Chapter Four:

RECOMMENDED DEVELOPMENT CONCEPT

Following consideration of each alternative described in the previous chapter and discussion with the airport sponsor (City of Portales) and the airport's on-call engineer (Molzen Corbin), an overall development concept has been recommended for Portales Municipal Airport (PRZ).

The recommended concept provides the City of Portales with the ability to meet the disparate needs of an array of airport operators. The goal of this plan is to ensure the airport can continue, and potentially improve, in its role of serving general aviation activities for the city and surrounding regional area. The plan has been specifically tailored to support existing and future growth in all forms of potential aviation activity as the demand materializes.

The recommended airport development concept, as shown on **Exhibits 4A** and **4B**, presents a long-term configuration for the airport that preserves and enhances the airport's role while meeting Federal Aviation Administration (FAA) design standards. The phased implementation of the recommended development concept will be presented in the next chapter. The following sections describe, in narrative and graphic form, the key details of the recommended development concept.

AIRSIDE CONCEPT

The airside plan, which is depicted on **Exhibit 4A**, generally considers improvements related to the runway and taxiway system, as well as navigational aids. These airside components often dictate the availability of land and the overall safety and efficiency of the airport and must adhere to FAA design standards when practicable.

PRIMARY RUNWAY 1-19

Design Standards

Primary Runway 1-19 is planned to be upgraded from existing runway design code (RDC) B-I(small)-5000 standards to ultimate B-II-5000 design standards in the future. The runway visual range (RVR) value of "5000" indicates existing instrument approach visibility minimums of not lower than one mile. Ultimate instrument approach minimums are planned to remain at not lower than one mile. These design standards will plan for the runway to accommodate larger/faster turboprop and jet aircraft on a regular basis. The B-II-5000 design standards will apply when there are at least 500 operations at Portales Municipal Airport by aircraft in this category, such as the King Air 300.

Runway Dimensions

Runway 1-19 is currently 5,700 feet long and 60 feet wide. The 60-foot width does not meet the ultimate B-II design standard and should be planned to increase to 75 feet in the ultimate condition. A 1,100-foot extension is planned for the Runway 1 end (southerly extension), bringing the total runway length to 6,800 feet. At this length, the runway would allow larger business jets to operate at the airport more efficiently,

particularly during the hotter summer months or in wet/slippery conditions when aircraft performance is diminished. The extension would include the expansion of the medium intensity runway lighting system (MIRL) system and installation of a four-box precision approach path indicator (PAPI-4) system and runway end identifier lights (REILs) on Runway 1.

It should be noted that the runway extension is included for planning purposes only. Prior to construction, documentation of 500 annual operations by aircraft that require the longer runway must be provided to justify federal funding assistance. In the meantime, planning for the runway extension projects aids in local land use planning to ensure appropriate land use measures are put into place to allow for the extension in the future if specific demand can be identified. By planning for a runway extension, the airport sponsor can act appropriately to ensure there are no hazards or obstacle penetrations to the Title 14 Code of Federal Regulations (CFR) Part 77 airspace that could prevent a future extension. Reflecting a runway extension in this report also allows the airport sponsor to plan for compatible land uses in the extended runway approach/departure areas. Detailed federal funding assistance justification for constructing the runway extension will be required for an environmental assessment (EA) and benefit-cost analysis.

Runway Designation

As mentioned in the previous chapter, a runway's designation is based on its magnetic headings, which are determined by the magnetic declination for the area. Currently, PRZ's magnetic declination is 6°19' E ± 0°21', which changes by 0°6' W per year. Adjusting for the magnetic declination, the current magnetic heading for Runway 1-19 is 023°/203°. As a result, Runway 1-19 should be designated Runway 2-20 during the next pavement maintenance project. (While this ALP update and narrative report recommends updating the designation, and these redesignations are presented on the recommended development concept, this runway will continue to be referred to as Runway 1-19 to maintain consistency in discussion and eliminate potential confusion.) This redesignation should be coordinated with the FAA to confirm its necessity and ensure all appropriate publications are updated.

Pavement Strength

The existing pavement strength rating for Runway 1-19 is 12,500 pounds single wheel loading (S); which is suitable to accommodate smaller aircraft. There is no reported rating for dual wheel (D), dual tandem wheel (2D), or multiple dual tandem wheel (2D/2D2) landing gear at the airport. As detailed in the *Facility Requirements* section, a more comprehensive pavement strength evaluation that includes the ratings for multiple landing gear aircraft should be conducted and consideration should be given to strengthening the pavement to accommodate larger, heavier aircraft within the ultimate B-II design group, which have maximum takeoff weights (MTOWs) of up to 38,000 pounds D.

