PSC

Mead&Hunt

Final Report

Master Plan
Hale County Airport

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Inventory

INTRODUCTION. Hale County Airport is an important element of the national airport system and an integral component of the transportation infrastructure of Plainview, Hale County, and the Texas panhandle. The Airport is an excellent aviation facility and represents a vital and significant regional economic asset. Additionally, it provides benefits to area business and industry, and promotes economic development and expansion.

This Airport Master Plan will afford a comprehensive evaluation of the Airport and its surroundings, and provide direction and guidance for future airport development priorities. The future requirements will be evaluated not only from the standpoint of aviation needs, but from the perspective of the relationship of airport facilities to the surrounding land uses and the community as a whole. This planning process will focus on programming for a complete aviation facility, with the overall goal being an airport that accommodates future demand and is compatible with its environs. The end result will be a well-conceived, long-term facilities plan that meets the anticipated future aviation demand.

This initial *Inventory* chapter presents four basic elements of the Airport, which are physical facilities (runways, taxiways, aprons, hangars, ground access, etc.); the relationship to the airport/airspace system; the relationship of the airport to its environs (surrounding land uses, zoning patterns, and environmental conditions); and the financial structure of the Airport. Subsequent chapters of the Master Plan detail the existing and forecast future aviation activity at the Airport (i.e., based aircraft and operations), along with an evaluation of the existing facilities' ability to meet the projected demand in a safe and efficient manner. Later chapters will evaluate alternatives formulated to rectify any facilities judged as deficient to meet the demand, and a preferred future development plan will be recommended. Further, the Master Plan provides an implementation schedule and project cost estimates for facility improvements.

Airport Role and Facilities

The Airport is owned jointly by Hale County and the City of Plainview, which have created the Plainview-Hale County Airport Board for the administration, regulation, and maintenance of the Airport. The Airport Board has relegated the management of landside areas of airport property to Rocket Aviation, a Fixed Base Operator (FBO), through a long-term ground lease agreement. This agreement grants the FBO use of the property for hangar space, operation and maintenance of aircraft, and the sale of aircraft and related accessories.

The Airport is classified as a general aviation airport by the FAA's National Plan of Integrated Airport Systems (NPIAS) and is designated a Business/Corporate Airport by the Texas Airport System Plan (TASP). As illustrated in Figure A1, *AIRPORT LOCATION MAP*, Hale County Airport is located in Hale County and is situated in the south-central Texas panhandle. The Airport is located just outside the Plainview City Limits (as shown in Figure A2, entitled *AIRPORT VICINITY MAP*) and is approximately one mile south of the Central Business District (CBD). Plainview is the county seat of Hale County and is located approximately 47 miles north of Lubbock and approximately 76 miles south of Amarillo.

Airside Facilities

An illustration of airport facilities is included in the following figure entitled *EXISTING AIRPORT LAYOUT*. Initial airport information includes:

- **Airport Reference Point (ARP):** Latitude 34° 10' 05.33"N, Longitude 101° 43' 02.41"W.
- **Federal Aviation Administration (FAA) Site Number:** 24519.A
- **National Plan of Integrated Airport Systems (NPIAS) classification:** General Aviation.
- **Acreage:** 600 acres.
- **Elevation:** 3,374 feet Above Mean Sea Level (AMSL).
- **Average Maximum Temperature of the hottest month:** 92.0°F (July).

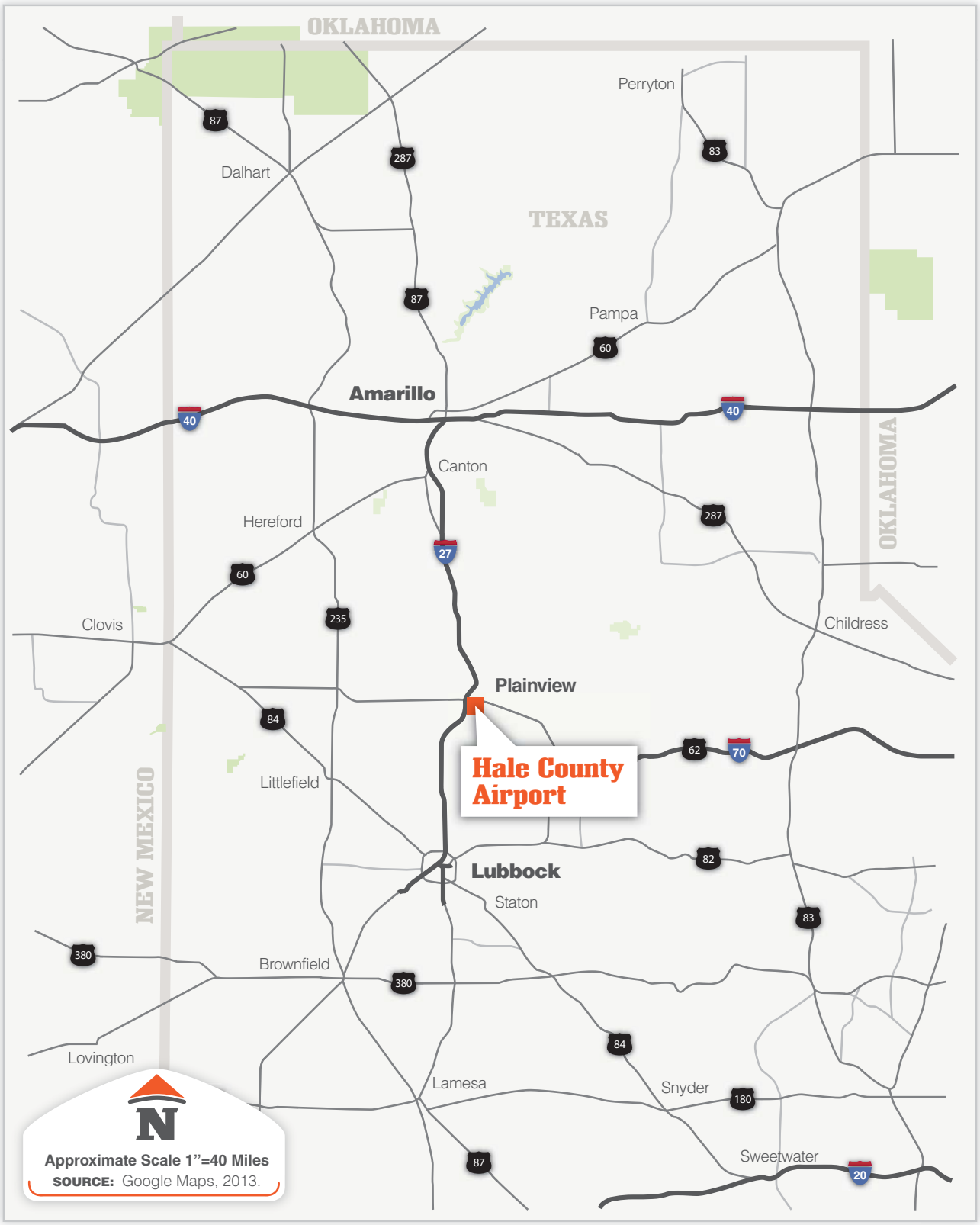

Figure A1 **Airport Location Map**

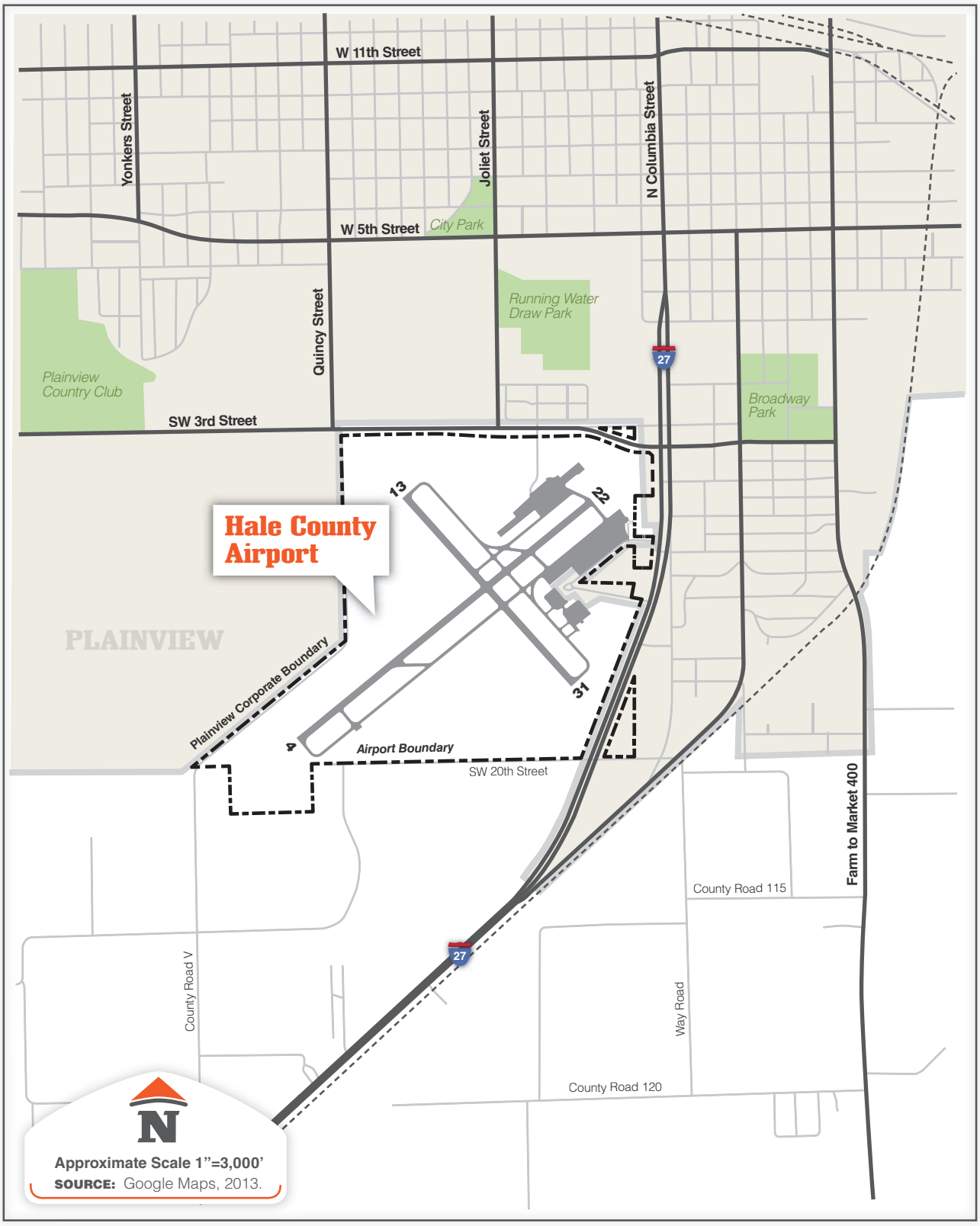

Figure A2 **Airport Vicinity Map**

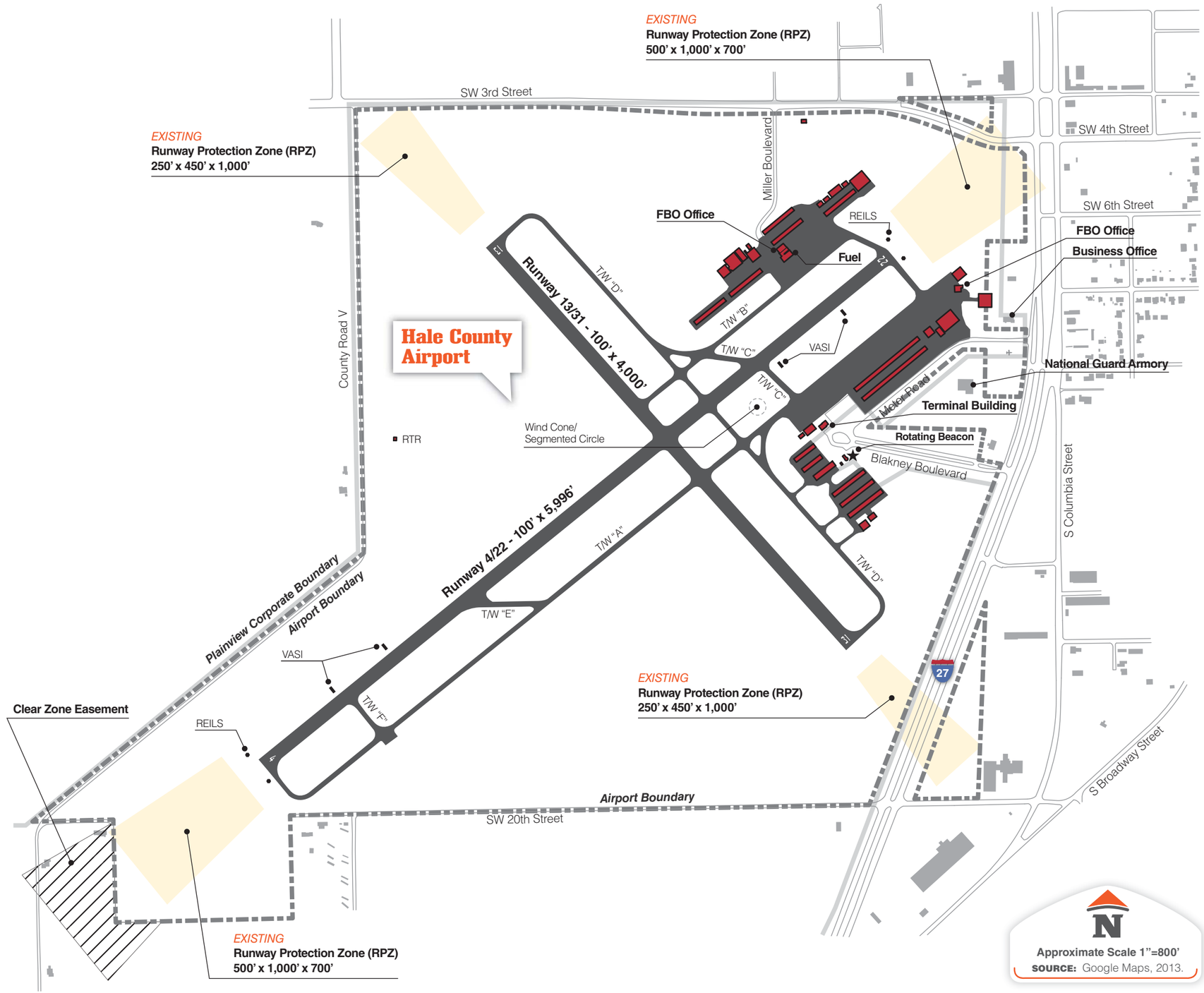

Figure A3 **Existing Airport Layout**

Master Plan
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Runway System

Runway 4/22.

- **Length and Width:** 5,997 feet by 100 feet. Intersected by Runway 4/22 approximately 2,160 feet southwest of the Runway 22 threshold.
- **Pavement:** Asphalt. The runway has a gross weight bearing capacity of 34,500 pounds single wheel and 46,000 pounds dual wheel main landing gear configuration.
- **Lighting and Marking:** Medium Intensity Runway Lights (MIRL) and standard non-precision runway markings.
- **Visual and Electronic Landing Aids:** Visual landing aids include four-light Visual Approach Slope Indicator (VASI) located on the left-hand side of both runways and Runway End Identifier Lights (REIL) are located at both runway ends.

Runway 13/31.

- **Length and Width:** 4,000 feet by 100 feet. Intersects Runway 4/22 approximately 1,940 feet southeast of Runway 13.
- **Pavement:** Asphalt. The runway has a gross weight bearing capacity of 16,500 pounds single wheel main landing gear configuration.
- **Lighting and Marking:** (MIRL) and standard non-precision runway markings.

Taxiway System

Several taxiways provide access from the runway to the landside facilities.

- **Taxiway A:** A 40-foot wide, full parallel taxiway located 400 feet (runway centerline to taxiway centerline) southeast of Runway 4/22.
- **Taxiway B:** A 35-foot wide, partial parallel taxiway located 300 feet (centerline to centerline) northwest of Runway 4/22, providing access from the Runway 22 threshold to Runway 13/31.
- **Taxiway C:** A 40-foot wide connector taxiway providing access from Runway 4/22 to Taxiway A and the south apron area, and access to Taxiways B and D northwest of Runway 4/22.
- **Taxiway D:** A 35-foot wide, full parallel taxiway located 400 feet (centerline to centerline) northeast of Runway 13/31.

- **Taxiway E:** A 40-foot wide, acute-angled exit taxiway from Runway 4/22 to Taxiway A.
- **Taxiway F:** A 35-foot wide connector taxiway providing access from Runway 4/22 to Taxiway A.

Visual Navigational Facilities

Several visual navigational facilities are located at the airport providing important visual clues and data to pilots. The airport rotating beacon is situated atop the non-functioning control tower located roughly 500 feet northeast of Taxiway D in the south development area. A wind cone and segmented circle is located between Runway 4/22 and Taxiway A, just east of the intersection of Runway 4/22 and Taxiway D. Guidance and hold signs are located on all taxiways.

Landside Facilities

There are two landside development areas at the Airport, referred to as the north development area and the south development area. Facilities found in the areas include FBOs, T-hangars, conventional hangars, aircraft parking aprons, fuel storage and dispensing facilities, and a terminal building.

South Development Area

The south development area is the original development area at the Airport. Facilities located here include:

- **Apron:** The aircraft parking apron, consisting of roughly 189,000 square feet of total pavement, delineates ten tiedown spaces and approximately 52,500 square feet of aircraft movement and parking area. There is approximately 50,000 square feet of this pavement near the terminal building at the southwest end of the apron and roughly 33,750 square feet adjacent the conventional hangars located at the northeast end of the apron.
- **Hangars:** There are eight T-hangars providing 90 individual storage spaces and eight conventional hangars, ranging in size from about 2,200 square feet up to approximately 14,080 square feet.
- **Buildings:** The airport terminal building is located near the southwest end of the apron and is approximately 2,400 square feet. Currently, the terminal is unoccupied. An airport storage building is located at the southwest end of the apron. An FBO office is

located at the northeast end of the apron. Non-aviation buildings located in this area, but outside airport property, include a National Guard Armory, a Division of Motor Vehicles office, and a business office.

- **Fuel Facility:** There is a non-functional fuel dispensing island located at the northeast end of the apron.
- **Vehicular Access and Parking:** The primary airport entrance road, Blakney Boulevard, is a four-lane divided boulevard connecting the terminal building with Purcell Drive (U.S. 87B), a distance of approximately one-quarter mile. Meter Road, a two-lane street, provides a secondary entrance from Purcell Drive to the National Guard Armory, the business office, the FBO office, and the hangars at the northeast end of the apron. Vehicular parking areas are provided adjacent the terminal building, the FBO office, the National Guard Armory, and the business offices.

North Development Area

Facilities located in the north development area include:

- **Apron:** The north aircraft parking apron consists of roughly 63,500 square feet of total pavement area, although there are no delineated aircraft tiedowns. Much of this apron is dedicated for access to the fuel facility.
- **Hangars:** There are five T-hangars providing 50 individual storage spaces and nine conventional hangars, ranging in size from approximately 1,320 square feet up to roughly 11,600 square feet.
- **Buildings:** An FBO office is located at the northwest edge of the apron.
- **Fuel Facility:** The fuel dispensing island is located just northeast of the FBO office, near the midpoint of the apron. This facility consists of one 8,000-gallon aboveground 100LL storage tank. Additionally, Rocket Aviation uses two mobile refueling trucks for storage and dispensing, including one 750-gallon 100 LL truck and one 2,200-gallon Jet A truck.
- **Vehicular Access and Parking:** The primary entrance road to this development area is Miller Boulevard, a two-lane road connecting the FBO office with SW 3rd Street, a

distance of slightly less than one-quarter mile. Vehicular parking areas are provided adjacent the FBO office and a larger conventional hangar.

Other Landside Facilities

Other landside facilities at Hale County Airport include the Remote Transmitter/Receiver (RTR) located in the western part of airport property adjacent to County Road V.

Facilities Conditions Survey

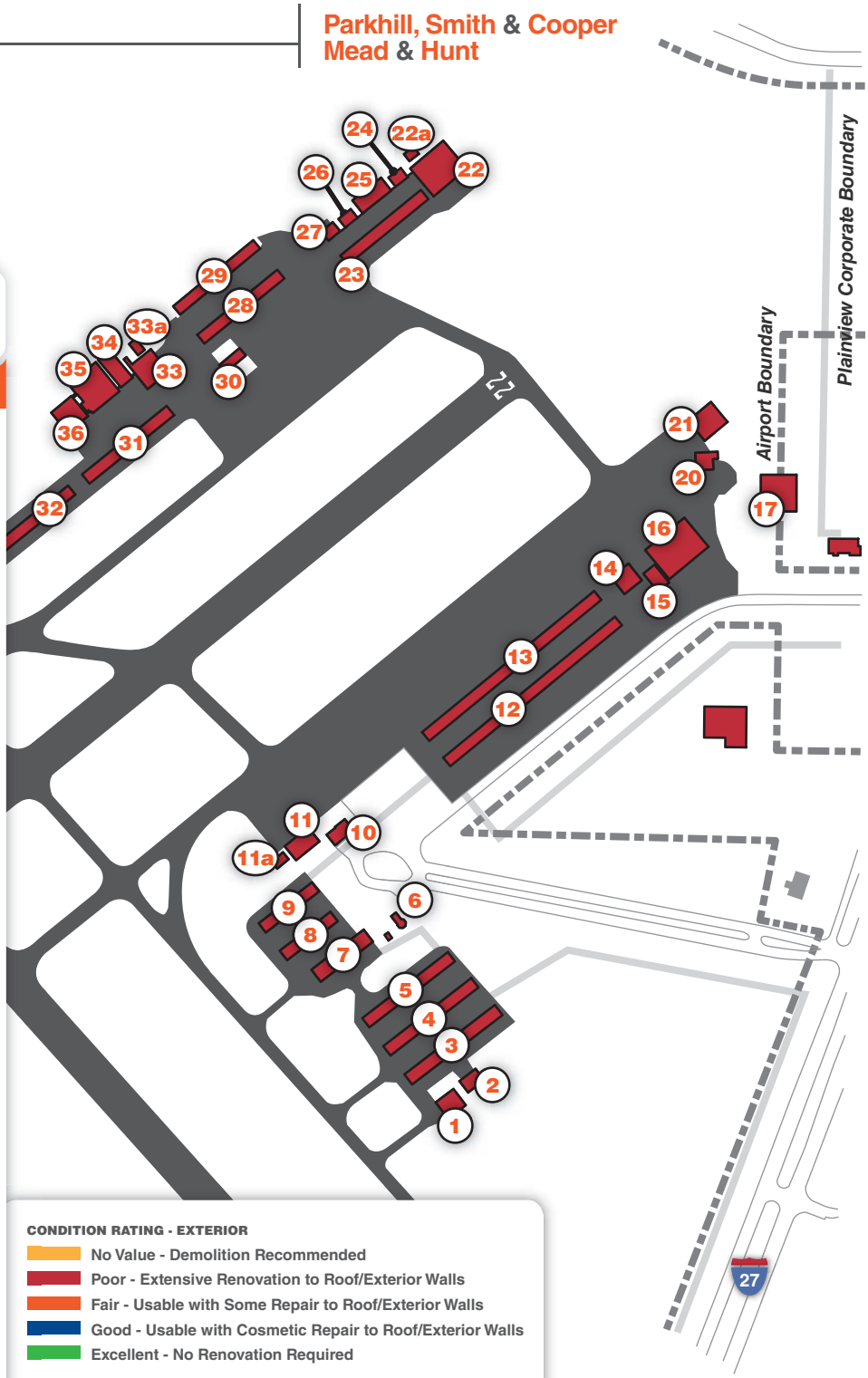
A generalized conditions survey for all buildings, hangars, and pavements has been conducted for the Airport. The survey was based upon a visual walk-through inspection performed by qualified individuals using their professional judgment and observation. It establishes a baseline dataset representing the relative viability of all airport facilities to support efforts for evaluating the value of existing facilities and their ability to meet future demands, enhance revenue generation, and improve aesthetics at the Airport.

Building Survey

The airport building survey and rating system is presented graphically in Figure A4, entitled *AIRPORT BUILDING EVALUATION*. The rating system is based on a scale from 1 (structure has no real value) to 5 (building in excellent condition). Both exterior and interior evaluations were performed for each airport building. As can be seen, the majority of buildings are rated good for both exterior and interior condition. Only one building received a poor rating for both exterior and interior, which is building 33A – a storage building. Building 29 was the only other building to receive a poor rating, which was for interior conditions, and received a fair exterior rating.

Pavement Survey

The pavement survey is presented visually in Figure A5, entitled *AIRPORT PAVEMENT SURVEY*. The pavement rating system is based on a scale from 1 (excellent) to 5 (failed), with an additional category of gravel/unimproved. The vast majority of airport pavements are rated good, including Runway 4/22, Taxiway A, the main aircraft parking apron in the south development area, and roughly half of the pavement in the north development area. There are several pavement areas rated



BUILDING EVALUATION

No.	Exterior | Interior	Ownership
1		Private
2		Private
3		Private
4		Private
5		Private
6		Public
7		Private
8		Private
9		Private
10		Public
11		Private
11a		Public
12		Private
13		Private
14		Private
15		Private
16		Public
17		Private
20		Private
21		Private
22		Private
22a		Private
23		Private
24		Private
25		Private
26		Private
27		Private
28		Public
29		Private
30		Private
31		Private
32		Private
33		Private
33a		Private
34		Private
35		Private
36		Private

CONDITION RATING - EXTERIOR

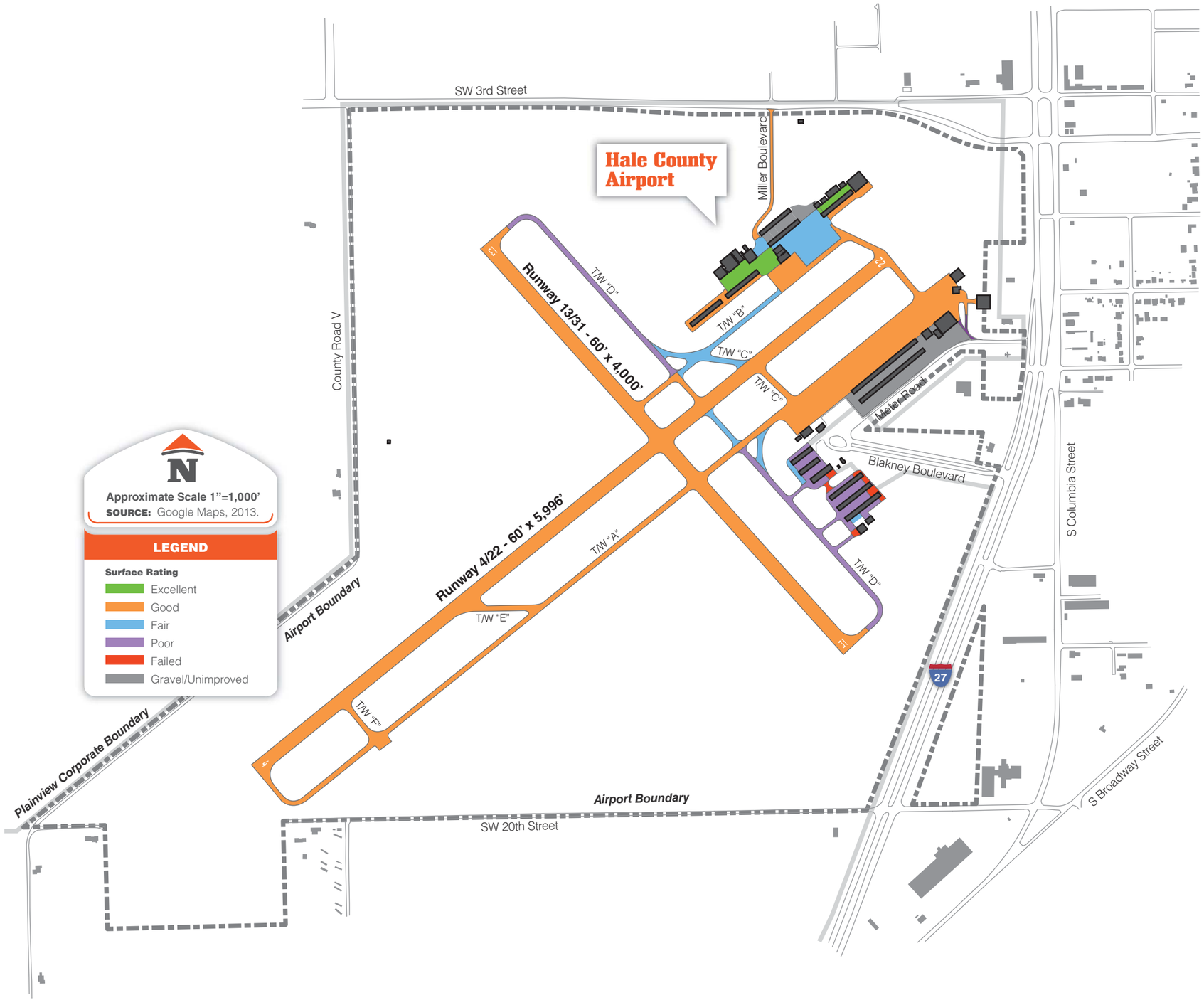
- No Value - Demolition Recommended
- Poor - Extensive Renovation to Roof/Exterior Walls
- Fair - Usable with Some Repair to Roof/Exterior Walls
- Good - Usable with Cosmetic Repair to Roof/Exterior Walls
- Excellent - No Renovation Required

CONDITION RATING - INTERIOR

- No Value - Demolition Required for Reuse
- Poor - Useable with Extensive Renovation Needed
- Fair - Usable with Some Renovation Needed
- Good - Minimal Cosmetic Renovation Needed
- Excellent - No Renovation Required

Figure A4 **Airport Building Evaluation**

Figure A5 **Airport Pavement Survey**



poor, including most of Taxiway D, the taxilanes providing access to the hangars in the south development area, and Blakney Boulevard and Meter Road in the south development area.

Airspace System/Navigation and Communication Aids

All airports function within the local, regional, and national system of airports and airspace. The following narrative provides a description of the Hale County Airport's role as an element within these systems.

Air Traffic Service Area

Within the continental United States, there are some 22 geographic areas that are under Air Traffic Control (ATC) jurisdiction. Air traffic controllers in Air Route Traffic Control Centers (ARTCC) provide air traffic services within each area. Hale County Airport is contained within the Fort Worth ARTCC service area, which includes the airspace in portions of Texas, New Mexico, Oklahoma, Arkansas, and Louisiana.

Aviation Communications

Aviation communication facilities associated with the Airport include a Common Traffic Advisory Frequency (CTAF)/Aeronautical Advisory Station (UNICOM) on frequency 123.0. The Lubbock Approach and Departure is on 119.2, and the Automated Weather Observing Station (AWOS) III is on frequency 119.675.

Airspace and NAVAIDS

Local airspace surrounding Hale County Airport is designated as Class E. The configuration of each Class E airspace area is tailored to individual airports. Generally, Class E airspace consists of the immediate controlled airspace at airports without control towers, and is intended to provide a transition area for instrument approaches. Radio communications and transponders are not required to operate under Visual Flight Rules (VFR) meteorological conditions; however, Instrument Flight Rules (IFR) flights must be capable of communicating with ATC and must be Mode C

Transponder equipped (capable of reporting altitude). The floor of the Class E airspace at Hale County Airport is established at 700 feet Above Ground Level (AGL).

Navigational aids (NAVAIDS) are instruments providing navigation readings to pilots in appropriately equipped aircraft. The primary navigational aid available for use by pilots in the vicinity of the Airport is the Plainview VOR/DME (112.90 PVW), which is located approximately six nautical miles southwest of the Airport. VOR/DMEs (Very High Frequency Omnidirectional Range Station with Distance Measuring Equipment) are short-range radio navigation systems transmitting signals in 360° azimuth oriented from magnetic north. The VOR equipment enables aircraft to determine their position and stay on course; the DME equipment is used to measure the slant-range distance of an aircraft from the navigational aid. The following illustration, entitled *AIRSPACE/NAVAIDS SUMMARY*, depicts the Airport, local airspace, and navigational facilities in the vicinity of the Airport.

Instrument Approach Capabilities

There are presently three published instrument approach procedures at Hale County Airport, which are presented in Table A1 entitled *HALE COUNTY AIRPORT INSTRUMENT APPROACH PROCEDURES*. In addition, regional airspace considerations are illustrated in the following illustration entitled *AIRSPACE/NAVAIDS SUMMARY*.

Runway 4 has non-standard take-off minimums of 300 feet AGL and 1-½ nautical miles, or standard minimums with a climb rate of 420 feet per nautical mile to 3,700 feet Above Mean Sea Level (AMSL).

Table A1 **HALE COUNTY AIRPORT INSTRUMENT APPROACH PROCEDURES**

Type of Approach	Runway	Ceiling Minimum (AGL)	Visibility Minimum
RNAV (GPS)	4	250′	1-Mile
RNAV (GPS)[1]	22	447′	1-Mile
VOR[1]	4	466′	1-Mile

Source: U.S. Terminal Procedures, South-Central (SC), Volume 2, November 15, 2012 to December 13, 2012.
Notes: [1]For Categories A and B aircraft only.

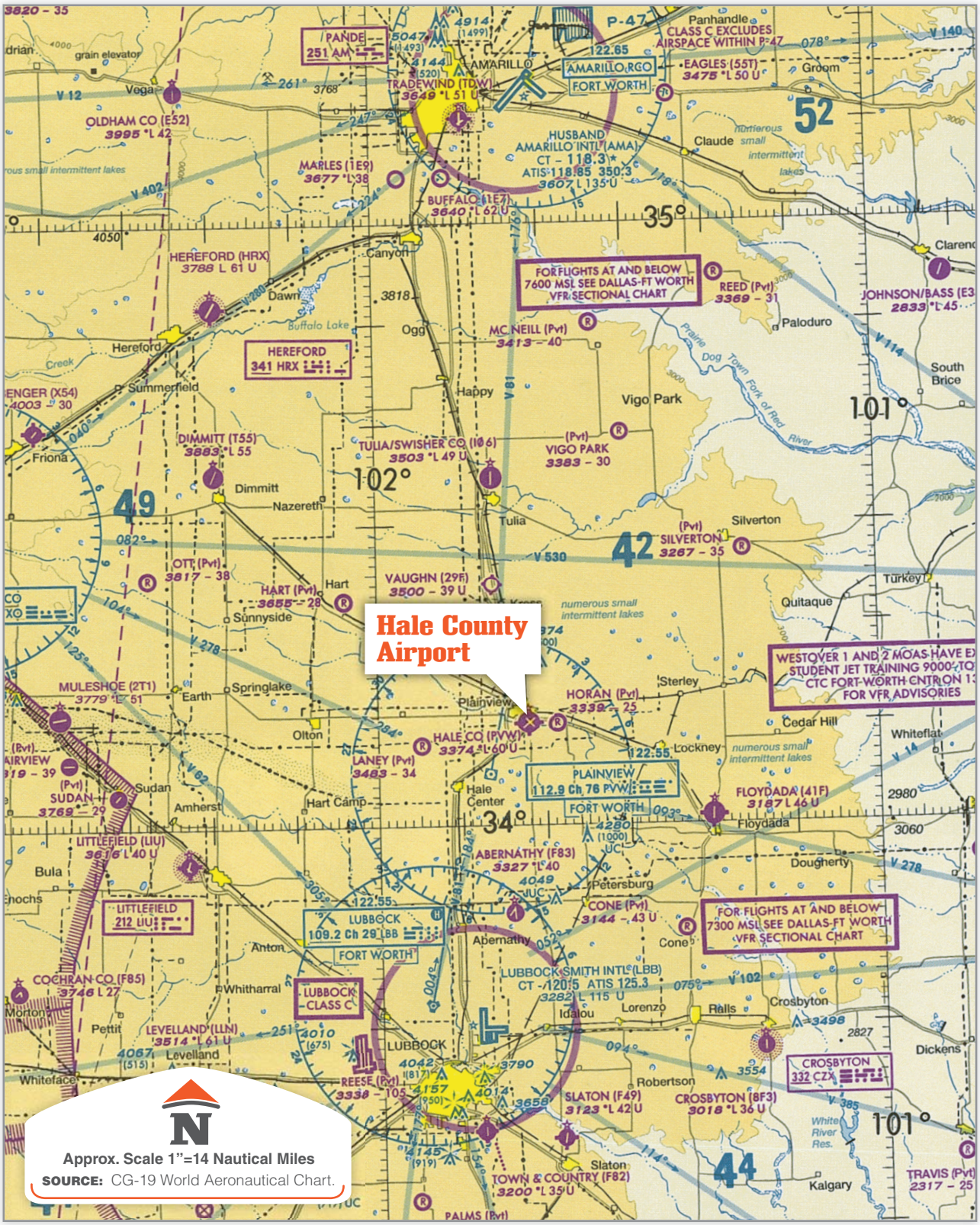


Figure A6 **Airspace/NAVAIDS Summary**

The proximity of Lubbock Preston Smith International Airport (31 nautical miles to the south) and, to a lesser degree, Rick Husband Amarillo International Airport (61 nautical miles to the north) provide Hale County Airport with significant system back up and redundancy for instrument approach capabilities. As such, it is appropriate to describe the capabilities of each airport in the context of this Master Plan. Tables A2 and A3 provide the straight-in instrument approach procedures provided at Lubbock Preston Smith International Airport and Rick Husband Amarillo International Airport.

Table A2 **LUBBOCK PRESTON SMITH INTERNATIONAL AIRPORT INSTRUMENT APPROACH PROCEDURES**

Type of Approach	Runway	Ceiling Minimum (AGL)	Visibility Minimum
HI-ILS or LOC	17R	200′	½-Mile
ILS or LOC	17R	200′	½-Mile
ILS or LOC	26	200′	½-Mile
RNAV (RNP) Z[1]	17R	256′	½-Mile
RNAV (RNP) Z[1]	35L	303′	¾-Mile
RNAV (GPS)	8	200′	¾-Mile
RNAV (GPS)	26	200′	½-Mile
RNAV (GPS) Y	17R	200′	½-Mile
RNAV (GPS) Y	35L	200′	¾-Mile
HI-LOC/DME BC[2]	35L	307′	¾-Mile
LOC BC[3]	35L	566′	¾-Mile
HI-VOR/DME or TACAN[4]	26	425′	1¼-Mile
VOR/DME or TACAN[3]	26	427′	1¼-Mile

Source: U.S. Terminal Procedures, South-Central (SC), Volume 2, November 15, 2012 to December 13, 2012.
Notes: [1]Authorization Required. [2]For Category C aircraft only. [3]For Categories A and B aircraft only. [4]For Categories C and D aircraft only.

Table A3 **RICK HUSBAND AMARILLO INTERNATIONAL AIRPORT INSTRUMENT APPROACH PROCEDURES**

Type of Approach	Runway	Ceiling Minimum (AGL)	Visibility Minimum
ILS or LOC	4	200′	½-Mile
RNAV (RNP) Z[1]	4	319′	¾-Mile
RNAV (RNP) Z[1]	13	416′	1½-Mile
RNAV (RNP) Z[1]	22	288′	¾-Mile
RNAV (RNP) Z[1]	31	300′	¾-Mile
RNAV (GPS) Y	4	200′	½-Mile
RNAV (GPS) Y	13	200′	¾-Mile
RNAV (GPS) Y[2]	22	414′	½-Mile
RNAV (GPS) Y	31	200′	¾-Mile
LDA/DME	22	250′	½-Mile
VOR/DME[3]	13	380′	1-Mile
VOR/DME[3]	22	354′	½-Mile
VOR/DME[3]	31	362′	1-Mile
HI-VOR/DME or TACAN[4]	4	413′	¾-Mile
HI-VOR/DME or TACAN[4]	13	380′	1-Mile
HI-VOR/DME or TACAN[4]	22	357′	½-Mile
HI-VOR/DME or TACAN[4]	31	362′	1-Mile
VOR[2]	22	477′	½-Mile
NDB[2]	4	615′	¾-Mile

Source: U.S. Terminal Procedures, South-Central (SC), Volume 2, November 15, 2012 to December 13, 2012.
Notes: [1]Authorization Required. [2]For Categories A and B aircraft only. [3]For Categories A, B, and C aircraft only. [4]For Category C aircraft only.

Airport Environs

An inventory of the land uses, zoning patterns, and the various land use planning and control documents used to guide development of property surrounding the Airport is an important element in the airport planning process. Land use compatibility with airport development is made through knowledge of what land uses are proposed and what, if any, changes need to be made. The following paragraphs provide a generalized description of the existing zoning, height hazard zoning, and existing and future land use patterns for the areas surrounding the Airport.

Existing Zoning

The City of Plainview adopted zoning and development codes in the 1989 Zoning Ordinance to help guide development. The City's zoning ordinance pertain to the area within its corporate limits and is intended to enable the City of Plainview to "promote and protect, the health, safety, comfort, convenience, prosperity, and general welfare of the citizens of Plainview by assuring quality

development and allowing for the proper economic growth that conforms to a comprehensive plan of the city." Hale County Airport is surrounded on three sides, but is not within, the Plainview City Limits.

The adopted City of Plainview zoning map indicates that the property to the west of the Airport, northwest of County Road V and south of SW 3rd Street, is zoned Light Industrial (M-1), which is zoned to provide for "light" industrial uses and those commercial uses requiring outside storage and display. Land further to the west is zoned Agricultural (A), which provides transition from a rural to an urban setting for all newly annexed areas. Commercial General Business (C-3) zoning is applied to land at the northwest corner of SW 3rd Street and Quincy Street. The purpose of this district is to provide for heavy retail and wholesale commercial uses that serve a city-wide or regional area. Directly north of the Airport, north of SW 3rd Street, additional Commercial General Business (C-3), Light Industrial (M-1), and Agricultural (A) zoning occurs.

