p>	<p>The properties to be protected by aviation easements are in the RPZ, with some in areas containing existing structures. The acquisition of aviation easements would result in height restrictions on future development but would not apply to the existing structures. The properties obtained through fee simple acquisitions in or near the RPZ would also reduce the possibility of natural growth or man-made obstructions. The fee simple acquisition south of East Hillmont Road is located within a residential community and may relocate residents in this area. As a result, the <i>Uniform Relocation Assistance and Real Property Acquisitions Act</i> (URA) may need to be enacted. See discussion on Socioeconomics for more information on the URA.</p> <p>There are several residential areas in proximity to airport property boundaries. The nearest proposed development to these residential areas would be the construction of the proposed hangars on the north portion of the airport south of East Hillmont Road; however, this proposed development would be contained within the airport boundaries and would not relocate any nearby residential areas.</p>
NATURAL RESOURCES AND ENERGY SUPPLY	
<p><b>FAA Order 1050.1F, Significance Threshold/Factors to Consider</b></p>	<p>FAA has not established a significance threshold for Natural Resources and Energy Supply. However, factors to consider are if an action would have the potential to cause demand to exceed available or future supplies of these resources.</p>
<p><b>Potential Environmental Concerns</b></p>	<p><b>No Impact.</b> Planned development projects at the airport could increase demands on energy utilities, water supplies and treatment, and other natural resources during construction; however, significant long-term impacts are not anticipated. Should long-term impacts be a concern, coordination with local service providers is recommended.</p>
NOISE AND NOISE-SENSITIVE LAND USE	
<p><b>FAA Order 1050.1F, Significance Threshold/Factors to Consider</b></p>	<p><b>Threshold: The action would increase noise by Day-Night Average Sound Level (DNL) 1.5 decibel (dB) or more for a noise-sensitive area that is exposed to noise at or above the DNL 65 dB noise exposure level, or that will be exposed at or above the DNL 65 dB level due to a DNL 1.5 dB or greater increase, when compared to the no action alternative for the same timeframe.</b></p>
<p><b>Potential Environmental Concerns</b></p>	<p>Another factor to consider is that special consideration needs to be given to the evaluation of the significance of noise impacts on noise-sensitive areas within Section 4(f) properties where the land use compatibility guidelines in Title 14 CFR Part 150 are not relevant to the value, significance, and enjoyment of the area in question.</p> <p><b>Potential Impact.</b> Residential communities are located within the vicinity of the airport. There are a few noise-sensitive land uses, including places of worship and schools near the airport. The ultimate development at the airport is not expected to change the overall noise environment more than the 1.5 dB threshold; however, this should be confirmed prior to implementing a runway extension/widening along proposed Ultimate Runway 2-20 and runway extension at proposed Ultimate Runway 11-29.</p> <p><b>Exhibit 38</b> shows existing and anticipated noise contours for the airport. As shown on the exhibit for existing conditions, the DNL 65 dB noise exposure remains on airport property. In the 2042 condition, the DNL 65 dB noise exposure contour expands around the runways, but remains on airport property.</p> <p>Operation growth will not result in noise impacts under FAA 1050.1F. Impacts to noise-sensitive land uses are only identified through NEPA documentation for specific projects or through the voluntary Part 150 process.</p>







**TABLE 41 | Summary of Potential Environmental Concerns (continued)**

**SOCIOECONOMIC, ENVIRONMENTAL JUSTICE, AND CHILDREN’S HEALTH AND SAFETY RISKS**

**Socioeconomic**

<p><b>FAA Order 1050.1F, Significance Threshold/Factors to Consider</b></p>	<p>FAA has not established a significance threshold for Socioeconomics. However, factors to consider are if an action would have the potential to:</p> <ul style="list-style-type: none"> <li>• Induce substantial economic growth in an area, either directly or indirectly (e.g., through establishing projects in an undeveloped area);</li> <li>• Disrupt or divide the physical arrangement of an established community;</li> <li>• Cause extensive relocation when sufficient replacement housing is unavailable;</li> <li>• Cause extensive relocation of community businesses that would cause severe economic hardship for affected communities;</li> <li>• Disrupt local traffic patterns and substantially reduce the levels of service of roads serving the airport and its surrounding communities; or</li> <li>• Produce a substantial change in the community tax base.</li> </ul>
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<p><b>Potential Environmental Concerns</b></p>	<p><b>Potential Impact.</b> Proposed development would not relocate or disrupt current businesses. However, there are planned relocations of residences located south of East Hillmont Road within the area planned for fee simple land acquisition. Under the <i>Uniform Relocation Assistance and Real Property Act (URA)</i><sup>1</sup>, coordination between the property owners and the airport is required to provide equitable treatment and assistance to individuals displaced due to the fee simple acquisition.</p> <p>Ultimate airport projects would result in temporary disruption of local traffic patterns during construction. The proposed development concept includes the construction of on-airport access roads along Andrews Highway and East Hillmont Road. These roads will provide access to the proposed ultimate hangars. No significant traffic congestion will occur on the surrounding network as a result of the minor amounts of vehicular traffic associated with the new hangars. However, any of the proposed development concepts involving new roadway construction should be thoroughly evaluated for additional environmental impacts.</p> <p><sup>1</sup> Uniform Relocation Assistance and Real Property Acquisition Act (URA): a federal law that establishes protections and assistance for federally funded programs and projects that require acquisition of real property or displace persons from their respective homes, businesses, or farms.</p>
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**Environmental Justice**