Safety Areas

Analysis in Chapter Three indicated that the existing runway safety area (RSA), runway object free area (ROFA), and runway obstacle free zone (ROFZ) serving Runway 1-19 are obstructed by a service road near the approach end of Runway 1. With the proposed transition to RDC B-II design standards, the RSA, ROFA, and ROFZ increase in size, resulting in an even larger portion of the service road within these safety areas.

Additionally, a 1,100-foot runway extension to the south is proposed in the ultimate condition, which results in the safety areas extending beyond the end of Runway 1 and off airport property. To meet ultimate design standards and protect these safety areas, the plan includes the fee simple acquisition of 2.1 acres located within the ultimate RSA, ROFA, and ROFZ associated with the end of Runway 1. Consideration of rerouting the service road that penetrates the ultimate safety areas will also be planned in conjunction with the proposed runway extension.

As shown on **Exhibit 4A**, approximately 13 acres of the runway protection zone (RPZ) associated with Runway 1 also extend beyond the airport property due to the proposed runway extension; plans to acquire ownership or management of the land have been proposed. This can be done through a fee simple acquisition (preferred), which allows for outright ownership and control of the land within the RPZ, or through an avigation easement, which grants the airport sponsor a legal agreement to restrict landowners from creating obstructions within the RPZ.

CROSSWIND RUNWAY 8-26

Design Standards

Crosswind Runway 8-26 is currently classified as an RDC B-I(small)-VIS runway, meaning it is designed to accommodate piston-powered aircraft and smaller jets and turboprops. The “VIS” portion of the RDC indicates that each runway end is visual only, with no published instrument approach procedures. In the ultimate condition, an RDC of B-II-5000 is planned to allow for the potential implementation of global positioning system (GPS) approaches with visibility minimums not lower than one mile. The ultimate B-II-5000 RDC design standards will plan for the airfield to accommodate larger/faster aircraft on a regular basis, such as the King Air 300, which has been identified as PRZ’s critical aircraft.

Runway Dimensions

Runway 8-26 has a current length of 4,560 feet and a width of 60 feet. The existing 60-foot width does not meet the ultimate B-II design standard. To meet ultimate design criteria this runway is planned to increase to 75 feet in the ultimate condition.

In the ultimate condition, the removal of 305 feet of pavement on Runway 26 (east end of runway) and a 545-foot extension of Runway 8 (west end of runway) are proposed to bring the runway length to a total of 4,800 feet. As discussed in Chapter 3, while this runway length does not achieve the 5,700-foot runway length recommended for smaller aircraft, it acts as an interim solution, providing additional runway length to the crosswind runway while ensuring the ultimate Runway 8 RPZ does not traverse Roosevelt Road and create the need for a potential reroute of this road. The extension would also include the expansion of the medium intensity runway lighting (MIRL) system, the installation of a two-box precision approach path indicator (PAPI-2) system, and runway end identifier lights (REILs) on Runway 8. The removal of pavement on Runway 26 would shift the existing and ultimate RPZ so it remains on airport property and off incompatible land uses such as the BNSF Railroad, Airport Road, and Highway 70.

Runway Designation

Runway 8-26 has a true heading of 090°/270° and a magnetic heading of 084°/264° when accounting for the magnetic declination in the area; therefore, a redesignation for this runway is not needed in the near future.

Pavement Strength

The existing pavement strength for Runway 8-26 has been previously documented as 12,500 pounds S; there is no reported rating for multiple landing gear aircraft. As previously mentioned, consideration should be given to strengthening the pavement to accommodate larger and heavier aircraft within the ultimate design group (B-II), which have MTOWs of up to 38,000 pounds D.

Safety Areas

The safety areas associated with Runway 8-26 are generally unobstructed and meet FAA design standards in the existing and ultimate conditions, except for the presence of a service road that traverses the Runway 8 RSA, ROFZ, and ROFA in the ultimate B-II standard. In the ultimate condition, the service road is proposed to be relocated and rerouted outside these safety areas in tandem with the extension of Runway 8.