The properties northeast of the Airport, northeast of the intersection of SW 3rd Street and Purcell Drive (US 87B), are zoned as a mixture of Commercial General Business (C-3), Single Family Residential (R-2), and Agricultural (A). The R-2 designation is a residential district that allows slightly higher densities than R-1. Further to the northeast, Central Business District (CBD) zoning is applied, which permits a mix of residential, retail, service, office, and general commercial uses for the intent to promote revitalization of the traditional downtown area. Areas east of the Airport are zoned primarily Commercial General Business (C-3) adjacent to Purcell Drive (US 87B), with some Single Family Residential (R-2) zoning designated here too. Areas to the south of the Airport are outside of the existing corporate city limit boundary and are subject to Hale County jurisdiction, which does not have land use zoning. However, this area is located within Plainview's Extra-Territorial Jurisdiction (ETJ), which makes the City of Plainview's subdivision regulations applicable in this area. Existing zoning is illustrated in the following figure, entitled *GENERALIZED EXISTING ZONING*.

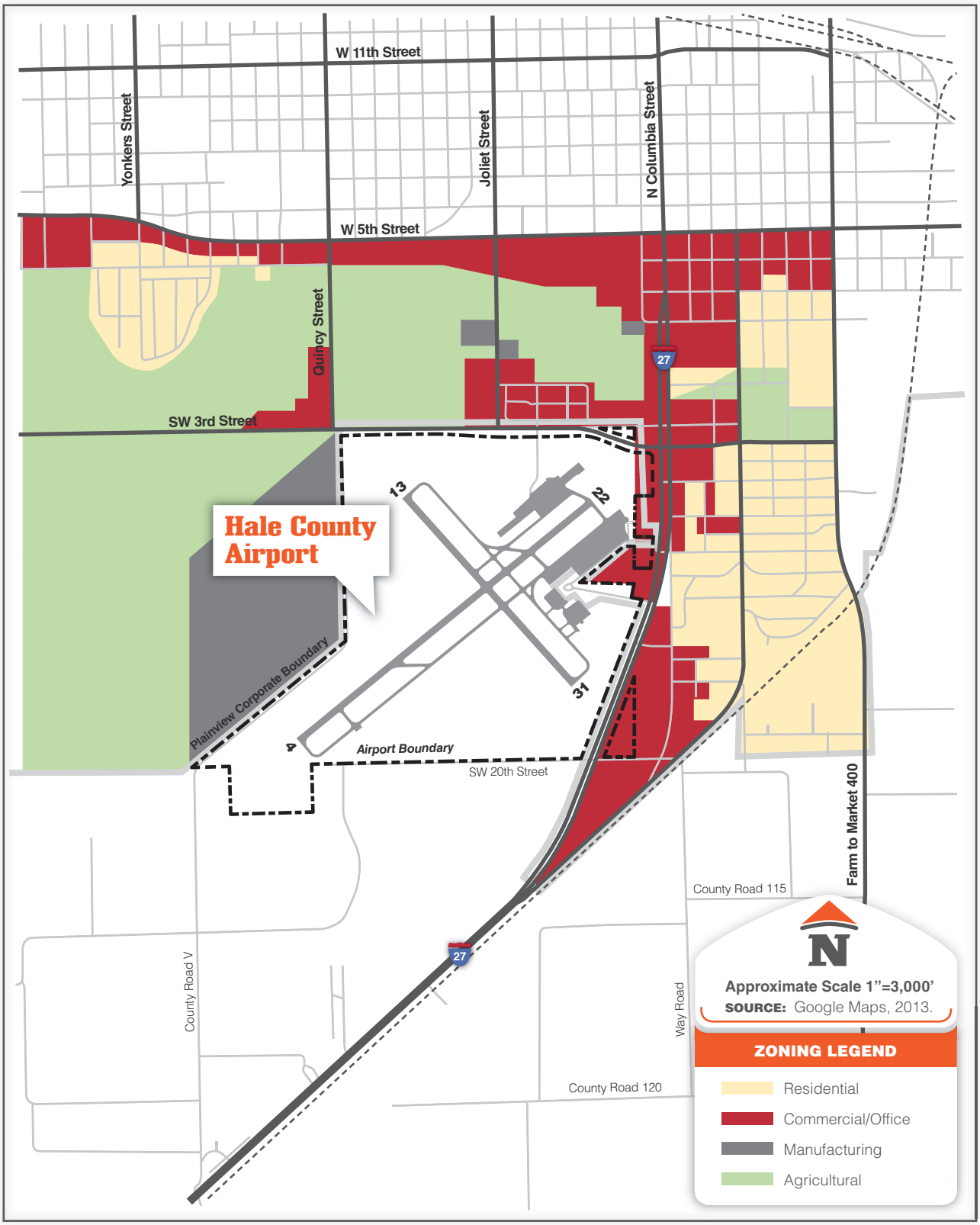


Figure A7 **Generalized Existing Zoning**

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Existing and Future Land Use

Existing land use information was primarily obtained from the City of Plainview's Public Interactive Web Map. Currently, the majority of the land surrounding the Airport is undeveloped farmland. The Plainview Cemetery and Memorial Park dominates the land use directly north of the Airport, north of SW 3rd Street. The Running Water Draw Regional Park is located north of the cemetery. Scattered residences are located to the west, southwest, and south of the Airport. The more intensely developed residential and commercial areas surrounding the Airport occur to the east and northeast. Hillcrest Elementary School is located east of Columbia Street, just east of the Airport. The following figure entitled *GENERALIZED EXISTING LAND USE* illustrates the existing land uses surrounding Hale County Airport.

The City of Plainview is in the process of updating its comprehensive land use plan. It is suggested that the planning improvement recommendations from this Airport Master Plan be incorporated into the City's Comprehensive Plan once complete.

Environmental Conditions Inventory

Air and Water Quality

The U.S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for six criteria air pollutants: carbon monoxide (CO), ozone (O_3), particulate matter (PM_{10}), sulfur dioxide (SO_2), oxides of nitrogen (NO_x), and lead (Pb). According to the EPA, Hale County is currently in compliance with all NAAQS. Generally, the FAA uses the number of passengers and aviation operations as an indicator of potential air quality concerns. These numbers help decide whether the project requires further air quality analysis. The FAA's *Air Quality Procedures for Civilian Airports and Air Force Bases* states, "If the level of annual enplanements exceeds 1,300,000 (or 2.6-million annual passengers), the level of general aviation and air taxi activity exceeds 180,000 operations per year, or a combination thereof, a NAAQS assessment should be considered." The forecast general aviation and air taxi operations by the end of the 20-year planning period are expected to remain well below the 180,000 operations threshold required to do an air quality analysis. Short-term air quality impacts may be expected from temporary construction

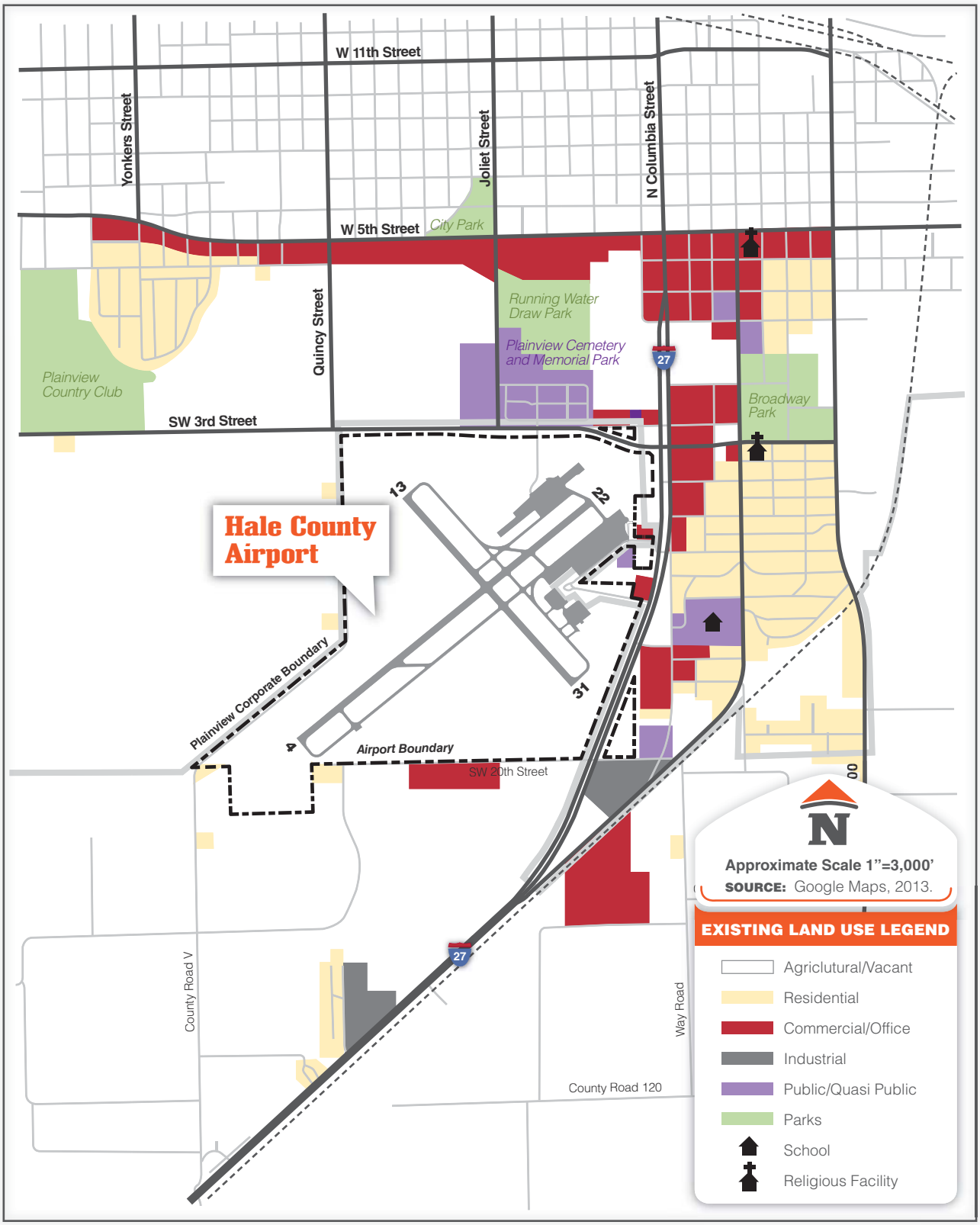

Figure A8 **Generalized Existing Land Use**

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activities such as heavy equipment pollutant emissions, fugitive dust resulting from cut and fill activities, and the operation of portable concrete batch plants. Compliance with all applicable local, state, and federal air quality regulations and permitting requirements will be the responsibility of all contractors.

According to the City of Plainview Public Interactive Web Map, the Airport is located above the Ogallala Major Aquifer and the Dockum Minor Aquifer. On or near airport property, there are eight water wells; five are located adjacent to SW 3rd Street and three are located within the north development area. The following illustration, entitled *WATER RESOURCES MAP*, presents the water resources within the vicinity of Hale County Airport.

Contractors doing work at the Airport will be required to follow guidelines outlined in the Federal Aviation Administration's Advisory Circular 150/5370-10A, *Standards for Specifying Construction of Airports*, which is the FAA's guidance to airport sponsors concerning protection of the environment during construction. The final plans and specifications for any project will incorporate the provisions of AC 150/5370-10A to minimize the impacts from erosion, air pollution, sanitary waste, and the use of chemicals. Additionally, a National Pollutant Discharge Elimination System (NPDES) permit, administered by the Texas Commission on Environmental Quality (TCEQ), will be required for construction projects.

Historical, Architectural, Archaeological, and Cultural Resources

Section 106 of the National Historic Preservation Act requires federal agencies, or their designated representatives, to take into account the effects of their undertakings on historic properties, which include archaeological sites, buildings, structures, objects, or districts. Currently, there are three sites within Hale County listed on the National Register of Historic Places (NRHP). Two sites are prehistoric properties with restricted addresses. The other site is the Plainview Commercial Historic District, bounded roughly by Northeast 4th Street, Austin Street, Northeast 9th Street, and Ash Street. This historic district is located approximately ¾ mile north-northeast of the Airport. Prior to any future airport projects, the Texas Historical Commission will need to be contacted.

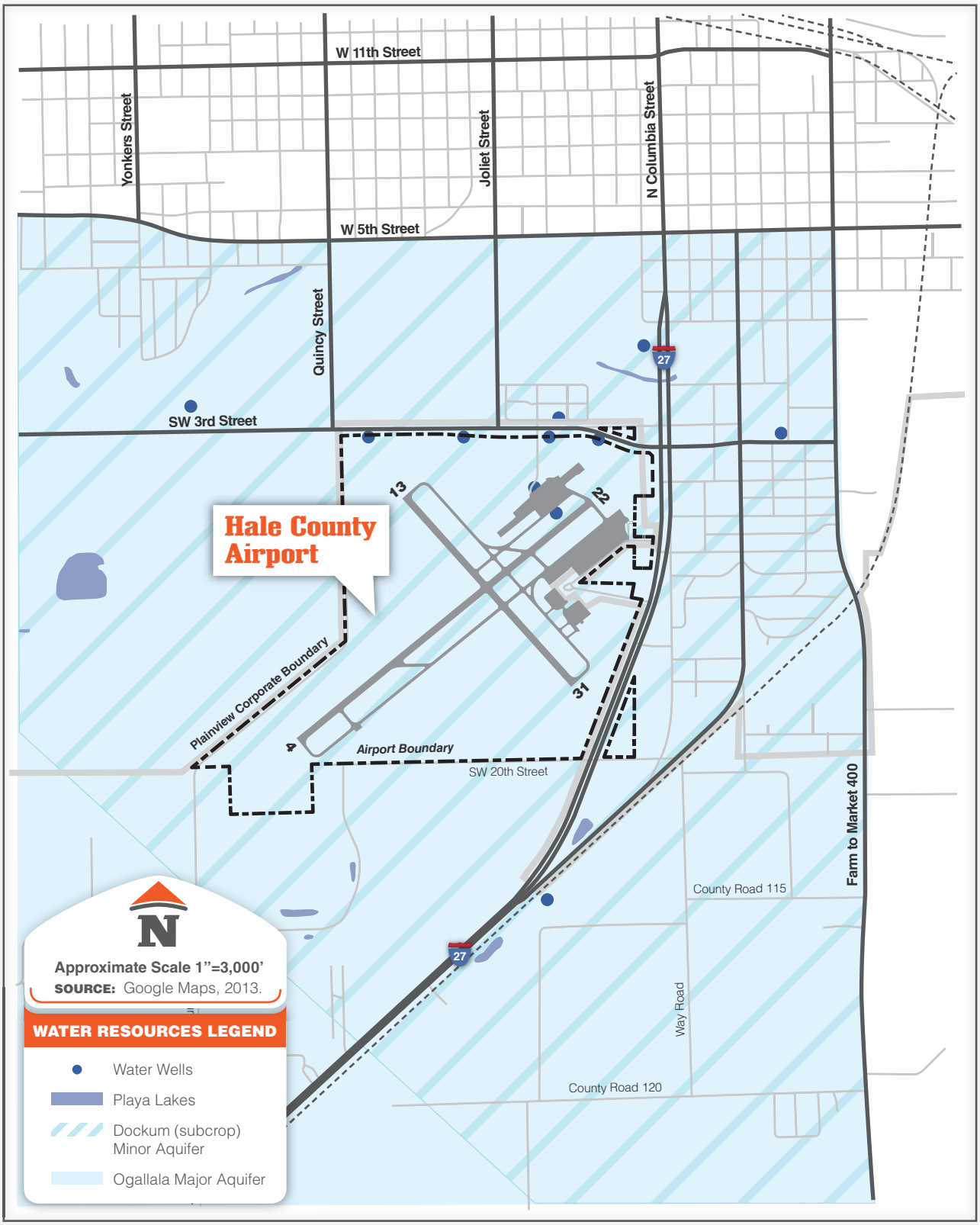


Figure A9 **Water Resources Map**

Additionally, should any construction activity expose buried archaeological material; work would stop in that area and both the FAA and the Texas Historical Commission will be contacted.

Threatened and Endangered Species

The *Endangered Species Act*, as Amended, requires each federal agency to ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of habitat of such species. According to the Texas Parks & Wildlife Department, and as presented in Table A4, *HALE COUNTY FEDERALLY & STATE LISTED WILDLIFE SPECIES*, there are eight federal and/or state listed threatened and endangered species located within Hale County. Before any projects could be undertaken, the Airport would need to determine if these threatened and endangered species are located on airport property, within the proposed project area. If the species are found to be present, a Biological Assessment (BA) may be required to determine whether a proposed action is likely to adversely affect listed species or designated critical habitat, jeopardize the continued existence of the species, or adversely modify proposed critical habitat.

Table A4 **HALE COUNTY FEDERALLY & STATE LISTED WILDLIFE SPECIES**

Common Name	Scientific Name	State Status	Federal Status
American Peregrine Falcon	*Falco peregrines anatum*	T	DL
Artic Peregrine Falcon	*Falco peregrinus tundrius*	---	DL
Bald Eagle	*Haliaeetus leucocephalus*	T	DL
Black-footed Ferret	*Mustela nigripes*	---	LE
Gray Wolf	*Canis lupus*	E	LE
Peregrine Falcon	*Falco peregrinus*	T	DL
Texas horned lizard	*Phrynosoma cornutum*	T	---
Whooping Crane	*Grus Americana*	E	LE

Source: Texas Parks & Wildlife Department.

Note: Species listed as "Rare" are not included.

E = Endangered T = Threatened DL = Federally Delisted LE = Federally Listed Endangered --- No Status

Hazardous Wildlife Attractants

According to FAA Advisory Circular 150/5200-33-B, *Hazardous Wildlife Attractants On or Near Airports*, the FAA recommends that minimum separation criteria be established between an airport's air operations area (AOA) and certain land uses that can potentially attract hazardous wildlife. Any

solid waste disposal facility (i.e. sanitary landfill), water management facilities (i.e. wastewater treatment facilities, storm water management facilities, etc.), retention and settling ponds, wetlands, agricultural activities, and golf courses may be considered by the FAA to be an incompatible land use because of the potential attraction of large numbers of hazardous wildlife such as birds. When these land uses are located within 5,000 feet of all runways planned to be used by piston-powered aircraft or within 10,000 feet of all runways planned to be used by turbine aircraft, the FAA considers them to be incompatible land uses.

The City of Plainview Landfill is located approximately 10,000 feet to the east of the Hale County Airport. Since Hale County Airport serves turbine-powered aircraft, this location is just outside the FAA-recommend distance for compatible land uses and hazardous wildlife attractants.

Wetlands

Wetlands are defined as areas inundated by surface or groundwater with a frequency sufficient to support vegetation or aquatic life requiring saturated or seasonally saturated soil conditions for growth and reproduction. According to the U.S. Fish and Wildlife Service National Wetlands Inventory Maps, and presented on Figure A10 entitled *WETLANDS MAP*, there are no wetlands identified on airport property. Several Palustrine wetlands are identified in the general vicinity of the Airport. If any proposed projects would impact these wetlands, the Airport will coordinate with the U.S. Army Corps of Engineers and some further environmental analysis may be necessary. Should there be any mitigation measures identified, contractors would be required to follow guidelines outlined in the FAA's AC 150/5370-10A to minimize the impacts to the environment, including wetlands.

Farmland

According to the National Soil Survey by the National Resources Conservation Service (NRCS), there are several areas of land on and surrounding the Airport that are considered to be prime farmland. The vast majority of the soils within airport property are classified as Pullman clay loam, zero to one percent slopes, which is considered a prime farmland. The other soil type found in the northwestern

Figure A10 **Wetlands Map**

and northeastern corners of airport property is the Mansker loam, three to five percent slopes. This soil type is not considered prime farmland. Other soil types located beyond airport property, but within the general area, are Lofton clay loam, Mansker loam, zero to one percent slopes, and Randall clay. Lofton clay loam is considered prime farmland. The soil analysis was generated through online mapping from the NRCS website and is presented in Figure A11 entitled *SOILS MAP*.

Consultation with the U.S. Department of Agriculture (USDA) and the NRCS is required to determine if the Farmland Protection Policy Act (FPPA) applies to the land or applies to any land to be converted from non-agricultural use as a result of the any of the proposed projects.

Floodplains

Executive Order 11988 directs federal agencies to take action to reduce the risk of flood loss, minimize the impact of floods on human safety, health, and welfare, and restore and preserve the natural and beneficial values served by floodplains. According to the City of Plainview Public Interactive Web Map, the 100-year floodplain associated with Running Water Draw encroaches slightly into the far northeast corner of the Airport. However, no airport facilities are located within the floodplain, as presented in Figure A12 entitled *FLOODPLAIN MAP*.

According to FAA Orders 1050.1E and 505.4B, the FAA must determine if there would be a "significant floodplain encroachment" should development occur within a floodplain. If development occurred that may cause an impact to the 100-year floodplain located near the Airport, consultation with the FAA would be required to determine if the significant encroachment will cause "notable adverse impacts on natural and beneficial floodplain values" as a result of any of the proposed projects.

Section 4(f) Property

Section 4(f) of the Department of Transportation Act (recodified at 49 USC, Subtitle I, Section 303) provides that no publicly owned park, recreation area, wildlife or waterfowl refuge, or land of a historic site that is of national, state, or local significance will be used, acquired, or affected by programs or projects requiring federal assistance for implementation. Currently, there are two city-

Figure A11 **Soils Map**

Master Plan
Hale County Airport

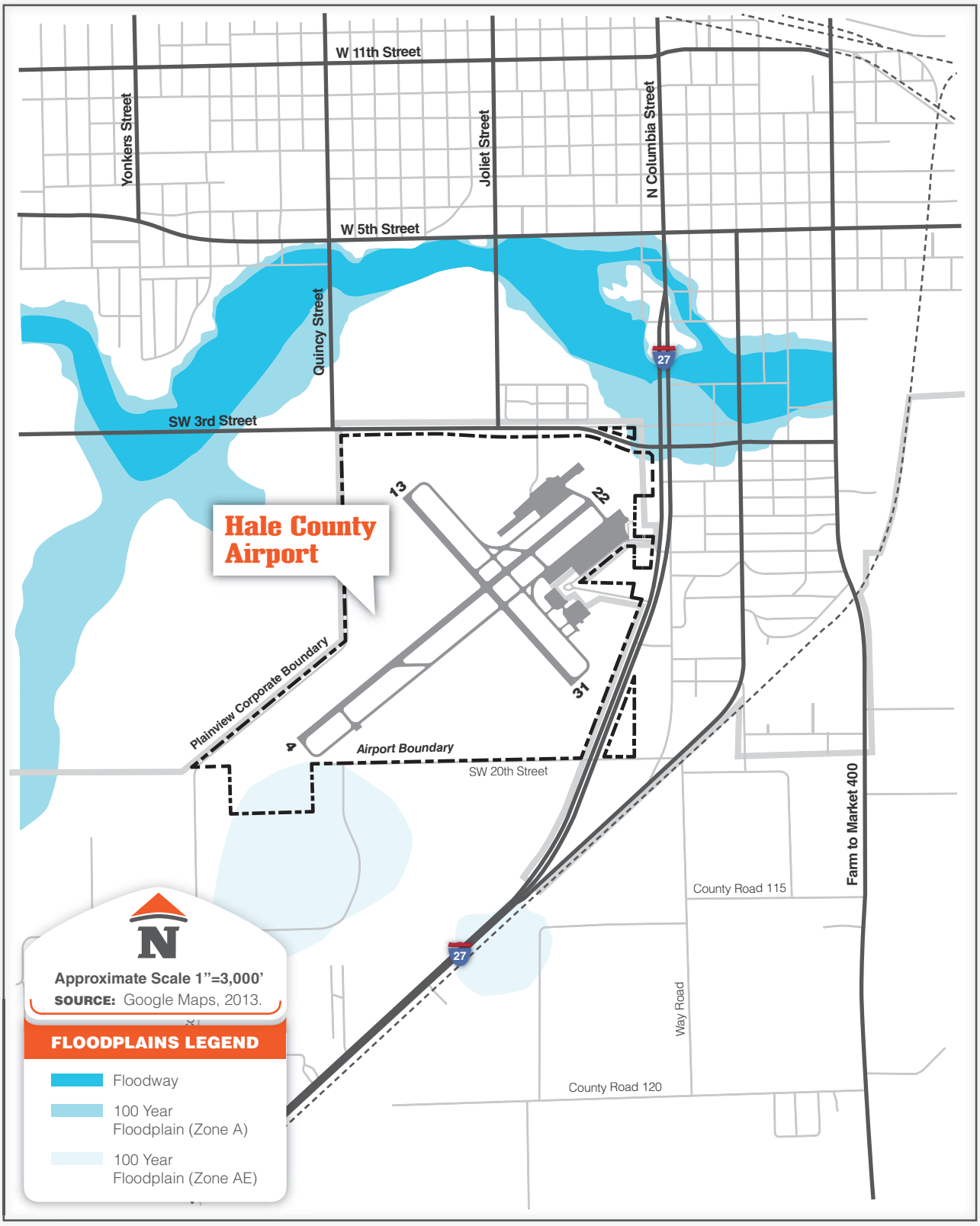


Figure A12 **Floodplains Map**

owned parks located near the Airport: Running Water Draw Regional Park, located north of SW 3rd Street approximately 1,000 feet north of airport property; and Broadway Park, located approximately 1,600 feet east of the northeast corner of the Airport.

Financial Inventory

The primary goal of this task is to gather materials that summarize the financial management of the Airport. In addition, it is important to develop an understanding of the financial structure, constraints, requirements, and opportunities for airport activities as related to the development of a Capital Improvement Program (CIP). The documents that have been gathered and reviewed for this financial inventory will be used to formulate a reasonable and financially sound CIP with which to fund projects identified in the master planning process.

An airport is both a public service and a business, and must be operated as both. Financial assistance to public airports is often provided by the city, county, state, federal, and private sources where available. In return, the Airport provides jobs, promotes development, and supplies economic benefits to the area that it serves, as well as providing a major element of the public transportation system. This is the public service component. From a business standpoint, the Airport has the ability to generate certain revenues and, therefore, the obligation to do so. The most successful and satisfactory method of accomplishing this is through a combination of fair and equitable fees and charges associated with the use of airport facilities. It is a federal requirement that airport generated revenues be used at the Airport. Airport revenues can be derived from leases, rental rates, airfield fees and charges, airlines, cargo operators, and other operating revenue.

In consideration of these issues, the Airport's financial statements have been gathered for fiscal years 2008 through 2012 and summarized in the following table entitled *REVENUE AND EXPENSE SUMMARY*. The primary responsibility for developing the financing program rests with the Plainview-Hale County Airport Board. Major sources of revenue for the Airport include: rental leases, ground leases, and fuel sales. Major expenditures include building and grounds maintenance, utilities, and insurance.

Table A5 **REVENUE AND EXPENSE SUMMARY**

Year	Revenues	Expenditures	Net Operating Income(Loss)
2008	$47,878	$46,156	$1,722
2009	$54,473	$27,640	$26,833
2010	$82,632	$82,350	$282
2011	$52,869	$45,619	$7,250
2012	$71,294	$57,122	$14,172

Source: Hale County personnel.

Issues Inventory

Identification of the current and future development issues that may impact the use of a public facility is an important step in the planning process. This is particularly true of an airport where infrastructure investment is great, where the issues are complex, and where the entire airport facility along with its environs, should be planned in unison to minimize incompatibility between the airport and its surroundings.

Preliminary analysis and discussions with airport personnel indicate that some of the critical issues of particular importance in the development of this Master Plan include:

- **Runway System:** Potential need for an extension of Runway 4/22 to meet possible future demand and ultimate design requirements.
- **Instrument Approach Improvement:** Potential improvements to the existing instrument approach procedures.
- **Terminal Area:** Provision of a new terminal building and terminal area improvements.
- **Landside Development:** Define and create new north and south landside complexes to meet potential requirements for expanded facilities related to ultimate aviation needs. Further, identification of potential sites for release of leasehold interest by Rocket Aviation to allow governmental ownership of parcels that would then qualify for Texas Department of Transportation (TxDOT) Aviation Division funding of T-hangar type

projects. Deal terms (between Rocket Aviation and the Airport Sponsor) to be discussed and agreed upon outside the context of the Master Plan process.

Master Plan

Hale County Airport

Forecasts of Aviation Activity

Forecasts of Aviation Activity

INTRODUCTION. Projecting the future demand of aviation activity at an airport is a key component of the master planning process. These projections will serve as the basis for identifying the Airport's future needs through analyzing existing facilities and the requirements of those facilities. It will also serve as the foundation for major decisions that will be made for the Airport, such as, if and when future improvements are needed. However, the possibility that either consistently higher or lower levels of activity may occur due to unique circumstances cannot be dismissed. Therefore, aviation activity levels must be monitored for consistency with the forecasts and, in case of dramatic changes, the development schedule can be adjusted to correspond with actual demand rather than be set to pre-determined dates.

By its very nature, forecasting is not an exact science, but when soundly established does provide some general development parameters and provides a defined rationale for various development activities. The amount and kind of aviation activity occurring at an airport is dependent upon many factors, but is usually reflective of the services available to aircraft operators, the meteorological conditions under which the airport operates (daily and seasonally), the businesses located on the airport or within the community the airport serves, the overall population base of the region, and the general economic conditions prevalent within the surrounding area.

Forecasts are prepared for short, medium, and long-term time intervals. Short-term forecasts are for 1-5 years and usually address current issues that need immediate attention. Medium-term forecasts are for 6-10 years and are usually used in planning capital improvements. Long-term forecasts are for 11-20 years and provide information about general planning and expansion to meet future demand. The purpose of this forecast is to estimate, using multiple forecast methods, the future aviation activity and demand at Hale County Airport for the period 2012-2032.

For the following aviation forecasts, a combination of data and information was used. This material was provided by the Federal Aviation Administration (FAA), Texas Department of Transportation (TxDOT) Aviation Division, Hale County, City of Plainview, and Hale County Airport records. The FAA also provides guidance on preparing aviation activity forecasts in Advisory Circular (AC) 150-5070-6A, *Airport Master Plans*. This AC suggests that various methods and data be used to provide the most accurate projections possible.

There are many uncontrollable and unforeseeable variables that could affect the actual future outcome. Since it is nearly impossible to predict these uncontrollable variables that affect the future projections, the short-term projections are usually more accurate and reliable than the 10-20 year long-term projections.

Historical and Existing Aviation Activity

Historical aircraft activity at airports without control towers is difficult to determine with any degree of certainty. Often, the only data available is that contained in the FAA's *Terminal Area Forecasts* (TAF) or FAA Form 5010-1 *Airport Master Record*. A tabulation of the best available historical aviation activity since 2003 at Hale County Airport is presented in the following table entitled *HISTORICAL AVIATION ACTIVITY, 2003-2012*. This table illustrates the numbers of aircraft operation (an operation is defined as either a takeoff or a landing) in eight categories that include itinerant air taxi, itinerant general aviation, itinerant military, total itinerant, local general aviation, local military, total local, and total operations. It should be noted that the decrease of aircraft operations from 2011 to 2012 is based primarily on a more accurate accounting of actual operations occurring at the Airport (as conducted by Rocket Aviation personnel) and not on a severe decrease in overall activity.

Table B1 **HISTORICAL AVIATION ACTIVITY, 2003-2012**

Year	Itinerant Operations				Local Operations			Total Operations
	Air Taxi	General Aviation	Military	Total	General Aviation	Military	Total	
2003[1]	300	21,229	48	21,577	14,901	0	14,901	36,478
2004[1]	300	21,442	48	21,790	15,050	0	15,050	36,840
2005[1]	300	20,800	48	21,148	15,050	0	15,050	35,748
2006[1]	300	20,800	48	21,148	14,600	0	14,600	35,748
2007[1]	0	14,600	50	14,650	14,600	0	14,600	29,250
2008[1]	0	14,600	50	14,650	14,600	0	14,600	29,250
2009[1]	0	14,600	50	14,650	14,600	0	14,600	29,250
2010[1]	0	14,600	50	14,650	14,600	0	14,600	29,250
2011[1]	0	14,600	50	14,650	14,600	0	14,600	29,250
2012[2]	0	13,110	155	13,265	6,635	2,210	8,845	22,110

Source: [1]*FAA Terminal Area Forecast, Fiscal Years 2012-2040*, January 2013.
[2]Rocket Aviation personnel.

Aircraft operations are generally categorized in one of two ways, itinerant and local. The *Air Traffic Control Handbook* defines a local operation as any operation performed by an aircraft operating in the local traffic pattern or within sight of the tower, an aircraft known to be departing or arriving from flight in local practice areas, or an aircraft executing practice instrument approaches at the airport. These are often associated with flight training operations. On the other hand, itinerant operations are all other aircraft operations.

At Hale County Airport, it is estimated that approximately 40% of the 2012 total aircraft operations were local and 60% were itinerant. Also, it was further estimated that approximately 25% of the local operations were conducted by military aircraft and 75% were by general aviation aircraft.

Aircraft Operations

Air Taxi

Hale County Airport does not have scheduled passenger service, but according to the TAF, has had air taxi service in the past. Air taxi operations consist of any operations conducted by a company or individual performing air passenger and/or air freight transportation service on a non-scheduled basis over unspecified routes. There have been no recorded air taxi operations since 2006 at the Airport.

General Aviation

General aviation aircraft conduct the vast majority of operations at Hale County Airport. General aviation is the branch of aeronautical activity that is not commercial or military. Thus, general aviation encompasses pleasure flying and flight training, along with business and corporate aviation activity. Itinerant general aviation operations have shown a general decline during the historical period covered in the table. Local general aviation operations have held steady throughout the time period until the reduction estimated for 2012, which, as presented earlier, was provided by Rocket Aviation personnel and is believed to be a more accurate accounting of actual airport operations than the historical numbers contained in the TAF.

Military

The military operations occurring at the Airport are primarily touch-and-go (or approach-and-go) training activity by Bell V-22 Osprey tilt-rotor aircraft originating from Amarillo Rick Husband International Airport, as well as transient helicopter and fixed wing aircraft activity using Hale County Airport for refueling.

Existing Operations by Aircraft Type

The current level of aviation activity by aircraft type is summarized in the following table, entitled *EXISTING OPERATIONS BY AIRCRAFT TYPE, 2012*. This summary indicates that approximately 89.3% of the Airport's general aviation activity can be attributed to single engine aircraft, 5.1% to multi-engine piston aircraft, 2.7% allocated to multi-engine turboprop aircraft, 1.7% are business jets, and 1.2% to general aviation helicopter. The military activity is comprised of approximately 85.0% tilt rotor, 12.1% helicopter, and 2.9% fixed wing turboprop aircraft. The estimates for each type of aircraft were derived from analyzing data obtained from the FAA's Traffic Flow Management System Count (TFMSC), data provided by fueling records, and discussions with Rocket Aviation personnel.

Table B2 **EXISTING OPERATIONS BY AIRCRAFT TYPE, 2012**

Aircraft Type	Operations	Percent of Category
General Aviation	*19,745*	*89.3%*
Single Engine	17,045	86.3%
Multi-Engine Piston	1,550	7.9%
Turboprop	550	2.8%
Business Jet	350	1.8%
Helicopter	250	1.3%
Military	*2,365*	*10.7%*
Tilt-Rotor	2,010	85.0%
Helicopter	285	12.1%
Fixed Wing	70	2.9%
Total	**22,110**	**100.0%**

Source: Operational estimates performed by Mead & Hunt in consultation with Rocket Aviation personnel and data from FAA's Traffic Flow Management System Count (TFMSC).

TFMSC source data is created when pilots file flight plans and/or when flights are detected by the National Airspace System usually via radar (Appendix One contains the compilation of 2011 and 2012 TFMSC datasets). However, TFMSC data has its limitations. First, due to limited radar coverage and incomplete messaging, the data may exclude certain flights that do not enter the en route airspace and other low-altitude flights. Additionally, of the 35,000 location identifiers reported over time, only a few thousand are associated with airports; the remaining are waypoints or references not associated with airports. Therefore, TFMSC is incomplete and cannot be a reliable source of total aircraft operations, but can be used to glean a percentage of aircraft types utilizing a particular airport.

Based Aircraft

A historical summary of based aircraft is provided in the following table entitled *SUMMARY OF BASED AIRCRAFT, 2003-2012*. The data were compiled from FAA records and airport tabulations. It should be noted that the sharp increase in based aircraft from 2011 to 2012 is indicative of an accurate based aircraft count by Rocket Aviation personnel in January 2013 and not due to an actual increase of 18 aircraft in one year.

Table B3 **SUMMARY OF BASED AIRCRAFT, 2003-2012**

Year	Single Engine	Multi-Engine Piston	Multi-Engine Turboprop	Helicopter	Total
2003[1]					99
2004[1]					101
2005[1]					101
2006[1]					101
2007[1]					85
2008[1]					52
2009[1]					46
2010[1]					46
2011[1]					49
2012[2]	54	9	1	3	67

Source: [1]*FAA Terminal Area Forecast, Fiscal Years 2012-2040*, January 2013.
[2]Data provided by Rocket Aviation personnel, January 2013.

Factors Affecting Aviation Activity

As previously mentioned, there are many variables and factors that can affect the aviation activity of a particular airport. General aviation airports are typically influenced by national, regional, and more specifically, local (i.e., airport market area) trends in population, income, employment, and airport prominence within the region in which that airport is located. Population growth (or decline) greatly influences aviation demand since the more people residing in a given area generally indicate more people will be engaged in aviation activities. Income can be considered an indicator of general aviation aircraft purchase trends or overall aviation activity. Higher income levels usually mean extra disposable income is available to spend on activities such as owning and flying aircraft. Employment data is an indicator of economic activity, in that; it provides the number of individuals available for employment and a general sense of the amount of available jobs. The more people employed in a particular area indicate that businesses and industries find it beneficial to be located within that area and are contributing to an increase in overall aviation activity.

Airports that have better facilities and offer more services will generally entice greater aviation activity. The more aircraft based at an airport directly contributes to aviation activity. With the addition of hangars and facilities accommodating a wider range of aircraft, additional users are attracted to the Airport, thus increasing the demand. Lastly, weather affects aviation activity, wherein airports that experience better weather conditions provide additional flying opportunities

for pilots. Consequently, improved instrument approaches tend to increase activity by minimizing the amount of time an airport is effectively "shut down" due to poor weather conditions.

Socioeconomic Conditions

The ultimate determinants of the amount of pilots owning aircraft and utilizing a general aviation airport are the strength of the area's economy and the cost and availability of pertinent services. Consequently, a clear understanding of local economic forces and trends is important for developing an accurate aviation activity forecast. Historical data of population, income, and employment within in the United States, Texas, and Hale County are presented in this section. The principal sources of historical and projected data for this study are the U.S. Census Bureau, the U.S. Bureau of Economic Analysis, the U.S. Bureau of Labor Statistics, and the Texas State Data Center.

Population

The historic and projected population changes for Hale County, the State of Texas, and the United States are shown in Table B4. The historic data spans the years 2001 to 2010 and the projected data covers the years 2010 to 2040. The historic population of Hale County, while experiencing fluctuations, remained virtually unchanged between 2001 and 2010. Through 2040, Hale County's population growth rate is expected to be slightly below that of the State of Texas, but slightly outpace the nation, as a whole. Hale County-specific population trends are a key factor in the forecasting of future activity, since population forecast is the best available proxy that can be used to isolate and approximate the specific growth within the Hale County Airport market area.

Table B4 **POPULATION DATA COMPARISON – HISTORIC AND PROJECTED GROWTH**

Year	Hale County	Percent Change	Texas	Percent Change	United States	Percent Change
2001	36,428[1]	---	21,325,018[1]	---	284,968,955[2]	---
2002	36,085[1]	-0.9%	21,779,893[1]	2.1%	287,625,193[2]	0.9%
2003	36,197[1]	0.3%	22,118,509[1]	1.6%	290,107,933[2]	0.9%
2004	36,310[1]	0.3%	22,490,022[1]	1.7%	292,805,298[2]	0.9%
2005	36,104[1]	-0.6%	22,859,968[1]	1.6%	295,516,599[2]	0.9%
2006	35,921[1]	-0.5%	23,507,783[1]	2.8%	298,379,912[2]	1.0%
2007	35,516[1]	-1.1%	23,904,380[1]	1.7%	301,231,207[2]	1.0%
2008	35,366[1]	-0.4%	24,326,974[1]	1.8%	304,093,966[2]	1.0%
2009	35,392[1]	0.1%	24,782,302[1]	1.9%	306,771,529[2]	0.9%
2010	36,273[1]	2.5%	25,145,561[1]	1.5%	309,349,689[2]	0.8%
Growth Rate	0.0%		1.8%		0.9%	
2011	36,640[3]	1.0%	25,510,326[3]	1.5%	313,232,000[4]	1.0%
2012	37,036[3]	1.1%	25,878,508[3]	1.4%	316,266,000[4]	1.0%
2015	38,258[3]	3.3%	27,000,199[3]	4.3%	325,540,000[4]	2.9%
2020	40,427[3]	5.7%	28,921,650[3]	7.1%	341,387,000[4]	4.9%
2025	42,658[3]	5.5%	30,905,192[3]	6.9%	357,452,000[4]	4.7%
2030	44,959[3]	5.4%	32,927,245[3]	6.5%	373,504,000[4]	4.5%
2035	47,290[3]	5.2%	34,962,746[3]	6.2%	389,531,000[4]	4.3%
2040	49,678[3]	5.0%	37,022,513[3]	5.9%	405,655,000[4]	4.1%
Growth Rate	1.1%		1.3%		0.9%	

Sources: [1]Texas State Data Center, Population Estimates Program, http://idserportal.utsa.edu/sdc/estimates/default.aspx, (accessed November 26, 2012).
[2]U.S. Census Bureau, "Table 1. Projections of the Population and Components of Change for the United States: 2010 to 2050," (accessed November 26, 2012).
[3]Texas State Data Center, Population Projections Program, http://txsdc.utsa.edu/Data/TPEPP/Projections/Data.aspx, (accessed November 26, 2012).
[4]U.S. Census Bureau, "Table 1. Intercensal Estimates of the Resident Population by Sex and Age for the United States: April 1, 2000 to July 1, 2010," (accessed November 26, 2012).

Income

The following table, entitled *HISTORIC PER CAPITA INCOME, 2001-2011*, presents the per capita personal income for Hale County, the State of Texas, and the United States, with the percentage change for each year between 2001 and 2011. The data shows that the per capital personal income for Hale County grew at a lower rate than that of the State of Texas and the United States.