<p><b>FAA Order 1050.1F, Significance Threshold/Factors to Consider</b></p>	<p>FAA has not established a significance threshold for Environmental Justice. However, factors to consider are if an action would have the potential to lead to a disproportionately high and adverse impact to an environmental justice population (i.e., a low-income or minority population), due to:</p> <ul style="list-style-type: none"> <li>• Significant impacts in other environmental impact categories; or</li> <li>• Impacts on the physical or natural environment that affect an environmental justice population in a way that FAA determines is unique to the environmental justice population and significant to that population.</li> </ul>
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<p><b>Potential Environmental Concerns</b></p>	<p><b>No Impact.</b> Both low-income and minority populations have been identified in the vicinity of the airport. The nearest residential area abuts the northern airport property boundary; however, it is unlikely that implementation of the proposed improvements outlined in the development concept plan would affect these populations in a disproportionate or adverse manner will be located within airport property.</p> <p>Executive Order (E.O.) 12898, <i>Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations</i>, and the accompanying Presidential Memorandum, and Order DOT 5610.2, <i>Environmental Justice</i>, require the FAA to provide meaningful public involvement for minority and low-income populations, as well as analysis that identifies and addresses potential impacts on these populations that may be disproportionately high and adverse. Environmental justice impacts may be avoided or minimized through early and consistent communication with the public and allowing ample time for public consideration; therefore, disclosure of ultimate airport development to potentially affected environmental justice populations near the airport as the projects are proposed is crucial. If disproportionately high or adverse impacts are noted, mitigation and enhancement measures and offsetting benefits should be taken into consideration.</p>
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**TABLE 41 | Summary of Potential Environmental Concerns (continued)**

Children's Health and Safety Risks	
<b>FAA Order 1050.1F, Significance Threshold/Factors to Consider</b>	FAA has not established a significance threshold for Children's Environmental Health and Safety Risks. However, factors to consider are whether an action would have the potential to lead to a disproportionate health or safety risk to children.
<b>Potential Environmental Concerns</b>	<b>No Impact.</b> No disproportionately high or adverse impacts are anticipated to affect children living, playing, or attending school near the airport because of the proposed ultimate development. The airport is an access-controlled facility, and children will not be allowed within the fenced portions of the airport without adult supervision. All construction areas should be controlled to prevent unauthorized access.
VISUAL EFFECTS	
Light Emissions	
<b>FAA Order 1050.1F, Significance Threshold/Factors to Consider</b>	<p>The FAA has not established a significant threshold for light emissions. However, a factor to consider is the degree to which an action would have the potential to:</p> <ul style="list-style-type: none"> <li>• Create annoyance or interfere with normal activities from light emissions; and</li> <li>• Affect the visual character of the area due to the light emissions, including the importance, uniqueness, and aesthetic value of the affected visual resource.</li> </ul>
<b>Potential Environmental Concerns</b>	<p><b>Potential Impact.</b> The existing lighting at the airport includes runway lighting (medium intensity), and lighting used for navigation (such as a rotating beacon, 2-light PAPI systems at both ends of Runway 16-34, 4-light PAPIs at both ends of Runway 11-29, and a visual approach slope indicator (VASI) system at both ends of Runway 2-20. New proposed lighting would be 4-light PAPI systems at each end of Ultimate Runway 2-20 and runway end identifier lights (REILs) on Runways 16, 34, and 2. In addition, a MALSR is proposed on the approach to Runway 20. The proposed MALSR will be located on land planned for acquisition and is 0.30 mile away from the nearest residences. Prior to installation of the MALSR system, further study on the visual character of the area due to light emissions from the MALSR system may be warranted. However, the remaining proposed airport lighting will be part of the overall airport environment and is not expected to cause significant lighting issues to areas outside of the airport property.</p> <p>Night lighting during construction phases within the runway environment is typically directed down to the construction work area to avoid light from spilling outside the airport boundaries. Other ultimate projects are likely to include additional lighting during operation of the airport's new structures and facilities but would not significantly change the amount of lighting seen from outside the airport.</p>
Visual Resources/Visual Character	
<b>FAA Order 1050.1F, Significance Threshold/Factors to Consider</b>	<p>FAA has not established a significance threshold for Visual Resources/Visual Character. However, a factor to consider is the extent an action would have on the potential to:</p> <ul style="list-style-type: none"> <li>• Affect the nature of the visual character of the area, including the importance, uniqueness, and aesthetic value of the affected visual resources;</li> <li>• Contrast with the visual resources and/or visual character in the study area; and</li> <li>• Block or obstruct the views of the visual resources, including whether these resources would still be viewable from other locations.</li> </ul>
<b>Potential Environmental Concerns</b>	<b>No Impact.</b> Ultimate airport improvements are likely to be what currently exists on the airport and would not change the overall visual character of the airport.