The plan also includes protection of 6.4 acres located off airport boundaries within the ultimate Runway 8 RPZ through fee simple acquisition (preferred) or an avigation easement to limit development within these areas. In the existing condition, the Runway 26 RPZ extends beyond the airport boundary. Additionally, in the existing condition, a public road and a rail line pass through this RPZ, which is not a preferred condition. As discussed earlier, a twofold approach is proposed to meet ultimate design standards and protect the RPZ. This approach is depicted on **Exhibit 4A**, through the removal of pavement on the east end of the runway and the extension of pavement on the west end of the runway.

TAXIWAYS

The taxiway system serving PRZ is generally efficient; however, several improvements are recommended to better meet FAA design standards for taxiways.

At present, there are acute-angled connections between taxiways and runways and taxiway crossings through the high-energy portion (middle third) of each runway. To enhance safety and improve efficiency on the airfield, the removal of this acute-angle pavement and its replacement with standard right-angle pavement connections is planned, as shown on **Exhibit 4A**.

Medium intensity taxiway lighting (MITL) systems are planned to be installed to replace the reflectors that currently serve to identify taxiways at PRZ. This light-emitting diode (LED) system is planned for all existing and proposed taxiway pavement.

The locations of holding position markings on taxiways are determined by the design standards of the runway each taxiway serves. All hold lines on taxiways serving Runway 1-19 and Runway 8-26 meet the existing B-I(small) separation standard of 125 feet from the runway centerline. In the ultimate condition, a separation of 200 feet is required to meet the B-II separation standard; therefore, hold lines are planned to be relocated to meet this standard, as shown on **Exhibit 4A**.

In the ultimate condition, Taxiway A and Taxiway B (the airport's full-length parallel taxiways serving Runway 1-19 and Runway 8-26, respectively) are planned to be extended to match the proposed runway extensions. A new 35-foot taxiway connector, designated Taxiway A6, is planned to be constructed near the Runway 1 threshold. Similarly, a 35-foot taxiway connector, designated Taxiway B1, would be constructed near the Runway 8 threshold. Taxiways A6 and B1 will be marked with standard parallel hold lines 200 feet from the runway centerline in accordance with B-II design standards. The introduction of the new taxiway connector associated with Taxiway B would also require the redesignation of the remaining taxiway connectors on this taxiway. Connector taxiways between Runway 8-26 and parallel Taxiway B are identified as B1, B2, B3, B4, and B5 beginning at the west end of the runway. Redesignating the taxiway system will require updating the airfield location/directional signage system.

Taxiway geometry improvements are also planned on **Exhibit 4A** to achieve a standard right-angle connection and remain outside of the high energy areas on Runway 1-19 and Runway 8-26. This project would result in the removal of existing acute-angled taxiway pavement that would be replaced with new taxiways designed for a standard right-angle connection. This reconfiguration would culminate in the creation of the following taxiways: connector Taxiway A3, Taxiway C, connector Taxiway C3, Taxiway D, and connector Taxiway D3. All new taxiway pavement will be planned to be 35 feet wide to meet the ultimate taxiway design group standard.

VISUAL APPROACH AIDS

Runway 1-19 and Runway 8-26 are not currently equipped with any visual approach aids. To enhance safety for pilots arriving on Runway 1-19, four-box PAPI systems and REILs are planned for each runway end. For Runway 8-26, two-box PAPI systems and REILS are planned for each runway end.

INSTRUMENT APPROACH PROCEDURES

Currently, PRZ has one published instrument approach procedure for Runway 1: the area navigation (RNAV)-GPS with not lower than one-mile visibility minimums. This approach adequately serves the current and future activity levels for Runway 1 and is planned to be maintained. A non-precision instrument approach with not lower than one-mile visibility minimums is proposed for Runway 19. In addition, Runway 8-26 does not currently offer any instrument approaches and is planned to have non-precision approaches with not lower than one-mile visibility minimums applied to both runway ends during the 20-year planning period.

WEATHER REPORTING EQUIPMENT

The airport is equipped with an automated weather observation system (AWOS-3), which is located southeast of the intersection of Runways 1-19 and 8-26 within the airport's runway visibility zone (RVZ). As discussed in the previous chapter, the RVZ is an area identified on the airfield that is used to facilitate coordination between aircraft and vehicles operating on the active runway. This area should remain clear of obstructions to ensure pilots have a clear line of sight of the runways, in order to prevent mid-air or ground collisions.

The AWOS is planned for relocation outside the RVZ to the north of its existing location and east of Taxiway A, approximately 630 feet east of the Runway 19 threshold in the northeast quadrant of the airport. The relocation of the AWOS outside the RVZ becomes even more prevalent in the ultimate condition, as the future runway extensions/shifts would expand the area encompassed in the RVZ to the southeast area of the runway intersection where the AWOS is currently located. PRZ is also equipped with four lighted wind cones near the ends of each runway. These should be planned to remain in place over the course of the planning period.