Table B5 **HISTORIC PER CAPITA PERSONAL INCOME, 2001-2011**

Year	Hale County	Percent Change	Texas	Percent Change	United States	Percent Change
2001	$21,633	---	$29,185	---	$31,157	---
2002	$21,853	1.0%	$28,966	-0.8%	$31,481	1.0%
2003	$22,573	3.3%	$29,622	2.3%	$32,295	2.6%
2004	$22,541	-0.1%	$31,115	5.0%	$33,909	5.0%
2005	$23,698	5.1%	$33,220	6.8%	$35,452	4.6%
2006	$23,045	-2.8%	$35,287	6.2%	$37,725	6.4%
2007	$24,651	7.0%	$37,098	5.1%	$39,506	4.7%
2008	$26,446	7.3%	$39,615	6.8%	$40,947	3.6%
2009	$26,020	-1.6%	$36,595	-7.6%	$38,637	-5.6%
2010	$28,413	9.2%	$38,222	4.4%	$39,791	3.0%
2011	$28,120	-1.0%	$40,147	5.0%	$41,560	4.4%
Growth Rate	2.7%		3.2%		2.9%	

Sources: Bureau of Economic Analysis, "Table CA1-3 Personal Income Summary," (accessed November 27, 2012).
Notes: Per capita personal income was computed using Census Bureau midyear population estimates. Estimates for 2000-2011 reflect county population estimates available as of April 2012.
All state and local area dollar estimates are in current dollars (not adjusted for inflation).

Employment

Table B6 shows the amount of employed people, the amount of unemployed individuals, and the unemployment rates for Hale County, the State of Texas, and the United States from 2001-2011. The data shows that the unemployment rate for Hale County has trended fairly consistently with, but for the most part slightly below, the State of Texas. Hale County has tended to be slightly higher than the nationwide unemployment rate, with the exception of the past four years. Additionally, even though the unemployment rate is higher for 2011 than for 2001, the actual number of employed people has remained about the same. This trend is true for the State of Texas and the United States, too, with the actual employment number rising during the time period.

The recent announcement by Cargill Meat Solutions to idle their Excel meatpacking plant in Plainview has dampened the near-term employment outlook within the city and county. Employing over 2,000 workers, this plant is a major component of Hale County's workforce. It is unknown at this time if the plant will remain closed or reopen at a later date. However, representatives from the community have traveled to Cargil's corporate headquarters in Wichita, Kansas in an attempt to develop a better understanding of the events that led to the idling of the plant. Currently, the state is experiencing drought conditions equaling those of the 1950s. Cattle herd populations are at

historic lows. Most speculate that when the drought ends and herd populations return to pre-drought levels that the Excel plant will be reopened.

Table B6 **HISTORIC EMPLOYMENT DATA, 2001-2011**

	Hale County[1]			Texas[1]			United States[2]		
Year	Employment	Un-Employment	Un-Employment Rate	Employment	Un-Employment	Un-Employment Rate	Employment	Un-Employment	Un-Employment Rate
2001	16,315	801	4.7	9,991,920	527,415	5.0	136,933,000	6,801,000	4.7
2002	16,038	961	5.7	10,115,299	687,888	6.4	136,485,000	8,378,000	5.8
2003	16,689	1,091	6.1	10,228,640	736,116	6.7	137,736,000	8,774,000	6.0
2004	16,357	1,039	6.0	10,385,318	666,594	6.0	139,252,000	8,149,000	5.5
2005	15,908	888	5.3	10,551,547	599,137	5.4	141,730,000	7,591,000	5.1
2006	15,667	861	5.2	10,757,510	556,831	4.9	144,427,000	7,001,000	4.6
2007	15,419	762	4.7	10,914,098	497,793	4.4	146,047,000	7,078,000	4.6
2008	15,974	762	4.6	11,079,931	573,946	4.9	145,362,000	8,924,000	5.8
2009	16,370	1,039	6.0	11,071,106	897,093	7.5	139,877,000	14,265,000	9.3
2010	16,399	1,232	7.0	11,264,748	1,004,979	8.2	139,064,000	14,825,000	9.6
2011	16,304	1,271	7.2	11,464,525	986,979	7.9	139,869,000	13,747,000	8.9

Sources: [1]U.S. Bureau of Labor Statistics, "Local Area Unemployment Statistics," (accessed November 26, 2012).
[2]U.S. Bureau of Labor Statistics, "Labor Force Statistics from the Current Population Survey," (accessed November 26, 2012).

Regulatory Climate

For purposes of forecasting in this Master Plan, it is assumed that the regulatory climate of the aviation industry in general, and the general aviation segment of the industry specifically, will not change dramatically during the time period. Specifically, it is assumed that aircraft noise and emission requirements will remain within the bounds prescribed by current rules and regulations. It is also assumed that general aviation activity will not be subject to new user fees, that access to airports and airspace will not be limited, and that general aviation airports will not be subject to security restrictions that are currently imposed at commercial service airports.

Negative or Neutral Factors

Although Hale County Airport has few negative factors and is in an enviable position due to its many positive features and conditions, there are some broad factors that can have a negative or neutralizing impact on the Airport and the aviation industry, and these must be considered during the planning process.

The first issue is the lingering economic recession that began in late 2007; the worst in the post-World War II era. From 2007 to 2009, the U.S. Real Gross Domestic Product (GDP) shrank an estimated 4.4%. While recovering somewhat during the next two years, Real GDP for 2011 had barely topped the level of 2007. Contrasted with this, the State of Texas Real GDP shrank only 1.3% from 2007 to 2009, and had grown by over 7% from 2007 to 2011[1]. Additionally, as mentioned earlier, the recent decision to idle the Excel meatpacking plant in Plainview has negatively affected the local economic environment. Given the current national and global anemic recovery and local economic instability, there is much uncertainty as to the near-term timing and strength of a recovery in aviation demand.

The second issue relates to the overall condition of the general aviation industry. Current issues affecting general aviation include the expense of owning and operating an aircraft (i.e. costs of insurance, maintenance, and fuel), increased travel options provided by low-cost commercial airlines in the more open aviation market since airline deregulation, changes in disposable discretionary income, increases in airspace restrictions affecting fair-weather flying, reductions in personal leisure time, and shift in personal preference as to how leisure time is spent. These factors have significantly influenced the single engine light aircraft segment of the industry in particular, with the general aviation industry focusing more on the business aircraft operator and less on the recreational flyer.

Third, the current ground lease agreement between Hale County, the City of Plainview, and Rocket Aviation prevents the Airport from receiving TxDOT Aviation Division development grant monies for certain capital improvement projects. TxDOT regulations only allow development grants to be administered to publicly-owned entities. Therefore, since Rocket Aviation, the privately-owned FBO at the Airport, has exclusive leasing privileges for all properties on the Airport, TxDOT cannot provide grants for hangars, terminal buildings, and fuel storage facilities. The inability to received grants places Hale County Airport at a competitive disadvantage with other publicly-owned airports in the region.

[1] Source: Bureau of Economic Analysis, "Real GDP by State," (accessed November 27, 2012).

Aviation Activity Forecasts

Forecasts are important for planning purposes when determining the future demand for an airport. The following sections will present projected data from the years 2012-2032. It should be noted that based aircraft is perhaps the most important indicator of growth at a general aviation airport because it is the based aircraft owners that most directly affect the daily activity of an airport.

Forecast Methodologies

There are a wide variety of forecasting techniques that have been developed to address aviation activity and overall demand. It is important to identify the three most common methodologies and note that not all may work depending on the availability and accuracy of the data. The three most common methodologies are briefly described below.

Regression Analysis

In a regression analysis forecast, the value being estimated (or forecast) - the dependent variable - is related to other variables - the independent or explanatory variables - that "explain" the estimated value.[2] A correlation coefficient is calculated for each pairing of dependent to independent variables to quantify this link. This analysis has shown that population growth in an airport's market has the highest correlation to based aircraft growth. In other words, the population growth rate (independent variable) of a region has the greatest direct impact on based aircraft growth. If population growth is indeed an indicator of potential aircraft growth in a given market, then national growth forecasts provided by the FAA need to be revised to reflect the population growth of the market (either above or below national averages). Through a direct comparison of national versus airport market area (i.e.; Hale County) population projections, the FAA national aircraft fleet forecasts are adjusted to reflect differing national versus local growth trends.

[2] FORECASTING AVIATION ACTIVITY BY AIRPORT/ Federal Aviation Administration Office of Aviation Policy and Plans Statistics and Forecast Branch (APO-110) Washington, DC (2001).

Trend Analysis

Trend analysis relies on projecting historic trends into the future. In trend analysis, a regression equation is used with time as the independent variable. It is one of the fundamental techniques used to analyze and forecast aviation activity. While it is frequently used as a back-up or expedient technique, it is highly valuable because it is simple to apply. Sometimes, trend analysis can be used as a reasonable method of projecting variables that would be complicated (and costly) to project by other means.[3]

Market Share Analysis

A market share analysis is a relatively easy method to use, and can be applied to any measure for which a reliable higher-level (i.e., larger aggregate) forecast is available. Historical shares are calculated and used as a basis for projecting future shares. This approach is a "top-down" method of forecasting since forecasts of larger aggregates are used to derive forecasts for smaller areas (e.g., airports). A typical example where this may be appropriate is an airport's percentage share of national enplanements[4].

Existing Forecast

The FAA's TAF contains historical aviation activity data and forecasts for more than 460 airports receiving FAA contract tower and radar service. This database also includes projections for more than 3,000 other airports in the National Plan of Integrated Airport Systems (NPIAS). The forecasts, covering the years 2013-2040, project activity of the four major users of the air traffic system; air carriers, air taxi and commuters, general aviation, and military. As presented earlier, an airport's FAA provided TAF does not always coincide with the actual based aircraft and operations at an airport. The TAF can be considered an order-of-magnitude estimate of current and forecasted conditions at an airport. These estimates are derived by the FAA from national estimates of aviation activity that are then assigned to individual airports based upon multiple market and forecast factors.

[3] Ibid.
[4] Ibid.

According to the TAF as shown in Table B7, *HALE COUNTY AIRPORT FAA TERMINAL AREA FORECASTS, 2013–2040,* total operations are expected to increase from 29,797 in 2013 to approximately 38,278 by 2040. That is a change of approximately 29% and an average annual growth rate of 0.9%, which are greater than the total nationwide operations percent change of 21% and an average annual growth rate of 0.7% estimated by the TAF. Also shown in Table B7, is the FAA TAF's projection of based aircraft for the year 2013 at 51 with the increase to 78 in the year 2040. This represents a change of approximately 53% and an average annual growth rate of 1.6%, which are greater than the total nationwide based aircraft growth of approximately 27% and average annual growth rate of 0.9% for the same years. It should be noted that Hale County Airport records indicate that there are 67 based aircraft at the Airport for 2012.

Table B7 **HALE COUNTY AIRPORT FAA TERMINAL AREA FORECAST, 2013–2040**

Year	Itinerant Operations			Local Operations			Total Operations	Based Aircraft
	General Aviation	Military	Total	General Aviation	Military	Total		
2013	14,872	50	14,922	14,875	0	14,875	29,797	51
2014	15,010	50	15,060	15,015	0	15,015	30,075	52
2015	15,149	50	15,199	15,155	0	15,155	30,354	53
2016	15,290	50	15,340	15,297	0	15,297	30,637	54
2017	15,433	50	15,483	15,440	0	15,440	30,923	55
2018	15,576	50	15,626	15,584	0	15,584	31,210	56
2019	15,722	50	15,772	15,730	0	15,730	31,502	57
2020	15,869	50	15,919	15,877	0	15,877	31,796	58
2021	16,017	50	16,067	16,026	0	16,026	32,093	59
2022	16,167	50	16,217	16,177	0	16,177	32,394	60
2023	16,317	50	16,367	16,328	0	16,328	32,695	61
2024	16,469	50	16,519	16,482	0	16,482	33,001	62
2025	16,622	50	16,672	16,637	0	16,637	33,309	63
2026	16,776	50	16,826	16,793	0	16,793	33,619	64
2027	16,932	50	16,982	16,951	0	16,951	33,933	65
2028	17,089	50	17,139	17,110	0	17,110	34,249	66
2029	17,248	50	17,298	17,271	0	17,271	34,569	67
2030	17,408	50	17,458	17,433	0	17,433	34,891	68
2031	17,569	50	17,619	17,597	0	17,597	35,216	69
2032	17,732	50	17,782	17,762	0	17,762	35,544	70
2033	17,897	50	17,947	17,929	0	17,929	35,876	71
2034	18,063	50	18,113	18,097	0	18,097	36,210	72
2035	18,231	50	18,281	18,267	0	18,267	36,548	73
2036	18,400	50	18,450	18,438	0	18,438	36,888	74
2037	18,571	50	18,621	18,610	0	18,610	37,231	75
2038	18,743	50	18,793	18,784	0	18,784	37,577	76
2039	18,917	50	18,967	18,959	0	18,959	37,926	77
2040	19,092	50	19,142	19,136	0	19,136	38,278	78

Source: *FAA Terminal Area Forecast, Fiscal Years 2012-2040*, January 2013.

Airport Activity Forecasts

The forecast of annual based aircraft and airport operations are included in this section. The based aircraft forecast is for the years 2012-2032 and is separated by aircraft type. Those types include single engine (piston and turboprop), multi-engine piston, multi-engine turboprop, business jet, and helicopter. The based aircraft and operations forecasts, utilizing both regression analysis and market share analysis, are considered unconstrained, meaning that the forecasts assumptions do not take into consideration any airport or airspace capacity constraints that may negatively impact or hinder anticipated airport demand.

Regression Analysis

The regression analysis provides the forecasts based on the population trends for Hale County (see Table B4, for Hale County Population forecast). Using this forecast methodology, Hale County population growth trends (known entity) are applied to the national FAA active aircraft forecasts (known entity) and adjusted upward to account for Hale County's projected above-average population growth. The adjusted forecast rates are then applied to baseline based aircraft and operations as a proxy for based aircraft and operations trends at Hale County Airport (unknown entity).

Table B8, *NATIONAL AVERAGE ANNUAL GROWTH RATES – POPULATION AND ACTIVE AIRCRAFT BY TYPE*, provides the average annual growth rates for national population and active general aviation and air taxi aircraft by type, as per the *FAA Aerospace Forecast Fiscal Years 2012-2032*. The numbers contained in this forecast are projected nationally and do not account for local or regional variations in population growth rates. It should be noted that for the purposes of this forecast, the single engine category also includes experimental and light sport aircraft categories with a derived weighted average annual growth rate based upon their respective forecasted numbers within the national general aviation fleet. Experimental aircraft, a category generally made up of "homebuilt" aircraft, and light sport aircraft, a category of single engine aircraft with weight, capacity, and performance restrictions, contribute the growth in this combined category. Traditional single engine aircraft are anticipated to actually decline throughout the forecast period.

Table B8 **NATIONAL AVERAGE ANNUAL GROWTH RATES – POPULATION AND ACTIVE AIRCRAFT BY TYPE**

Period	United States Population	Single Engine[1]	Multi-Engine Piston[1]	Multi-Engine Turboprop[1]	Business Jet[1]	Helicopter[1]
2001-2010	0.9%[2]	0.4%	-1.5%	4.0%	4.4%	4.5%
2010-2017	1.0%[3]	-0.3%	-0.4%	0.7%	3.4%	3.0%
2017-2022	0.9%[3]	0.1%	-0.5%	0.9%	4.0%	2.6%
2022-2027	0.9%[3]	0.4%	-0.4%	1.1%	4.3%	2.7%
2027-2032	0.9%[3]	0.6%	-0.5%	1.1%	4.4%	2.5%

Sources: [1]*FAA Aerospace Forecast Fiscal Years 2012-2032*. February 2012.
[2]U.S. Census Bureau, "Table 1. Projections of the Population and Components of Change for the United States: 2010 to 2050," (accessed November 26, 2012).
[3]U.S. Census Bureau, "Table 1. Intercensal Estimates of the Resident Population by Sex and Age for the United States: April 1, 2000 to July 1, 2010," (accessed November 26, 2012).

Table B9, *HALE COUNTY AVERAGE ANNUAL GROWTH RATES –POPULATION AND AIRCRAFT BY TYPE*, details the Hale County-specific population and corresponding aircraft growth rates for the forecast period. As presented earlier and illustrated in the table, Hale County's population is expected to grow at a slightly higher rate than the national average. Since aviation growth rates are directly tied to population growth within a region, logic would dictate that above average population growth will lead to above average aviation growth (in this case, based aircraft). The Hale County population growth rates are directly compared to the national population growth, and the ratio by which they exceed the national average is applied to the FAA aircraft forecast factors. It is through this methodology that Hale County-specific growth rates are derived and applied to the based aircraft forecast.

Table B9 **HALE COUNTY AVERAGE ANNUAL GROWTH RATES –POPULATION AND ACTIVE AIRCRAFT BY TYPE**

Period	Hale County Population	Single Engine	Multi-Engine Piston	Multi-Engine Turboprop	Business Jet	Helicopter
2001-2010	0.0%[1]	0.4[2]	-1.5%[2]	4.0%[2]	4.4%[2]	4.5%[2]
2010-2017	1.1%[3]	-0.2%[4]	-0.4%[4]	0.8%[4]	3.8%[4]	3.4%[4]
2017-2022	1.1%[3]	0.1%[4]	-0.5%[4]	1.0%[4]	4.7%[4]	3.0%[4]
2022-2027	1.1%[3]	0.4%[4]	-0.4%[4]	1.3%[4]	5.1%[4]	3.2%[4]
2027-2032	1.0%[3]	0.7%[4]	-0.4%[4]	1.3%[4]	5.2%[4]	3.0%[4]

Sources: [1]Texas State Data Center, Population Estimates Program, http://idserportal.utsa.edu/sdc/estimates/default.aspx, (accessed November 26, 2012).
[2]FAA Aerospace Forecast Fiscal Years 2012-2032.
[3]Texas State Data Center, Population Projections Program, http://txsdc.utsa.edu/Data/TPEPP/Projections/Data.aspx, (accessed November 26, 2012).
[4]Mead & Hunt, Inc. analysis.

As illustrated in Table B10, *REGRESSION ANALYSIS BASED AIRCRAFT, 2012-2032*, this method shows that the based aircraft for this forecast will grow from 67 to 72 during the planning period, which constitutes an average annual growth rate of approximately 0.4%. It should be noted that, in line with the FAA general aviation fleet forecast, the number of multi-engine piston aircraft based at the Airport is anticipated to decline over the forecast period (the only aircraft category to do so). This is a reflection of the aging multi-engine piston fleet coupled with the limited number of manufacturers still producing this aircraft type as they focus on the development and production of turbine-powered models.

Table B10 **REGRESSION ANALYSIS BASED AIRCRAFT, 2012-2032**

Year	Single Engine Piston	Multi-Engine Piston	Multi-Engine Turboprop	Business Jet	Helicopter	Total
2012	54	9	1	0	3	67
2013	54	9	1	0	3	67
2014	54	9	1	0	3	67
2015	54	9	1	0	3	67
2016	54	9	1	0	3	67
2017	53	9	1	0	4	67
2022	54	9	1	0	4	68
2027	55	8	1	0	5	69
2032	57	8	1	0	6	72

Source: Mead & Hunt Inc. analysis.

To calculate the Airport's forecasted operations, a proxy of 300 operations per based aircraft is applied to the based aircraft forecast provided in Table B10. It should be noted that FAA Order 5090.3C, *Field Formulation of the National Plan of Integrated Airport Systems (NPIAS)* provides a general guideline for busier general aviation airports of 350 operations per based aircraft. However, the Texas Department of Transportation (TxDOT) Aviation Division recommends 300 operations per based aircraft. The results are presented in Table B11, *REGRESSION ANALYSIS AIRCRAFT OPERATIONS, 2012-2032*, which predicts that airport operations under this forecast scenario will grow from 22,110 to 23,940 during the forecast period. This equates to an average annual growth rate of 0.4%.

Table B11 **REGRESSION ANALYSIS AIRCRAFT OPERATIONS, 2012-2032**

Year	Itinerant Operations			Local Operations			Total Operations
	General Aviation	Military	Total	General Aviation	Military	Total	
2012	13,110	155	13,265	6,635	2,210	8,845	22,110
2013	13,149	155	13,304	6,655	2,210	8,865	22,168
2014	13,187	155	13,342	6,674	2,210	8,884	22,226
2015	13,226	155	13,381	6,694	2,210	8,904	22,284
2016	13,264	155	13,419	6,713	2,210	8,923	22,342
2017	13,303	155	13,458	6,732	2,210	8,942	22,400
2022	13,445	155	13,600	6,805	2,210	9,015	22,615
2027	13,800	155	13,955	6,985	2,210	9,195	23,150
2032	14,325	155	14,480	7,250	2,210	9,460	23,940

Source: Mead & Hunt Inc. analysis.

Table B12, *REGRESSION ANALYSIS AIRCRAFT OPERATIONS BY TYPE, 2012-2032,* presents the projected operations by aircraft type derived from the aircraft operations forecast presented in Table B11. According to the *FAA Aerospace Forecast Fiscal Years 2012-2032*, the number of hours flown by single engine and multi-engine piston aircraft is expected to decrease rather significantly during the next five years, with only modest improvement through 2032. On the contrary, the number of hours flown by turbine-powered aircraft and helicopters is expected to increase at a much greater rate through the next five years, slowing to more modest rates in the latter phases of the forecast period. These trends are reflected in Table B12.

Table B12 **REGRESSION ANALYSIS AIRCRAFT OPERATIONS BY TYPE, 2012-2032**

Aircraft Type	2012	2017	2022	2027	2032
General Aviation	*19,7445*	*20,035*	*20,250*	*20,785*	*21,575*
Single Engine	17,045	17,230	17,375	17,835	18,515
Multi-Engine Piston	1,550	1,545	1,520	1,540	1,575
Multi-Engine Turboprop	550	600	625	645	670
Business Jet	350	380	405	415	450
Helicopter	250	280	325	350	365
Military	*2,365*	*2,365*	*2,365*	*2,365*	*2,365*
Tilt-Rotor	2,010	2,010	2,010	2,010	2,010
Helicopter	285	285	285	285	285
Fixed Wing	70	70	70	70	70
Total	22,110	22,400	22,615	23,150	23,940

Source: Mead & Hunt Inc. analysis.

Market Share Analysis

The market share analysis for Hale County Airport was also developed utilizing the *FAA Aerospace Forecast Fiscal Years 2012-2032* active general aviation and air taxi aircraft forecast as a baseline. Table B13, *FAA ACTIVE AIRCRAFT FORECAST AND HALE COUNTY AIRPORT MARKET SHARE BY TYPE,* presents this national forecast and also the based aircraft market share that Hale County Airport has within the system. The active general aviation and air taxi aircraft fleet (not inclusive of the "Other" category) under this forecast is anticipated to increase roughly 14% throughout the planning period. The Hale County Airport market share of each category is adjusted to account for the County's population growth rate exceeding the national average growth rate. Additionally, under this scenario, it is anticipated that one business jet will be based at the Airport by the end of the planning period.

Table B13 **FAA ACTIVE AIRCRAFT FORECAST AND HALE COUNTY AIRPORT MARKET SHARE BY TYPE**

Year	Single Engine	Multi-Engine Piston	Multi-Engine Turboprop	Business Jet	Helicopter
2012	169,010[1]	15,735[1]	9,505[1]	12,050[1]	10,720[1]
PVW Market Share	0.000320%[2]	0.000572%	0.000105%	0.0%	0.000280%
2017	167,660[1]	15,425[1]	9,870[1]	11,470[1]	12,430[1]
PVW Market Share	0.000320%[2]	0.000575%	0.000110%	0.0%	0.000282%
2022	168,465[1]	15,010[1]	10,300[1]	17,620[1]	14,145[1]
PVW Market Share	0.000333%[2]	0.000623%	0.000125%	0.0%	0.000283%
2027	171,550[1]	14,680[1]	10,860[1]	21,760[1]	16,145[1]
Market Share	0.000345%[2]	0.000675%	0.000135%	0.0%	0.000285%
2032	176,675[1]	14,350[1]	11,445[1]	26,935[1]	18,255[1]
PVW Market Share	0.000354%[2]	0.000680%	0.000143%	0.000036%	0.000285%

Sources: [1]*FAA Aerospace Forecast Fiscal Years 2012-2032.* February 2012.
[2]Mead & Hunt, Inc. analysis.

Table B14, *MARKET SHARE BASED AIRCRAFT, 2012-2032,* depicts the forecast for based aircraft using the Hale County Airport increasing market share applied to the FAA national active aircraft forecast, as detailed in Table B13. Under this forecast, the based aircraft for the Airport is anticipated to increase from 67 to 81 during the planning period, representing an increase of approximately 21% and an average annual growth rate of 1.0%.

Table B14 **MARKET SHARE BASED AIRCRAFT, 2012-2032**

Year	Single Engine	Multi-Engine Piston	Multi-Engine Turboprop	Business Jet	Helicopter	Total
2012	54	9	1	0	3	67
2013	54	9	1	0	3	67
2014	54	9	1	0	3	67
2015	54	9	1	0	3	67
2016	54	9	1	0	3	67
2017	54	9	1	0	4	68
2022	56	9	1	0	4	70
2027	59	10	1	0	5	75
2032	63	10	2	1	5	81

Source: Mead & Hunt, Inc. analysis.

Using the same methodology applied in the regression analysis forecast, Table B15, *MARKET SHARE AIRCRAFT OPERATIONS, 2012-2032,* depicts the forecast for aircraft operations derived from the market share based aircraft forecast. It shows that aircraft operations under this forecast will grow from 22,110 to 26,665 during the forecast period.

Table B15 **MARKET SHARE AIRCRAFT OPERATIONS, 2012-2032**

	Itinerant Operations			Local Operations			
Year	General Aviation	Military	Total	General Aviation	Military	Total	Total Operations
2012	13,110	155	13,265	6,635	2,210	8,845	22,110
2013	13,197	155	13,252	6,679	2,210	8,889	22,241
2014	13,284	155	13,439	6,723	2,210	8,933	22,372
2015	13,371	155	13,526	6,767	2,210	8,977	22,503
2016	13,458	155	13,613	6,811	2,210	9,021	22,634
2017	13,545	155	13,700	6,855	2,210	9,065	22,765
2022	13,945	155	14,100	7,055	2,210	9,265	23,365
2027	14,940	155	15,095	7,560	2,210	9,770	24,865
2032	16,135	155	16,290	8,165	2,210	10,375	26,665

Source: Mead & Hunt, Inc. analysis.

Table B16, *MARKET SHARE AIRCRAFT OPERATIONS BY TYPE, 2012-2032,* presents the projected operations by aircraft type based on the aircraft operations forecast detailed in Table B15. As with the regression analysis, the forecasts presented in Table B16 reflects the expected declining hours flown by single engine and multi-engine piston aircraft in the next five years, and the increasing rate of hours flown by turbine-powered aircraft and helicopters during the same time period.

Table B16 **MARKET SHARE AIRCRAFT OPERATIONS BY TYPE, 2012-2032**

Aircraft Type	2012	2017	2022	2027	2032
General Aviation	*19,745*	*20,400*	*21,000*	*22,500*	*24,300*
Single Engine	17,045	17,525	17,890	19,010	20,410
Multi-Engine Piston	1,550	1,570	1,555	1,620	1,700
Multi-Engine Turboprop	550	610	715	790	900
Business Jet	350	390	485	675	825
Helicopter	250	305	355	405	460
Military	*2,365*	*2,365*	*2,365*	*2,365*	*2,365*
Tilt-Rotor	2,010	2,010	2,010	2,010	2,010
Helicopter	285	285	285	285	285
Fixed Wing	70	70	70	70	70
Total	22,110	22,765	23,365	24,865	26,665

Source: Mead & Hunt, Inc. analysis.

Preferred Forecast

The *market share* forecast is the preferred forecast for this Master Plan. It is understood that this forecast provides for greater accuracy and more realistic outcomes due to the fact that it is based not only on FAA-provided general aviation active aircraft growth, but also on the projected population growth of Hale County. By adjusting the FAA nationwide growth factors to specifically account for Hale County's population profile (above average growth rates in relation to the national average), a forecast that is tailored to the Airport's surrounding community is provided. Absent a historical trend forecast, for which reliable data was not available, the market share analysis forecast is deemed to be the most appropriate for this Master Plan.

Table B17, *SUMMARY OF AVIATION ACTIVITY FORECASTS, 2012-2032,* provides a summary of aviation forecasts prepared for this study. This information will be used in the following chapters to analyze the capacity of the Airport, develop facility requirements, and to determine a future noise analysis. In other words, the aviation activity forecasts are the foundation from which future plans will be developed and implementation decisions will be made.

Table B17 **SUMMARY OF AVIATION ACTIVITY FORECASTS, 2012-2032**

Operations	2012[1]	2017[2]	2022[2]	2027[2]	2032[2]
General Aviation	*19,745*	*20,400*	*21,000*	*22,500*	*24,300*
Single Engine	17,045	17,525	17,890	19,010	20,410
Multi-Engine Piston	1,550	1,570	1,555	1,620	1,700
Multi-Engine Turboprop	550	610	715	790	900
Business Jet	350	390	485	675	825
Helicopter	250	305	355	405	460
Military	*2,365*	*2,365*	*2,365*	*2,365*	*2,365*
Tilt-Rotor	2,010	2,010	2,010	2,010	2,010
Helicopter	285	285	285	285	285
Fixed Wing	70	70	70	70	70
Total Operations	22,110	22,765	23,365	24,865	26,665
Itinerant Operations	13,265	13,700	14,100	15,095	16,290
Local Operations	8,845	9,065	9,265	9,770	10,375
Instrument Operations	1,106	1,252	1,402	1,616	1,867
Based Aircraft by Type					
Single Engine	54	54	56	59	63
Multi-Engine Piston	9	9	9	10	10
Multi-Engine Turboprop	1	1	1	1	2
Business Jet	0	0	0	0	1
Helicopter	3	4	4	5	5
Total Based Aircraft	67	68	70	75	81

Sources: [1]Actual.
[2]Mead & Hunt, Inc. analysis.

Runway Design Code (RDC)/Critical Aircraft Analysis

The types of aircraft presently using an airport and those projected to use the facility in the future are important considerations for planning airport facilities. Airport facilities should be designed in accordance with the Runway Design Code (RDC) standards that described in AC 150/5300-13A, *Airport Design*. The RDC is a coding system used to relate and compare airport design criteria to the operational and physical characteristics of the aircraft intending to operate at the Airport. The RDC has two components that relate to the "design aircraft". The first component, depicted by a letter (i.e., A, B, C, D, or E), is the Aircraft Approach Category (AAC), relates to aircraft approach speed (operation characteristic). The second component, depicted a Roman numeral (i.e., I, II, III, IV, or V), is the Aircraft Design Group (ADG), relates to aircraft wingspan (physical characteristic).

Based on an examination of the current operational information for Hale County Airport, and presented in Table B18, entitled *SUMMARY OF AIRCRAFT OPERATIONS BY RUNWAY DESIGN CODE (RDC), 2012-2032*, there are approximately 185 existing aircraft operations within RDCs C-I through

D-III. These include, but are not necessarily limited to, the Learjet 31/35/45/60, the Gulfstream V/G500, the Gulfstream Jetprop Commander 1000, and the Raytheon Hawker 800. The remaining existing airport operations are conducted by aircraft in RDCs A-I, A-II, B-I, or B-II. These estimates were derived by using operational data compiled from 2011 and 2012 TFMSC data and discussions with Rocket Aviation personnel. Also presented in Table B18, it is anticipated that the greatest growth (by percentage) will occur within the larger and more sophisticated aircraft, resulting in an increasing utilization by aircraft within RDCs C-I and C-II. By the year 2032, it is anticipated that aircraft within RDCs C-I through D-III will account for some 525 operations. This is reflective of the continuing nationwide trend of more aircraft being used for business and corporate purposes, and less for pleasure and leisure purposes.

Table B18 **SUMMARY OF AIRCRAFT OPERATIONS BY RUNWAY DESIGN CODE (RDC), 2012-2032**

RDC	2012[1]	2017[2]	2022[2]	2027[2]	2032[2]
A-I	10,595	10,955	11,253	12,035	12,985
A-II	100	110	117	125	135
B-I	8,195	8,430	8,610	9,115	9,745
B-II	670	690	735	810	910
C-I	125	132	165	220	275
C-II	40	55	85	155	200
D-I	5	8	12	15	20
D-III	15	20	23	25	30
Total General Aviation Operations	19,745	20,400	21,000	22,500	24,300

Sources: [1]Actual, as estimated by Mead & Hunt, Inc. in conjunction with Rocket Aviation personnel.
[2]Mead & Hunt, Inc. analysis.

Forecast Approval

According to *Aviation Forecast Guidance APP-400*, aviation forecasts at local airports are approved by Regional Airports Division Offices or Airports District Office (ADOs). Local forecasts that are consistent with the FAA's TAF (i.e., the local forecast differs by less than 10% in the first five years, and by less than 15% in the remaining forecasts periods, and does not affect the timing or scale of an airport project) do not need to be coordinated with APP-400 and APO-110. Local forecasts that are not consistent with the TAF, but which do not affect the timing or scale or an airport project and do not impact the analysis of a National Environmental Policy Act (NEPA) documents or Benefit Cost Analysis (BCA) may be

accepted (not approved) for information purposes by the regional office/ADO without APP/APO coordination. As noted in the following tables, entitled *SUMMARY OF MASTER PLAN AND TAF FORECAST COMPARISON*, and *TAF SUMMARY OF AIRPROT PLANNING FORECASTS*, the Master Plan forecasts for total operations are far below the TAF. The reason for this is the existing base year data have been updated to a more accurate number based on estimates provided by the on-Airport FBO (Rocket Aviation). The actual FAA templates for these two tables have been completed and are presented for reference in Appendix Two.

Table B19 **SUMMARY OF MASTER PLAN AND TAF FORECASTS COMPARISON**

Total Operations	Year	Airport Forecast	TAF	AF/TAF (% Difference)
Base Year	2012	22,110[1]	29,523	-25.1%
Base Year + 5 Years	2017	22,765	30,923	-26.4%
Base Year + 10 Years	2022	23,365	32,394	-27.9%
Base Year + 15 Years	2027	24,865	33,933	-26.7%

Source: Mead & Hunt, Inc.

Note: TAF data is based on the U.S. Government fiscal year basis (October 1 through September 30).
[1]Actual, as estimated by Mead & Hunt Inc. in conjunction with Rocket Aviation personnel.

Table B20 **TAF SUMMARY OF AIRPORT PLANNING FORECASTS**

Operations	Base Yr. (2012)	Base Yr. + 1 Yr. (2013)	Base Yr. + 5 Yrs. (2017)	Base Yr. + 10 Yrs. (2022)	Base Yr. + 15 Yrs. (2027)	Average Annual Compound Growth Rates: Base Year to + 1 (2013)	Base Year to +5 (2017)	Base Year to + 10 (2022)	Base Year to + 15 (2027)
Itinerant									
Commuter/Air Taxi									
General Aviation	13,110	13,197	13,545	13,943	14,939	0.7%	0.7%	0.6%	0.9%
Military	155	155	155	155	155	0.0%	0.0%	0.0%	0.0%
Local									
General Aviation	6,635	6,679	6,855	7,057	7,561	0.7%	0.7%	0.6%	0.9%
Military	2,210	2,210	2,210	2,210	2,210	0.0%	0.0%	0.0%	0.0%
Total Operations	22,110	22,241	22,765	23,365	24,865	0.6%	0.6%	0.6%	0.8%
Instrument Operations	1,106	1,135	1,252	1,402	1,616	2.7%	2.5%	2.4%	2.6%
Peak Hour Operations	8	8	8	9	9	0.0%	0.0%	1.2%	0.8%
Based Aircraft									
Single Engine	54	54	54	56	59	0.0%	0.0%	0.4%	0.6%
Multi-Engine	10	10	10	10	11	0.0%	0.0%	0.0%	0.6%
Jet Engine	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%
Helicopter	3	3	4	4	5	0.0%	5.9%	2.9%	3.5%
Other	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%
Total Based Aircraft	67	67	68	70	75	0.0%	0.3%	0.4%	0.8%
GA Operations per Based Aircraft	295	296	300	300	300				

Source: Mead & Hunt, Inc.

Master Plan

Hale County Airport

Facility Requirements

Facility Requirements

INTRODUCTION. Determining an airport's future facility requirements involves translating the forecast aviation activity into physical components and comparing them to a set of specific standards and criteria. Therefore, the ability of existing facilities to accommodate the projected aviation demand will be assessed. If individual facilities are determined to be deficient, necessary improvements will be identified that safely and efficiently meet the requirements placed on the airport. This chapter consists of two analyses: those requirements associated with airside facilities and those associated with landside facilities.

As presented in the previous chapter, an airport's geometric design is based on the Runway Design Code (RDC) standards as specified in FAA Advisory Circular (AC) 150/5300-3A, *Airport Design*. Although the RDC is based on the "design aircraft" and is used for planning and design, it does not limit the aircraft that may be able to operate safely at an airport. FAA guidance defines a "substantial use threshold" on federally funded projects for the design aircraft to have at least 500 annual itinerant operations by a specific aircraft model or composite of several different aircraft to determine the representative RDC. TxDOT Aviation Division guidance indicates that 250 actual annual operations or 500 planned annual operations is sufficient to establish the design criteria. The RDC is classified by three parameters: the Aircraft Approach Category (AAC), the Airplane Design Group (ADG), and the Taxiway Design Group (TDG). These parameters represent the aircraft that are intended to be accommodated by the Airport. Airports with more than one runway may have one RDC applied to one runway and a separate RDC applied to another. Individual areas on an airport, such as hangars intended for the storage of small aircraft exclusively, might have an entirely different RDC.

The existing approved ALP (dated May 2000) for Hale County Airport designates an Airport Reference Code (ARC) of C-II for Runway 4/22 and A-I for Runway 13/31. However, as presented

in the previous chapter, the existing aircraft operations indicate there are fewer than 500 annual itinerant operations of aircraft within AAC C (i.e., approach speeds between 121 and 141 knots) to warrant the use of this category. Therefore, the use of RDC of B-II is appropriate to use when analyzing existing Runway 4/22 conditions. The forecasted operational estimates did indicate that there will be more than 500 annual itinerant aircraft operations of aircraft in or exceeding AAC C and ADG II, so utilization of a future RDC of C-II for Runway 4/22 is deemed appropriate.

Airside Facility Requirements

Airside facilities are those airport components directly related to aircraft movement areas (i.e., approach areas, navigational aids, runways, and taxiways). The airside facility requirements analysis focuses on determining the necessary elements and the spatial relationship of these elements.

Weather and Wind Analysis

Surface wind conditions and climatological conditions have a direct effect on the efficient operation of an airport. Runways not oriented to take full advantage of prevailing winds will restrict the capacity of the airport to varying degrees. Variations in weather conditions (i.e., limited cloud ceilings and reduced visibility) restrict the time an airport is available for use by aircraft. Wind conditions affect all aircraft to some extent, but the smaller the aircraft, generally the more it is affected by crosswinds. When landing and departing, aircraft are able to operate on a runway properly and safely as long as the wind velocity perpendicular to the direction of travel (a crosswind) is not excessive. The wind coverage analysis translates the crosswind velocity and direction into a "crosswind component".

The determination of the appropriate crosswind component is dependent upon the RDC, which as presented earlier, the Airport has a future RDC of C-II. According to FAA AC 150/5300-13A, a maximum crosswind component of 16 knots is considered maximum for RDCs C-I and C-II. However, the vast majority of aircraft operations at Hale County Airport are conducted by smaller aircraft within RDC categories A-I, B-I, A-II, and B-II. AC 150/5300-13A indicates that a 13-knot

crosswind component is considered maximum for RDCs A-II and B-II, and 10.5 knots is the maximum crosswind component for RDCs A-I and B-I.

All Weather Wind Conditions

Accurate and timely wind velocity and direction data during all weather conditions were obtained from the National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center. Using this data, an all weather wind rose was constructed, presented in the following figure entitled *ALL WEATHER WIND ROSE*, and a wind analysis was conducted that evaluates the adequacy of the existing runway system with the prevailing winds.

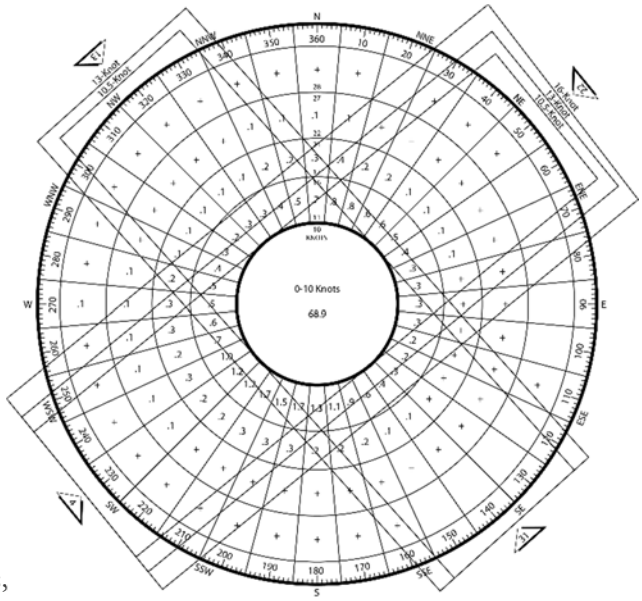


Figure C1 **ALL WEATHER WIND ROSE**
Source: Mead & Hunt, Inc. analysis.
Wind data obtained from the National Oceanic and Atmospheric Administration, National Climatic Data Center. Station 72217, Plainview, Texas. Period of Record: January 2003 through December 2012.

The following table, entitled *ALL WEATHER WIND COVERAGE ANALYSIS*, quantifies the wind coverage provided by the individual runway ends, individual runways, and the runway system during all weather conditions at the Airport. The desirable wind coverage for an airport is 95%, which means that runways should be oriented so that the maximum crosswind component is not exceeded more than 5% of the time. Based on the all weather wind analysis for Hale County Airport, the existing runway system provides 96.14%, 98.58%, and 99.59% wind coverage for the 10.5-knot, 13-knot, and 16-knot crosswind components, respectively. This analysis indicates that the runway system exceeds the 95% coverage recommended by the FAA. It also indicates that Runway 13/31 is a vital and necessary component of the airfield system, for without it, Runway 4/22 would not provide sufficient wind coverage (i.e., greater than 95%) for the 10.5-knot and 13-knot crosswind components.