**TABLE 41 | Summary of Potential Environmental Concerns (continued)**

WATER RESOURCES	
<b>Wetlands</b>	
<p><b>FAA Order 1050.1F, Significance Threshold/Factors to Consider</b></p>	<p><b>Threshold: The action would:</b></p> <ol style="list-style-type: none"> <li>1. Adversely affect a wetland’s function to protect the quality or quantity of municipal water supplies, including surface waters and sole source and other aquifers;</li> <li>2. Substantially alter the hydrology needed to sustain the affected wetland system’s values and functions or those of a wetland to which it is connected;</li> <li>3. Substantially reduce the affected wetland’s ability to retain floodwaters or storm runoff, thereby threatening public health, safety or welfare (the term welfare includes cultural, recreational, and scientific resources or property important to the public);</li> <li>4. Adversely affect the maintenance of natural systems supporting wildlife and fish habitat or economically important timber, food, or fiber resources of the affected or surrounding wetlands;</li> <li>5. Promote development of secondary activities or services that would cause the circumstances listed above to occur; or</li> <li>6. Be inconsistent with applicable state wetland strategies.</li> </ol>
<p><b>Potential Environmental Concerns</b></p>	<p><b>No Impact.</b> According to USFWS National Wetlands Inventory, the nearest wetland is just outside the northeast corner of the airport. There are no proposed developments occurring within this wetland. However, the proposed aviation easement near the end of Ultimate Runway 20 abuts this wetland on the eastern side of the easement.</p> <p>If development occurs in an area involving the relocation or removal of wetlands or impacting other potential waters of the U.S., a delineation of the area should be completed by a qualified wetland biologist to help determine if the area is protected by the <i>Clean Water Act</i>. Based on the results of this study, consultation with the U.S. Army Corps of Engineers may be required to determine if a Section 404 permit under the <i>Clean Water Act</i> is warranted. A Section 404 permit regulates the discharge of dredged or fill material into jurisdictional waters and wetlands. Mitigation for impacts to wetlands or other jurisdictional waters may be required.</p>
<b>Floodplains</b>	
<p><b>FAA Order 1050.1F, Significance Threshold/Factors to Consider</b></p>	<p><b>Threshold: The action would cause notable adverse impacts on natural and beneficial floodplain values. Natural and beneficial floodplain values are defined in Paragraph 4.k of DOT Order 5650.2, Floodplain Management and Protection.</b></p> <p><b>Potential Impact.</b> A review of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) panel 48135C0220E (effective March 15, 2012), indicates that most of the airport is in Zone X, an Area of Minimal Flood Hazard. However, on the eastern portion of the airport, there is a special flood hazard area designated as Zone AE, an area with base flood elevation of 2,982 feet, which is located within a 100-year floodplain. The proposed non-aeronautical reserve/release is proposed for this area. There are no 500-year floodplains mapped for the airport.</p> <p>On May 25, 2021, E.O. 14030, <i>Climate-Related Financial Risk</i> was established. Section 5(e) of E.O. 14030 reinstates E.O. 13690, <i>Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input</i> (originally set forth on January 30, 2015). E.O. 13690<sup>2</sup> amends E.O. 11988<sup>3</sup> and mandates that a Federal Flood Risk Management Standard (FFRMS) be created. One of the primary purposes of FFRMS is to expand the management of floodplains from a “base flood” evaluation to include a higher vertical elevation (and the corresponding floodplain) to protect against future flood risks for federally funded projects.</p> <p>Under E.O. 13690 and its guidelines, one of several approaches should be used to identify floodplains and their risks to critical<sup>4</sup> or non-critical federally funded actions:</p> <ul style="list-style-type: none"> <li>• Climate-Informed Science Approach (CISA) – the elevation and flood hazard area (i.e., 100-year floodplain) using data that integrates climate science with an emphasis on possible future effects on critical actions.</li> <li>• Freeboard Value Approach – the elevation and flood hazard area and an additional 2 or 3 feet above the base flood elevation depending on whether the proposed federal action is critical or non-critical.</li> <li>• 500-year Floodplain Approach – all area subject to the 0.2 percent annual chance flood.</li> <li>• Other methods resulting from updates to the FFRMS.</li> </ul>
<p><b>Potential Environmental Concerns</b></p>	<p><sup>2</sup> Establishing a Federal Flood RISK Management Standard and a Process for Further Soliciting and Considering Stakeholder Input (2015)</p> <p><sup>3</sup> Floodplain Management, May 1977</p> <p><sup>4</sup> – A critical action is defined in E.O. 13690 and 2015 Guidelines for Implementing E.O. 11988 as any activity for which even a slight change of flooding is too great.</p>



**TABLE 41 | Summary of Potential Environmental Concerns (continued)**

Surface Waters	
<p><b>FAA Order 1050.1F, Significance Threshold/Factors to Consider</b></p>	<p><b>Threshold: The action would:</b></p> <ul style="list-style-type: none"> <li>• Exceed water quality standards established by federal, state, local, and tribal regulatory agencies; or</li> <li>• Contaminate public drinking water supply such that public health may be adversely affected.</li> </ul> <p>Factors to consider are when a project would have the potential to:</p> <ul style="list-style-type: none"> <li>• Adversely affect natural and beneficial water resource values to a degree that substantially diminishes or destroys such values;</li> <li>• Adversely affect surface waters such that the beneficial uses and values of such waters are appreciably diminished or can no longer be maintained and such impairment cannot be avoided or satisfactorily mitigated; or</li> <li>• Present difficulties based on water quality impact when obtaining a permit or authorization.</li> </ul>
<p><b>Potential Environmental Concerns</b></p>	<p><b>No Impact.</b> The closest natural surface water feature is a pond located outside of airport property boundaries. The airport is located in the Antelope Lake-Muskingam Draw Watershed. The nearest impaired watershed is a segment of the Colorado River, 85 miles northeast of the airport. Long-term impacts to water quality from the proposed airfield improvements may need to be assessed, depending on how or if stormwater runoff is conveyed to airport stormwater infrastructure.</p> <p>The airport manages its stormwater discharges with a National Pollutant Discharge Elimination System (NPDES) permit issued and regulated by the Texas Commission on Environmental Quality. Improvements to the airport will require a revised permit to be issued addressing operational and structural source controls, treatment best management practices (BMPs), and sediment and erosion control.</p> <p>An NPDES General Construction permit would be required for all projects involving ground disturbance over one acre. FAA’s Advisory Circular (AC) 150/5370-10G, <i>Standards for Specifying Construction of Airports, Item P-156, Temporary Air and Water Pollution, Soil Erosion and Siltation Control</i> should also be implemented during construction projects at the airport.</p>
Groundwater	
<p><b>FAA Order 1050.1F, Significance Threshold/Factors to Consider</b></p>	<p><b>Threshold: The action would:</b></p> <ol style="list-style-type: none"> <li>1. Exceed groundwater quality standards established by federal, state, local, and tribal regulatory agencies; or</li> <li>2. Contaminate an aquifer used for public water supply such that public health may be adversely affected.</li> </ol> <p>Factors to consider are when a project would have the potential to:</p> <ul style="list-style-type: none"> <li>• Adversely affect natural and beneficial groundwater values to a degree that substantially diminishes or destroys such values;</li> <li>• Adversely affect groundwater quantities such that the beneficial uses and values of such groundwater are appreciably diminished or can no longer be maintained and such impairment cannot be avoided or satisfactorily mitigated; or</li> <li>• Present difficulties based on water quality impacts when obtaining a permit or authorization.</li> </ul>
<p><b>Potential Environmental Concerns</b></p>	<p><b>No Impact.</b> The airport property is not located near a sole source aquifer. Edwards Aquifer I (San Antonio Area) Aquifer is the nearest sole source aquifer and is located approximately 169 miles southwest of the airport.</p>