LANDSIDE CONCEPT

The primary goal of the landside development concept is to provide adequate space to meet reasonably anticipated needs of the various users at PRZ while optimizing operational efficiency and land use. Achieving these goals yields a development scheme that segregates functional uses while maximizing the airport's revenue potential. Recommended land developments are depicted on **Exhibit 4B**.

HANGARS

Future landside development is illustrated on **Exhibit 4B** and identifies locations for expanded hangar storage capacity, including new T-hangars, executive hangars, and a maintenance building to meet potential future demand. PRZ currently has approximately 43,050 square feet (sf) in aircraft storage, with the future need increasing to 68,400 sf by the long term. In total, the recommended development concept shows approximately 113,500 sf of new aircraft storage, which exceeds the long-term need identified in Chapter Three but provides greater flexibility for long-range landside development planning.

The plan includes a build-out of available space on the existing landside area. A 40-foot by 40-foot executive hangar and a 60-foot by 60-foot executive hangar are proposed next to existing hangars north of the terminal building. To the east of these hangars, two 100-foot by 100-foot executive hangars are planned.

Two new development areas are also planned. The first is located north of existing hangar development and includes several hangar types, including five 60-foot by 60-foot executive hangars and two 55-foot by 170-foot five-unit T-hangar complexes. New apron and taxilane pavement are also planned to serve this area. As this area is currently undeveloped, all new infrastructure will be necessary, including utilities and vehicle access. A vehicular access road is proposed to the east side of this hangar development that would connect to Airport Road.

The second planned development area is east of Runway 1-19 and north of Taxiway B, which is not currently served by any landside facilities. A new taxilane connector is planned to provide access to this area from the airside, while landside access to this area will be available from Airport Road. Five six-unit T-hangar complexes (sized 60 feet by 160 feet) with a new apron area are planned.

An ultimate building restriction line (BRL) is depicted on the exhibit. The BRL is based on the Title 14 CFR Part 77 primary and transitional surface clearance requirements and identifies suitable building locations on the airport; however, the BRL is not a standard. Rather, it functions as a guideline to use when planning vertical infrastructure on the airport. All proposed hangar development depicted on **Exhibit 4B** is beyond the 35-foot BRL associated with Runway 1-19 and Runway 8-26.

It should be noted that the hangar layouts depicted are conceptual. The types, sizes, and locations for all future hangar development should be dictated by demand and the needs of the hangar developers and their customers. The conceptual layout is intended to be used as a guide for the airport sponsor when considering new landside facility developments. All new hangar construction is subject to an FAA 7460-1 airspace analysis and may require a modification in height or location or other mitigative actions to avoid airspace penetrations.

APRON

There is approximately 24,788 square yards (sy) of public apron space available at PRZ, including 38 marked aircraft tiedowns. As determined in the previous chapter, additional aircraft parking apron is anticipated to be needed through the planning period. Apron space has been proposed in areas planned for ultimate hangar development. The concept also includes removal of eight tiedowns on the terminal apron located closest to Taxiway A. Aircraft parked in these positions would obstruct the taxiway object free area (TOFA) associated with Taxiway A and the tiedowns should be removed during the next pavement rehabilitation project. Additionally, a helicopter parking space is located south of the terminal area in the runway visibility zone (RVZ). As outlined on **Exhibit 4B**, this helicopter parking space is proposed to be relocated to north of its existing location on the terminal apron.

TERMINAL BUILDING

The terminal building offers approximately 3,470 square feet (sf) of space. As mentioned in Chapter Three, approximately 6,500 sf of space is needed to meet the long-term demand at PRZ over the course of the planning period; thus, a terminal expansion to the west side of the building is proposed on the recommended development concept.

VEHICLE PARKING AND ACCESS

The airport has a paved parking area adjacent to the terminal building with approximately 15 defined parking spaces and the capacity to accommodate more parking spaces, if necessary. Tenants generally park near their hangars. The recommended development concept maintains the terminal parking area with plans for painting more parking spaces in the existing parking lot footprint. Tenant parking is also planned, where feasible, along with the construction of access roads and parking near the hangar developments. As detailed on **Exhibit 4B**, Airport Road provides access points to the proposed vehicular roads for the two ultimate hangar developments.