Table C1 **ALL WEATHER WIND COVERAGE ANALYSIS**

Runway	10.5-Knot	13-Knot	16-Knot
Runway 4/22	88.19%	93.45%	97.49%
Runway 4	60.35%	63.02%	65.46%
Runway 22	75.64%	79.56%	82.70%
Runway 13/31	81.35%	88.91%	95.96%
Runway 13	70.47%	75.88%	81.08%
Runway 31	62.58%	67.72%	73.16%
Combined	96.14%	98.58%	99.59%

Source: Mead & Hunt, Inc. analysis.
Wind data obtained from the National Oceanic and Atmospheric Administration, National Climatic Data Center. Station 72217, Plainview, Texas. Period of Record: January 2003 through December 2012.
Notes: A five knot tailwind component was used for the individual runway end analysis.

IFR Weather Wind Conditions

As stated in the *Inventory* chapter, Hale County Airport currently has two published straight-in instrument approach procedures to Runway 4 and one to Runway 22. The procedures to Runway 4 provide visibility and ceiling minimums as low as one mile and 250 feet AGL; the procedure to Runway 22 provides visibility and ceiling minimums as low as one mile and 447 feet AGL. In an effort to analyze the effectiveness of these procedures, and to document the need for and placement of improved or additional procedures, an Instrument Flight Rules (IFR) wind analysis has been conducted. Utilizing the wind data obtained from the National Climatic Data Center, Table C2, entitled *IFR WEATHER WIND COVERAGE ANALYSIS*, quantifies the wind coverage analysis provided during IFR meteorological conditions (i.e., when weather conditions have a ceiling less than 1,000 feet, but equal to or greater than 200 feet and/or visibility is less than three miles, but equal to or greater than ½ mile). The table quantifies the wind coverage provided by the individual runway ends, individual runways, and the combined runway system. From this analysis, it can be concluded that individually, Runway 4 provides the best wind coverage for the 10.5-knot crosswind component and Runway 13 provides the best coverage for the 13-, and 16-knot crosswind components, respectively. However, because a majority of larger and more sophisticated aircraft utilizes Runway 4/22 because of its length, the focus on instrument approach procedure improvements will be on this runway.

Table C2 **IFR WEATHER WIND COVERAGE ANALYSIS**

Runway	10.5-Knot	13-Knot	16-Knot
Runway 4/22	91.33%	94.72%	97.23%
Runway 4	79.89%	82.63%	84.81%
Runway 22	64.67%	66.10%	67.35%
Runway 13/31	85.55%	91.86%	97.82%
Runway 13	79.09%	83.54%	87.92%
Runway 31	62.59%	67.16%	72.11%
Combined	96.48%	98.20%	99.21%

Source: Mead & Hunt, Inc. analysis.
Wind data obtained from the National Oceanic and Atmospheric Administration, National Climatic Data Center. Station 72217, Plainview, Texas. Period of Record: January 2003 through December 2012.
Notes: A five knot tailwind component was used for the individual runway end analysis.

The following figure, entitled *IFR WEATHER WIND ROSE*, graphically portrays the IFR wind coverage data used in the analysis.

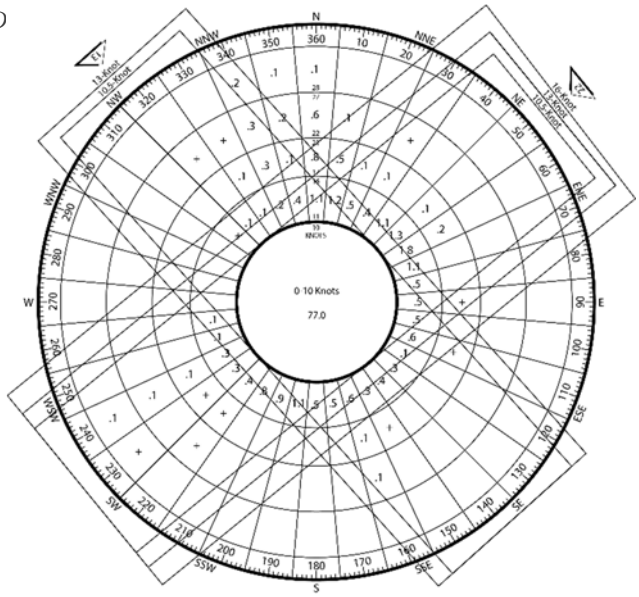


Figure C2 **IFR WEATHER WIND ROSE**
Source: Mead & Hunt, Inc. analysis.
Wind data obtained from the National Oceanic and Atmospheric Administration, National Climatic Data Center. Station 72217, Plainview, Texas. Period of Record: January 2003 through December 2012.

Ceiling and Visibility

FAA AC 150/5060-5, *Airport Capacity and Delay*, describes three categories of ceiling and visibility minimums for use on both capacity and delay calculations. VFR conditions occur whenever the cloud ceiling is at least 1,000 feet AGL and the visibility is at least three statute miles. IFR conditions occur when the reported cloud ceiling is at least 500 feet AGL, but less than 1,000 feet and/or visibility is at least one statute mile, but less than three statute miles. Poor Visibility and Ceiling (PVC) conditions exist whenever the cloud ceiling is less than 500 feet AGL and/or visibility is less than one statute mile. However, utilizing the meteorological data obtained from the National Climatic Data Center, ceiling and visibility conditions have been categorized in more specific terms related to weather conditions under which Hale County Airport operates. Table C3 presents the percentage of time these specific conditions occur.

Table C3 **METEOROLOGICAL CONDITIONS**

Ceiling and Visibility Conditions	Percent of Time
VFR (ceiling equal to or greater than 1,000 feet AGL and visibility equal to or greater than 3 statute miles)	91.2%
VFR minimums to existing instrument approach procedure minimums (ceiling less than 1,000 feet AGL and/or visibility less than 3 statute miles, but ceiling equal to or greater than 250 feet AGL and visibility equal to or greater than 1 statute mile.	4.7%
VFR minimums to Category I ILS minimums (ceiling less than 1,000 feet AGL and/or visibility less than 3 statute miles, but ceiling equal to or greater than 200 feet AGL and visibility equal to or greater than ½ statute mile.	5.2%
Below Category I ILS minimums (ceiling less than 200 feet AGL and visibility less than ½ statute mile.	4.2%

Source: Mead & Hunt, Inc. analysis.
Wind data obtained from the National Oceanic and Atmospheric Administration, National Climatic Data Center. Station 72217, Plainview, Texas. Period of Record: January 2003 through December 2012.

Airfield Capacity

The ability of an airport's airside facilities (i.e., runways and taxiways) to accommodate both the existing and forecasted aircraft activity is known as airfield capacity. It is defined in the following terms:

- **Hourly Capacity of Runways:** The maximum number of aircraft that can be accommodated under conditions of continuous demand during a one hour period.
- **Annual Service Volume (ASV):** A reasonable estimate of an airport's annual capacity (i.e., level of annual aircraft operations that will result in an average annual aircraft delay of approximately one to four minutes).

Airfield Capacity Factors

The determination of capacity for long-range planning purposes at Hale County Airport use the methodology contained in FAA AC 150/5060-5. Certain site-specific factors influence airfield capacity, and included aircraft mix, runway use, percent arrivals, touch-and-go operations, the location of exit taxiways, and local air traffic control rules and procedures. The following narrative describes these factors in detail.

Aircraft Mix. Aircraft mix is defined as the relative percentage of operations conducted by each of four classes of aircraft divided by type and size of the aircraft using an airport. The four classes are: Classes A and B consist of small single engine and twin-engine (both propeller and jet) weighing 12,500 pounds or less; Class C is large jet and propeller aircraft weighing between 12,500 pounds and 300,000 pounds; and Class D is large jet and propeller aircraft weighing in excess of 300,000 pounds. Classes A and B are representative of the general aviation fleet; Classes C and D are typical of those used by airlines and military. For Hale County Airport, the existing aircraft mix has been estimated at 90% Classes A and B, and 10% Class C. The future 2032 aircraft mix is estimated at 91% Classes A and B, and 9% Class C.

Runway Use. The use configuration of the runway system is defined by the number, location, and orientation of the active runway(s) and relates to the distribution and frequency of aircraft operations on those facilities. Both the prevailing winds in the region and the existing runway system at Hale County Airport combine to dictate runway use patterns. According to airport personnel, the estimated runway utilization patter for the Airport is presented as follows:

- **Runway 4/22:** Runway 4/22 is used an estimated 75% of the time, with Runway end 4 utilized approximately 20% and Runway end 22 utilized approximately 80%.
- **Runway 13/31:** Runway 13/31 is used approximately 25% of the time, with Runway end 13 utilized an estimated 60% of the time and Runway end 31 used approximately 40% of the time.

Percent Arrivals. The percentage of aircraft arrivals influences the airfield capacity because aircraft on approach are travelling at a reduced speed and are typically given priority over departures. Thus, higher percentages of arrivals, especially during peak periods of activity, tend to reduce the ability of the airfield system to accommodate the demand. It is estimated that Hale County Airport experiences a general balance of arrivals and departures.

Touch-and-Go Operations. Any aircraft maneuver in which the aircraft performs a normal landing touchdown followed by an immediate takeoff without stopping or taxiing clear of the runway is

referred to as a touch-and-go. They are almost always associated with training and are counted as a local operation. As presented in the previous chapter, local operations comprise approximately 40% of all operations at the Airport, expecting to decrease to an estimated 39% by the end of the planning period (2032).

Exit Taxiways. Exit taxiways influence airfield capacity by providing aircraft the ability to exit the runway as quickly and safely as possible. The amount, spacing, and design of exit taxiways influence runway occupancy times and the capacity of the airfield system. Hale County Airport has an adequate exit taxiway system in place to minimize runway occupancy times and maximize airfield capacity.

Air Traffic Control Rules. The FAA specifies aircraft separation criteria and operational procedures for aircraft in the vicinity of an airport, contingent upon the size, availability of radar, sequencing of operations, and noise abatement procedures (both advisory and/or regulatory) that may be in effect at an airport. The impact of air traffic control on airfield capacity is most influenced by aircraft separation requirements dictated by the mix of aircraft using an airport. Presently, there are no special air traffic control rules in effect at Hale County Airport that significantly affect airfield capacity.

Airfield Capacity Methodology

As specified in FAA AC 150/5060-5, the determination of ASV and hourly capacity for long-range planning purposes involves several assumptions, which are: arrivals equal departures; touch-and-go operations are between 0 and 50%; a full-length parallel taxiway and adequate exit taxiways are available , and no taxiway crossing problems exist; there are no airspace limitations; at least one runway is equipped with an Instrument Landing System (ILS) and has the necessary air traffic control facilities and services to carry out operations in a radar environment; IFR weather conditions occur roughly 10% of the time; and, approximately 80% of the time the Airport is operated with the runway use configuration that produces the greatest hourly capacity.

Using these assumptions and AC 150/5060-5 guidelines, the existing and future ASV for Hale County Airport has been calculated at approximately 230,000 operations, with a VFR hourly capacity of 98 operations and an IFR hourly capacity of 59 operations. It is recognized that the Airport does not conform to all the assumptions built-into the calculation, as stated above. Among the differences include the lack of an ILS and no air traffic control facilities and services.

Conclusion

As can be seen, the estimated ASV of 230,000 operations is significantly higher than the 26,665 operations expected to occur at the Airport in 2032. However, as stated above, the actual ASV and hourly capacities would be reduced from the calculated numbers, as the Airport does not conform to all the assumptions. Additionally, FAA planning standards indicate that when 60% of the ASV is reached (in this case, some 138,000 operations), an airport should begin planning ways to increase capacity. Additionally, when 80% of ASV is reached (approximately 184,000 operations), then construction of facilities to increase capacity should be initiated. It is not expected that Hale County Airport will experience capacity-related problems during the time period covered by this Master Plan.

Dimensional Criteria

Standard dimensional criteria for designing airport facilities are contained in FAA AC 150/5300-13A, *Airport Design*. Dimensional standards are regulated with respect to the RDC and the lowest designated or planned instrument approach procedure visibility minimums. Because different aircraft types use the various runways at the Airport, each runway has a specific RDC.

Runway 4/22

Existing dimensions and the corresponding existing or potential design criteria applicable to Runway 4/22 are presented in the following tables entitled *RUNWAY 4/22 RDC B-II DESIGN STANDARDS MATRIX, IN FEET*, and *RUNWAY 4/22 RDC C-II DESIGN STANDARDS MATRIX, IN FEET*. As presented in Table C4, Runway 4/22 meets or exceeds most of the dimensional standards associated with RDC B-II, with the lone exceptions being the Runway Object Free Area (ROFA) length and width associated

with an Instrument Approach Procedure (IAP) having visibility minimums lower than ¾ mile at the Runway 22 end.

Table C4 **RUNWAY 4/22 RDC B-II DESIGN STANDARDS MATRIX, IN FEET**

RDC B -II		Visibility Minimums			
Item	**Existing Dimension**	**Visual**	**Not Lower Than 1 Mile**	**Not Lower Than ¾ Mile**	**Lower Than ¾ Mile**
Runway					
Width	100	75	75	75	100
Shoulder Width	N/A	10	10	10	10
Blast Pad Width	N/A	95	95	95	120
Blast Pad Length	N/A	150	150	150	150
Runway Protection					
Runway Safety Area					
Length Beyond Departure	1,000	300	300	300	600
Length Prior to Threshold	600	300	300	300	600
Width	500	150	150	150	300
Runway Object Free Area					
Length Beyond Runway End	**510[1]**	300	300	300	600
Length Prior to Threshold	**510[1]**	300	300	300	600
Width	**685[2]**	500	500	500	800
Precision Obstacle Free Zone					
Length	N/A	N/A	N/A	N/A	200
Width	N/A	N/A	N/A	N/A	800
Runway Separation					
Runway Centerline to:					
Holding Position	250	200	200	200	250
Parallel Taxiway/Taxilane Centerline	300, 400	240	240	240	300
Aircraft Parking Area	490	250	250	250	400

Source: FAA AC 150/5300-13A, *Airport Design*, and actual airport conditions.
Note: N/A Not Applicable. Bolded text indicates standards not met by existing runway facilities.
[1]Dimension limited by fence north of extended runway centerline. Design standard deficiency associated with instrument approach procedure having visibility minimum lower than ¾ mile.
[2]Dimension limited by SW 4th Street north of the extended runway centerline. Design standard deficiency associated with instrument approach procedure having visibility minimum lower than ¾ mile.

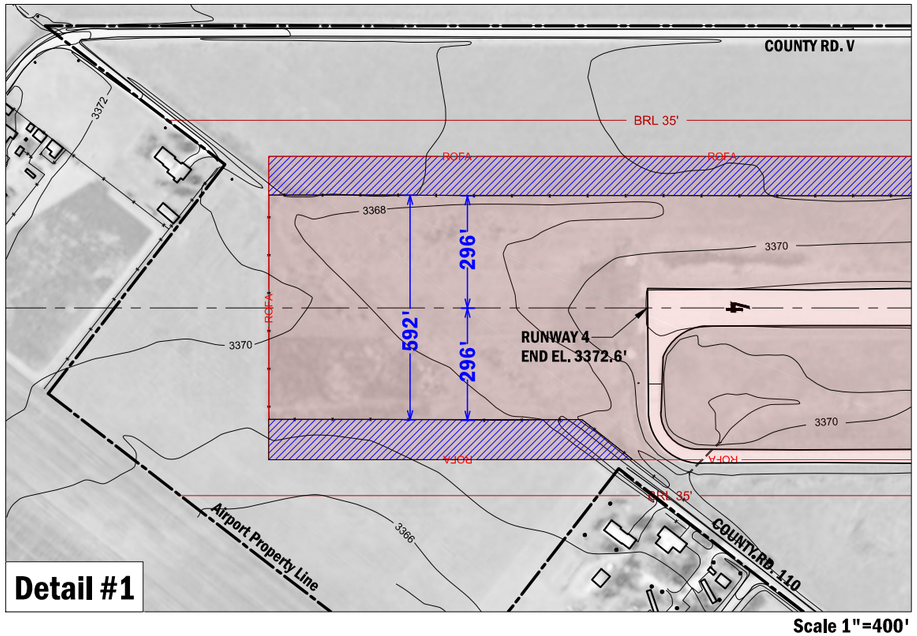
As can be seen in Table C5, Runway 4/22 meets or exceeds most dimensional standards associated with the application of RDC C-II criteria and existing visibility minimums. The exceptions are the ROFA standards associated with both ends of the runway. At the Runway 22 end, the fence would limit the ROFA width to 735 feet on the south side of the extended runway centerline, and the curve in SW 4th Street would limit the ROFA width to approximately 685 feet on the north side of the extended runway centerline. These are deficiencies of approximately 65 feet and 115 feet, respectively. If measured from the Runway 22 threshold, the length would be limited to 510 feet by

the fence to the north of the extended runway centerline. It should be noted that Hangar #21 would limit the ROFA width to 795 feet (a 5-foot deficiency) and length to 255 feet (a 745-foot deficiency) at this runway end. At the Runway 4 end, the ROFA width would be limited to approximately 592 feet by fences located on both sides of the extended runway centerline, a deficiency of 208 feet. These runway design standard deficiencies are graphically depicted in the following figure entitled *RUNWAY 4/22 RDC C-II DIMENSIONAL STANDARD DEFICIENCIES*.

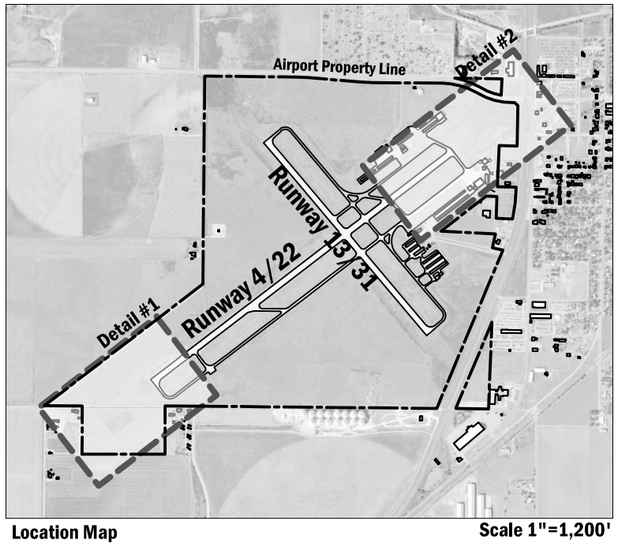
Table C5 **RUNWAY 4/22 RDC C-II DESIGN STANDARDS MATRIX, IN FEET**

RDC C/D -II		Visibility Minimums			
Item	**Existing Dimension**	**Visual**	**Not Lower Than 1 Mile**	**Not Lower Than ¾ Mile**	**Lower Than ¾ Mile**
Runway					
Width	100	100	100	100	100
Shoulder Width	N/A	10	10	10	10
Blast Pad Width	N/A	120	120	120	120
Blast Pad Length	N/A	150	150	150	150
Runway Protection					
Runway Safety Area					
Length Beyond Departure	1,000	1,000	1,000	1,000	1,000
Length Prior to Threshold	600	600	600	600	600
Width	500	500	500	500	500
Runway Object Free Area					
Length Beyond Runway End	**510[1]**	1,000	1,000	1,000	1,000
Length Prior to Threshold	**510[1]**	600	600	600	600
Width	**685[2]**	800	800	800	800
Precision Obstacle Free Zone					
Length	N/A	N/A	N/A	N/A	200
Width	N/A	N/A	N/A	N/A	800
Runway Separation					
Runway Centerline to:					
Holding Position	250	250	250	250	250
Parallel Taxiway/Taxilane Centerline	**300[3]**, 400	300	300	300	400
Aircraft Parking Area	**490[4]**	400	400	400	500

Source: FAA AC 150/5300-13A, *Airport Design*, and actual airport conditions.
Note: N/A Not Applicable. Bolded text indicates standards not met by existing runway facilities.
[1]Dimension limited by fence north of extended runway centerline.
[2]Dimension limited by SW 4th Street north of the extended runway centerline.
[3]Dimension limited by Taxiway B. Design standard deficiency associated with instrument approach procedure having visibility minimum lower than ¾ mile.
[4]Dimension limited by aircraft tiedown spaces on south development area apron. Design standard deficiency associated with instrument approach procedure having visibility minimum lower than ¾ mile.

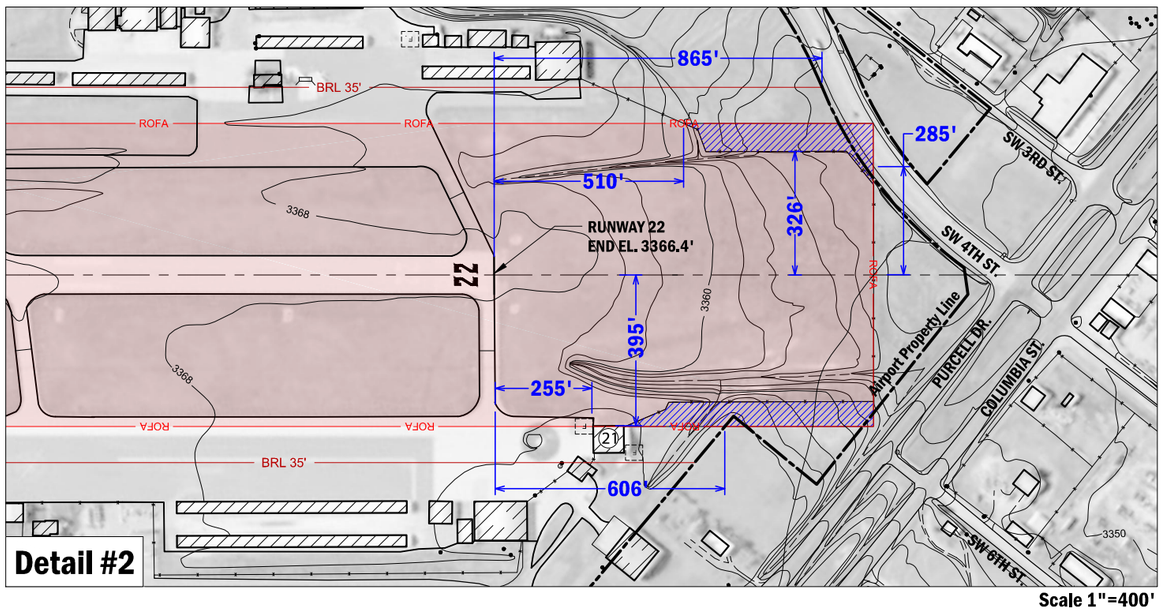


Scale 1"=400'



Location Map

Scale 1"=1,200'



Scale 1"=400'

ROFA — Runway Object Free Area

Area of Deficient ROFA

Figure C3 **Runway 4/22 RDC C-II Dimensional Standard Deficiencies**

Evaluating existing Runway 4/22 facilities based on an RDC C-II design standards and potential IAP improvement with visibility minimums lower than ¾ mile indicates two additional deficiencies, which are the aircraft parking area setback and the parallel taxiway separation standard. Specifically, the tiedown spaces located in the south development area apron are located approximately 490 feet from the runway centerline, a deficiency of 10 feet. Taxiway B, located 300 feet from Runway 4/22 (centerline to centerline), does not meet the 400-foot standard separation criteria, a deficiency of 100 feet.

Runway 13/31

Existing dimensions and the corresponding design criteria applicable to Runway 13/31 are presented in the following table entitled *RUNWAY 13/31 DESIGN STANDARDS MATRIX, IN FEET*. As can be seen, this runway meets or exceeds all dimensional standards associated with the RDC B-II criteria with visual approaches or visibility minimums not lower than one mile. It is not expected that instrument approach procedures will be implemented to Runway 13/31. Therefore, this runway meets or exceeds dimensional standard requirements. It should be noted that the existing runway width of 100 feet exceeds dimensional standards. TxDOT Aviation Division has indicated that it will only support a maximum width of 75 feet for this runway.

Table C6 **RUNWAY 13/31 DESIGN STANDARDS MATRIX, IN FEET**

RDC B-II Item	Existing Dimension	Visibility Minimums: Visual	Not Lower Than 1 Mile	Not Lower Than ¾ Mile	Lower Than ¾ Mile
Runway					
Width	100	75	75	75	100
Shoulder Width	N/A	10	10	10	10
Blast Pad Width	N/A	95	95	95	120
Blast Pad Length	N/A	150	150	150	150
Runway Protection					
Runway Safety Area					
Length Beyond Departure	300	300	300	300	600
Length Prior to Threshold	300	300	300	300	600
Width	150	150	150	150	300
Runway Object Free Area					
Length Beyond Runway End	N/D	300	300	300	600
Length Prior to Threshold	N/D	300	300	300	600
Width	N/D	500	500	500	800
Precision Obstacle Free Zone					
Length	N/A	N/A	N/A	N/A	200
Width	N/A	N/A	N/A	N/A	800
Runway Separation					
Runway Centerline to:					
Holding Position	200	200	200	200	250
Parallel Taxiway/Taxilane Centerline	400	240	240	240	300
Aircraft Parking Area	775+	250	250	250	400

Source: FAA AC 150/5300-13A, *Airport Design*, and actual airport conditions.
Note: N/A Not Applicable. N/D Not Designated on existing Airport Layout Plan. However, standard appears to be met

Conclusion

In consideration of the existing aircraft fleet, Runway 4/22 should be evaluated using RDC B-II criteria. Based on the forecast aircraft fleet, Runway 4/22 should be planned and protected to accommodate dimensional standards associated with RDC C-II criteria. Alternatives that alleviate the identified design deficiencies will be examined and presented in the next chapter. Regarding the desired instrument approach improvements, the alternatives analysis will also examine and present the effects that a potential procedure with visibility minimums lower than ¾ mile will have on dimensional standards. Runway 13/31 is proposed to be designed and developed to RDC B-II standards.

Runway Length

Generally, for design purposes, runway length requirements at general aviation airports are premised upon a combination of many factors, but are generally based on the most demanding aircraft operating or expected to operate at the airport, airport elevation, the mean maximum daily temperature of the hottest month, runway gradient, and the stage length of the longest non-stop trip destination. FAA AC 150/5325-4B, *Runway Length Requirements for Airport Design*, provides generalized guidelines for determining recommended runway lengths, which has been utilized in the computations presented in the following table entitled *RUNWAY LENGTH REQUIREMENTS, IN FEET*.

Table C7 **Runway Length Requirements, In Feet**

Aircraft Category	Dry Runway Length
Runway 4/22	5,996
Runway 13/31	4,000
Small Aircraft[1] Less Than 10 Seats	
95% of the Fleet	4,750
100% of the Fleet	5,200
Small Aircraft[1] More Than 10 Seats	5,200
Aircraft Weighing More Than 12,500 Pounds, But Less Than 60,000 Pounds	
75% of the Fleet at 60% Useful Load	5,820
75% of the Fleet at 90% Useful Load	8,620
100% of the Fleet at 60% Useful Load	7,570
100% of the Fleet at 90% Useful Load	9,620

Source: Mead & Hunt, Inc. analysis using FAA AC 150/5325-4B, *Runway Length Requirements for Airport Design*. Lengths based on 3,374 feet AMSL, 92.0° F mean daily maximum temperature of the hottest month, and a maximum difference in runway centerline of 8 feet for Runway 4/22 and 0.5 feet for Runway 13/31.

Notes: [1]Under 12,500 pounds maximum takeoff weight.

Specific runway length determination for Hale County Airport involves using the runway length requirements for the critical aircraft, the Learjet 45. Interpolation of the data contained in the Learjet 45 Mission Planning Guide, published by Bombardier Aerospace, April 2000 (see Appendix Three), a fully loaded Learjet 45 departing the Airport when the temperature is 90° F would require a runway length of approximately 7,400 feet. Considering the Airport's mean maximum daily temperature of the hottest month is actually 92° F, it can be assumed that a longer runway length would be required. Additionally, Airport personnel have reported that Learjet 45 aircraft operators indicate a runway length of 7,600 feet is considered necessary for them during the hotter months of the year.

Conclusion

As it is at most airports, the determination of appropriate runway lengths at Hale County Airport is a complex consideration. The data indicates that Runway 4/22, with an existing length of 5,996 feet, can accommodate 75% of the large aircraft fleet (i.e., weighing more than 12,500 pounds but less than 60,000 pounds, maximum takeoff weight) operating at 60% useful load. The current ALP (dated May 2000) illustrates a future runway extension of 1,604 feet to the southwest, providing an ultimate runway length of 7,600 feet. A runway of this length would accommodate 100% of the large aircraft fleet (i.e., weighing more than 12,500 pounds, but less than 60,000 pounds, maximum takeoff weight) operating at 60% useful load. As indicated, airport personnel report multiple users requiring additional runway length, especially during the hot summer months. In consideration of the aircraft fleet expected to operate at the Airport, and with respect to off-airport land use decisions and the desired instrument approach improvements, it is recommended that a maximum runway length of 7,600 feet be analyzed for implementation during the latter time period of this Master Plan.

Pavement Strength

Recent non-destructive testing methodologies indicate Runway 4/22 has a gross weight bearing capacity of 34,500 pounds single wheel and 46,000 pounds dual wheel main landing gear configuration. Runway 13/31 has a gross weight bearing capacity of 16,500 pounds single wheel main landing gear configuration. The existing ALP (dated May 2000) indicated that Runways 4/22 and 13/31 pavement strengths will need to increase to 60,000 pounds and 30,000 pounds, respectively, single wheel main landing gear configuration. Based on the existing and future aircraft fleet mix, the needed future pavement strength for Runway 4/22 has been determined to be 71,000 pounds single wheel and 91,000 pounds dual wheel main landing gear configuration.

Conclusion

The results of the pavement analysis based on the existing and future aircraft fleet mix indicate that the Runway 4/22 pavement strength will need to be increased in the future to accommodate the larger business jets operating at Hale County Airport.

Runway Line of Sight

Runway line of sight requirements provide pilots the ability to observe airfield surfaces and verify the location and actions among aircraft, and between aircraft and vehicles that are operating on active runways that could create conflicts. There are two distinct line of sight standards: along individual runways, and between intersecting runways.

According to individual runway line of sight standards contained in AC 150/5300-13A, any two points located five feet above the runway centerline must be mutually visible for the entire length of a runway unless served by a full-length parallel taxiway, and then the distance is reduced to a distance of one-half the runway length. Both Runways 4/22 and 13/31 are served be full-length parallel taxiways. Therefore, the distance requirement for both runways is one-half the runway length. Using the runway profile elevation data from the existing ALP (dated May 2000), the individual runway line of sight standards are met for both runways.

Intersecting runway line of sight standards require that any point five feet above the runway centerline and in the runway visibility zone must be mutually visible with any other point five feet above the runway centerline of the crossing runway and inside the runway visibility zone. The runway visibility zone is defined as an area formed by imaginary lines connecting the two runways line of sight points. For Hale County Airport, the four line of sight points are established at one-half the distance between the intersection point and each runway end. Based on these criteria, the intersecting runway line of sight standards are met at the Airport.

Runway Surface Gradient

Runway surface gradient requirements are premised upon the need to adequately drain runway pavement surfaces without adversely affecting operational safety. Surface gradients are determined along the runway centerline (referred to as longitudinal gradient) and across the runway (referred to as transverse gradient). Longitudinal runway gradients should be as flat as practical to increase aircraft operational efficiency and safety (i.e., meeting the line of sight standards outlined above). Transverse runway gradients should be kept to a minimum consistent with drainage requirements.

Surface gradient standards are contained in FAA AC 150/5300-13A, and are determined by the aircraft approach category for which a runway is designed to accommodate. For Runway 4/22, the existing condition is based on aircraft approach category A and B; for future conditions it is based on aircraft approach category C and D. Runway 13/31 is based on aircraft approach category A and B.

Runway 4/22. The maximum longitudinal gradient of Runway 4/22 is 0.5%, and has 0.2% and 0.5% gradients within the northeast and southeast, quarters of the runway, respectively. These gradients are well within the standards for runways serving aircraft in approach categories C and D.

Runway 13/31. The maximum longitudinal gradient of Runway 13/31 is 0.2%, which is well within the standards for runways serving aircraft in approach categories A and B.

Conclusion

Because surface gradient standards are met, additional analysis is not required. Any proposed runway improvements or extensions will include further analysis to ensure that specified standards are maintained.

Instrument Approach Procedure Requirements

Runways provide maximum utility when they can be used in less than ideal weather conditions. For runway requirements, weather conditions translate to visibility in terms of the distance to see and identify prominent unlighted objects by day and prominent lighted objects by night. In order to land during periods of limited visibility, pilots must be able to visually acquire the runway or associated lighting at a specified distance from, and height above the runway.

Visibility Minimums

Currently, Runway 4/22 is served by three instrument approach procedures, one of which provides a Localizer Performance with Vertical Guidance (LPV) to Runway 4 that is categorized as an Approach Procedure with Vertical Guidance (APV). APV procedures are designed to accommodate instrument approach operations where the navigation system provides both course guidance and vertical path guidance down to a 250-foot Height Above Threshold (HATh) and visibilities to as low as ¾ statute

mile. The Runway 22 instrument approach procedure is categorized as a Non-Precision Approach (NPA), which is a procedure that is supplied with course guidance only; no vertical path guidance is available. NPAs will only support visibility minimums of one statute mile or greater.

It is expected that Hale County Airport will continue to experience increased use by more sophisticated general aviation aircraft in the future. Therefore, the ability to improve on the instrument approach procedure ceiling and visibility minimums should be examined and preserved for implementation when determined to be reasonable and feasible.

Visual Landing Aids (Lighting)

Presently, Runway 4/22 is equipped with MIRL and four-light VASI and REIL at both runway ends; Runway 13/31 is equipped with MIRL. According to standards contained in AC 150/5300-13A, in order to provide an APV with less than one statute mile visibility minimums and a 250-foot HATh requires a full ALS. A full ALS is 2,400 feet in length from the runway threshold (measured along the extended runway centerline) consisting of 12 light stations positioned every 200 feet. The inner seven light stations consist of five steady burning white lights; the outer five stations are sequenced flashing Runway Alignment Indicator Lights (RAILs). A precision APV with a 250-foot HATh would not require a full ALS, but it is recommended.

Runway Marking and Signage

Runways 4/22 and 13/31 are provided with standard non-precision markings and equipped with holding position signs and markings at all taxiway intersections. According to AC 150/5300-13A, the existing runway markings and holding position signs and markings would be sufficient to support an APV with less than one statute mile visibility minimums.

Conclusion

Improving upon the existing Runway 4 LPV visibility and /or HATh minimums would require a Vertically Guided Airport Airspace Analysis Survey, using criteria contained in AC 150/5300-18B, to either identify or confirm the location of controlling obstructions and permit an evaluation/

feasibility analysis for removal. The effects of providing improvements to the Airport's instrument approach procedures will be examined in the next chapter.

Runway Protection Zone Requirements

Runway Protection Zones (RPZs) function to enhance safety and protection of people and property on the ground beyond runway ends or prior to runway thresholds. This is best achieved through airport owner control over RPZs. It is desirable to clear all above ground objects from within the RPZ area; where this is impractical, airport owners, at a minimum, should maintain the RPZ clear of all facilities supporting incompatible activities. RPZs are trapezoidal in shape, are centered about the extended runway centerline, and consist of two components, the central portion and the controlled activity area. The central portion extends from the beginning to the end of the RPZ and its width is equal to the ROFA. The controlled activity area is the remaining area of the RPZ on either side of the central portion.

In FAA Memorandum, *Interim Guidance on Land Uses Within a Runway Protection Zone*, dated September 27, 2012, the FAA Office of Airports (ARP) outlines interim policy on land uses within RPZs until a comprehensive guidance document for existing and proposed land uses within RPZs is published. The interim guidance requires ARP Regional Office (RO) and Airport District Office (ADO) staff to consult with National Airport Planning and Environmental Division when defined land uses would enter the limits of the RPZ as a result of actions such as airfield improvements (e.g., runway extensions or shifts), change in design aircraft increasing the RPZ dimensions, new or revised instrument approach procedures increasing the RPZ dimensions, or local development proposals in the RPZ.

Land uses defined in the memorandum that require consultation include buildings and structures (e.g., residences, schools, churches, hospitals or other medical care facilities, commercial/industrial buildings), recreational land uses (e.g., golf course, sports fields, amusement parks, other places of public assembly), transportation facilities (e.g., rail facilities, public roads and highways, vehicular parking facilities), above or below ground fuel storage or hazardous material storage facilities, wastewater treatment facilities, and above ground utility infrastructure (e.g., electrical substations,

including any type of solar panel installations). RO and ADO staff are further required to work with airport sponsors to identify, analyze, and document a full range of alternatives that avoid introducing the land use issue within the RPZ, minimize the impact of the land use in the RPZ (e.g., routing a new roadway through the controlled activity area, move farther away from the runway end), and mitigate risk to people and property on the ground (e.g., tunneling, depressing, and/or protecting roadways through the RPZ, implement operational measures to mitigate any risks).

Based on the particular geometry and threshold siting requirements, there may be two RPZs for each runway end: an approach RPZ and a departure RPZ. Approach RPZs extend from a point 200 feet from the runway threshold and their dimensions are a function of the AAC and the approach visibility minimums associated with approach runway end. Departure RPZs begin 200 feet beyond the runway end or, if the Takeoff Runway Available (TORA) and the runway end are not the same, 200 feet beyond the far end of the TORA. Their dimensions are a function of the AAC and the departure procedures associated with the runway. Table C8 lists the existing RPZ sizes according to applicable criteria established by this Master Plan, indicates the Airport ownership/control of the RPZ areas, and presents the required RPZ sizes for various AAC and visibility minimums.

Table C8 **RUNWAY PROTECTION ZONE DIMENSIONS, IN FEET**

Item	Width at Inner Edge	Length	Width at Outer Edge	Airport Control Entire Area
Existing RPZ Dimensions:				
Runway 4	500	1,000	700	Yes
Runway 22	500	1,000	700	No
Runway 13	500	1,000	700	No
Runway 31	500	1,000	700	No
Standard Approach RPZ Dimensions:				
Visual and Not Lower Than One Mile, Small Aircraft Only	250	1,000	450	
Visual and Not Lower Than One Mile, AACs A and B	500	1,000	700	
Visual and Not Lower Than One Mile, AACs C and D	500	1,700	1,010	
Not Lower Than ¾ Mile, All Aircraft	1,000	1,700	1,510	
Lower Than ¾ Mile, All Aircraft	1,000	2,500	1,750	
Standard Departure RPZ Dimensions:				
Small Aircraft Only, AACs A and B	250	1,000	450	
Large Aircraft, AACs A and B	500	1,000	700	
Large Aircraft, AACs C, D, and E	500	1,700	1,010	

Source: FAA AC 150/5300-13A, *Airport Design*, and actual airport conditions.

Conclusion

The existing RPZs meet the dimensional standards based on the existing visibility minimums and AAC applicable to each runway. However, the Runway 13, 31, and 22 RPZs contain nonconforming land uses (SW 4th Street, U.S. Highway 87B/Interstate 27B, and County Road V). Alternatives that analyze future runway and/or instrument approach procedure visibility minimum improvements (presented in the next chapter) will include a re-evaluation of the RPZ requirements presented here. The alternatives will also evaluate the compatible nature of land uses that might be located within RPZs as a result of activities listed in the FAA memorandum on interim land use guidance (e.g., runway extensions, improvements to instrument approach procedures, or a change in the critical design aircraft).

Runway End Siting Requirements

Guidance from FAA AC 150/5300-13A provides criteria for the proper siting of runway ends and thresholds, which are ideally located at the same point on runway surfaces. Thresholds are located to provide proper clearance for landing aircraft over existing obstacles while on approach to landing. Therefore, when an object beyond the airport owner's power to remove, relocate, or lower obstructs the airspace required for aircraft to land at the beginning of the runway for takeoff, the threshold may be located farther down the runway. Like the RPZ criteria, the threshold siting criteria are based on the type of aircraft and approach visibility minimums associated with each runway end. The existing criteria for Hale County Airport are contained in Table C9 entitled *RUNWAY END SITING CRITERIA, IN FEET*.

Departure ends of runways normally mark the end of the full-strength runway pavement available and suitable for departures. Departure surfaces, when clear of obstacles, allow pilots to follow standard departure procedures. If obstacles penetrate the departure surface, then the obstacles must be evaluated through the Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) process. After the OE/AAA process, departure procedure amendments such as non-standard climb rates, non-standard (higher) departure minimums, or a reduction in the length of Takeoff Distance Available (TODA) may be required. Departure surfaces begin at the end of the TODA, are trapezoidal in shape,

and extend along the extended runway centerline. Table C9 also provides the standard departure surface dimensions and criteria.

Table C9 **RUNWAY END SITING CRITERIA, IN FEET**

Runway Type	Distance From Runway End	Width at Inner Edge	Length of First Segment	Length of Second Segment	Width at Outer Edge	Slope
Existing Threshold Siting Surface						
Runway 4	200	400	10,000	0	3,800	20:1
Runway 22	200	400	10,000	0	3,800	20:1
Runway 13	0	400	1,500	8,500	1,000	20:1
Runway 31	0	400	1,500	8,500	1,000	20:1
Standard Threshold Siting Surface Dimensions						
1. Small aircraft only with approach speeds <50 knots, visual approach	0	120	500	2,500	300	15:1
2. Small aircraft only with approach speeds >50 knots, visual approach	0	250	2,250	2,750	700	20:1
3. Large aircraft, visual approach, or instrument minimums ≥ one mile, day only	0	400	1,500	8,500	1,000	20:1
4. AAC A and B only, instrument night operations	200	400	10,000	0	3,800	20:1
5. AAC greater than B, instrument night operations	200	800	10,000	0	3,800	20:1
6. Instrument approach with visibility minimums < one statute mile but ≥ ¾ statute mile, day or night	200	800	10,000	0	3,800	20:1
7. Instrument approach with visibility minimums < ¾ statute mile or precision approach, day or night	200	800	10,000	0	3,800	34:1
8. Instrument approach with positive vertical guidance (GQS)	0	Runway width + 200	10,000	0	1,520	30:1
Existing Departure Surface						
Runway 4	0	1,000	10,200	0	6,466	40:1
Runway 22	0	1,000	10,200	0	6,466	40:1
Runway 13[1]	0	1,000	10,200	0	6,466	40:1
Runway 31[1]	0	1,000	10,200	0	6,466	40:1
Standard Departure Surface Dimensions	0	1,000	10,200	0	6,466	40:1

Source: FAA AC 150/5300-13A, *Airport Design*.
Notes: [1]Since Runway 13/31 is not currently designated an instrument departure runway, it does not have departure surface requirements. However, FAA recommends all runway ends be clear of obstacles within the 40:1 departure surface.