**TABLE 41 | Summary of Potential Environmental Concerns (continued)**

Wild and Scenic Rivers	
<p><b>FAA Order 1050.1F, Significance Threshold/Factors to Consider</b></p>	<p>FAA has not established a significance threshold for Wild and Scenic Rivers. Factors to consider are when an action would have an adverse impact on the values for which a river was designated (or considered for designation) through:</p> <ul style="list-style-type: none"> <li>• Destroying or altering a river’s free-flowing nature;</li> <li>• A direct and adverse effect on the values for which a river was designated (or under study for designation);</li> <li>• Introducing a visual, audible, or other type of intrusion that is out of character with the river or would alter outstanding features of the river’s setting;</li> <li>• Causing the river’s water quality to deteriorate;</li> <li>• Allowing the transfer or sale of property interests without restrictions needed to protect the river or the river corridor; or</li> <li>• Any of the above impacts preventing a river on the Nationwide Rivers Inventory (NRI) or a Section 5(d) river that is not included in the NRI from being included in the Wild and Scenic River System or causing a downgrade in its classification (e.g., from wild to recreational).</li> </ul>
<p><b>Potential Environmental Concerns</b></p>	<p><b>No Impact.</b> The nearest designated Wild and Scenic River, the Rio Grande River, is located approximately 140 miles east of the airport. The closest river on the National River Inventory is the Pecos River, 94 miles from the airport.</p> <p>Projects delineated on the airport layout plan update concept would not have adverse effects on these rivers’ outstanding remarkable values (i.e., scenery, recreation, geology, fish, wildlife, and history).</p>

Source: Coffman Associates analysis

## AIRPORT RECYCLING, REUSE, AND WASTE REDUCTION

### REGULATORY GUIDELINES

#### **FAA Modernization and Reform Act of 2012**

The *FAA Modernization and Reform Act of 2012* (FMRA), which amended Title 49, United States Code (USC), included several changes to the Airport Improvement Program (AIP). Two of these changes are related to recycling, reuse, and waste reduction at airports.

- Section 132(b) of the FMRA expanded the definition of airport planning to include “developing a plan for recycling and minimizing the generation of airport solid waste, consistent with applicable State and local recycling laws, including the cost of a waste audit.”
- Section 133 of the FMRA added a provision requiring airports that have or plan to prepare a master plan, and that receive AIP funding for an eligible project, to ensure that the new or updated master plan addresses issues relating to solid waste recycling at the airport, including:
  - The feasibility of solid waste recycling at the airport;
  - Minimizing the generation of solid waste at the airport;
  - Operation and maintenance requirements;
  - A review of waste management contracts; and
  - The potential for cost savings or the generation of revenue.



## State of Texas Solid Waste Management

The *Texas Administrative Code Title 30 Part 1 Chapter 330: Municipal Solid Waste*<sup>29</sup> was adopted to regulate waste management. This document provides policy and procedural guidance to state, substrate, and local agencies in the proper management of solid waste; and outlines sound methods of solid waste management and disposal for state, substate and local agencies.

Texas Commission on Environmental Quality (TCEQ) oversees the state's solid waste management implementation.<sup>30</sup> Under the Land Department in the TCEQ, the department oversees waste management, recycling, reducing, and reusing, and cleanups and remediation. Duties assigned to the land department include overseeing:

- Processing, storing, transporting, and disposing of waste
- Permits, registrations, compliance
- Household, industrial, municipal, and radioactive waste
- Septic systems, sludge, dredge, injection

Duties assigned to the recycling, reducing, and reusing office include overseeing:

- Recycling operations and composting
- Home and business resources
- Fats, oils, and grease; automotive; electronics
- Exchange network for business and industry

## City of Odessa Solid Waste Management

At a citywide level, Odessa has a Solid Waste Division under the Public Works Department. The Solid Waste Division provides a system of collection and transportation of municipal solid waste from residential and commercial customers.<sup>31</sup> In addition to this, Odessa has a Keep Odessa Beautiful Organization whose primary mission is to promote public education on the importance of minimizing solid waste by encouraging Odessa to Refuse, Reuse, Repurpose and Recycle.<sup>32</sup>