FUEL STORAGE

The airport currently has two aboveground fuel tanks with capacities of 12,000 gallons, which respectively contain 100LL fuel and Jet A fuel. Additionally, PRZ has one 1,800-gallon fuel truck that contains Jet A fuel located south of the terminal building. As mentioned in Chapter Three, the airport currently has enough static fuel storage to meet the 14-day supply criteria for 100LL and Jet A fuel storage; therefore, no additional fuel tanks are proposed on the recommended development plan.

The existing locations of the two aboveground fuel tanks are within the airport's RVZ. To ensure the RVZ remains unobstructed for pilots utilizing the airfield, the recommended development concept depicts the relocation of the existing fuel tanks. As shown on **Exhibit 4B**, the fuel tanks would be relocated to the northeast of their existing locations on the east side main apron.

DEVELOPMENT RESERVE LAND

Portales Municipal Airport encompasses approximately 390 acres of land, with several areas of airport property that have been identified as ultimate aeronautical or non-aeronautical reserves. Generally, areas that have aviation-use potential should be reserved for aeronautical activities, while areas that are inaccessible to the airfield may be considered for revenue-generating non-aeronautical development following coordination with the FAA/New Mexico Department of Transportation (NMDOT) Aviation Division. **Exhibit 4B** identifies one area to be slated for aeronautical reserve and one area proposed for a non-aeronautical reserve. The 11.3-acre area slated for aeronautical use is located adjacent to the proposed hangar development on the east side of the airport. This area has been slated for future aeronautical use because of its proximity to Runway 8-26 and Taxiway B adjacent to the south.

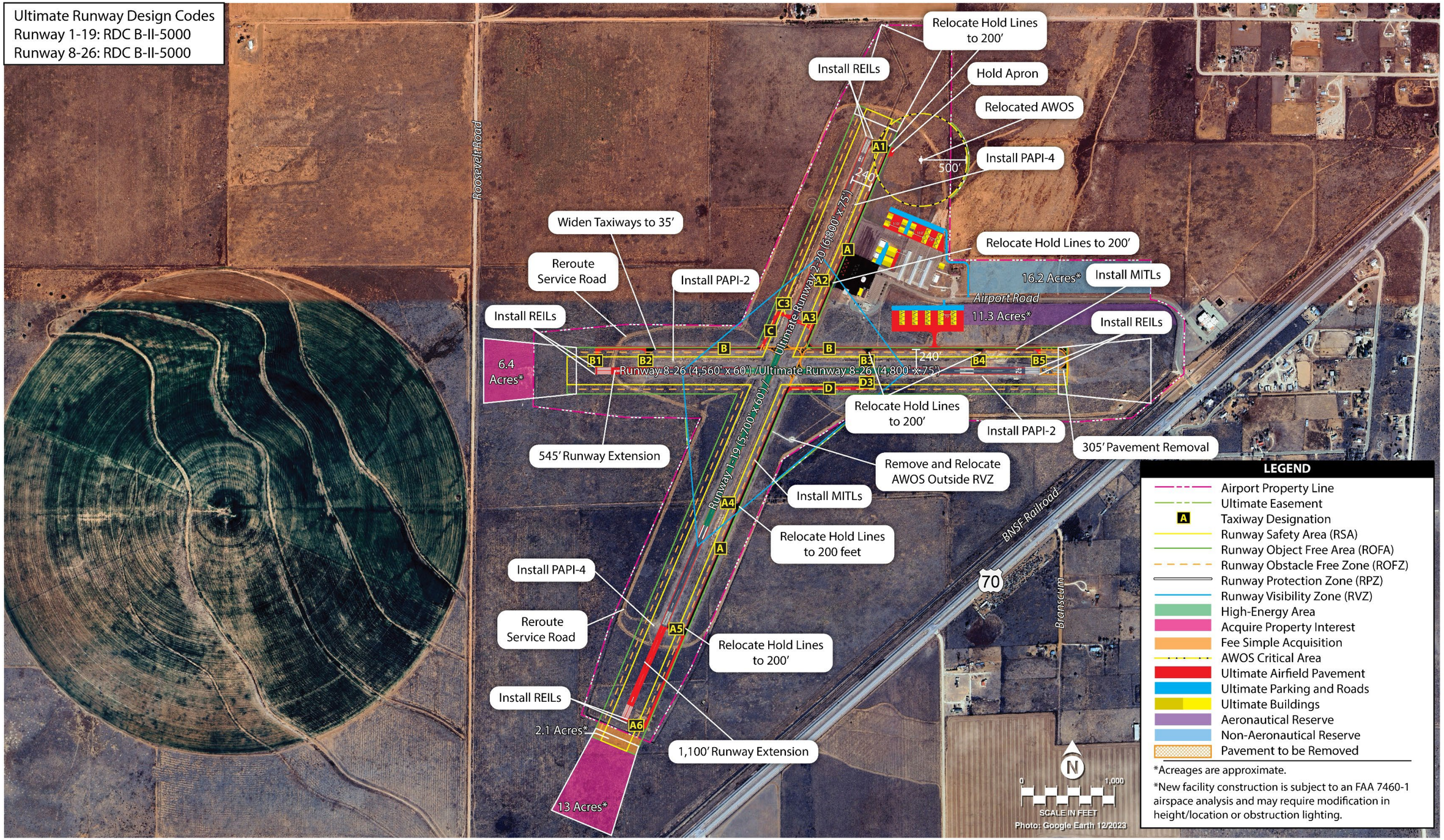
In terms of non-aeronautical reserves, a 16.2-acre area has been identified north of Airport Road that contains no airfield access and is currently vacant. Prior to development, the airport sponsor will need to coordinate with the FAA/NMDOT to determine if the FAA has jurisdiction over this portion of airport property and what actions would be necessary to pursue non-aeronautical development.