Threshold Siting Analysis

Using the criteria presented in Table C9 and the existing ALP data (dated May 2000), it has been determined that the Runway 4/22 and 13/31 thresholds are currently sited to achieve adequate

clearance over adjacent roadways, terrain, and other identified objects according to threshold siting criteria. However, application of AAC C and greater criteria to Runway 4/22 indicate the fences located southwest of the Runway 4 end penetrate the threshold siting surface by approximately two feet. At the Runway 22 end, Hangar #21 penetrates the threshold siting surface by approximately 21 feet.

Departure Runway End Analysis

Examining the departure surface criteria indicates that, at the Runway 4 end, four close-in objects penetrate the departure surface, including the fences mentioned above (two-foot penetrations), a tree (seven-foot penetration), and a pole (13-foot penetration). The Runway 22 departure surface is penetrated by several objects, including a pole by the FBO office (25-foot penetration), the FBO office itself (17-foot penetration), Hangar 21 (17-foot penetration), Hangar 22 (27-foot penetration), and Hangar 23 (11-foot penetration). At the Runway 13 end, five poles located adjacent to SW 3rd Street and County Road V penetrate the departure surface by varying amounts between one foot and 13 feet. The Runway 31 end has three object penetrations, both lanes of U.S. Highway 87B/Interstate 27B (three-foot penetration and one foot penetration) and a pole (three-foot penetration).

Conclusion

This analysis indicates that Runway ends 4 and 22 have penetrations to their respective threshold siting surfaces when AAC C or greater criteria are applied, and all runways have object penetrations to their departure surfaces. The alternatives analysis that follows in the next chapter will incorporate threshold siting and departure surface criteria examination to ensure runway ends are siting to achieve sufficient clearance of objects at all runway ends.

Taxiways

Taxiways provide defined movement corridors for aircraft between the runway system and the various functional landside areas on an airport. Some taxiways are necessary simply to provide access between aircraft parking aprons and the runways, whereas, others become necessary to provide more efficient and safer use of the airfield. Taxiway clearance design standards are premised upon the ADG as it relates to wingspan of the design aircraft. Taxiway pavement design standards are related to the

Taxiway Design Group (TDG), which are based on the overall Main Gear Width (MGW) and the Cockpit to Main Gear (CMG) distance of the design aircraft.

Runway 4/22. Because the majority of the general aviation business jet fleet operating at Hale County Airport utilizes Runway 4/22, ADG II and TDG 2 are appropriate for the design of the taxiway system serving this runway.

Runway 13/31. The general aviation aircraft fleet using this runway indicates that ADG II and TDG 2 are appropriate for the design of the taxiway system serving Runway 13/31.

Table C10, entitled *TAXIWAY DESIGN STANDARDS MATRIX, IN FEET*, presents the existing dimensions and the corresponding taxiway design standards applicable to Hale County Airport. As identified, all taxiway design standards are met.

Table C10 **TAXIWAY DESIGN STANDARDS MATRIX, IN FEET**

Design Standard	Existing Dimension	Design Standard Dimension	
Design Standards Based on ADG		**ADG I**	**ADG II**
Taxiway Safety Area	N.D.	49	79
Taxiway Object Free Area	N.D.	89	131
Taxilane Object Free Area	N.D.	79	115
Taxiway Centerline to:			
Parallel Taxiway/Taxilane Centerline	180	70	105
Fixed or Movable Object	95, 196, 200	44.5	65.5
Taxilane Centerline to:			
Parallel Taxilane Centerline	N.A.	64	97
Fixed or Movable Object	N.A.	39.5	57.5
Wingtip Clearance			
Taxiway Wingtip Clearance	N.D.	20	26
Taxilane Wingtip Clearance	N.D.	15	18
Design Standards Based on TDG		**TDG 1**	**TDG 2**
Taxiway Width	35, 40	25	35
Taxiway Edge Safety Margin	N.D.	5	7.5
Taxiway Shoulder Width	N.D.	10	10
Taxiway/Taxilane Centerline to Parallel Taxiway/Taxilane Centerline[1]	180	70	70

Source: FAA AC 150/5300-13A, *Airport Design*, and actual airport conditions.
Notes: [1]Use this dimension or the dimension specified for ADG, whichever is larger, when 180° turns between parallel taxiways are required.
N.D. – Not Designated on current Airport Layout Plan. However, standard appears to be met.
N.A. – Not Applicable to Hale County Airport.

Taxiway Design Methodology

Taxiways are designed for "cockpit over centerline" taxiing with pavement being of sufficient width to allow a certain amount of wander. The best taxiway design provides turns and intersections that enable safe and efficient taxiing while minimizing excess pavement. Potential runway incursions should be kept to a minimum by proper taxiway design, choosing simplicity over complexity wherever possible. Basic taxiway design concepts are included in the following narrative.

Increase Pilot Awareness. Taxiway intersections should be kept simple by utilizing the "three-node concept", which means that a pilot is presented with no more than three choices at each intersection – ideally, left, right, and straight ahead. Intersection angles ideally should be 90° wherever possible, but standard angles of 30°, 45°, 60°, 120°, 135°, and 150° are acceptable.

Avoid Wide Expanses of Pavement. Taxiway to runway interface encompassing wide expanses of pavement should be avoided. Wide pavements require the placement of signs far from a pilot's eyes and reduce the conspicuity of other visual cues.

Limit Runway Crossings. Opportunities for human error can be reduced by liming the need for runway crossings, especially crossings within the middle third of runways defined as high energy intersections. By limiting runway crossings to the outer thirds of the runway, the portion of the runway where pilots can least maneuver to avoid collisions is kept clear.

Increase Visibility. Right angle intersections, both between taxiways and between taxiways and runways, provide the best visibility to the left and right for a pilot. Acute angle exit taxiways provide greater runway efficiency, but should not be used for runway entrance or crossing points.

Avoid "Dual Purpose" Pavements. Runways used as taxiways and taxiways used as runways only lead to confusion. Runways should be clearly identified as a runway and only a runway.

Indirect Access. Taxiways should not lead directly from an apron to a runway. This design only leads to confusion when a pilot typically expects to encounter a parallel taxiway.

In general, the taxiway configuration at the Airport is considered adequate. However, there are a few aspects of the taxiway geometry that do not follow the guidelines presented above for limiting runway incursions, including:

- The north entrance taxiway to the Runway 22 threshold (Taxiway B) intersects the runway at an approximate 65° angle.
- Taxiway C, both to north and south of Runway 4/22, intersects the runway at approximately 84° to the south and 45° to the north.
- Taxiway E intersects Runway 4/22 at an approximate 37° angle.
- The north end of Taxiway A leading to the Runway 22 threshold and Taxiway C both provide access from an apron directly onto the runway.

Conclusion

Correcting the identified taxiway geometry deficiencies will be evaluated through the development alternatives contained in the next chapter. Other taxiway recommendations include the extensions of parallel taxiways in conjunction with any runway extensions. In the interest of safety and efficiency, lighting and signage should be installed on all taxiways not currently equipped at the Airport.

Landside Facility Requirements

Landside facilities are those facilities that support the airside facilities, but are not actually a part of the aircraft operating surfaces. They consist of such facilities as terminal buildings, hangars, aprons, access roads, and support facilities. Deficiencies will be noted in terms of accommodating both the existing and future aviation needs of the Airport.

Aircraft Storage Requirements

All aircraft based at Hale County Airport are stored in hangars, either T-hangars or multi-aircraft conventional hangars. Over the course of the 20-year planning period covered by this Master Plan, the number of based aircraft is expected to increase from 67 existing to 81 in 2032. There are approximately 140 existing T-hangar storage spaces at the Airport, with multiple other spaces available in the 17 corporate/conventional hangars. It is assumed that future storage facilities will reflect the same characteristics of current storage patterns.

Based Aircraft Apron

Aircraft tiedowns are provided for those aircraft owners and operators that do not require or desire to pay the cost for hangar storage. Nationwide trends indicate that as more aircraft are based at an airport, hangar storage capacity is surpassed before additional hangar space can be supplied. Currently, no based aircraft are stored on apron tiedowns at Hale County Airport. It is not anticipated that any based aircraft owners will choose apron tiedowns for long-term storage in the future.

Itinerant Aircraft Apron

Some apron space should be set aside for parking itinerant aircraft, which are usually at the airport overnight or for a few days at most. Itinerant aircraft parking areas are generally associated with Fixed Base Operators (FBOs) where customers can be serviced readily and efficiently. In calculating the space requirement for itinerant tiedown apron, an area of 500 square yards per aircraft has been used. This rule-of-thumb guideline allows for aircraft parking and circulation between rows of parked aircraft. Itinerant apron and tiedown spaces accommodate various sizes of aircraft (itinerant aircraft using tiedowns tend to be larger than based aircraft), so space for larger general aviation aircraft is required. Additionally, users of the itinerant tiedown spaces will not be familiar with the layout and circulation patterns, so ample maneuvering room is essential.

Hangar Storage

Based on the high investment cost of owning an aircraft, hangars are generally the most desired option for aircraft storage. The Transportation Security Administration (TSA) has identified hangar

storage as one of the most cost effective ways to secure general aviation aircraft from use by terrorist organizations. As stated previously, it is assumed that future storage patterns will reflect the existing characteristics, so it is assumed that all based aircraft owners will choose hangar spaces for their aircraft storage needs.

Table C11, entitled *GENERAL AVIATION STORAGE REQUIREMENTS, 2012-2032*, depicts the type of facilities and the number of units needed for that facility in order to meet the forecast demand for each development phase.

Table C11 **GENERAL AVIATION FACILITY REQUIREMENTS, 2012-2023**

Facility	2012[1]	2017	2022	2027	2032
Itinerant GA Apron (sy)	5,830	5,100	5,250	5,575	6,000
T-hangar Spaces	140	68	70	75	81

Source: FAA AC 150/5300-13A, *Airport Design*, and actual airport conditions.
Notes: [1]Actual.

Conclusion

Based on this analysis, it appears that Hale County Airport will need additional apron space for the forecasted needs of itinerant aircraft in the latter stages of the planning period. Additionally, airport personnel have indicated a desire to provide aircraft tiedowns within the north development area, as there are none there currently and this happens to be where the FBO office is located. This is an inconvenience for FBO staff, as itinerant aircraft must be parked in the south landside area, but flight crews and passengers transported to and from the aircraft in FBO vehicles.

There is sufficient hangar storage available at the Airport, with 11 T-hangar spaces currently available for lease. Of these, only one would accommodate aircraft larger than smaller single engine types. Additionally, airport personnel indicate there are approximately two spaces available in the larger corporate hangar in the North Development Area. However, as presented in the *Inventory* section, many of the existing hangars are in need of major repair or replacement. The actual number, size, type, and location of future hangar facilities will depend on financial feasibility and user needs at the time of implementation. Therefore, the development plan for future hangars at the Airport will focus on the redevelopment potential of those hangars in need of replacement and/or repair, while

also identifying land parcels that accommodate a variety of sizes, types, and uses in consideration of the ability to provide taxiway, roadway, and utility access in an efficient, safe, and secure manner.

Support Facilities Requirements

Airport support facilities such as fuel storage facilities and roadway access have quantifiable requirements. Other facilities such as Aircraft Rescue and Fire Fighting (ARFF) facilities and airport maintenance do not have quantifiable requirements, but often do have potential desirable requirements from airport staff and management.

Fuel Storage Facility

According to fuel sales records, there has been an average of 69,302 gallons of AVGAS and 66,428 gallons of Jet A fuel sold per year during the past five years. Based on 2012 aircraft operations, there were 3.7 gallons of AVGAS sold per operation of piston-powered aircraft and 22.8 gallons of Jet A fuel sold per operation of turbine-powered aircraft. Typically, as operations increase, fuel storage requirements can be expected to increase proportionately. Nationwide and local trends indicate that the size of the general aviation aircraft fleet is slightly increasing, as more aircraft are being used for business purposes and less for pleasure and leisure purposes. Therefore, it is expected that the ratio of gallons sold per operation will increase as well, and an estimate of future fuel storage needs can be calculated as a two-week supply during the peak month of operations.

The following table, entitled *FUEL STORAGE REQUIREMENTS, 2012-2032*, provides an estimate of the future fuel storage requirements at the Airport. As can be seen, it appears that the existing AVGAS fuel storage capacity is more than adequate to accommodate the expected demand during the planning period, but the capacity of the Jet A fuel storage is not adequate to accommodate the future demand.

Table C12 **FUEL STORAGE REQUIREMENTS, 2012-2023**

Fuel Type	2012[1]	2017	2022	2027	2032
AVGAS					
Average Day of Peak Month Operations	70	79	82	85	89
Two Weeks of Operations	979	1,111	1,152	1,192	1,240
Gallons Per Operation	3.7	3.8	4.0	4.3	4.5
Fuel Storage (gallons)	8,750[2]	4,220	4,610	5,070	5,580
Jet A					
Average Day of Peak Month Operations	13	14	14	14	15
Two Weeks of Operations	177	191	199	203	207
Gallons Per Operation	22.8	22.9	23.0	23.5	24.0
Fuel Storage (gallons)	2,200[3]	4,375	4,580	4,760	4,970

Source: Mead & Hunt, Inc. analysis.
Notes: [1]Actual base year estimates.
[2]Existing AVGAS fuel storage capacity, consisting of an 8,000 gallon aboveground tank and a 750-gallon fuel truck.
[3]Existing Jet a fuel storage capacity, consisting of a 2,200 gallon fuel truck.

Aircraft Rescue and Fire Fighting (ARFF) Facility

Since the Airport does not have commercial service, it is not a FAR Part 139 certificated airport and has no quantifiable ARFF requirements. However, it is not unusual for joint community/airport fire stations to be located on or near airports providing fire protection services for the surrounding area and for the airport. It should be noted that these types of facilities are not eligible for FAA funding through the Airport Improvement Program (AIP).

Airport Maintenance and Storage Facility

Currently, the Airport utilizes a small building (approximately 1,000 square feet) located at the southwest end of the south development area apron for storage.

Roadway Access

Roadway access capacity is generally a function of the maximum number of vehicles accommodated by a particular facility in a given time period. The *Highway Capacity Manual*, published by the Transportation Research Board, indicates that it is normally preferred that roadways operate below capacity to provide reasonable flow and minimize vehicle delay. The manual defines different operating conditions, known as levels-of-service, which are functions of volume and composition of the traffic and the speeds attained. Six levels-of-service have been established, designated by the letters A through F, providing for the best to worst service in terms of driver satisfaction. Level-of-

service A roadways are completely unimpeded in their ability to maneuver within the traffic system, while level-of-service F roadways are operating beyond their maximum capacity with traffic nearly at a standstill causing major delays. Level-of-service C is generally the preferred operating condition for an urban roadway, as it has stable traffic flow and minimal delays.

Quantifying roadway capacity for this Master Plan uses the quick estimation method for uninterrupted flows on airport roadways contained in Airport Cooperative Research Program (ACRP) Report 40, *Airport Curbside and Terminal Area Roadway Operations*. This report, borrowing heavily from the *Highway Capacity Manual*, indicates that the quick estimation method is suitable for sizing or evaluating a roadway or identifying points of existing or future constraints. Typical airport circulation roadways are evaluated at a level-of-service C at a free-flow speed of 25 miles per hour, but free flow speeds are approximated by the posted speed limits on the roadway section. Table C13, entitled *ROADWAY CAPACITIES AND LEVELS-OF-SERVICE*, presents the maximum flow rates for various free-flow speeds at differing levels-of-service.

Table C13 **ROADWAY CAPACITIES AND LEVELS-OF-SERVICE**

	Level of Service				
Criteria	**A**	**B**	**C**	**D**	**E**
			Free-Flow Speed = 50 mph		
Maximum Flow (vehicles/hour/lane)	440	730	1,050	1,380	1,620
			Free-Flow Speed = 45 mph		
Maximum Flow (vehicles/hour/lane)	400	650	940	1,250	1,530
			Free-Flow Speed = 40 mph		
Maximum Flow (vehicles/hour/lane)	360	600	860	1,130	1,410
			Free-Flow Speed = 35 mph		
Maximum Flow (vehicles/hour/lane)	330	540	790	1,030	1,290
			Free-Flow Speed = 30 mph		
Maximum Flow (vehicles/hour/lane)	300	480	700	930	1,170
			Free-Flow Speed = 25 mph		
Maximum Flow (vehicles/hour/lane)	250	400	600	800	1,010

Source: ACRP Report 40, *Airport Curbside and Terminal Area Roadway Operations*.

At general aviation airports, the focus of roadway access capacity is typically on the service provided between the various airport aviation use areas and the regional highway system. In the case of Hale County Airport, Blakney Boulevard and Meter Road provide the vehicular access to the south development area from U.S. Highway 87B/Interstate 27B (Purcell Drive). Blakney Boulevard is an

unsignalized, four-lane, divided road; Meter Road is an unsignalized, two-lane, undivided road. Based on the information presented in the previous table, Blakney Boulevard is estimated to have a capacity 1,200 vehicles per hour and Meter Road has an estimated capacity of 600 vehicles per hour.

For the north development area, Miller Boulevard provides access to SW 3rd Street, which ultimately provides access to U.S. Highway 87B/Interstate 27B (Purcell Drive). Miller Boulevard is an unsignalized two-lane road; SW 3rd Street is a signalized, undivided, five-lane road (with a designated left-hand turning lane). Utilizing the information from the previous table, Miller Road has an estimated capacity of 600 vehicles per hour and SW 3rd Street has an estimated capacity of 2,100 vehicles per hour, since its posted speed is 50 miles per hour.

Based on the existing and projected aircraft operations and the corresponding vehicular traffic volumes, the existing access roadways have more than adequate capacity to meet the Airport demand. Therefore, future airport roadway improvements will focus on providing access to future facility development areas and on safety and security issues related to separation of aircraft operational areas from those areas accessible to automobiles.

Conclusion

From this analysis, it appears that Hale County Airport has adequate support facilities to serve the aviation needs throughout the planning period.

Summary

Although most of the existing airport facilities are sufficient to accommodate the aviation demand throughout the planning period, others require improvement or replacement to provide a safe and efficient airport facility. The requirements detailed in this chapter will be used to help formulate the overall future development plan of the Airport. The necessary projects will only be implemented when actual demand is demonstrated for a facility, it is financially feasible, and any potential environmental impacts are avoided, minimized, or mitigated.

Master Plan

Hale County Airport

Alternatives Analysis & Conceptual Development Plan

Alternatives Analysis and Conceptual Development Plan

INTRODUCTION. This chapter presents the future plan for Hale County Airport in terms of both its concept and reasoning, with a focus on the comprehensive nature of the elements involved. A description of the various factors and influences that will form the basis for the ultimate plan and program is provided. The basic runway and taxiway configuration (i.e., airside) concepts, issues, and alternatives are reviewed first to fulfill major facility requirements. Following that will be the presentation of landside concepts, issues, and alternatives. The conclusion of this chapter is the selection and presentation of the Conceptual Development Plan for the Airport.

Development Assumptions and Goals

The preparation of the Hale County Airport future development plan begins with establishing several basic assumptions and goals, the purpose of which is to direct and guide the evaluation process plan and establish continuity. They allow for several short- and long-term categorical considerations relating to facility needs, including safety, capital improvements, land use compatibility, financial and economic conditions, noise, public interest and investment, and community recognition and awareness.

Development Assumptions

The development assumptions presented here include a commitment for continued airport development, which supports the economic development needs of the community and region.

- **Assumption One:** The first assumption states that Runway 4/22 will be maintained to existing RDC B-II dimensional standards, with future RDC C-II dimensional standards planned and protected for implementation when aircraft activity levels dictate.

- **Assumption Two:** This assumption states that the crosswind runway, Runway 13/31, will be retained to provide adequate wind coverage and will be maintained to RDC B-II dimensional standards.
- **Assumption Three:** Assumption Three provides that Runway 4/22 will be analyzed for improved instrument approach procedures to both runway ends, evaluating for potential visibility minimums as low as ½-statute mile and ceiling minimums of 200 feet HATh. Runway 13/31 will retain visual approaches with no improvements planned for evaluation.
- **Assumption Four:** The fourth assumption provides that a runway extension to Runway 4/22 will be analyzed, with 7,600 feet considered the maximum runway length feasible.
- **Assumption Five:** This assumption states that the Airport's landside development potential will be maximized through infill development, redevelopment of outdated or substandard facilities, and allocation of priority space to revenue producing tenants.
- **Assumption Six:** Assumption six states that all airport property will be analyzed for appropriate uses and the highest and best use for each area or parcel will be recommended.
- **Assumption Seven:** The seventh assumption states that alternatives to the existing leasehold management structure will be thoroughly considered when analyzing landside development alternatives, so that the Airport's ability to receive TxDOT development grants will be maximized.

Development Goals

The following goals are intended to guide the preparation of this Master Plan and direct future airport development. While all goals are project-oriented, some obviously represent more tangible activities than others. However, all are deemed important and appropriate to the future of the Airport.

- **Plan the Airport to accommodate the forecast aircraft fleet safely and efficiently, with facilities properly sized to accept the projected forecast demand.**
- **Program facilities to be constructed when demand is realized, not based on forecasted demand.**

- **Enhance the self-sustaining capability of the Airport and ensure the financial feasibility of all future development.**
- **Ensure that the Airport will continue to accommodate a variety of general aviation activities, ranging from small general aviation users to large corporate aviation operators.**
- **Develop land acquisition priorities (if necessary) related to airport safety, future airport development, and land use compatibility.**
- **Encourage the protection of existing public and private investment in land and facilities, and advocate the resolution of any potential land use conflicts, both on and off airport property.**
- **Plan and develop airport facilities to be environmentally compatible with the community and minimize environmental impacts on airport property.**
- **Provide effective direction for the future development of the Airport through the preparation of a rational plan and adherence to the adopted development program.**
- **Integrate the Master Plan into the on-going City of Plainview's Comprehensive Development Plan through maintaining compatibility with existing and proposed surrounding land uses and zoning.**

Airside Development Issues, Alternatives, and Recommendations

Because all other airport functions relate to and revolve around the airfield configuration, airside development issues must first be resolved. As identified in the previous chapter, the Runway 4/22 length, application of RDC C-II dimensional standards, and instrument approach procedure improvements are the key issues facing Hale County Airport future facilities planning. Implementing any of these three airport improvements will result in nonconforming land uses within the Runway 4/22 RPZs based on guidelines contained in FAA Memorandum *Interim Guidance on Land Uses Within a Runway Protection Zone*. Therefore, a key component of the alternatives analysis process will include alleviating the nonconforming land uses within the future RPZs.

Runway 4/22 Dimensional Standards

As presented in the previous chapter, Hale County Airport meets or exceeds the existing RDC B-II dimensional standards associated with the existing instrument approach visibility minimums. However, forecasts indicate that increased use of aircraft with approach speeds between 121 and 141 knots (AAC C) will require the application of RDC C-II dimensional standards within the 20-year

planning period. The effects of applying RDC C-II dimensional standards are presented in the following narrative and are graphically portrayed in Figure D1, entitled *RDC C-II DIMENSIONAL STANDARDS-ALTERNATIVE ONE*. This alternative shifts the runway 1,050 feet at the Runway 22 end and extends the runway 1,055 feet at the Runway 4 end (thus maintaining a minimum 6,000-foot runway length) and complies with the compatible land use requirements within RPZs.

Dimensional Standards. By relocating the Runway 22 threshold by 1,050 feet, the entire standard ROFA length is easily accommodated within existing airport property. The Runway 4 end extension of 1,055 feet requires the purchase of an additional 33.2 acres (at a minimum) of property (including three residences) to accommodate the standard ROFA dimensions. Fence relocation beyond the ROFA width and length dimensions is also required.

Runway Length. The Runway 22 threshold relocation of 1,050 feet and Runway 4 extension of 1,055 feet result in an ultimate runway length of 6,001 feet.

Runway Protection Zones. With the relocation of Runway 22 threshold, the increased size of the Runway 22 RPZ is relocated west of the U.S. Highway 87B/Interstate 27B ROW, which would require the acquisition of a minimum 0.3 acres between existing airport property and the ROW to give the Airport control of future land use development. The previously mentioned 33.2 acres recommended for purchase provides Airport control of land within the extended Runway 4 RPZ. Approximately 3,100 linear feet of County Road V will also need to be relocated beyond the boundaries of the relocated Runway 4 RPZ.

Threshold Siting. Shifting the Runway 22 threshold results in no structures penetrating the future Runway 22 threshold siting surface. The required land acquisition southwest of Runway 4 will result in the removal of any structures, poles, or trees penetrating the future threshold siting surface associated with this runway end.

Departure Runway End. In conjunction with the changes to the runway ends, the departure runway end surfaces shift accordingly. At the Runway 22 end, the future departure surface is penetrated by

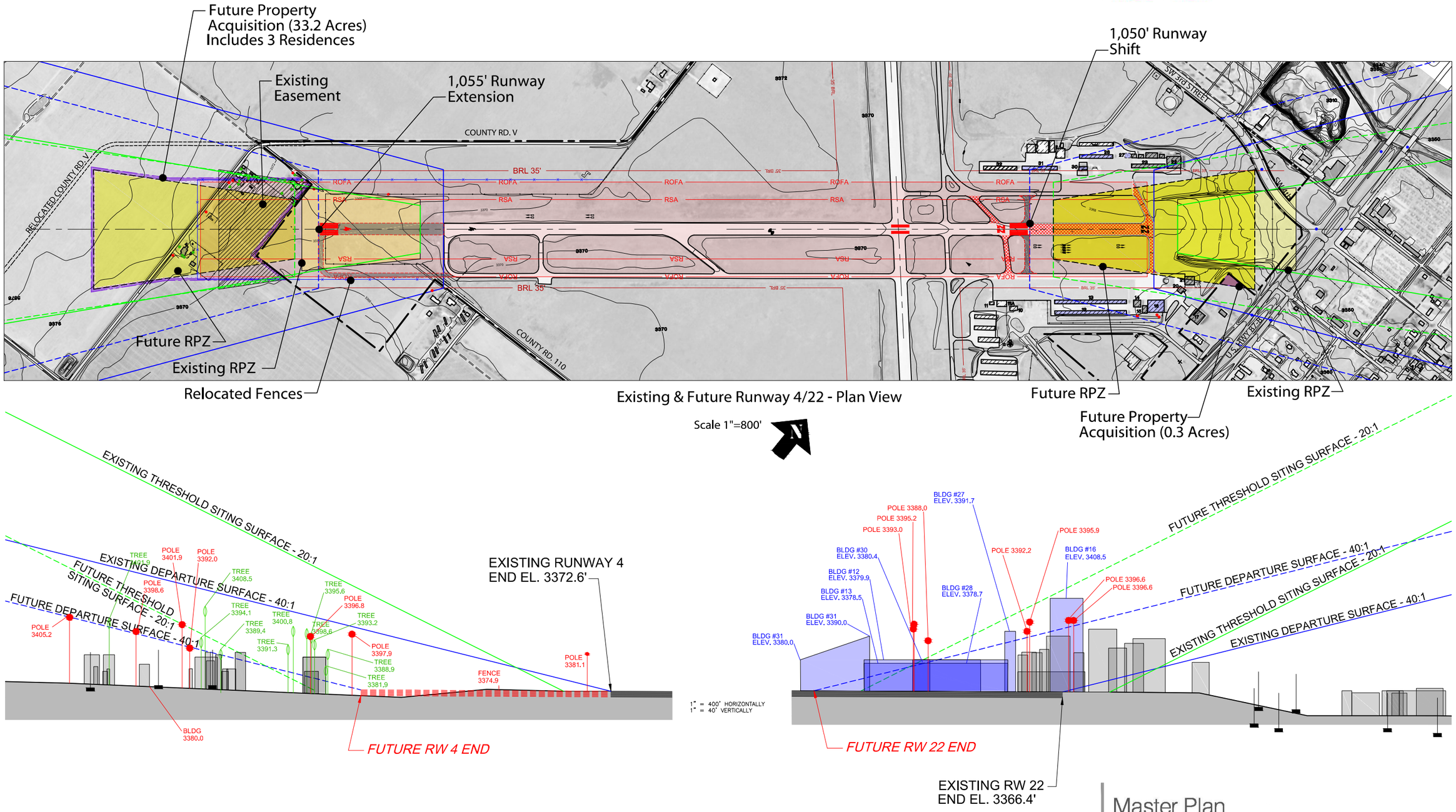


Figure D1 **RDC C-II Dimensional Standards - Alternative One**

TERRAIN PROFILE REPRESENTS THE HEIGHEST POINT ACROSS THE WIDTH AND ALONG THE LENGTH OF THE EXTENDED APPROACH SURFACE.

Hangars #12, #13, #16, #27, #28, #30, #31, and multiple poles in the existing hangar area. At the Runway 4 end, multiple trees, structures, and poles penetrate the departure surface, but all objects will be removed to implement the runway extension.

Property Acquisition. This alternative requires the minimum fee simple title purchase of 33.5 acres (including three residences).

Development Items. Major development items associated with Alternative One include:

- Runway/taxiway extension of 1,055 feet to the southwest.
- Runway 22 threshold relocation of 1,050 feet.
- Construction of two entrance taxiways serving the relocated Runway 22 threshold.
- Purchase of a minimum 33.5 acres in fee simple title (including three residences).
- Relocating approximately 6,300 linear feet of fence.
- Relocating approximately 3,100 linear feet of County Road V.

Runway 4/22 Length

As a stated goal, Hale County Airport desires to maximize the amount of available runway length, ultimately providing up to 7,600 feet of runway length. Aircraft operational forecasts indicate that the need for additional runway length will coincide with the need to implement RDC C-II dimensional standards. Therefore, the effects of extending Runway 4/22 to 7,600 feet and implementing RDC C-II dimensional standards are presented in the following narrative and graphically portrayed in Figure D2, entitled *RDC C-II DIMENSIONAL STANDARDS-ALTERNATIVE TWO*. This alternative involves relocating the Runway 22 threshold 1,050 feet and extending the runway 2,655 feet at the Runway 4 end. An ultimate runway length of 7,601 feet is provided and the conforming RPZ land use requirements are met with implementation of Alternative Two.

Dimensional Standards. As with Alternative One, the relocated Runway 22 threshold easily accommodates the entire RDC C-II ROFA dimensional standards within existing airport property.

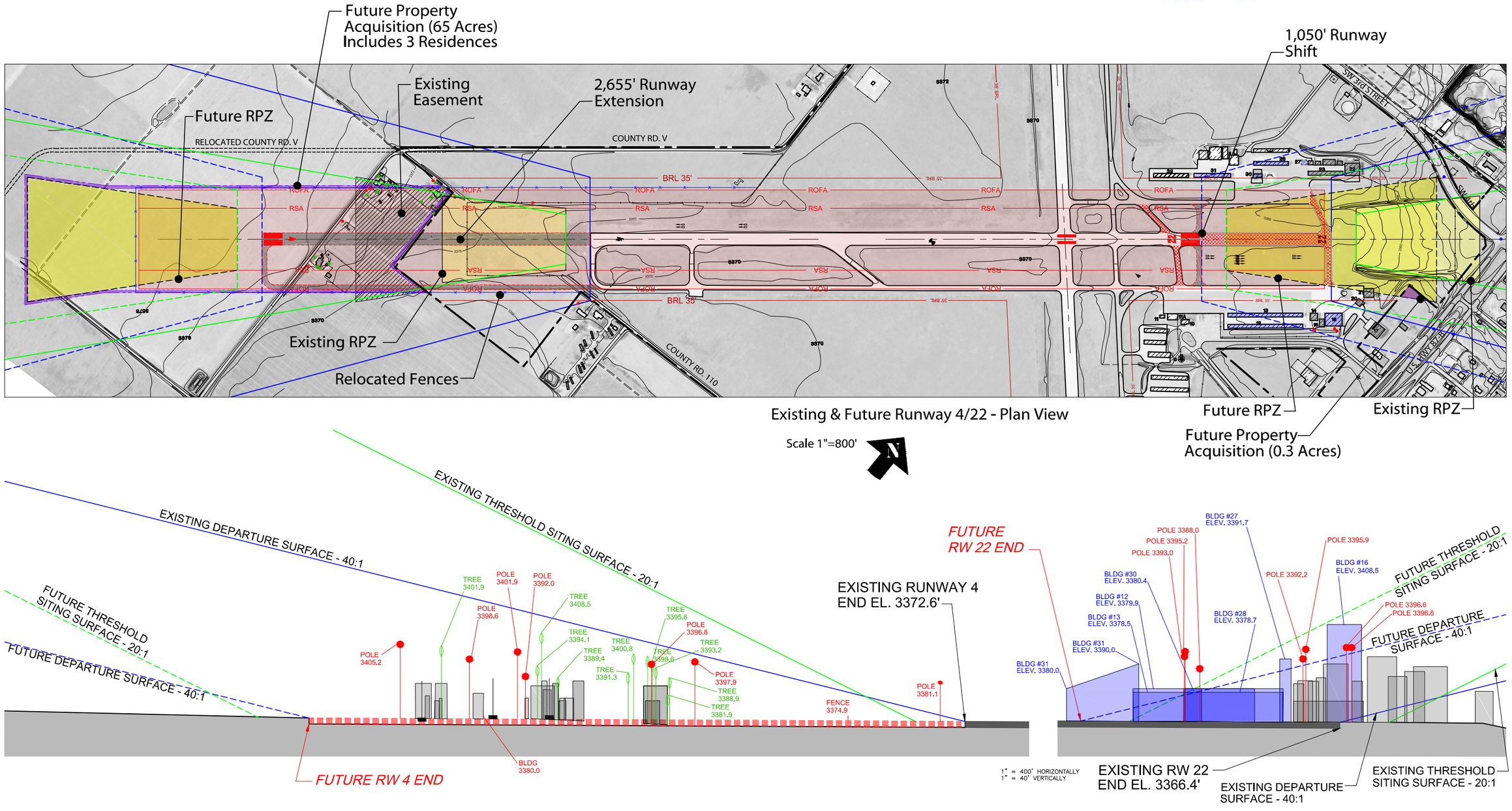


Figure D2 **RDC C-II Dimensional Standards - Alternative Two**

TERRAIN PROFILE REPRESENTS THE HEIGHEST POINT ACROSS THE WIDTH AND ALONG THE LENGTH OF THE EXTENDED APPROACH SURFACE.

The Runway 4 end extension of 2,655 feet requires the purchase of a minimum 65 acres of additional airport property (including three residences), which easily accommodates the RDC C-II dimensional standards.

Runway Length. As described previously, in conjunction with the 1,050-foot relocation of the Runway 22 threshold, this alternative proposes an extension of 2,655 feet at the Runway 4 end. This provides for an ultimate runway length of 7,601 feet.

Runway Protection Zones. As with Alternative One, the relocation of Runway 22 threshold results in the increased size of the Runway 22 RPZ relocated west of the U.S. Highway 87B/Interstate 27B ROW. It will require the acquisition of a minimum 0.3 acres between existing airport property and the highway ROW to give the Airport development control and ensuring future land uses conform to RPZ functions. The previously mentioned 65 acres recommended for purchase maintains Airport control of land with the extended Runway 4 RPZ. Approximately 4,000 linear feet of County Road V and approximately 2,750 linear feet of County Road 110 will also need to be relocated beyond the boundaries of the future Runway 4 RPZ.

Threshold Siting. Relocating the Runway 22 threshold results in no structure penetrating the future threshold siting surface associated with this runway end. The required property acquisition southwest of Runway 4 will result in the removal of any structures, poles, or trees penetrating the future threshold siting surface associated with this runway end.

Departure Runway End. In conjunction with the changes to the runway ends shift, the departure runway end surfaces shift accordingly. The Runway 22 future departure runway end surface is penetrated by Hangars #12, #13, #16, #27, #28, #30, #31, and multiple poles in the existing hangar area. At the Runway 4 end, multiple trees, structures, and poles penetrate the departure surface, but all objects will be removed to implement the runway extension.

Property Acquisition. Alternative Two requires the minimum fee simple title purchase of approximately 65.3 acres (including three residences).

Development Items. Major development items associated with this alternative include:

- Runway/taxiway extension of 2,655 feet to the southwest.
- Runway 22 threshold relocation of 1,050 feet.
- Construction of two entrance taxiways serving the relocated Runway 22 threshold.
- Purchase of a minimum 65.3 acres in fee simple title (including three residences).
- Relocating approximately 9,500 linear feet of fence.
- Relocating approximately 3,700 linear feet of County Road V and 800 linear feet of County Road 110.

Runway 4/22 Instrument Approach Improvements Alternatives Analysis

Providing improved Instrument Approach Procedure (IAP) capabilities enhances Hale County Airport's ability to accommodate aircraft operations during periods of inclement weather conditions safely and efficiently. The on-going advancements in Global Positioning System (GPS) technology and FAA's modernization commitment of the U.S. air traffic system (known as NextGEN) offer the potential for improving instrument approach capabilities with relatively little cost to airports.

It should be noted that the IAP improvement alternatives presented and analyzed here are not reflective of a detailed study utilizing FAA Order 8260.3B, *United States Standard for Terminal Instrument Procedures (TERPS)*, or Order 8260.54A, *The United States Standard for Area Navigation (RNAV)*. To be effective, such studies would require an aeronautical survey of the surrounding airspace to determine the precise location and height of terrain, vegetation, and structures so that an extensive analysis could determine any obstructions to the various instrument approach procedure obstacle clearance surfaces.

The IAP alternatives presented here focus on the effects the proposed improvements will have on, or will be affected by, airport structures, off-airport land acquisition needs, objects, surrounding roadways, and vegetation within the immediate airport environs. Additionally, this alternatives

analysis does not examine the overall effect of IAP improvements on runway length, just the requirements and impacts to individual runway ends.

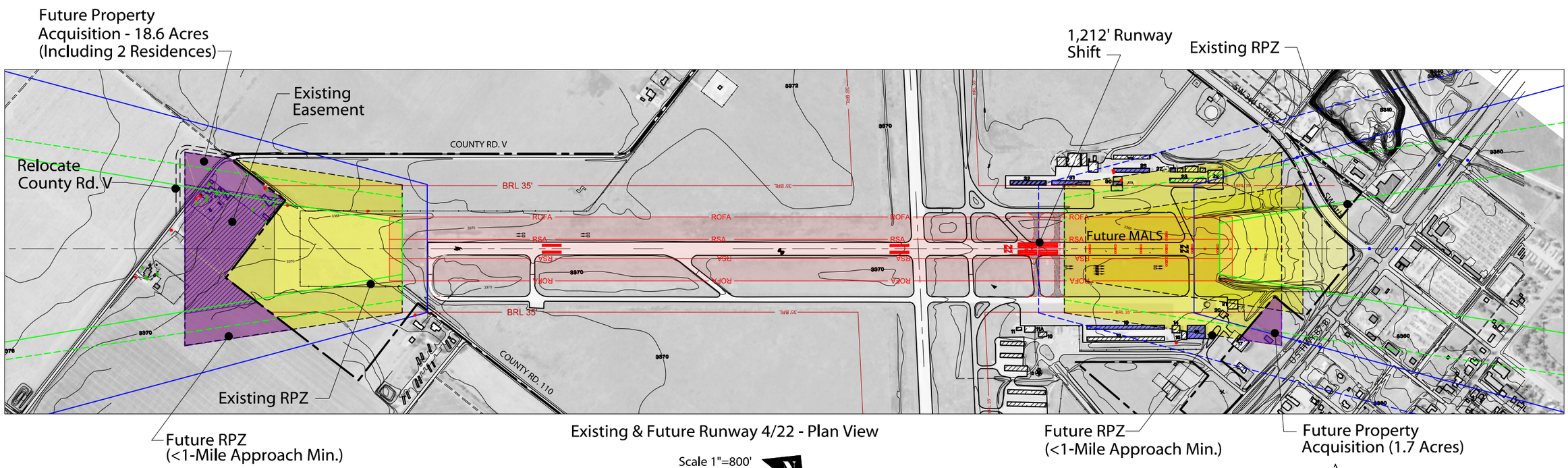
Instrument Approach Improvement Alternative One

The following narrative presents the effects of implementing improved IAPs to both Runways 4 and 22 with visibility minimums as low as ¾-mile. Figure D3, entitled *INSTRUMENT APPROACH PROCEDURE IMPROVEMENTS ALTERNATIVE ONE*, graphically portrays the proposed instrument approach improvements.

Runway Protection Zones. With the lowered visibility minimums to ¾-mile, the RPZs increase in size to 1,000' x 1,700' x 1,510' and would initiate a review of nonconforming RPZ land uses. In order to locate the Runway 22 RPZ on property available for acquisition and land use control by the Airport, the Runway 22 threshold would be relocated by 1,215 feet. In conjunction with the relocated Runway 22 threshold, the increased size of the Runway 22 RPZ would encompass Hangars #13, #14, #16, #17, #20, #21, #22, #23, #24, #25, #26, #27, #30, and #31, thus requiring the removal of all the structures. It would also limit the amount of landside development/redevelopment space available in both the north and south development areas. The increased size of the Runway 4 RPZ would encompass approximately 18.6 acres and two residences beyond existing airport property.

Threshold Siting. As stated previously, the increased size of the Runway 22 RPZ and the initiation of nonconforming RPZ land use review dictates that this runway threshold must be relocated by 1,215 feet to accommodate the future RPZ between existing airport property and the U.S. Highway 87B/Interstate 27B ROW to give the Airport development control and ensure future land uses conform to RPZ functions. This runway threshold relocation results in no structure penetrations to the future Runway 22 threshold siting surface. Property acquisition results in the removal of all structures, poles, or trees penetrating the future threshold siting surface associated with Runway 4.