## SOLID WASTE

Typically, airport sponsors have purview over waste handling services in facilities it owns and operates such as the passenger terminal building, airport-owned hangars, and maintenance facilities. Tenants of airport-owned buildings/hangars or tenants that own their own facilities are usually responsible for coordinating their own waste handling services. While the focus of this plan is airport-operated facilities,

<sup>29</sup> Texas Administrative Code [https://texreg.sos.state.tx.us/public/readtac\\$ext.TacPage?sl=R&app=9&p\\_dir=&p\\_rloc=&p\\_tloc=&p\\_ploc=&pg=1&p\\_tac=&ti=30&pt=1&ch=330&rl=103](https://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=30&pt=1&ch=330&rl=103)

<sup>30</sup> Texas Commission on Environmental Quality – Land (Permitting and managing waste disposal, cleanups and other land-based activities) ([https://www.tceq.texas.gov/agency/land\\_main.html](https://www.tceq.texas.gov/agency/land_main.html))

<sup>31</sup> Odessa Solid Waste (<https://www.odessa-tx.gov/272/Solid-Waste>)

<sup>32</sup> Keep Odessa Beautiful (<https://www.odessa-tx.gov/405/Our-History-Mission>)



the airport should work to incorporate facility-wide strategies that create consistency in waste disposal mechanisms. This would ultimately result in the reduction of materials sent to the landfill.

For airports, waste can generally be divided into eight categories:<sup>33</sup>

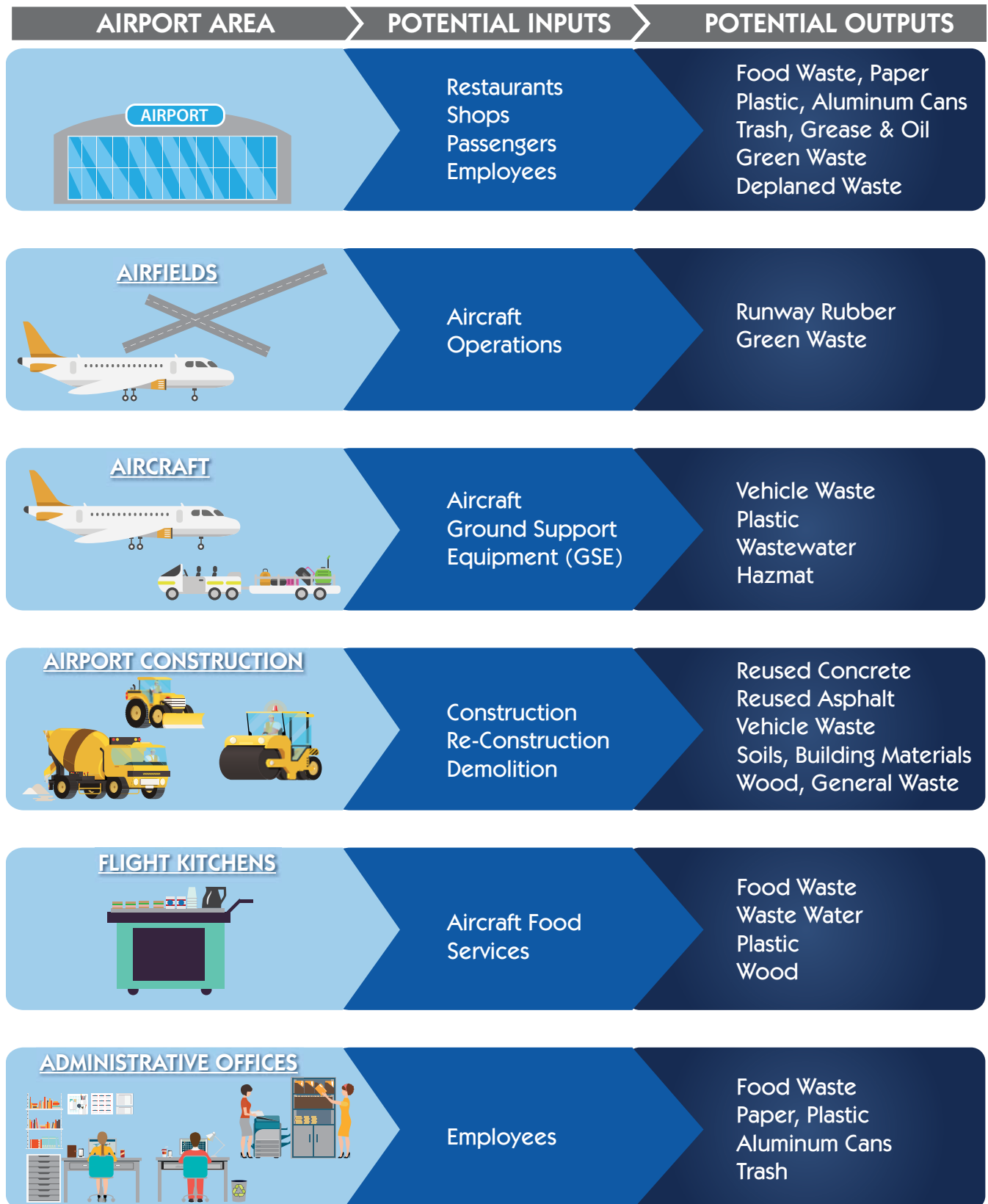
- **Municipal Solid Waste (MSW)** is more commonly known as trash or garbage consisting of every-day items that are used and then discarded, such as product packaging.
- **Construction and Demolition Waste (C&D)** is considered non-hazardous trash resulting from land clearing, excavation, demolition, renovation or repair of structures, roads, and utilities, including concrete, wood, metals, drywall, carpet, plastic, pipe, cardboard, and salvaged building components. C&D is also generally labeled as MSW.
- **Green Waste** is a form of MSW yard waste consisting of tree, shrub and grass clippings, leaves, weeds, small branches, seeds, and pods.
- **Food Waste** includes unconsumed food products or waste generated and discarded during food preparation and is also considered MSW.
- **Deplaned Waste** is waste removed from passenger aircraft. Deplaned waste includes bottles, cans, mixed paper (newspapers, napkins, paper towels), plastic cups, service ware, food waste, and food-soiled paper/packaging.
- **Lavatory Waste** is a special waste that is emptied through a hose and pumped into a lavatory service vehicle. The waste is then transported to a triturator<sup>34</sup> facility for pretreatment prior to discharge in the sanitary sewage system. Chemicals in lavatory waste can present environmental and human health risks if mishandled. Therefore, caution must be taken to ensure lavatory waste is not released to the public sanitary sewerage system prior to pretreatment.
- **Spill Clean and Remediation Wastes** are also special wastes and are generated during cleanup of spills and/or the remediation of contamination from several types of sites on an airport.
- **Hazardous Wastes** are governed by the Resource Conservation and Recovery Act (RCRA), as well as the regulations in 40 Code of Federal Regulations (CFR) Subtitle C, Parts 260 to 270. The U.S. Environmental Protection Agency (EPA) developed less stringent regulations for certain hazardous waste, known as universal waste, described in 40 CFR Part 237, *The Universal Waste Rule*.