SUMMARY

This chapter has been prepared to help inform those making decisions about the future growth and development of the airport by narratively and graphically describing the recommended development concept. The plan represents an airfield facility that fulfills aviation needs for the airport while conforming to safety and design standards to the extent practicable. It also provides a landside complex that can be developed as demand dictates.

Flexibility will be important to future development at the airport, as activity may not occur as predicted. The recommended concept provides stakeholders with a general guide that, if followed, can maintain the airport's long-term viability and allow it to continue to provide aviation services to the region.

Ultimate Runway Design Codes
Runway 1-19: RDC B-II-5000
Runway 8-26: RDC B-II-5000



LEGEND

- Airport Property Line
- Ultimate Easement
- A — Taxiway Designation
- Runway Safety Area (RSA)
- Runway Object Free Area (ROFA)
- Runway Obstacle Free Zone (ROFZ)
- Runway Protection Zone (RPZ)
- Runway Visibility Zone (RVZ)
- High-Energy Area
- Acquire Property Interest
- Fee Simple Acquisition
- AWOS Critical Area
- Ultimate Airfield Pavement
- Ultimate Parking and Roads
- Ultimate Buildings
- Aeronautical Reserve
- Non-Aeronautical Reserve
- Pavement to be Removed

*Acreages are approximate.

*New facility construction is subject to an FAA 7460-1 airspace analysis and may require modification in height/location or obstruction lighting.

Executive Hangars (60' x 60')
Executive Hangars (60' x 60')
Executive Hangars (40' x 40')
5-Unit T-Hangars (55' x 170')
Relocated Helicopter Parking
Remove Tiedowns
Remove Fuel Farm RVZ
Terminal Expansion (3,030 sq ft)
Executive Hangars (100' x 100')
Relocated Fuel Farm
Remove Island
Maintenance Facility
6-Unit T-Hangars (60' x 160')
Remove and Relocate Helicopter Parking
Paint Vehicular Parking Spaces in Existing Terminal Lot
Runway 1-19 (5,700' x 60')
Ultimate Runway 2-20 (6,800' x 75')
Runway 8-26 (4,560' x 60') /Ultimate Runway 8-26 (4,800' x 75')
Runway 1-19 (5,700' x 60') /
35' BRL
110'
79'
16.2 Acres*
11.3 Acres*
Airport Road
A
A2
B
B3
B4
C
C3
A3
D
D3
26

Concept Rendering

LEGEND

- Airport Property Line
- A — Taxiway Designation
- Taxiway Object Free Area (TOFA)
- Runway Visibility Zone (RVZ)
- Ultimate Airfield Pavement
- Ultimate Parking and Roads
- Ultimate Buildings
- Aeronautical Reserve
- Non-Aeronautical Reserve
- Pavement to be Removed

*Acreages are approximate.
*New facility construction is subject to an FAA 7460-1 airspace analysis and may require modification in height/location or obstruction lighting.

N
0 300
SCALE IN FEET
Photo: Google Earth 12/2023

Exhibit 4B
LANDSIDE DEVELOPMENT CONCEPT