Departure Runway End. The future departure runway end surface at Runway 22 is penetrated by Hangars #13, #16, #27, #30, #31, and #32. However, since most of these hangars would not conform to RPZ land use requirements, all but #32 would require removal prior to IAP improvement



Existing & Future Runway 4/22 - Plan View

Scale 1"=800'

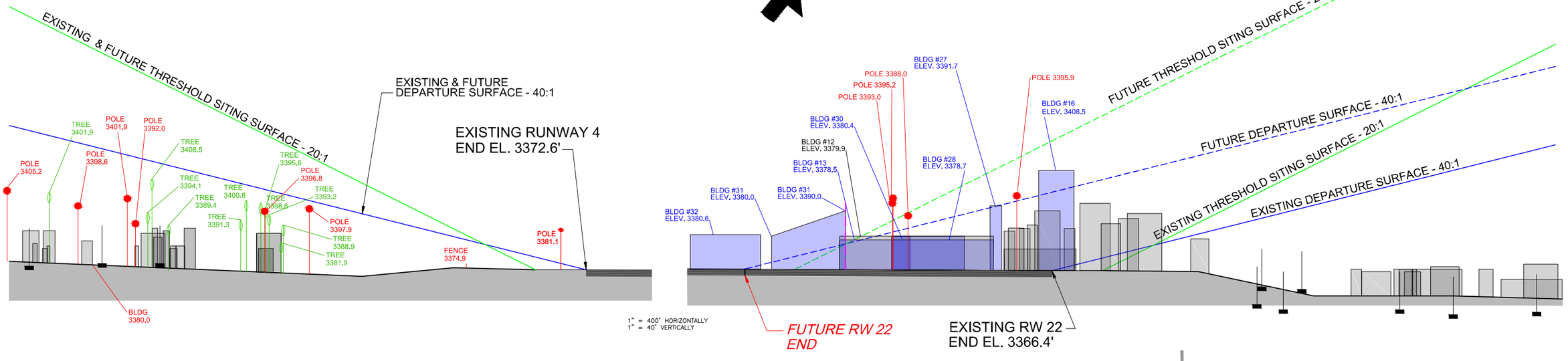


Figure D3 **Instrument Approach Procedure Improvements - Alternative One**

implementation and, thus, would not penetrate the Runway 22 departure surface. At the Runway 4 end, the future departure surface is penetrated by the pole located south of County Road 110.

Approach Lighting. FAA AC 150/5300-13A indicates that an APV with visibility minimums of ¾-mile and a minimum HATh of 400 feet can be implemented to Runway 22, but requires, at a minimum, an Intermediate ALS such as a Medium Intensity Approach Lighting System (MALS), a MALS with Sequenced Flashing Lights (MALSF), a Simplified Short Approach Lighting System (SSALS), a SSALS with Sequenced Flashing Lights (SSALF), or an Omnidirectional Approach Lighting System (ODALS). AC 150/5300-13A indicates that the existing LPV approach to Runway 4 can be improved to visibility minimums as low as ¾-mile without the requirement of an ALS.

Property Acquisition. The alternative requires the minimum fee simple title purchase of approximately 1 acre of additional property within the future Runway 22 RPZ and approximately 18.6 acres (including two residences) within the future Runway 4 RPZ.

Development Items. Major development items associated with this alternative include:

- Runway 22 threshold relocation of 1,215 feet.
- Construction of two entrance taxiways serving the relocated Runway 22 threshold.
- Purchase of a minimum 1 acre in fee simple title within the future Runway 22 RPZ.
- Purchase of a minimum 18.6 acres in fee simple title within the future Runway 4 RPZ (including two residences).
- Remove or relocate Hangars #13, #14, #16, #17, #20, #21, #22, #23, #24, #25, #26, #27, #30, and #31.
- Relocate approximately 1,000 linear feet of County Road V.
- Installation of Intermediate ALS to Runway 22.

Instrument Approach Improvement Alternative Two

The following narrative presents the effects of implementing improved IAPs to both Runways 4 and 22 with visibility minimums as low as ½-mile. Figure D4, entitled *INSTRUMENT APPROACH*

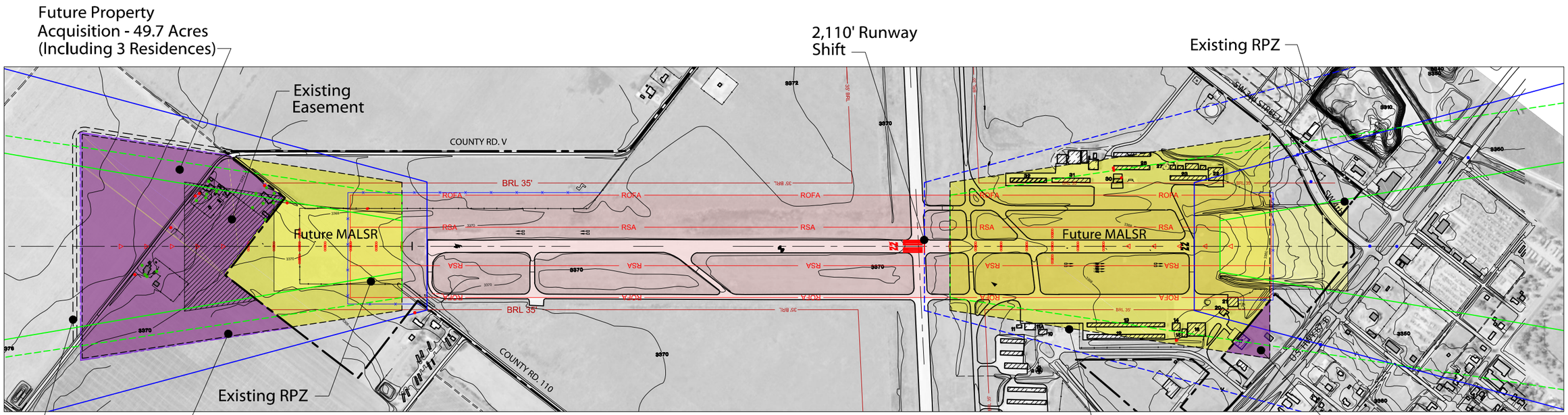
PROCEDURE IMPROVEMENTS ALTERNATIVE TWO, graphically portrays the proposed instrument approach improvements.

Runway Protection Zones. With this alternative's lowered visibility minimums to ½-mile, the RPZs increase in size to 1,000' x 2,500' x 1,750'. The increased size and initiation of nonconforming RPZ land use review dictates the Runway 22 threshold be relocated by 2,110 feet. The increased size of the Runway 22 RPZ at this location would encompass Hangars #12 through #17, #20 through #35, thus requiring the removal of all the structures. Additionally, this alternative would severely limit the amount of landside development/redevelopment space available in both the south and north development areas. The increased size of the Runway 4 RPZ would encompass approximately 49.7 acres and three residences beyond existing airport property.

Threshold Siting. The increased size of the Runway 22 RPZ and initiation of nonconforming RPZ land use review associated with this alternative dictates that this runway threshold must be relocated by 2,110 feet to accommodate the future RPZ between existing airport property and the U.S. Highway 87B/Interstate 27B ROW. This will provide the Airport development control and ensure future land uses conform to RPZ functions. The Runway 22 future threshold siting surface for this alternative utilizes a slope 34:1, as opposed to the 20:1 slope used for IAP of the preceding alternative. Application of this approach slope at the future location of the Runway 22 threshold indicates that there are no obstruction penetrations. Property acquisition results in the removal of all structures, poles, or trees that penetrate the future threshold siting surface associated with Runway 4.

Departure Runway End. At the Runway 22 end, the future departure runway end surface clears all objects within this area. At the Runway 4 end, the future departure surface is penetrated by the pole located south of County Road 110.

Approach Lighting. FAA AC 150/5300-13A indicates that an APV with visibility minimums as low as ½-mile and a minimum HATh of 250 feet can be implemented to Runway 22, but a full ALS such as a MALSR, SSALR, ALSF-1, or ALSF-2 is required. This same AC also indicates that the existing LPV



Existing & Future Runway 4/22 - Plan View

Scale 1"=800'

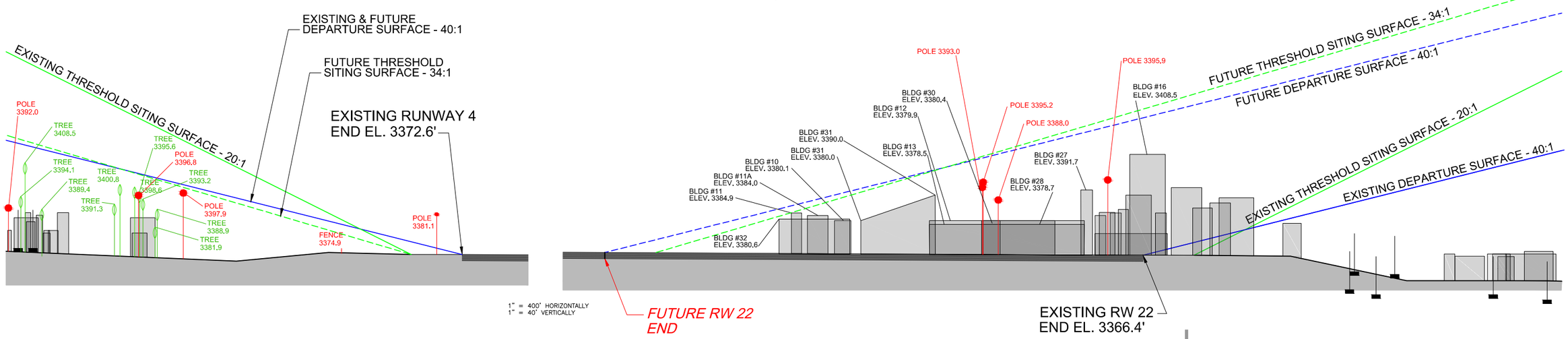


Figure D4 **Instrument Approach Procedure Improvements - Alternative Two**

approach to Runway 4 can provide visibility minimums as low as ½-mile and a HATh minimum of 200 feet with the installation of a full ALS (i.e., ALSF-1, ALSF-2, SSALR, or MALSR).

Property Acquisition. A minimum fee simple title purchase of approximately 1.7 acres within the future Runway 22 RPZ and approximately 49.7 acres (including three residences) within the future Runway 4 RPZ is required for the implementation of this alternative.

Development Items. Major development items associated with this alternative include:

- Runway 22 threshold relocation of 2,110 feet.
- Purchase of a minimum 1.7 acres in fee simple title within the future Runway 22 RPZ.
- Purchase of a minimum 49.7 acres in fee simple title within the future Runway 4 RPZ (including three residences).
- Removal or relocation of Hangars #12 through #17 and #20 through #35.
- Relocate approximately 3,900 linear feet of County Road V.
- Installation of Full ALS to both Runways 4 and 22.

Landside Development Issues, Alternatives, and Recommendations

The overall objectives of the Hale County Airport landside development plan are the provision of facilities that are conveniently located, accessible to the community, maximize the economic viability of the Airport, and accommodate the specific requirements of airport users and tenants.

Landside Development Concepts

For purposes of the Master Plan, landside facilities are categorized into four generalized development groups, described in the following text.

Aviation Use

Development areas related to aircraft storage and handling, requiring direct airfield access, consists of facilities such as aprons, hangars, and access taxiways. There are two primary concepts that influence

the ability to designate areas for aviation use. First, an area must be located beyond protected airfield spaces such as runways, taxiways, RPZs, and other approach protection areas. Second, the areas must have physical attributes that make airfield access economically feasible.

The future development of hangars at Hale County Airport will be demand driven. Therefore, the number, size, and location of these facilities will vary depending upon the demand for specific hangars at the time, and the development plan should be flexible enough to accommodate a variety of user groups. Additionally, there are important development guidelines that the Airport Sponsor should consider when making hangar placement decisions, including:

- Each executive/corporate hangar should be supplied with taxiway access that is separated from automobile access and adjacent automobile parking. This is more efficiently accomplished when a row of hangars is developed and provided with taxiway access on one side and automobile access/parking on the other side.
- It is most efficient to "double load" both the taxiway access and the automobile access routes with hangars. More specifically, the access taxiways/taxilanes should be lined with hangars on both sides and the automobile roadways/parking areas should also be lined with hangars on both sides. Typically, the spacing between the hangars is dictated by the clear width door design of the hangars, with a Taxilane Object Free Area (TOFA) width specified based on the Airplane Design Group (ADG) of the design aircraft anticipated to use the hangar area.
- Each T-hangar should be nested and developed with taxiway access to both sides of the hangar. Controlled automobile access should be provided to the taxiway/apron area near the T-hangars, and a public access parking area provided near the T-hangar facilities to accommodate both users and visitors.

Aviation-Related or Aviation-Compatible Use

Development areas consisting of facilities that may benefit from close proximity to airport facilities, but do not require direct airfield access, such as commercial, office, and/or light industrial facilities

that are compatible with airport operations and surrounding land uses. These areas should generate revenue to the Airport and should be marketed as potential revenue producing properties. Development concepts used to designate aviation-related or aviation-compatible use include areas beyond protected airfield spaces that cannot be easily developed for aviation uses because of physical constraints such as topography, floodplains/drainage ways, major roadways, or because airside access would be cost prohibitive.

Aviation Support

Facilities that are required for airports to operate properly but do not relate directly to aircraft storage and handling and are not part of the airfield system. Such facilities usually consist of fuel storage and dispensing, Airport Traffic Control Towers (ATCTs), on- and off-airport fire protection facilities, and airport maintenance/storage facilities. Development concepts for space allocation include airfield proximity that does not encroach into or hindering prime aviation use development areas. For purposes of this Master Plan, fuel storage and dispensing and maintenance/storage facilities are the only aviation support functions requiring attention.

Generally, there are two means of storing and dispensing fuel on airports: self-serve fuel islands on or near aprons, or remote storage areas utilizing on-airport mobile refueling trucks to provide fuel to parked aircraft. Regardless of the type used, the facilities should provide adequate landside access and ample maneuvering space for tankers delivering fuel to the site. The delivery tankers should be segregated, to the maximum extent possible, from both aircraft storage areas and other vehicles accessing the Airport. Fuel storage and dispensing facilities must also be sited, operated, and maintained to meet local fire protection standards and the standards contained in the most recent edition of the National Fire Prevention Association (NFPA) 407, *Standard for Aircraft Fuel Servicing*.

Airport Infrastructure Development

Future airport development requires the provision of access roadways, utilities, and stormwater management facilities. These future infrastructure requirements will be incorporated into the preparation of both the airside and landside development concepts.

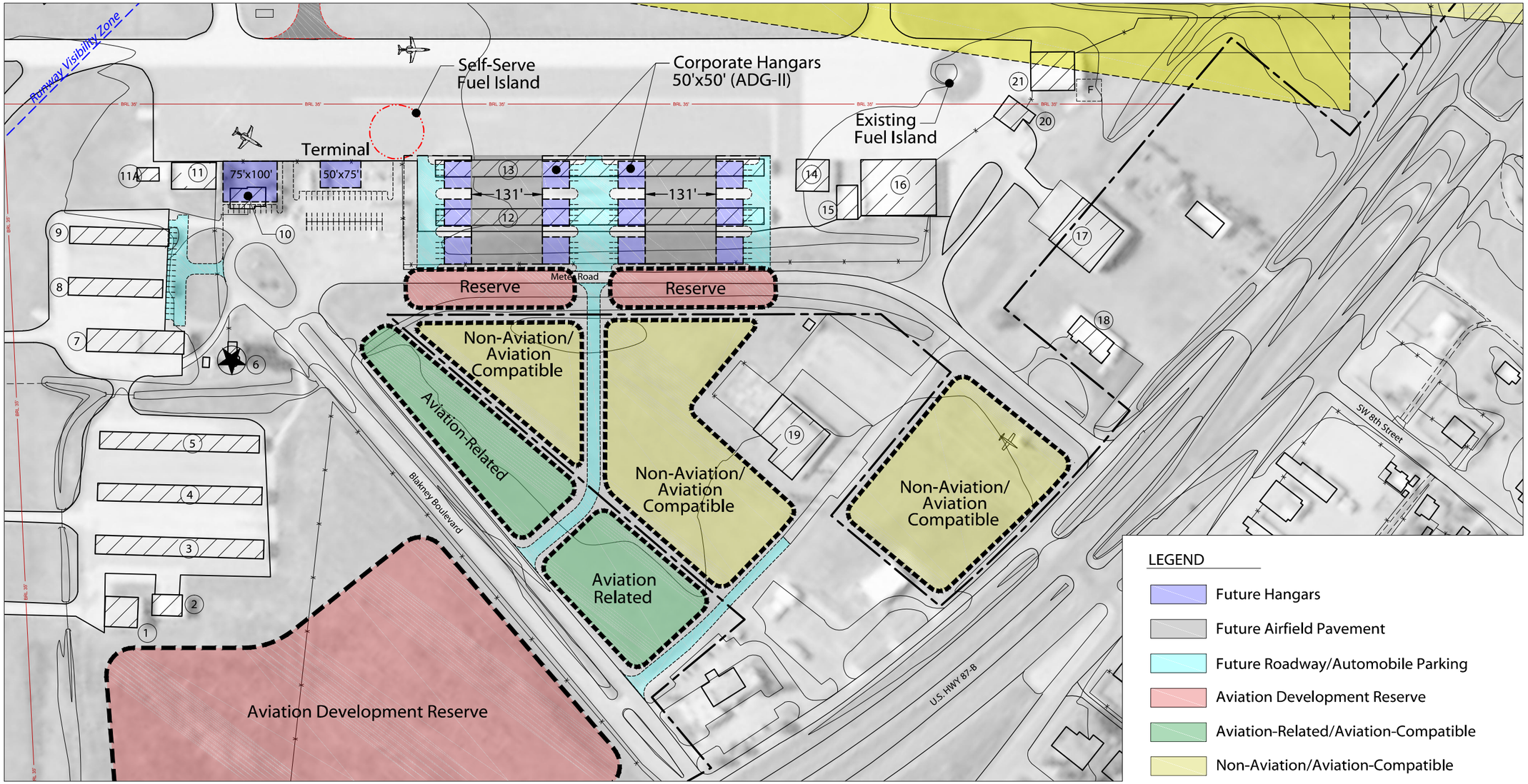
Landside Development Alternatives

Based upon input received from the Airport Sponsor and users, and the projected aircraft storage improvements needed to serve the aviation users, the South Development Area is the primary development area for landside facilities. However, the North Development Area will continue to be used; although, it is believed that smaller general aviation development will be predominant in this area as more and more airport functions transition to the South Development Area. The following landside alternatives are presented for consideration. It should be noted that the alternatives are only possible with the retention of the existing IAP visibility minimums to Runway 22. If an IAP with visibility minimums lower than one mile is implemented, as presented earlier, much of the landside development areas are unavailable for development/redevelopment because of the increased size of the RPZ.

South Landside Development Alternative One

Alternative One, illustrated in the following figure entitled *SOUTH LANDSIDE DEVELOPMENT ALTERNATIVE ONE*, proposes the redevelopment of the existing terminal building with a large storage hangar (i.e., 75' x 100' range, sized to accommodate Learjet 45 business jet aircraft) adjacent to the existing apron. The vacant area just to the northeast is proposed for a new terminal building, which provides excellent airside visibility and ample space for vehicular parking. A self-serve fuel island is proposed for inclusion in the apron area near the terminal building. Redevelopment of Hangars #12 and #13 into individually-owned corporate hangars meeting ADG-II dimensional standards is recommended. Aligning the corporate hangars with taxilane access perpendicular to the runway/taxiway system maximizes future expansion capabilities.

Corporate hangar aviation reserve space is allocated southeast of Meter Road within existing airport property. This expansion is made possible with the closing of Meter Road and the provision of a future road providing vehicle access from Blakney Boulevard to the interior row of hangars. Future aviation development reserve is shown southeast of Hangars #1 and #2, between Blakney Boulevard, U.S. Highway 87B/Interstate 27B, and Taxiway D. Aviation-related/aviation-compatible development is proposed in the area north of Blakney Boulevard within airport property, and non-aviation/aviation-compatible development is provided southeast of the corporate hangar aviation



Scale 1"=200'

Figure D5 **South Landside Development Alternative One**

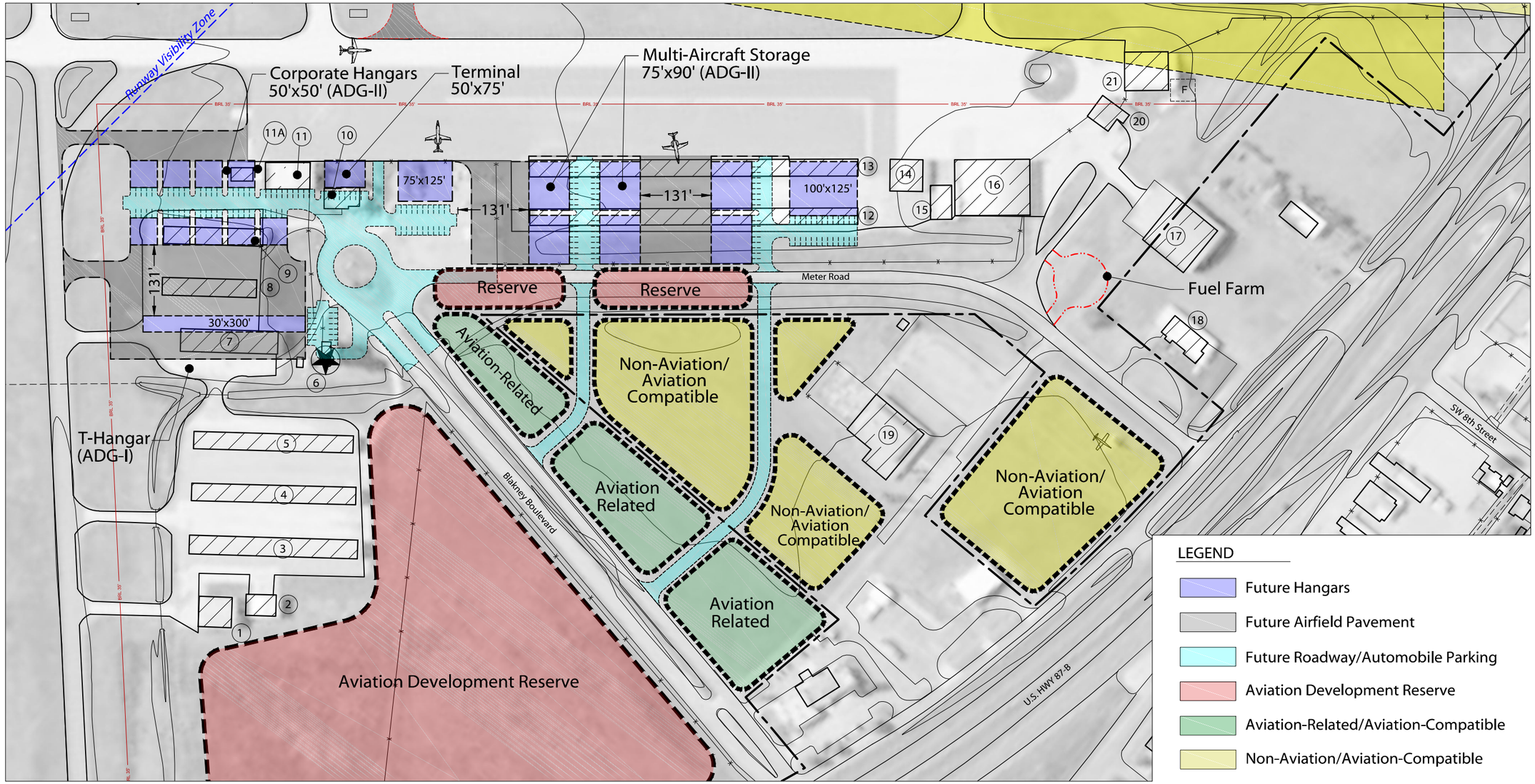
reserve beyond airport property. Non-aviation/aviation compatible development is also proposed at the southwest corner of the intersection of Meter Road and U.S. Highway 87B/Interstate 27B. This development could include a light industrial complex or small office park.

South Landside Development Alternative Two

This alternative, illustrated in the figure entitled *SOUTH LANDSIDE DEVELOPMENT ALTERNATIVE TWO*, proposes the redevelopment of the existing terminal building with a new terminal building northeast of Hangar #11, utilizing the existing apron for aircraft parking. As with Alternative One, a large aircraft storage hangar (i.e., 75' x 100' range) is provided adjacent the apron and northeast of the proposed new terminal building. Alternative Two segregates the fuel storage area from the aircraft parking apron by locating the facility east of Hangar #16. Sited here, the delivery tankers could have adequate maneuvering room, with access provided by Meter Road, which further segregates the tankers from other airport user vehicles. An on-airport mobile fueling truck would be required to deliver the fuel to parked aircraft.

Within the space occupied by T-hangars #12 and #13, this alternative proposes the development of multi-aircraft storage hangars (i.e., 75' x 90' range), which are also oriented with taxilane access perpendicular to the runway/taxiway system to maximize future expansion capabilities. A large storage/FBO hangar is illustrated at the northeast edge of this redevelopment area adjacent to the apron.

Southwest of Hangar #11, Alternative Two proposes the redevelopment of Hangars #7, #8, and #9 with individually-owned corporate hangars designed to ADG-II standards and one T-hangar designed to ADG-I standards. Future aviation development area is reserved southeast of Hangars #1 and #2, between Blakney Boulevard, U.S. Highway 87B/Interstate 27B, and Taxiway D, as well as the area immediately southeast of Meter Road within airport property. Aviation-related/aviation-compatible development is proposed in the area north of Blakney Boulevard on airport property. Southeast of the aviation development reserve space, this alternative proposes non-aviation/aviation compatible (i.e., light industrial or office park development) outside of airport property utilizing the proposed



Scale 1"=200' N

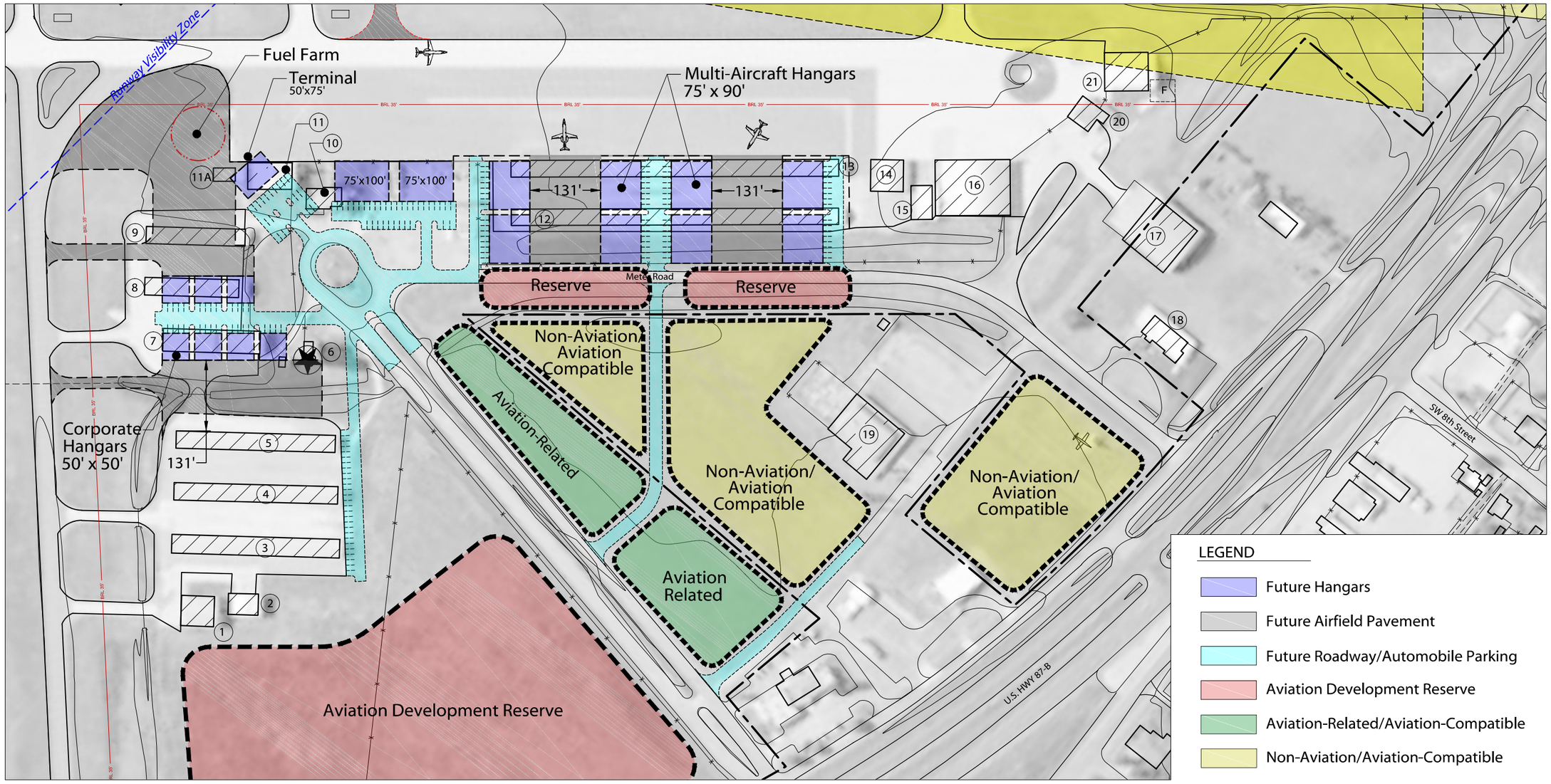
Figure D6 **South Landside Development Alternative Two**

roadway network for vehicular access. This same development category is also proposed for the southwest corner of the intersection of Meter Road with U.S. Highway 87B/Interstate 27B.

South Landside Development Alternative Three

Alternative Three, presented in the following figure entitled *SOUTH LANDSIDE DEVELOPMENT ALTERNATIVE THREE*, proposes the redevelopment of the existing terminal building, Hangar #11, and Building #11A with a new terminal building and ample apron space. In this location, the proposed terminal building offers excellent airside and landside visibility, facing the intersection of the runways, visible from every runway threshold, and sited at the terminus of Blakney Boulevard. It would become the focal point of the entire airport complex. Within the new apron space, a self-serve fueling island is proposed near the new terminal building.

Between the proposed terminal building and Hangar #14, this alternative proposes the redevelopment of Hangars #12 and #13 with a variety of hangars, including larger storage/FBO hangars (ranging in size from 75' x 100' to 100' x 150') and individually-owned corporate hangars designed to ADG-II standards. These hangars would be provided landside access via Meter Road. As with Alternative One, corporate hangar aviation reserve space is allocated southeast of Meter Road within airport property, made possible with the closing of Meter Road. Southeast of the proposed terminal building, redevelopment of T-hangars #7, #8, and #9 with a large aircraft storage hangar (i.e., 75' x 100' range) is proposed and a T-hangar designed to ADG-I standards. Taxiway access to these hangars is made possible by a connection with Taxiway D. As with the other two alternatives, future aviation development reserve is shown southeast of Hangars #1 and #2, between Blakney Boulevard, U.S. Highway 87B/Interstate 27B, and Taxiway D, and aviation-related/aviation-compatible development is proposed in the area north of Blakney Boulevard on airport property. Non-aviation/aviation-compatible development is proposed outside airport property south of Meter Road, north of Blakney Boulevard (i.e., light industrial or office park development). The same development is proposed for the southwest corner of the intersection of Meter Road and U.S. Highway 87B/Interstate 27B.



Scale 1"=200'

Figure D7 **South Landside Development Alternative Three**

North Landside Development Alternative One

The North Development Area Alternative One, illustrated in the following figure entitled *NORTH LANDSIDE DEVELOPMENT ALTERNATIVE ONE*, is a relative status quo development scheme in that most facilities and functions that exist today will remain so in the future. Redevelopment of hangars and buildings in fair to poor condition will occur in generally the same location. T-hangars #28 and #29 will be redeveloped in the same general area, but to meet ADG-I dimensional criteria will require a repositioning to the northwest. Hangars #22 through #27 will be retained in the same location, as will the existing FBO office and fuel dispensing island. Various sized larger storage hangars are proposed southwest of existing hangar #36. However, because of existing hangar siting limitation, only ADG-I aircraft are able to access this area. Aviation development reserve is shown northwest of the redeveloped T-hangars and larger storage hangars. Aviation-related/aviation-compatible development is reserved northwest of the aviation development reserve, adjacent to SW 3rd Street.

North Landside Development Alternative Two

This North Development Area alternative, provided in the figure entitled *NORTH LANDSIDE DEVELOPMENT ALTERNATIVE TWO*, proposes major redevelopment, assuming that the existing aircraft servicing and fueling functions transition to the South Development Area. Hangars #22 through #27 are proposed to be removed/relocated and their functions replaced with similar hangar storage spaces. Using these assumptions, redevelopment of T-hangars #28, #29, and the FBO office with corporate hangars meeting ADG-II design criteria is proposed. Taxilane access is perpendicular to the runway/taxiway system, maximizing future expansion capabilities. Future T-hangars, developed to ADG-I design standards, are proposed northwest of existing T-hangar #32. Aviation development reserve is suggested northwest of the corporate hangars and the future T-hangars. Aviation-related/aviation-compatible development is planned for implementation between the existing larger storage hangars, SW 3rd Street, and Miller Boulevard.

North Landside Development Alternative Three

The North Development Area Alternative Three also proposes substantial redevelopment using the assumption that the existing aircraft servicing and fueling functions transition to the South

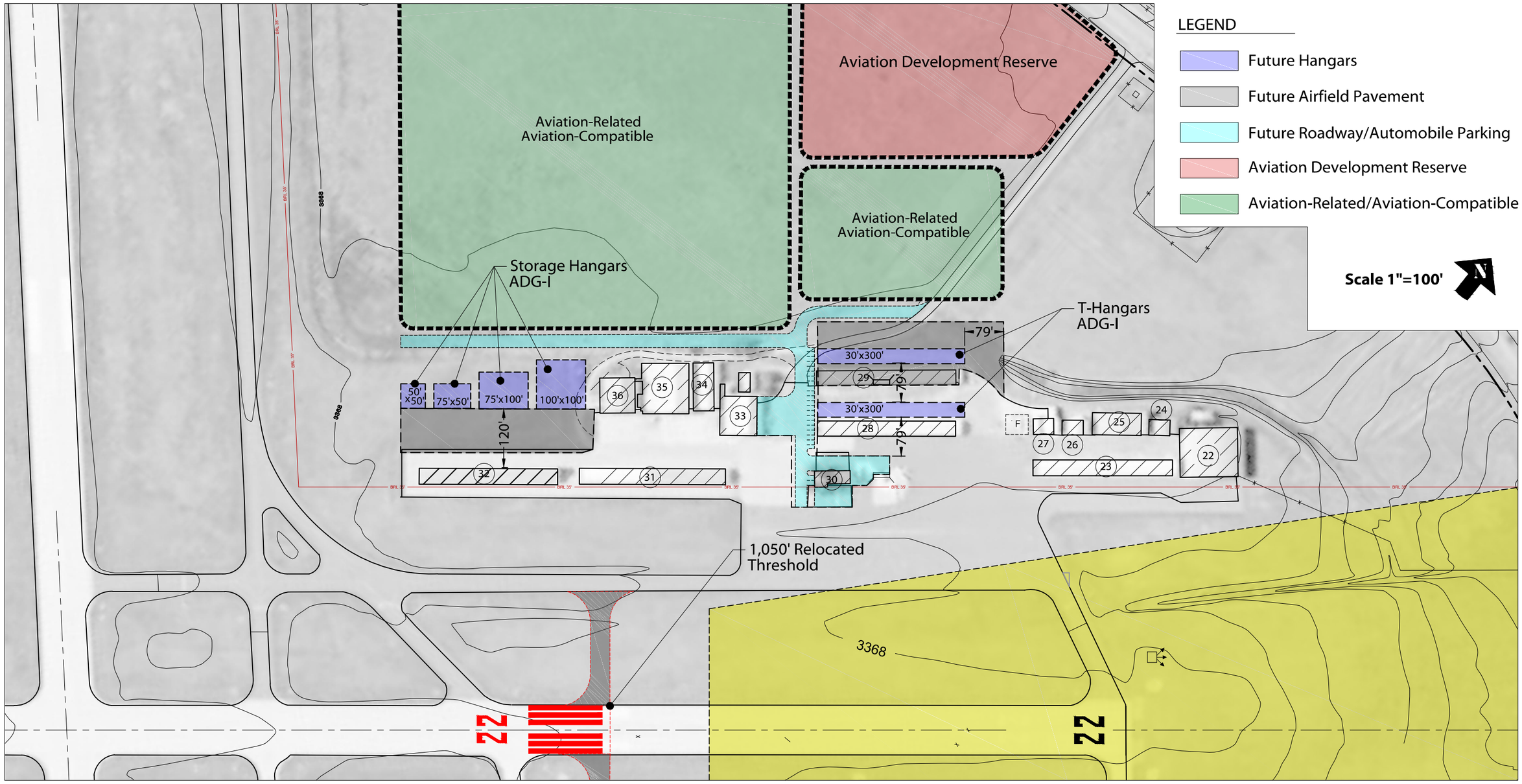


Figure D8 **North Landside Development Alternative One**

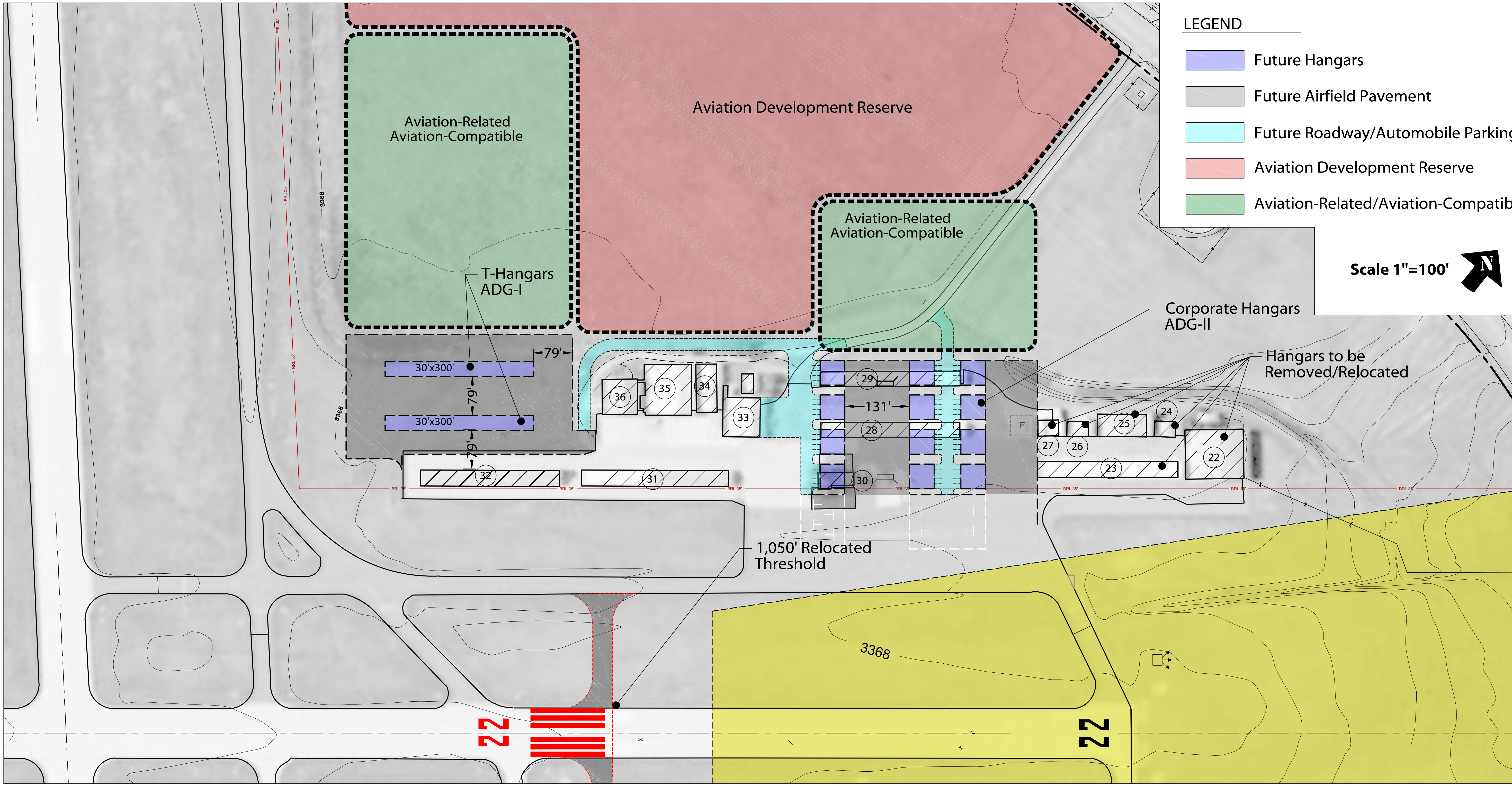


Figure D9 **North Landside Development Alternative Two**

Development Area. Again, Hangars #22 through #27 are expected to be removed/relocated and their functions replaced with similar hangar storage spaces with this alternative. Redevelopment of T-hangars #28, #29, and the FBO office with corporate hangars and one larger aircraft storage hangar meeting ADG-II design criteria is proposed. However, taxilane access is not perpendicular to the runway/taxiway system, thus limiting future expansion capabilities to that shown on the figure. Future T-hangars, developed to ADG-I design standards, are proposed northwest of existing T-hangar #32, although oriented perpendicular to the existing T-hangars. Aviation development reserve is suggested northwest of the future T-hangars. Aviation-related/aviation-compatible development is reserved for the entire area between the existing larger storage hangars, SW 3rd Street, and Miller Boulevard. This alternative is illustrated in the following figure entitled *NORTH LANDSIDE DEVELOPMENT ALTERNATIVE THREE*.

Conceptual Development Plan

The proposed alternatives were intended to provide a variety of options for future facility expansion and improvement. Following a careful assessment of the advantages and disadvantages of each airside and landside development alternative, the recommended improvements are presented in the following illustration entitled *CONCEPTUAL DEVELOPMENT PLAN*. The *Conceptual Development Plan* will be confirmed and presented in the *Airport Plans* chapter of this document to represent the ultimate airport configuration.