As seen on **Exhibit 39**, there are multiple areas where the airport potentially contributes to the waste stream, including the passenger terminal building (offices), flight kitchens, on-airport tenants (FBOs/SASOs, etc.), hangars, airfields, aircraft ground support equipment, and airport construction projects. To create a comprehensive waste reduction and recycling plan for the airport, all potential inputs must be considered.

<sup>33</sup> Recycling, Reuse and Waste Reduction at Airports, FAA (April 24, 2013)

<sup>34</sup> A triturator facility turns lavatory waste into fine particulates for further processing.

**AIRPORT WASTE STREAMS**



Source: Recycling, Reuse, and Waste Reduction at Airports, FAA (April 24, 2013)



## SOLID WASTE MANAGEMENT SYSTEM

Airports generally utilize either a *centralized* or a *decentralized* waste management system. The differences between these two methods are described below and summarized in **Exhibit 40**.

- **Centralized waste management system.** With a centralized waste management system, the airport provides receptacles for the collection of waste, recyclables, or compostable materials and contracts for the removal by a single local provider.<sup>35</sup> The centralized waste management system allows for more participation from airport tenants who may not be incentivized to recycle on their own and can reduce the overall cost of service for all involved. A centralized strategy can be inefficient for some airports as it requires more effort and oversight on the part of airport management. However, the centralized system is advantageous in that it has less players involved in the overall management of the solid waste and recycling efforts and allows greater control by the city over the type, placement, and maintenance of dumpsters, thereby saving space and eliminating the need for each tenant to have their own containers.
- **Decentralized waste management system.** Under a decentralized waste management system, the airport provides waste containers and contracts for the hauling of waste materials in airport-operated spaces only. However, airport tenants, such as fixed-base operators, retail shops, and other tenants manage the waste from their leased spaces with separate contracts, billing, and hauling schedules. A decentralized waste management system can increase both the number of receptacles on airport property and the number of trips by a waste collection service provider, should the collection schedule for the tenant differ from the airport.

## EXISTING SERVICES

- The City of Odessa manages solid waste through various dumpsters located throughout the airport. Tenants are responsible for overseeing their own solid waste. Currently, there is no recycling program established at the airport. However, there are set recycling practices in place though this is dependent upon the airports tenants and not standardized practice. For example, oil is currently being recycled at one of the airport's hangars (Epic Aero).