Airside Development Summary

The recommended airside development at Hale County Airport involves using ultimate dimensional standards associated with RDC C-II, a runway length of 7,600 feet, and IAP improvements with visibility minimums as low as ¾-mile to Runway 4. It is not recommended that a lower visibility minimum IAP be proposed for Runway 22. As presented earlier, to implement RDC C-II dimensional standards, the Runway 22 threshold will require relocation by 1,050 feet to ensure conforming land uses within the future RPZ. In conjunction with the relocated Runway 22 threshold, and to preserve and protect for an ultimate runway length of 7,600 feet, the runway will require an extension of 2,655 feet to the southwest. Implementing the IAP with visibility minimums

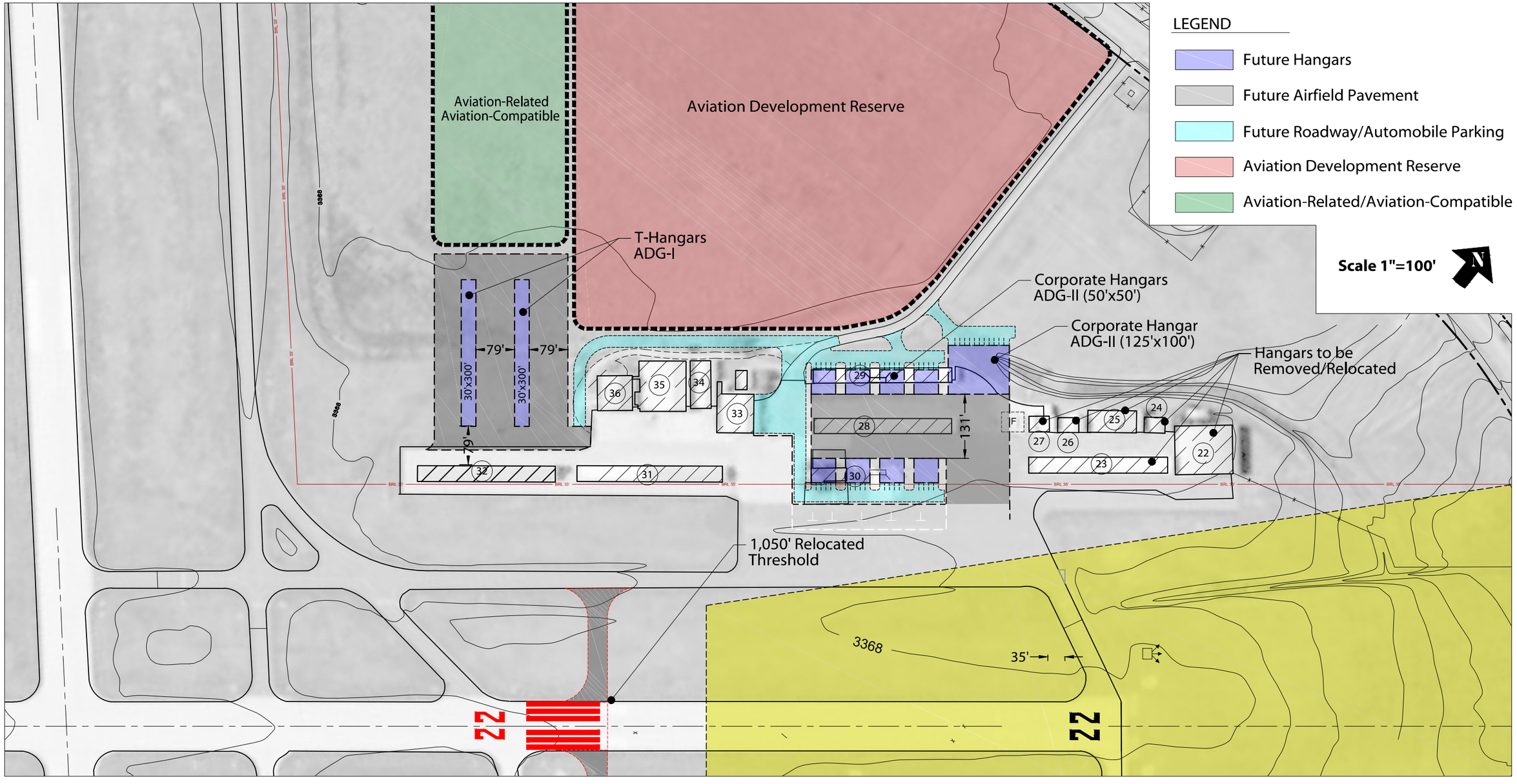
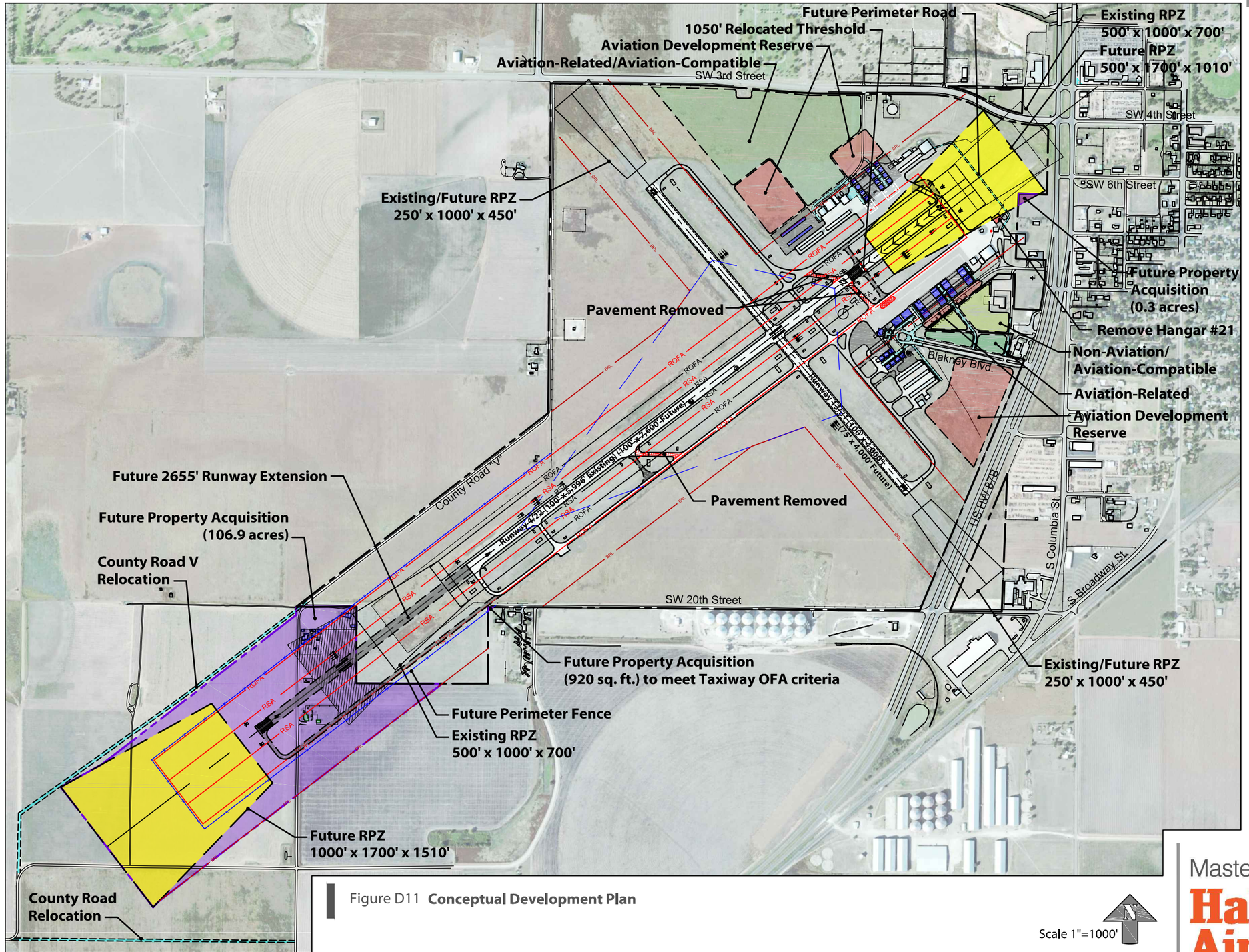


Figure D10 **North Landside Development Alternative Three**



LEGEND

- Future Hangars
- Future Airfield Pavement
- Future Roadway/Automobile Parking
- Future Runway Protection Zone
- Future Property Acquisitions
- Aviation Development Reserve
- Aviation-Related/Aviation-Compatible

Figure D11 **Conceptual Development Plan**

Scale 1"=1000'

Master Plan
Hale County Airport

as low as ¾-mile to Runway 4 will necessitate the acquisition of an additional 107 acres of airport property and three residences. Additionally, approximately 4,000 linear feet of County Road V and 2,750 linear feet of County Road 110 will need to be relocated beyond the RPZ boundary to comply with RPZ conforming land use requirements.

Runway 13/31 will be maintained to RDC B-II standards with no planned instrument approach procedure improvements (i.e., visual approaches will be retained). The runway width will be reduced to 75 feet.

Recommended taxiway system improvements include the replacement of stub Taxiway A northwest of the Runway 22 threshold with a 90° entrance taxiway (Taxiway B), the removal of Taxiway C, and the replacement of Taxiway E with a 90° exit taxiway. The Runway 22 threshold entrance taxiways will be replaced in conjunction with the runway end relocation. Taxiway A will be extended in conjunction with the future runway extension.

Landside Development Summary

The recommended development for the South Development Area is a variant of Alternative Three. The improvements include the proposed terminal building located at the southwest end of the existing apron, at the terminus of Blakney Boulevard. Larger service or storage/FBO hangars can be sited to the northeast of the future terminal, with additional multi-aircraft storage hangars replacing T-hangars #12 and #13. Smaller, individually-owned corporate hangars and T-hangars can be provided southeast of the future terminal building with airside access provided by Taxiway D. Additionally, until a self-serve fueling island is provided in the South Development Area, an all-weather perimeter road is needed around the northeast end of Runway 22. Since the mobile refueling trucks are not license for public roadways, this road will allow the mobile refueling trucks access from the North Development Area (where the fuel tanks are located) to the South Development Area (where many of the aircraft are located that purchase fuel) without leaving airport property and avoid crossing an active runway and taxiway system.

The proposed plan for the North Development Area is a variant of Alternative Two. Corporate hangars are proposed to replace T-hangars #28 and #29, and eventually the FBO office and fuel island as these functions and services are transitioned to the South Development Area. The variation of Alternative Two is to retain hangars #22 through #27.

Master Plan

Hale County Airport

Airport Plans

Airport Plans

INTRODUCTION. Previous chapters of this Master Plan have established and quantified the future development plans for the Hale County Airport. This chapter presents the various individual drawings associated with the Airport Layout Plan (ALP) drawing set that graphically depicts the proposed facilities expansion and improvements necessary for the City of Plainview and Hale County to meet the aviation demand through the 20-year planning period. A brief written description accompanies the drawings.

Airport Layout Drawing

The *AIRPORT LAYOUT DRAWING*, presented in the following figure, is a graphic depiction of all existing and ultimate airside and landside facilities combined with the detailed dimensional standards that define the relationship between facilities and applicable FAA design criteria.

Runway System

Design Standards

An ARC of B-II will be maintained throughout the planning period, but ARC C-II will be planned and protected for long-term implementation. The existing Runway 4/22 RDC will be maintained to B-II with one mile visibility standards. A RDC of C-II with ¾-mile visibility standards will be planned and protected for future implementation. The Runway 13/31 RDC will remain B-II with visual approach standards.

Dimensions

Runway 4/22 width will be maintained at 100 feet, while a minimum length of 6,000 feet will be preserved. An ultimate runway length of 7,600 feet will be planned and protected for future implementation. The existing Runway 13/31 length will be retained at 4,000 feet in length and the width will be reduced to 75 feet in accordance with RDC B-II standards.

RUNWAY DATA TABLE

	RW 4–22				RW 13–31			
	EXISTING		ULTIMATE		EXISTING		ULTIMATE	
RUNWAY ARC	B–II		C–II		B–II		B–II	
DESIGN AIRCRAFT & ARC	CESSNA CITATION 550		LEAR 45, CESSNA CITATION 550		BEECH SUPER KING AIR 200		BEECH SUPER KING AIR 200	
BALANCED FIELD LENGTH	3600' (C550*)		4350' (LEAR45**)		2579'		2579'	
RUNWAY LENGTH & WIDTH (ft.)	5996' X 100'		7600' X 100'		4000' X 100'		4000' X 75'	
PAVEMENT DESIGN STRENGTH (lbs.)	34,500 SW/46,000 DW		71,000 SW/91,000 DW		16,500 SW		16,500 SW	
RUNWAY LIGHTING	MIRL		MIRL		MIRL		MIRL	
PERCENT EFFECTIVE GRADIENT	0.127%		0.124%		0.013%		0.013%	
PERCENT WIND COVERAGE	97.49% (16–KNOT)		97.49% (16–KNOT)		88.91% (13–KNOT)		88.91% (13–KNOT)	
MAXIMUM ELEVATION ABOVE MSL	3374.0'		3374.0'		3372.4'		3372.4'	
RW SURFACE TYPE	ASPH		ASPH		ASPH		ASPH	
RSA – LENGTH BEYOND RW END	300'		1000'		300'		300'	
RSA – WIDTH	150'		500'		150'		150'	
OFA – LENGTH BEYOND RW END	300'		1000'		300'		300'	
OFA WIDTH	500'		800'		500'		500'	
OFZ – LENGTH BEYOND RW END	200'		200'		200'		200'	
OFZ WIDTH	400'		400'		400'		400'	
RUNWAY END	4	22	4	22	13	31	13	31
APPROACH TYPE	VOR,GPS	GPS	VOR,GPS	GPS	VISUAL	VISUAL	VISUAL	VISUAL
APPROACH VISIBILITY MINIMA	1 MILE	1 MILE	3/4 MILE	1 MILE	VISUAL	VISUAL	VISUAL	VISUAL
THRESHOLD SITING SURFACE & SLOPE	#5 20:1	#5 20:1	#6 20:1	#5 20:1	#3 20:1	#3 20:1	#3 20:1	#3 20:1
RUNWAY MARKING	NP	NP	NP	NP	NP	NP	V	V
RUNWAY VISUAL AIDS	VASI, REIL	VASI, REIL	PAPI,REIL	PAPI,REIL	NONE	NONE	PAPI	PAPI
TOUCHDOWN ZONE ELEVATION	3374.0'	3373.3'	3377.2'	3373.2'	3372.4'	3372.4'	3372.4'	3372.4'
FAR PART 77 APPROACH CATEGORY	C	C	D	C	B (V)	B (V)	B (V)	B (V)
FAR PART 77 APPROACH SURFACE SLOPE	34:1	34:1	34:1	34:1	20:1	20:1	20:1	20:1
TAKE–OFF RUN AVAILABLE (TORA)	5996'	5996'	7600'	7600'	4000'	4000'	4000'	4000'
TAKE–OFF DISTANCE AVAILABLE (TODA)	5996'	5996'	7600'	7600'	4000'	4000'	4000'	4000'
ACCELERATE STOP DISTANCE AVAIL. (ASDA)	5996'	5996'	7600'	7600'	4000'	4000'	4000'	4000'
LANDING DISTANCE AVAILABLE (LDA)	5996'	5996'	7600'	7600'	4000'	4000'	4000'	4000'

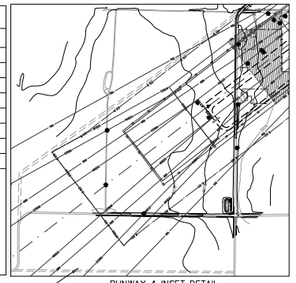
* Cessna Citation 550 – International Standard Atmosphere (ISA), sea level, 15° Flaps, maximum takeoff weight.
** Lear 45 – International Standard Atmosphere (ISA), sea level, maximum takeoff weight.

RUNWAY END COORDINATES AND ELEVATIONS

RUNWAY END	LATITUDE	LONGITUDE	ELEVATION
EXISTING END OF RUNWAY 4	34°09'44.640" N	101°43'33.321" W	3372.6'
ULTIMATE END OF RWY 4	34°09'28.012" N	101°43'57.771" W	3377.2'
EXISTING END OF RWY 22	34°10'22.189" N	101°42'38.081" W	3366.4'
ULTIMATE END OF RWY 22	34°10'15.608" N	101°42'47.759" W	3367.8'
EXISTING END OF RUNWAY 13	34°10'22.921" N	101°43'13.366"W	3372.4'
EXISTING END OF RWY 31	34°09'53.504" N	101°42'41.536" W	3372.4'

SOURCE:
NGS 405 05/98 (NAD 83/NAVD88)

COMMENTS



RUNWAY 4 INSET DETAIL
(NTS)

BUILDING TABLE

BUILDING NUMBER	DESCRIPTION	TOP ELEVATION
1	HANGAR	3391.7'
2	HANGAR	3392.1'
3	T–HANGAR	3382.5'
4	T–HANGAR	3382.7'
5	T–HANGAR	3381.8'
6	ATCT & BEACON	3432.7'
7	T–HANGAR (TO BE REMOVED)	3389.3'
8	T–HANGAR (TO BE REMOVED)	3381.5'
9	T–HANGAR (TO BE REMOVED)	3381.5'
10	TERMINAL (TO BE REMOVED)	3380.1'
11	HANGAR (TO BE REMOVED)	3389.5'
11A	STORAGE (TO BE REMOVED)	3384.9'
12	T–HANGAR (TO BE REMOVED)	3379.9'
13	T–HANGAR (TO BE REMOVED)	3378.5'
14	HANGAR	3383.4'
15	HANGAR	3384.3'
16	HANGAR	3396.9'
17	HANGAR	3392.3'
18	BUSINESS OFFICE	3378.4'
19	NATIONAL GUARD ARMORY	3391.7'
20	FBO OFFICE	3376.3'
21	HANGAR (TO BE REMOVED)	3390.2'
22	HANGAR	3396.4'
22A	STORAGE BUILDING	3380.2'
23	T–HANGAR	3378.2'
24	HANGAR	3382.9'
25	HANGAR	3390.0'
26	HANGAR	3383.3'
27	HANGAR	3381.9'
28	T–HANGAR (TO BE REMOVED)	3378.3'
29	T–HANGAR (TO BE REMOVED)	3376.5'
30	FBO OFFICE (TO BE REMOVED)	3380.4'
31	T–HANGAR	3380.7'
32	T–HANGAR	3380.6'
33	HANGAR	3386.3'
34	HANGAR	3382.9'
35	HANGAR	3389.2'
36	HANGAR	3393.0'

AIRPORT DATA TABLE

	EXISTING	ULTIMATE
AIRPORT ELEVATION (MSL)	3374.0'	3377.2'
AIRPORT NAVIGATION AIDS	VOR, GPS	VOR, GPS
MEAN MAX TEMP (Hottest Month °F)	92°	92°
AIRPORT REFERENCE CODE (ARC)	B–II	C–II
TAXIWAY MARKING	CENTERSTRIPE	CENTERSTRIPE
TAXIWAY LIGHTING	NONE	LITL
AIRPORT REFERENCE POINT COORDINATES	34°10'05.3" N	34°09'57.46" N
	101°43'02.4" W	101°43'14.04" W

NOTES
DATUM COORDINATE SYSTEMS – HORIZONTAL DATUM NAD 1983 State Plane Texas North Central 42025 Feet, VERTICAL DATUM NAVD88.

NO KNOWN OFZ OBJECT PENETRATIONS

TOPOGRAPHICAL DATA TAKEN FROM PREVIOUS HALE COUNTY AIRPORT LAYOUT DRAWING PROVIDED TO TXDOT BY THE BRANNON CORPORATION, MAY 2000. NO ADDITIONAL SURVEY PERFORMED.

CITY OF PLAINVIEW ORDINANCE 04–3437, ADOPTED DECEMBER 14, 2004, ESTABLISHES THE PLAINVIEW/HALE COUNTY AIRPORT ZONING ORDINANCE.

RUNWAY 4/22 EDGE LIGHTS EQUIPPED WITH CAUTION ZONE LIGHTS FOR EACH RUNWAY END.

THE PREPARATION OF THIS DOCUMENT MAY HAVE BEEN SUPPORTED, IN PART, THROUGH THE AIRPORT IMPROVEMENT PROGRAM FINANCIAL ASSISTANCE FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER TITLE 49, UNITED STATES CODE, SECTION 47104. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THIS PLAN BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED THEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS.

ALD LEGEND

FEATURE	EXISTING	ULTIMATE
RUNWAY/TAXIWAY OUTLINE		
RUNWAY/TAXIWAY TO BE REMOVED		
BUILDINGS/FACILITIES		
AIRPORT PROPERTY LINE		
AIRPORT PROPERTY LINE w/FENCE		
FENCE LINE		
BUILDING RESTRICTION LINE (BRL)		
AIRPORT REFERENCE POINT		
WIND CONE & SEGMENTED CIRCLE		
THRESHOLD LIGHTS		
RW END IDENTIFIER LIGHTS (REILS)		
C&G BEACON		
VGSI		
HOLD POSITION AND SIGN		
ASOS/AWOS		
PACS AND SACS MARKERS		
GROUND CONTOURS		
SIGNIFICANT OBJECT LOCATION		
TREES/BRUSH		
NONDIRECTIONAL BEACON (NDB)		

TEXAS DEPARTMENT OF TRANSPORTATION
AVIATION DIVISION

ALP APPROVED ACCORDING TO FAA AC 150/5300–13A, CHANGE 1, PLUS THE REQUIREMENTS OF A FAVORABLE ENVIRONMENTAL FINDING AND FAA NRA STUDY PRIOR TO THE START OF ANY LAND ACQUISITION OR CONSTRUCTION ON AIRPORT PROPERTY.

DAVID FULTON, DIRECTOR, AVIATION DIVISION — DATE

AIRPORT SPONSOR

CURRENT AND FUTURE DEVELOPMENT DEPICTED ON THIS ALP IS APPROVED AND SUPPORTED BY AIRPORT SPONSOR

SPONSOR ACKNOWLEDGES APPROVAL OF ALP BY TXDOT DOES NOT CONSTITUTE A COMMITMENT TO FUNDING.

SIGNATURE — DATE

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1616 E. 15th St.
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phone: 918–585–8844
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R4204600–130016.01

KJM — JUNE 2015
DESIGNED BY — DATE

JWB — JUNE 2015
DRAWN BY — DATE

AIRPORT LAYOUT DRAWING
PLAINVIEW AIRPORT
PLAINVIEW, TEXAS (PVW)

Texas Department of Transportation
Aviation Division

SHEET 2 OF 11

Figure E1 **AIRPORT LAYOUT DRAWING**

Pavement

The existing gross weight bearing capacity of the Runway 4/22 pavement will need to be increased from 34,500 pounds single wheel and 46,000 pounds dual wheel main landing gear configuration to 71,000 pounds single wheel and 91,000 pounds dual wheel main landing gear configuration. The gross weight bearing capacity of the Runway 13/31 pavement will be maintained at 16,500 pounds single wheel main landing gear configuration.

Instrument Approach Procedures

Runway 4 is programmed to have an IAP with visibility minimums not lower than ¾-mile. Runway 22 will retain the existing IAP with visibility not lower than one mile. Runways 13 and 31 will remain visual approaches only.

Runway Protection Zones

The existing RPZ sizes will remain until aviation activity dictates the implementation of RDC C-II standards to Runway 4/22. At that time, the RPZs will increase in size to 500 feet x 1,010 feet x 1,700 feet. When the IAP with visibility minimums not lower than ¾-mile is implemented to Runway 4, then this RPZ size will increase to 1,000 feet x 1,700 feet x 1,510 feet.

Runway Lighting, Marking, and Navigation Aids

The existing MIRL is adequate throughout the planning period, but is dated and will be replaced with updated fixtures. The existing Runway 4/22 non-precision markings are sufficient and no improvements are necessary, with the exception of repainting the markings when pavement rehabilitation occurs, the thresholds are relocated, or the runway is extended. The Runway 13/31 non-precision markings will be replaced with visual markings when the width is reduced to 75 feet and pavement rehabilitation occurs. The existing Runway 4 VASI will be replaced with PAPI and PAPI installation is recommended for Runway 13/31.

Taxiway System

Configuration

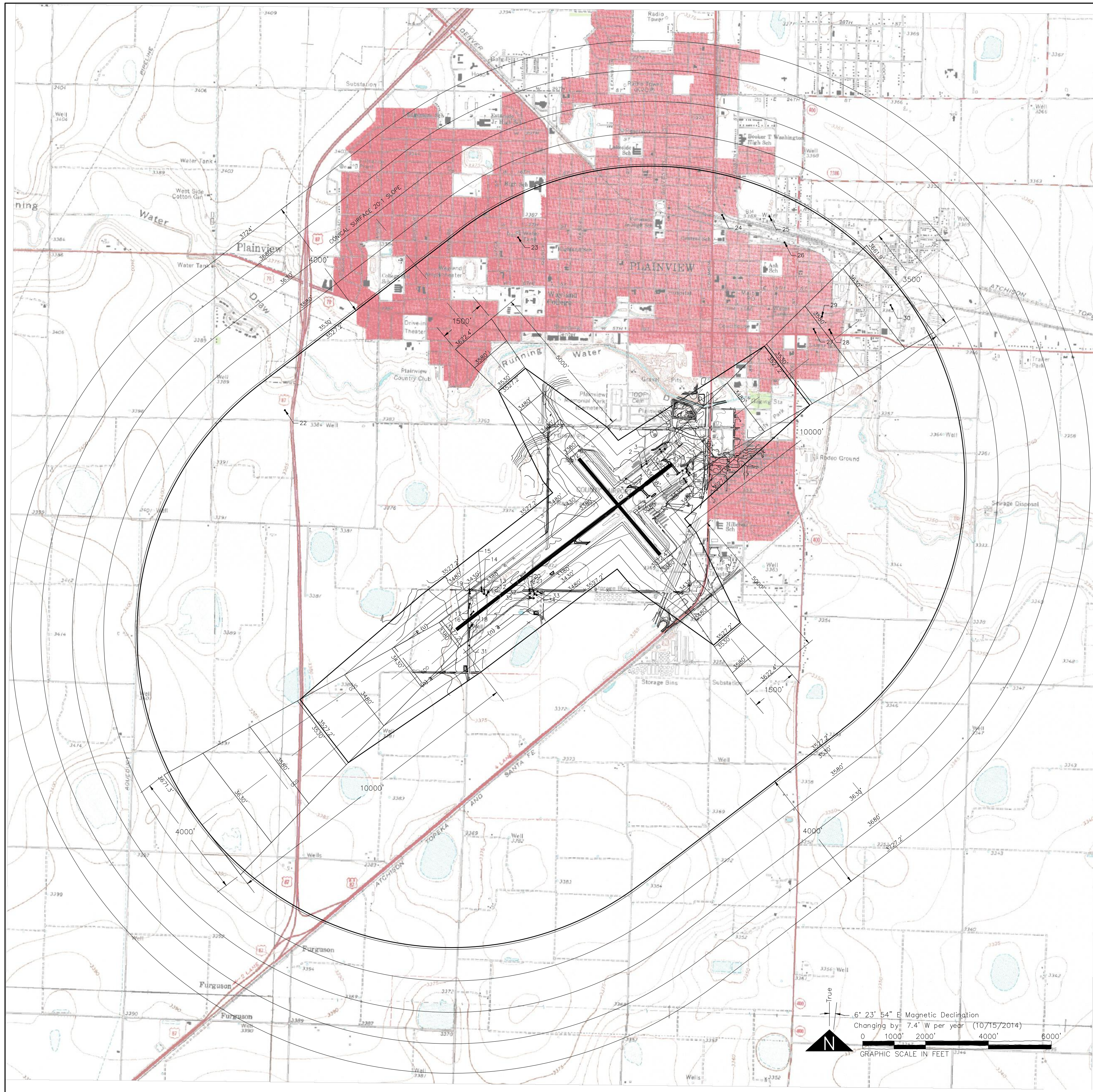
As presented in the previous chapter, Taxiway C will be removed and Taxiway E will be realigned to intersect Runway 4/22 at a 90° angle. The entrance taxiways to the existing Runway 22 threshold

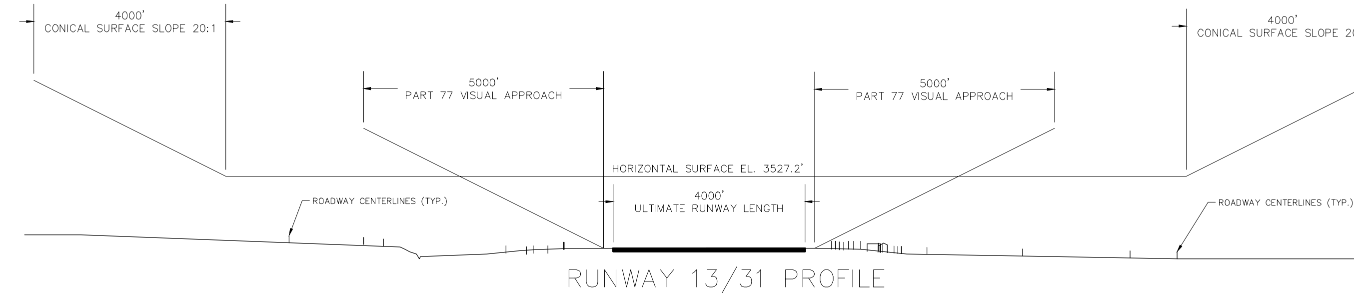
will be abandoned/removed when this threshold is relocated, as will the entrance taxiway to the existing Runway 4 threshold when the runway is extended to the southwest.

Airspace Drawing

The Airspace Drawings are based on Federal Aviation Regulations (FAR) Part 77, *Objects Affecting Navigable Airspace*. The FAR Part 77 criteria have been established to provide guidance in controlling the height of objects near airports in order to protect airspace and approaches from hazards that could negatively affect the safe and efficient operation of aircraft. The criteria specify a set of imaginary surfaces that, when penetrated, designate an object as being an obstruction. However, some obstructions can be determined to be non-hazardous by an aeronautical study by virtue of their location and/or marked and lighted as specified in the aeronautical study determination.

The *AIRPORT AIRSPACE DRAWING* presented in the following figure, provides plan and profile views depicting the FAR Part 77 criteria as they specifically relate to Hale County Airport. FAR Part 77 criteria are based on the ultimate runway configuration and length, the ultimate approach visibility minimums, and the ultimate airport elevation. Therefore, the Runway 4/22 criteria are based on larger than utility category (i.e., runways designated for aircraft weighing more than 12,500 pounds, gross weight) with a non-precision approach having visibility minimums as low as ¾-mile to Runway 4 and a non-precision approach having visibility minimums greater than ¾-mile to Runway 22. The criteria for Runway 13/31 are based on larger than utility category with visual approaches.





RUNWAY 13/31 PROFILE

PENETRATIONS TO PART 77 SURFACES							
NO.	OBJECT DESCRIPTION	SURFACE	DISTANCE FROM EXIST. RW END	OFFSET FROM RW CL	ELEVATION	PENETRATION	REMEDIATION
1	HANGAR #32	TRANS.	-1533'	522' R	3381'	9'	LIGHT
2	HANGAR #31	RW22 APP	-904'	517' R	3390'	17.8'	LIGHT
3	HANGAR #30	RW22 APP	-513'	598' R	3380'	6.1'	LIGHT
4	HANGAR #23	RW22 APP	78'	517' R	3378'	-17.1	LIGHT
5	HANGAR #25	RW22 APP	95'	600' R	3390'	-5.3'	LIGHT
6	HANGAR #22	RW22 APP	225'	516' R	3396'	0.2'	LIGHT
7	HANGAR #16	RW22 APP	132'	598' L	3409'	12.6'	LIGHT
8	POST	RW22 APP	253'	368' L	3371'	-24.7'	REMOVE
9	OFFICE #20	RW22 APP	333'	480' L	3388'	-10.8'	LIGHT
10	POLE	RW22 APP	380'	395' L	3388'	-11.5'	REMOVE
11	HANGAR #21	RW22 APP	378'	444' L	3394'	-5.6'	REMOVE
12	POLE	PRIMARY	-598'	311' L	3404'	31'	REMOVE
13	TOWER	PRIMARY	-488'	285' L	3405'	32'	REMOVE
14	TOWER	PRIMARY	-454'	361' L	3404'	31'	REMOVE
15	POLE	PRIMARY	-448'	475' L	3401'	28'	REMOVE
16	POLE	PRIMARY	152'	122' L	3407'	34'	REMOVE
17	POLE	PRIMARY	95'	391' L	3409'	36'	REMOVE
18	POLE	PRIMARY	569'	219' R	3405'	34'	REMOVE
19	POLE	TRANS.	-103'	648' L	3396'	2'	REMOVE
20	TREE	TRANS.	-1618'	519' R	3388'	12'	TRIM/REMOVE
21	TREE	TRANS.	-1834'	613' R	3397'	7'	TRIM/REMOVE
22	TOWER	HORIZ.	1009'	8858' L	3524'	-2'	NONE
23	TANK	HORIZ.	621'	8703' R	3555'	28'	NONE
24	ELEVATOR	HORIZ.	6204'	5313' R	3622'	95'	NONE
25	TOWER	HORIZ.	7375'	4356' R	3583'	56'	NONE
26	ELEVATOR	HORIZ.	7253'	3411' R	3564'	37'	NONE
27	ELEVATOR	HORIZ.	7270'	660' R	3555'	28'	NONE
28	ELEVATOR	HORIZ.	6697'	340' R	3555'	28'	NONE
29	ELEVATOR	HORIZ.	6758'	813' R	3533'	6'	NONE
30	TOWER	HORIZ.	8711'	226' L	3325'	-2'	NONE
SOURCE: FAA DIGITAL OBSTACLE FILE JULY 2013.							
31	POLE	TRANS.	2633'	639' R	3402'	3.0	REMOVE
32	POLE	TRANS.	141'	597' R	3394'	6.2'	REMOVE
33	TREE	TRANS.	-235'	612' R	3403'	12.5'	TRIM
34	TREE	TRANS.	-64'	679' R	3411'	10.4'	TRIM
35	TREE	TRANS.	93'	703' R	3409'	3.9'	TRIM
SOURCE: AIRPORT LAYOUT PLAN BY BRANNON CORP., 2000.							

RUNWAY END COORDINATES AND ELEVATIONS			
RUNWAY END	LATITUDE	LONGITUDE	ELEVATION
EXISTING END OF RUNWAY 4	34°09'44.640" N	101°43'33.321" W	3372.6'
ULTIMATE END OF RWY 4	34°09'28.012" N	101°43'57.771" W	3377.2'
EXISTING END OF RWY 22	34°10'22.189" N	101°42'38.081" W	3366.4'
ULTIMATE END OF RWY 22	34°10'15.608" N	101°42'47.759" W	3367.8'
EXISTING END OF RUNWAY 13	34°10'22.921" N	101°43'13.366"W	3372.4'
EXISTING END OF RWY 31	34°09'53.504" N	101°42'41.536" W	3372.4'

SOURCE:
NGS 405 05/98 (NAD 83/NAVD88)

COMMENTS

AIRPORT DATA TABLE		
	EXISTING	ULTIMATE
AIRPORT ELEVATION (MSL)	3374.0'	3377.2'
AIRPORT NAVIGATION AIDS	VOR, GPS	VOR, GPS
MEAN MAX TEMP (Hottest Month °F)	92°	92°
AIRPORT REFERENCE CODE (ARC)	B-II	C-II
TAXIWAY MARKING	CENTERSTRIPE	CENTERSTRIPE
TAXIWAY LIGHTING	NONE	LITL
AIRPORT REFERENCE POINT COORDINATES	34°10'05.3" N 101°43'02.4" W	34°09'57.46" N 101°43'14.04" W

NOTES

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TOPOGRAPHICAL DATA TAKEN FROM PREVIOUS HALE COUNTY AIRPORT LAYOUT DRAWING PROVIDED TO TXDOT BY THE BRANNON CORPORATION, MAY 2000. NO ADDITIONAL SURVEY PERFORMED.

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CITY OF PLAINVIEW ORDINANCE 04-3437, ADOPTED DECEMBER 14, 2004, ESTABLISHES THE PLAINVIEW/HALE COUNTY AIRPORT ZONING ORDINANCE.

TEXAS DEPARTMENT OF TRANSPORTATION
AVIATION DIVISION

ALP APPROVED ACCORDING TO FAA AC 150/5300-13A, CHANGE 1, PLUS THE REQUIREMENTS OF A FAVORABLE ENVIRONMENTAL FINDING AND FAA NRA STUDY PRIOR TO THE START OF ANY LAND ACQUISITION OR CONSTRUCTION ON AIRPORT PROPERTY.

DAVID FULTON, DIRECTOR, AVIATION DIVISION — DATE

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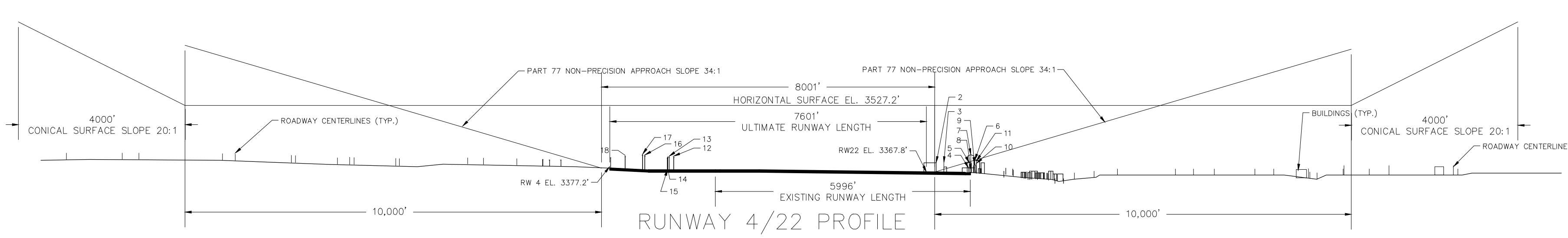
Tulsa, OK
phone: 918-585-8844
meadhunt.com
R4204600-130016.01

KJM — JUNE 2015
DESIGNED BY — DATE
JWB — JUNE 2015
DRAWN BY — DATE



RUNWAY 4/22 PROFILE

AIRPORT AIRSPACE DRAWING
PLAINVIEW AIRPORT
PLAINVIEW, TEXAS (PVW)

Texas Department of Transportation
Aviation Division

SHEET 3 OF 11

Figure E2 **AIRPORT AIRSPACE DRAWING**

Five distinct imaginary surfaces are specified by FAR Part 77 criteria, which include the primary, transition, horizontal, conical, and approach. A brief description of each surface is presented in the following text.

- **Primary Surface:** A longitudinal surface centered on the runway extending 200 feet beyond each runway end. The elevation of any point on the primary surface is the same as the nearest point on the runway centerline. The Runway 4/22 primary surface width is 1,000 feet; the Runway 13/31 primary surface width is 500 feet.
- **Transitional Surface:** Surfaces that extend upward and outward at right angles to the runway centerline, and the extended runway centerline, at the edges of the primary surface at a slope of 7:1. Transitional surfaces end where they intersect the horizontal surface.
- **Horizontal Surface:** A horizontal plane established at an elevation of 150 feet above the airport elevation. The perimeter of the horizontal surface is established by swinging arcs from the center of each end of the primary surface and connecting the arcs with tangent lines. The radii of the arcs for Runway 4/22 are 10,000 feet; for Runway 13/31 the radii are 5,000 feet.
- **Conical Surface:** This surface extends upwards and outward from the horizontal surface at a slope of 20:1 for a horizontal distance of 4,000 feet.
- **Approach Surface:** A surface longitudinally centered on the extended runway centerline, extended outward and upward from each end of the primary surface. The inner edges are the same width as the primary surface. The horizontal distance, outer width, and the slope of the approach surface are determined by the visibility minimum associated with each runway end. For Runway 4, the horizontal distance is 10,000 feet, the outer edge width is 4,000 feet, and the slope is 34:1. For Runway 22, the horizontal distance is 10,000 feet, the outer edge width is 3,500 feet, and the slope is 34:1. For Runways 13/31, the horizontal distances are 5,000 feet, the outer widths are 1,500 feet, and the slopes are 20:1.

According to application of the imaginary surface criteria, 26 objects have been identified as obstructions to the ultimate FAR Part 77 surfaces in the obstruction data table. However, 12 will be removed or relocated with the implementation of the ultimate Airport configuration. The identified obstructions will be evaluated by TxDOT through the airspace review process (i.e., an aeronautical study) to reach a hazard/no hazard determination and disposition for each obstruction.

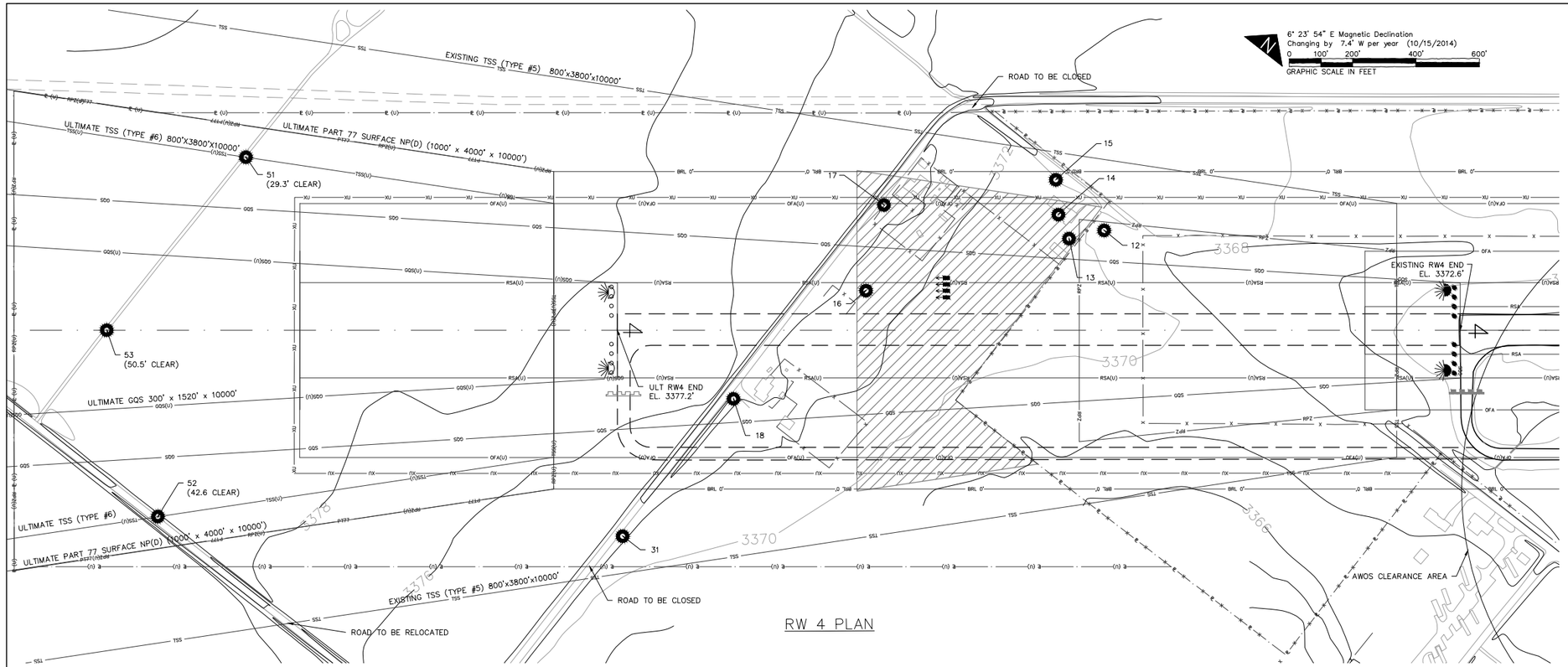
Inner Portion of the Approach Surface Drawings

The *INNER PORTION OF THE APPROACH SURFACE DRAWINGS*, illustrated on the following illustrations, present a more detailed view of the inner portions of the FAR Part 77 imaginary approach surfaces for each runway end. The drawings provide large scale plan and profile views of the approach surfaces out to a distance where the surface reaches 100 feet above the runway end elevation. It is meant to facilitate the identification of roads, utility lines, railroads, structures, and other possible obstructions that may exist within the limits of, or near, the approach surfaces.