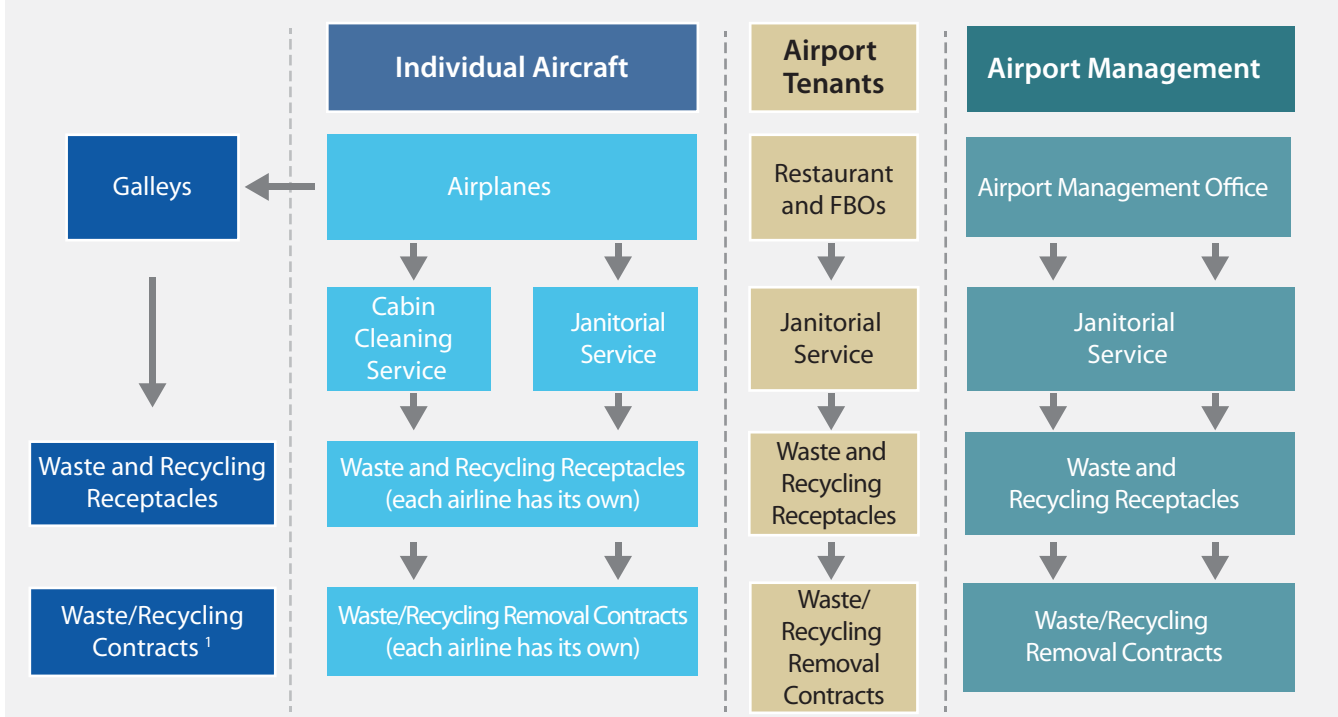
## GOALS AND RECOMMENDATIONS

### Solid Waste and Recycling Goals

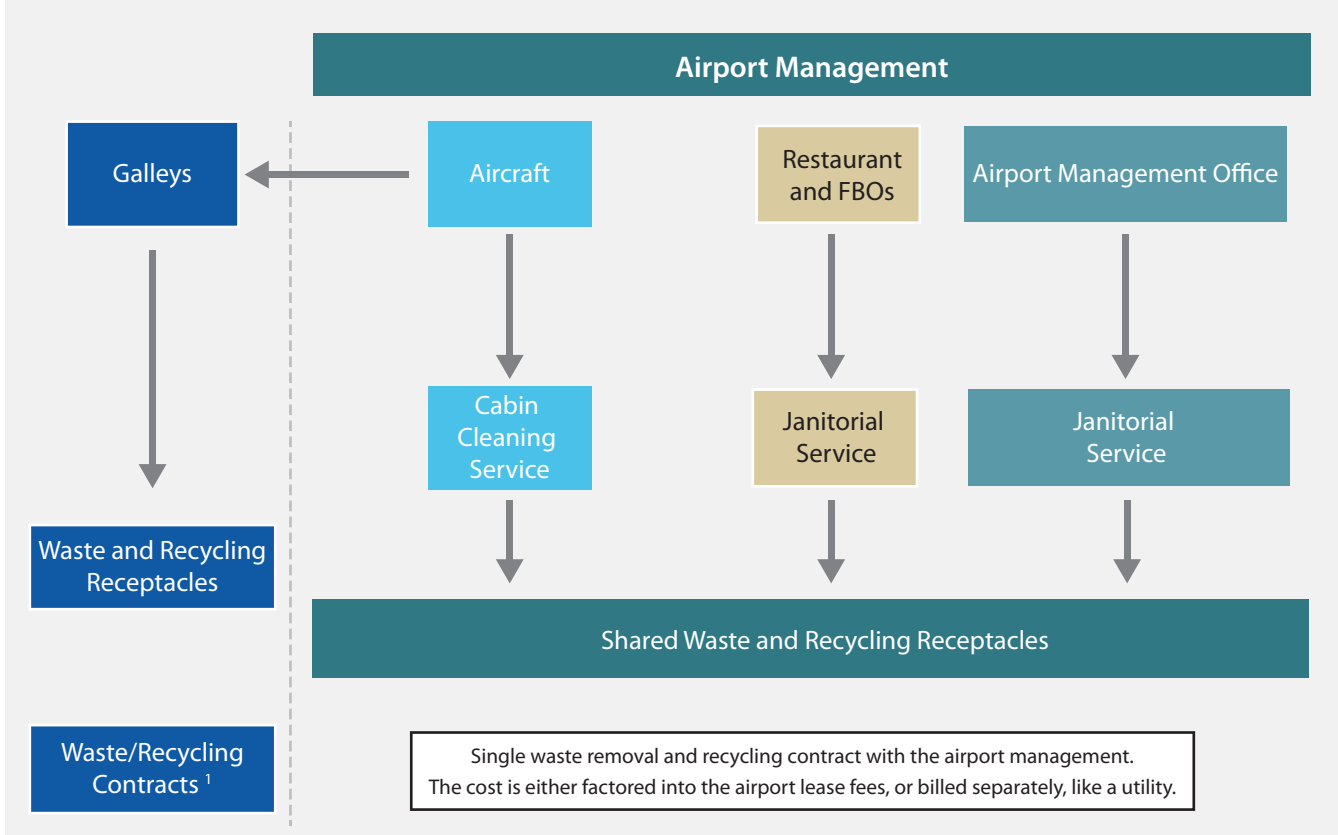
**Table 42** outlines objectives that could help reduce waste generation and increase recycling efforts at the airport. To increase the effectiveness of tracking progress at the airport, a baseline state of all suggested metrics should be established to provide a comparison over time.

<sup>35</sup> *Airport Waste Management and Recycling Practices* (2018) The National Academies of Sciences, Engineering, and Medicine Airport Cooperative Research Program, Synthesis 92.

**Components of a Decentralized Airport Waste Management System**



**Components of a Centralized Airport Waste Management System**



<sup>1</sup> Galleys usually manage their own waste even if an airport relies on a centralized system

Source: Natural Resources Defense Council, Trash Landings: How Airlines and Airports Can Clean Up Their Recycling Programs, December 2006.





**TABLE 42 | Waste Management and Recycling Goals**

Goals	Objectives
Reduce amount of solid waste generated	Switch to online bill pay to eliminate monthly paper bills
	Conduct a waste audit to identify most common types of waste
	Eliminate purchase of items that are not recyclable (i.e., Styrofoam, plastic bags)
Reuse of materials or equipment	Reuse grass clippings as mulch
	Offer reusable dishes to employees
	Reuse cardboard boxes for storage
Increase amount of materials recycled	Promote the availability of recycling services to all areas of the airport
	Initiate waste and recycling tracking and data management
	Incorporate recycling requirements and/or recommendations into tenant lease agreements
	Provide recycling marketing and promotion efforts throughout public areas
	Require contractors to implement strategies to reduce, reuse & recycle construction & demolition waste

*Source: Coffman Associates*

## Recommendations

To maximize waste reduction and initiate recycling efforts at the airport, the following recommendations are made:

- **Create a centralized waste management system at the airport.** Currently, ODO participates in a decentralized waste management system since airport tenants are responsible to oversee their waste management. Airport staff could consider engaging tenants to create a centralized waste management system at the airport to streamline waste management at ODO.
- **Assign the responsibility of waste management to a dedicated individual(s).** Having one person or a group of people oversee and manage solid waste and recycling at the airport will create efficient and cost saving solutions to solid waste management. People dedicated to this operational aspect of the airport will have a familiarity of processes and will help identify areas of improvement and cost-cutting measures.
- **Audit the current waste management system.** The continuation of an effective program requires accurate data of current waste and recycling rates. There are several ways an airport can gain insight into their waste stream, such as requesting weights from the hauler, tracking the volume, or reviewing the bills. But managing the waste system first starts with a waste audit. A waste audit is an analysis of the types of waste produced and is the most comprehensive and intensive way to assess waste stream composition, opportunities for waste reduction, and capture of recyclables. A waste audit should include the following actions:
  - Examination of records
    - Waste hauling and disposal records and contracts
    - Supply and equipment invoices
    - Other waste management costs (commodity rebates, container costs, etc.)
    - Track waste from the point of origin
    - Establish a baseline for metrics



- Facility walk-through conducted by the airport
  - Gather qualitative waste information to determine major waste components and waste-generating processes
  - Identify the locations of the airport that generate waste
  - Identify what type of waste is generated by the airport to determine what can be reduced, reused, or recycled
  - Understand waste pickup and hauling practices
- Waste sort
  - Provide quantitative data on total airport waste generation
  - Allow problem solving design/enhancing the recycling program for the airport
- **Create a tracking and reporting system.** Tracking solid waste generated will allow the airport to identify areas where a significant amount of waste is generated and will help the airport estimate annual waste volumes. Understanding the cyclical nature of waste generation will allow the airport to estimate costs and will identify areas of improvement. Once the airport engages in recycling services, the airport can track recycling rates and waste quantities to identify cost saving measures that are currently unidentified simply based on the lack of quantitative data.
- **Reduce waste through controlled purchasing practices and the consumption of nonessential products.** The airport can control the amount of waste generated by prioritizing the purchase of items or supplies that are reusable, recyclable, compostable, or made from recycled materials.
- **Create a recycling program at the airport.** To guarantee the airport reduces the amount of waste hauled to the landfill, materials that cannot be reused or avoided should be recycled, if possible. The city should review internal procedures to ensure there are no unacceptable items contaminating recycling containers, or recyclables thrown in the trash. Clearly marked signage of what is and is not accepted placed near the solid waste and recycling containers is another significant component of a consistent, effective recycling program.
- **Provide ongoing education for airport employees.** To minimize waste within the airport, it is crucial to inform and provide airport employees with a thorough education on waste management at both an individual and group level. As part of the onboarding process new employees should be given the tools needed to achieve a thorough understanding of the airport's solid waste and recycling goals. It is crucial that this education is also tailored to the type of job an individual may be employed at within the airport.
- **Provide ongoing tenant education.** It is crucial to encourage tenant participation to assure buy-in of the airport's recycling efforts. To ensure recycling is part of the airport's everyday business, airport administration can provide training and educational to support personnel, tenants, and others who conduct business at the airport. In-person meetings with airport tenants could be held to create mutual understanding of the airport's solid waste and recycling goals and how tenants play a vital role in the airport's overall success.



- **Incorporate an airport-wide waste reduction strategic plan.** Designing an airport-wide waste reduction strategic plan will create consistency in waste disposal mechanisms, ultimately resulting in the reduction of materials sent to the landfill.
- **Recycle Electronic waste (e-waste).** To guarantee the airport continues to reduce the amount of waste hauled to the landfill, materials that cannot be reused or avoided should be recycled, if possible. Recyclable materials such as paper, aluminum, plastic, electronics, etc. should be sorted from the airport's solid waste. Furthermore, under state law television and computer-equipment manufacturers are now required to offer recycling opportunities to consumers for these electronics.<sup>36</sup> Currently, e-waste at ODO is minimal, but the e-waste that is generated has the opportunity to be sent to the county to then be recycled through an auction. ODO and its tenants should consider creating a standardized program where electronics can be picked up and sent to the county as needed.

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<sup>36</sup> Electronics Recycling ([https://www.tceq.texas.gov/p2/recycle/electronics/elec\\_recycle](https://www.tceq.texas.gov/p2/recycle/electronics/elec_recycle))