Runway Departure Surface Drawings

The figure entitled *RUNWAY 4/22 DEPARTURE SURFACE DRAWING* is a large-scale plan and profile illustration depicting the dimensions and slopes of the imaginary surfaces associated with the departure ends of Runways 4 and 22. The applicability of the surfaces is determined through consultation between the Airport Sponsor and the FAA's Regional Airspace Procedures Team (RAPT).

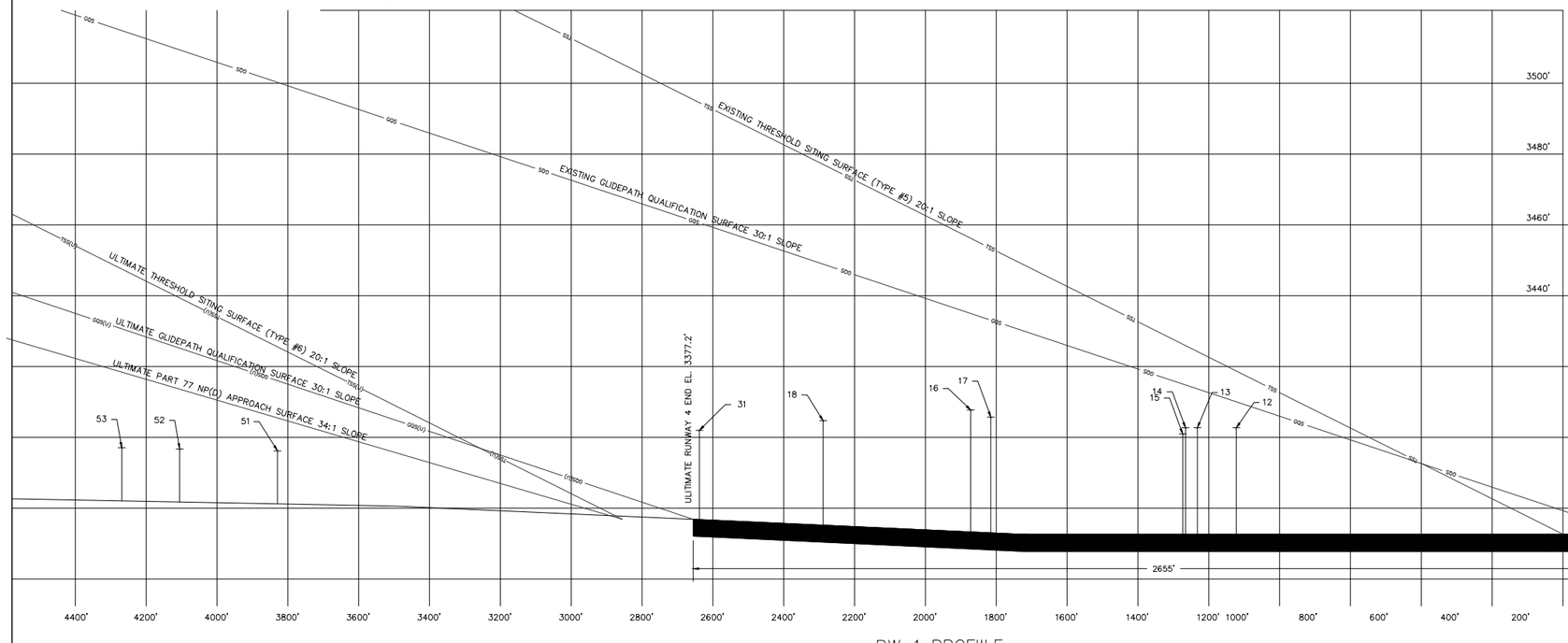
FAA AC 150/5300-13A specifies that runways providing instrument departure capability should not have any objects penetrate the departure surface beginning at the elevation of the departure runway end or end of the clearway, whichever is greater, at a slope of 40:1. Based upon a 200 feet per nautical mile (NM) climb rate, a standard departure is designed to provide a minimum of 48 feet per NM clearance above objects that do not penetrate the Obstacle Clearance Surface (OCS). However, due to the size of the departure surface, it is not uncommon to have obstacles that penetrate the



RW 4 PLAN

IPASD LEGEND		
FEATURE	EXISTING	ULTIMATE
RUNWAY/TAXIWAY OUTLINE		
RUNWAY/TAXIWAY TO BE REMOVED		
BUILDINGS/FACILITIES		
AIRPORT PROPERTY LINE		
AIRPORT PROPERTY LINE w/FENCE		
THRESHOLD SITING SURFACE	TSS	TSS (U)
FENCE LINE		
THRESHOLD LIGHTS		
RW END IDENTIFIER LIGHTS (REILS)		
GROUND CONTOURS		
SIGNIFICANT OBJECT PLAN VIEW		
SIGNIFICANT OBJECT PROFILE VIEW		
TREES/BRUSH		

CITY OF PLAINVIEW ORDINANCE 04-3437, ADOPTED DECEMBER 14, 2004, ESTABLISHES THE PLAINVIEW/HALE COUNTY AIRPORT ZONING ORDINANCE.



RW 4 PROFIILE

Penetrations to Threshold Siting Surface

No.	Object Description	Latitude (N)	Longitude (W)	Distance fm RW end	Offset fm RW C/L*	Top Elevation**	Amt of Penetration	REMEDIATION
12	POLE	34°09'40.02"	101°43'46.02"	-598'	311' L	3404'	NONE	REMOVED FOR RUNWAY EXTENSION
13	TOWER	34°09'39.13"	101°43'46.84"	-488'	285' L	3405'	NONE	REMOVED FOR RUNWAY EXTENSION
14	TOWER	34°09'39.50"	101°43'47.72"	-454'	361' L	3404'	NONE	REMOVED FOR RUNWAY EXTENSION
15	POLE	34°09'40.29"	101°43'48.62"	-448'	475' L	3401'	NONE	REMOVED FOR RUNWAY EXTENSION
16	POLE	34°09'33.87"	101°43'51.50"	152'	122' L	3407'	NONE	REMOVED FOR RUNWAY EXTENSION
17	POLE	34°09'36.29"	101°43'53.01"	95'	391' L	3409'	NONE	REMOVED FOR RUNWAY EXTENSION
18	POLE	34°09'28.66"	101°43'52.77"	569'	219' R	3405'	NONE	REMOVED FOR RUNWAY EXTENSION
31	POLE	34°09'23.15"	101°43'52.73"	2633'	639' R	3402'	NONE	REMOVED FOR RUNWAY EXTENSION

* OFFSETS FROM CENTERLINE ARE DESCRIBED RIGHT OR LEFT OF THE RUNWAY CENTERLINE AS SEEN BY A PILOT APPROACHING THE RUNWAY TO LAND
** ELEVATIONS ADJUSTED UPWARD 15' FOR PUBLIC ROADWAY, 17' FOR INTERSTATE HIGHWAY, 23' FOR RAILROADS

TEXAS DEPARTMENT OF TRANSPORTATION
AVIATION DIVISION

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phone: 918-585-8844
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R4204600-130016.01

KJM — JUNE 2015
DESIGNED BY — DATE

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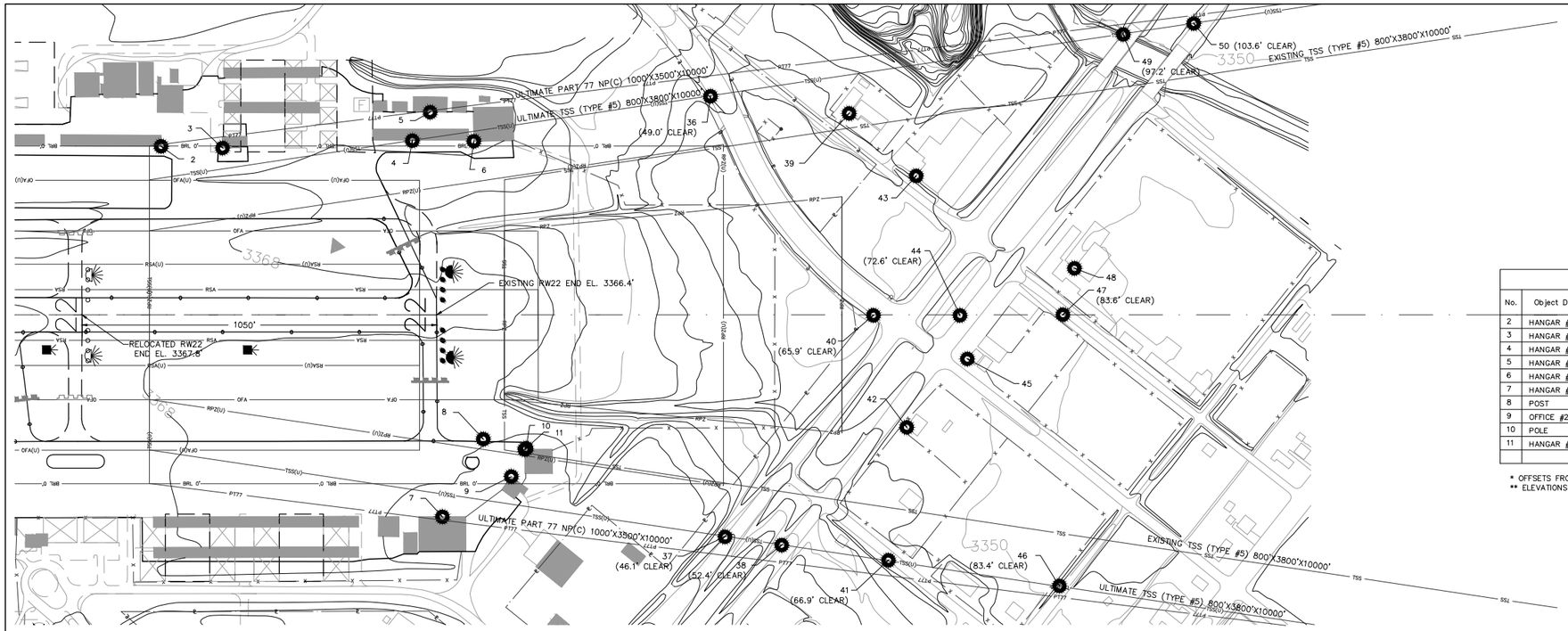
INNER PORTION OF THE APPROACH SURFACE
RUNWAY 4
PLAINVIEW AIRPORT
PLAINVIEW, TEXAS (PVW)

Texas Department of Transportation
Aviation Division

SHEET 4 OF 11

Figure E3 **RUNWAY 4 INNER PORTION OF THE APPROACH SURFACE DRAWING**



RW 22 PLAN

6° 23' 54" E Magnetic Declination
Changing by 7.4' W per year (10/15/2014)

0 100' 200' 400' 600'

GRAPHIC SCALE IN FEET

IPASD LEGEND		
FEATURE	EXISTING	ULTIMATE
RUNWAY/TAXIWAY OUTLINE		
RUNWAY/TAXIWAY TO BE REMOVED		
BUILDINGS/FACILITIES		
AIRPORT PROPERTY LINE		
AIRPORT PROPERTY LINE w/FENCE		
THRESHOLD SITING SURFACE	TSS	TSS (U)
FENCE LINE		
THRESHOLD LIGHTS		
RW END IDENTIFIER LIGHTS (REILS)		
GROUND CONTOURS	1635	
SIGNIFICANT OBJECT PLAN VIEW		
SIGNIFICANT OBJECT PROFILE VIEW		
TREES/BRUSH		

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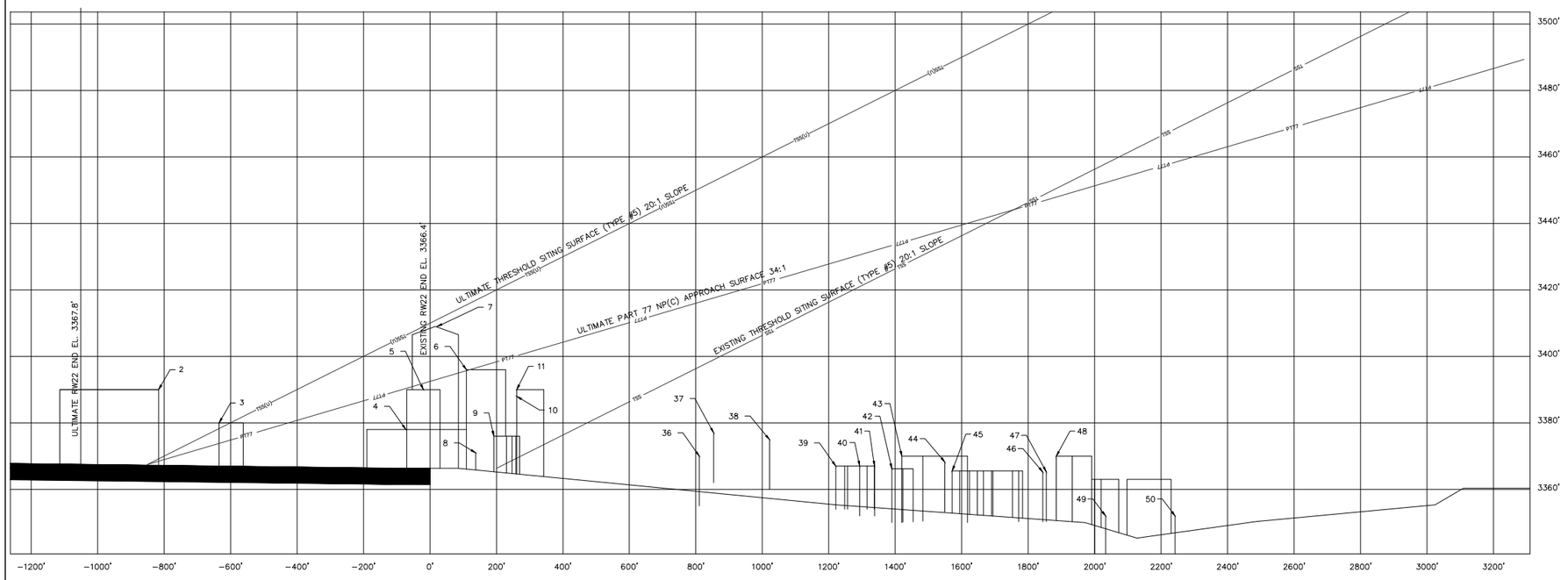
Penetrations to Threshold Siting Surface

No.	Object Description	Latitude (N)	Longitude (W)	Distance fm RW end	Offset fm RW C/L*	Top Elevation**	Amt of Penetration	REMEDIATION
2	HANGAR #31	34°10'20.90"	101°42'49.36"	-904'	517' R	3390'	NONE	LIGHT
3	HANGAR #30	34°10'22.00"	101°42'47.64"	-513'	598' R	3380'	NONE	LIGHT
4	HANGAR #23	34°10'25.68"	101°42'42.63"	78'	517' R	3378'	NONE	LIGHT
5	HANGAR #25	34°10'26.66"	101°42'42.78"	95'	600' R	3390'	NONE	LIGHT
6	HANGAR #22	34°10'26.81"	101°42'40.94"	225'	516' R	3396'	NONE	LIGHT
7	HANGAR #16	34°10'17.71"	101°42'33.42"	132'	598' L	3409'	NONE	LIGHT
8	POST	34°10'20.23"	101°42'34.04"	253'	368' L	3371'	NONE	REMOVE
9	OFFICE #20	34°10'19.90"	101°42'32.44"	333'	480' L	3388'	NONE	LIGHT
10	POLE	34°10'20.81"	101°42'32.66"	380'	395' L	3388'	18.6'	REMOVE
11	HANGAR #21	34°10'20.76"	101°42'32.67"	378'	444' L	3394'	20.6'	REMOVE

* OFFSETS FROM CENTERLINE ARE DESCRIBED RIGHT OR LEFT OF THE RUNWAY CENTERLINE AS SEEN BY A PILOT APPROACHING THE RUNWAY TO LAND
** ELEVATIONS ADJUSTED UPWARD 15' FOR PUBLIC ROADWAY, 17' FOR INTERSTATE HIGHWAY, 23' FOR RAILROADS



RW 22 PROFIILE

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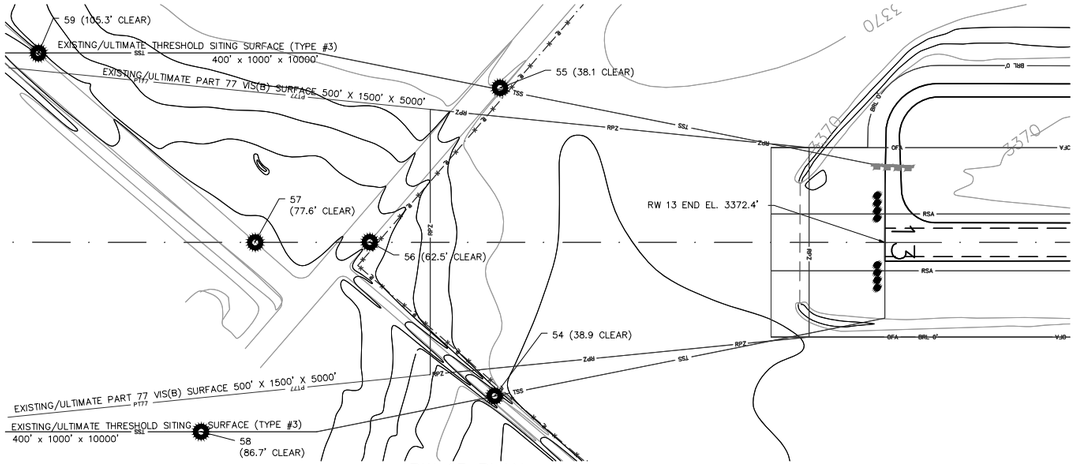
RUNWAY 22
INNER PORTION OF THE APPROACH SURFACE
PLAINVIEW AIRPORT
PLAINVIEW, TEXAS (PVW)

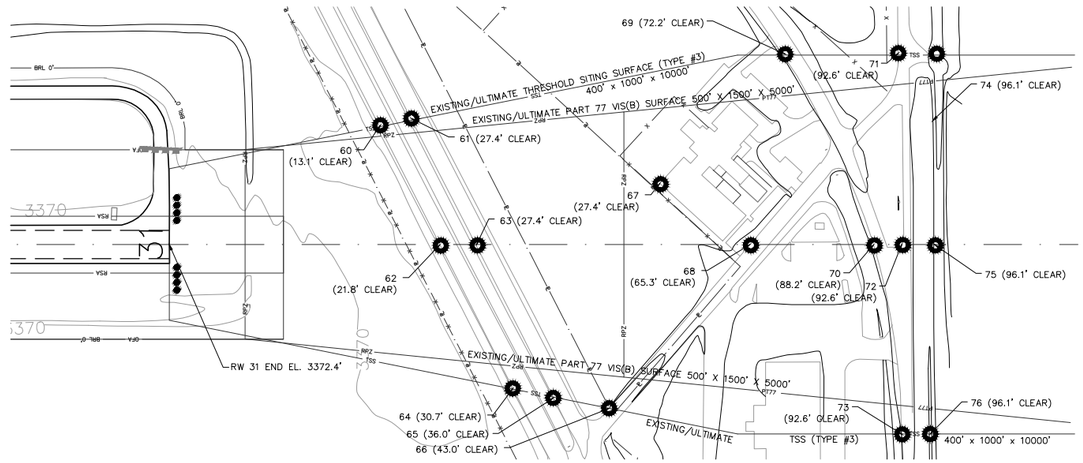
Texas Department of Transportation
Aviation Division

SHEET 5 OF 11

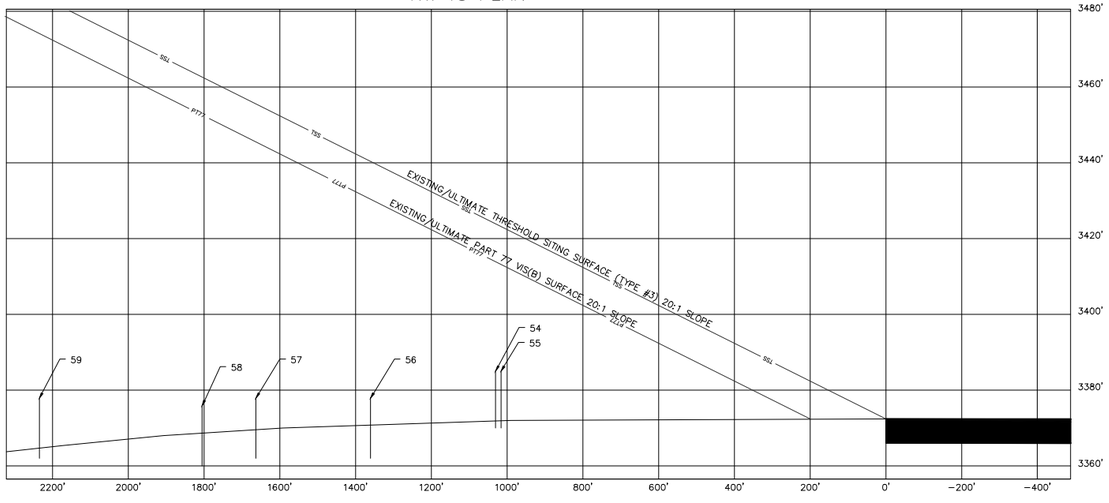
Figure E4 **RUNWAY 22 INNER PORTION OF THE APPROACH SURFACE DRAWING**



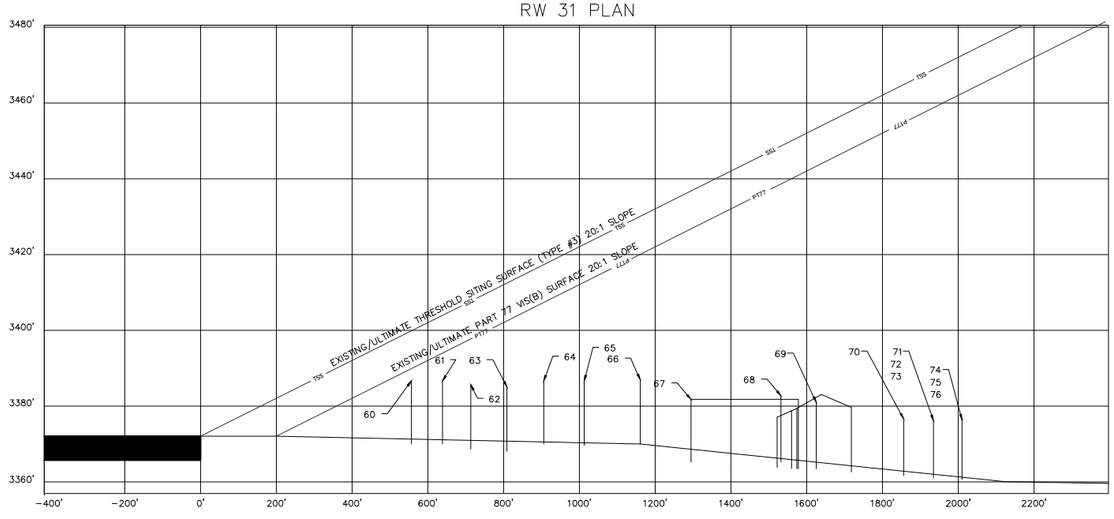
RW 13 PLAN



RW 31 PLAN



RW 13 PROFILE



RW 31 PROFILE

6° 23' 54" E Magnetic Declination
Changing by 7.4' W per year (10/15/2014)

0 100' 200' 400' 600'
GRAPHIC SCALE IN FEET

Penetrations to Threshold Siting Surface

No.	Object Description	Latitude (N)	Longitude (W)	Distance fm RW end	Offset fm RW C/L*	Top Elevation**	Amt of Penetration	REMEDIATION

* OFFSETS FROM CENTERLINE ARE DESCRIBED RIGHT OR LEFT OF THE RUNWAY CENTERLINE AS SEEN BY A PILOT APPROACHING THE RUNWAY TO LAND
** ELEVATIONS ADJUSTED UPWARD 15' FOR PUBLIC ROADWAY, 17' FOR INTERSTATE HIGHWAY, 23' FOR RAILROADS

CITY OF PLAINVIEW ORDINANCE 04-3437, ADOPTED DECEMBER 14, 2004, ESTABLISHES THE PLAINVIEW/HALE COUNTY AIRPORT ZONING ORDINANCE.

IPASD LEGEND

FEATURE	EXISTING	ULTIMATE
RUNWAY/TAXIWAY OUTLINE		
RUNWAY/TAXIWAY TO BE REMOVED		
BUILDINGS/FACILITIES		
AIRPORT PROPERTY LINE		
AIRPORT PROPERTY LINE w/FENCE		
THRESHOLD SITING SURFACE	TSS	TSS (U)
FENCE LINE		
THRESHOLD LIGHTS		
RW END IDENTIFIER LIGHTS (REILS)		
GROUND CONTOURS	1820	
SIGNIFICANT OBJECT PLAN VIEW		
SIGNIFICANT OBJECT PROFILE VIEW		
TREES/BRUSH		

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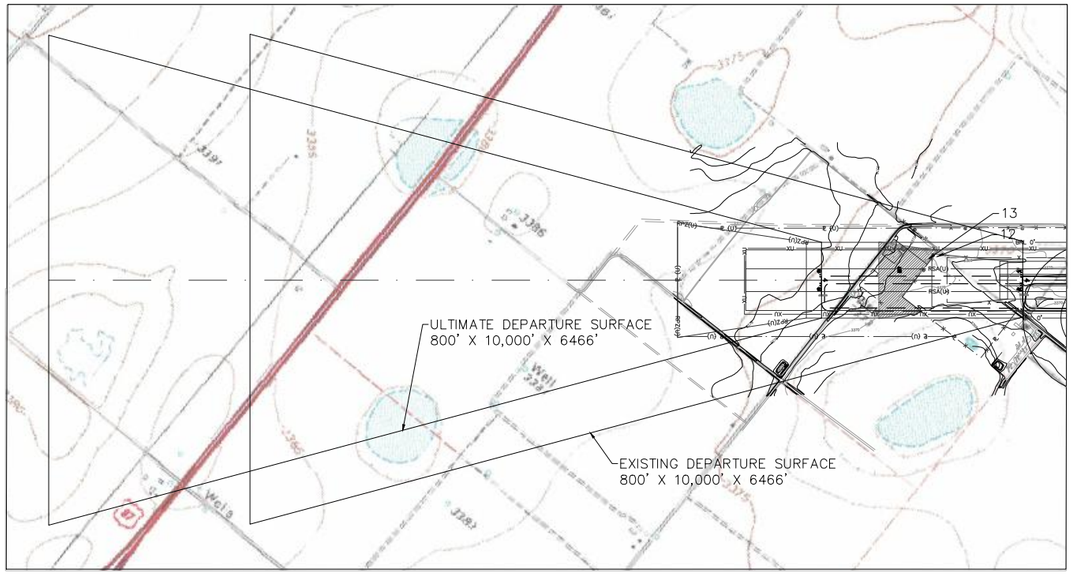
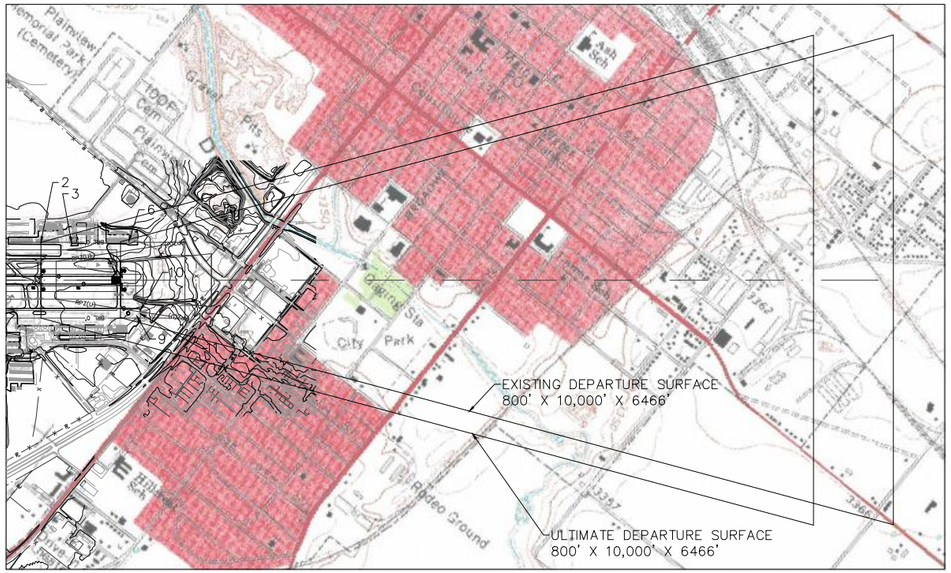
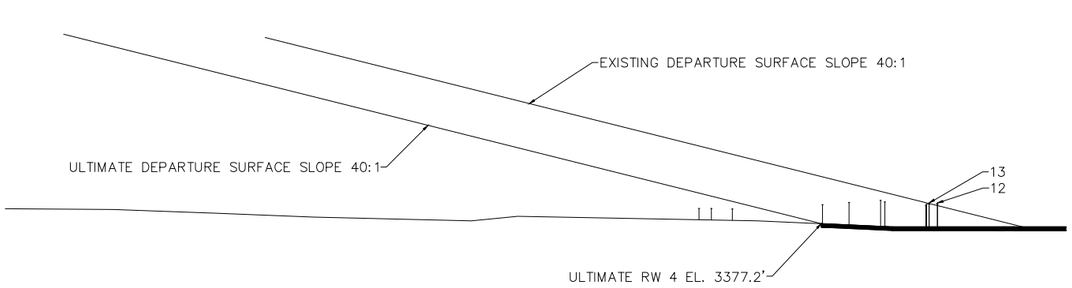
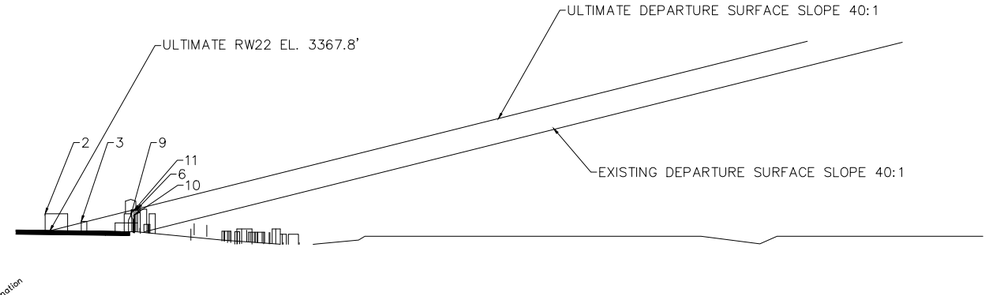
RUNWAY 13/31
INNER PORTION OF THE APPROACH SURFACE
PLAINVIEW AIRPORT
PLAINVIEW, TEXAS (PVW)

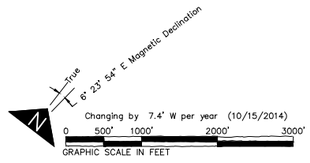
Texas Department of Transportation
Aviation Division











PENETRATIONS TO DEPARTURE SURFACES

NO.	OBJECT	DISTANCE FROM RUNWAY END	OFFSET FROM RUNWAY CL *	ELEVATION **	EXIST. DS PENETRATION	ULTIMATE DS PENETRATION	REMEDIATION
2	HANGAR #31	−904'	517' R	3390'	NONE	22.5'	LIGHT
3	HANGAR #30	−513'	598' R	3380'	NONE	2.1'	LIGHT
6	HANGAR #22	225'	516' R	3396'	22.7'	NONE	RELOCATE THRESHOLD
9	OFFICE	333'	480' L	3388'	16.0'	NONE	RELOCATE THRESHOLD
10	POLE	380'	395' L	3388'	15.4'	NONE	RELOCATE THRESHOLD
11	HANGAR #21	378'	444' L	3394'	21.5'	NONE	RELOCATE THRESHOLD
12	POLE	−598'	311' L	3404'	3.5'	NONE	REMOVE
13	TOWER	−488'	285' L	3405'	0.5'	NONE	REMOVE

SOURCE: FAA DIGITAL OBSTACLE FILE, JULY 2013

AIRPORT DATA TABLE

	EXISTING	ULTIMATE
AIRPORT ELEVATION (MSL)	3374.0'	3377.2'
AIRPORT NAVIGATION AIDS	VOR, GPS	VOR, GPS
MEAN MAX TEMP (Hottest Month °F)	92°	92°
AIRPORT REFERENCE CODE (ARC)	B-II	C-II
TAXIWAY MARKING	CENTERSTRIPE	CENTERSTRIPE
TAXIWAY LIGHTING	NONE	LITL
AIRPORT REFERENCE POINT COORDINATES	34°10'05.3" N	34°09'57.46" N
	101°43'02.4" W	101°43'14.04" W

NOTES

DATUM COORDINATE SYSTEMS – HORIZONTAL DATUM NAD 1983 State Plane Texas North Central 42025 Feet, VERTICAL DATUM NAVD88.

NO KNOWN OFZ OBJECT PENETRATIONS

ALD LEGEND

FEATURE	EXISTING	ULTIMATE
RUNWAY/TAXIWAY OUTLINE		
RUNWAY/TAXIWAY TO BE REMOVED		
BUILDINGS/FACILITIES		
AIRPORT PROPERTY LINE		
AIRPORT PROPERTY LINE w/FENCE		
FENCE LINE		
BUILDING RESTRICTION LINE (BRL)		
AIRPORT REFERENCE POINT		
WIND CONE & SEGMENTED CIRCLE		
THRESHOLD LIGHTS		
RW END IDENTIFIER LIGHTS (REILS)		
C&G BEACON		
VGSI		
HOLD POSITION AND SIGN		
ASOS/AWOS		
PACS AND SACS MARKERS		
GROUND CONTOURS		
SIGNIFICANT OBJECT LOCATION		
TREES/BRUSH		
NONDIRECTIONAL BEACON (NDB)		

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RUNWAY 4/22 DEPARTURE SURFACE DRAWING
PLAINVIEW AIRPORT
PLAINVIEW, TEXAS (PVW)

Texas Department of Transportation
Aviation Division

surface, and recent changes to the Terminal Instrument Procedures (TERPS) criteria have made the OCS more restrictive.

In accordance with FAA AC 150/5300-13A, the FAA has the option of mitigating obstructions by requiring non-standard climb rates and/or non-standard (i.e., higher) departure minimums be published for the Airport or individual runways. It should be noted again that Runway 4 currently has published non-standard takeoff minimums of 300 feet AGL and 1-½ NM, or standard minimums with a climb rate of 420 feet per NM to 3,700 feet AMSL.

Terminal Area Plans

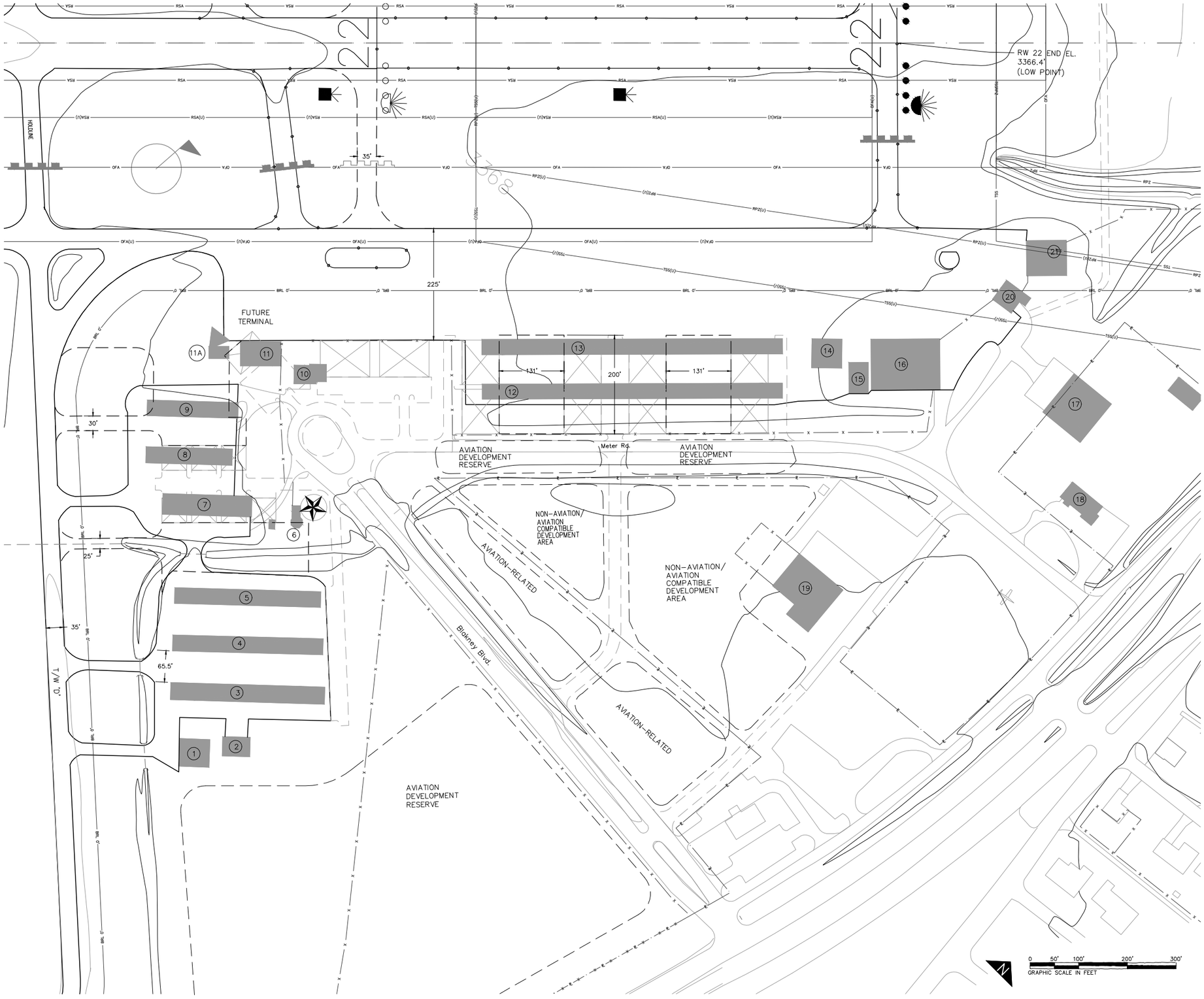
The following illustrations, entitled *TERMINAL AREA PLAN SOUTH* and *TERMINAL AREA PLAN NORTH*, present large-scale depictions of the landside development areas at Hale County Airport.

South Terminal Area

As presented in the Conceptual Development Plan, the South Landside Development Area is proposed to be developed with a future terminal building at the terminus of Blakney Boulevard, with FBO/storage hangars developed to the northeast. Larger hangars are proposed for redevelopment of Hangars #12 and #13, with smaller general aviation corporate hangars proposed for redevelopment of Hangars #7, #8, and #9.

North Terminal Area

The North Landside Development Area will transition to serving smaller general aviation aircraft as the FBO functions and services are transitioned to the South Landside Development Area.



BUILDING TABLE		
BUILDING NUMBER	DESCRIPTION	TOP ELEVATION
1	HANGAR	3391.7'
2	HANGAR	3392.1'
3	T-HANGAR	3382.5'
4	T-HANGAR	3382.7'
5	T-HANGAR	3381.8'
6	ATCT & BEACON	3432.7'
7	T-HANGAR (TO BE REMOVED)	3389.3'
8	T-HANGAR (TO BE REMOVED)	3381.5'
9	T-HANGAR (TO BE REMOVED)	3381.5'
10	TERMINAL (TO BE REMOVED)	3380.1'
11	HANGAR (TO BE REMOVED)	3389.5'
11A	STORAGE (TO BE REMOVED)	3384.9'
12	T-HANGAR (TO BE REMOVED)	3379.9'
13	T-HANGAR (TO BE REMOVED)	3378.5'
14	HANGAR	3383.4'
15	HANGAR	3384.3'
16	HANGAR	3396.9'
17	HANGAR	3392.3'
18	BUSINESS OFFICE	3378.4'
19	NATIONAL GUARD ARMORY	3391.7'
20	FBO OFFICE	3376.3'
21	HANGAR (TO BE REMOVED)	3390.2'
22	HANGAR	3396.4'
22A	STORAGE BUILDING	3380.2'
23	T-HANGAR	3378.2'
24	HANGAR	3382.9'
25	HANGAR	3390.0'
26	HANGAR	3383.3'
27	HANGAR	3381.9'
28	T-HANGAR (TO BE REMOVED)	3378.3'
29	T-HANGAR (TO BE REMOVED)	3376.5'
30	FBO OFFICE (TO BE REMOVED)	3380.4'
31	T-HANGAR	3380.7'
32	T-HANGAR	3380.6'
33	HANGAR	3386.3'
34	HANGAR	3382.9'
35	HANGAR	3389.2'
36	HANGAR	3393.0'

ALD LEGEND		
FEATURE	EXISTING	ULTIMATE
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RUNWAY/TAXIWAY TO BE REMOVED		
BUILDINGS/FACILITIES		
AIRPORT PROPERTY LINE		
AIRPORT PROPERTY LINE w/FENCE		
FENCE LINE		
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TERMINAL AREA PLAN – SOUTH
PLAINVIEW AIRPORT
PLAINVIEW, TEXAS (PVW)

Texas Department of Transportation
Aviation Division

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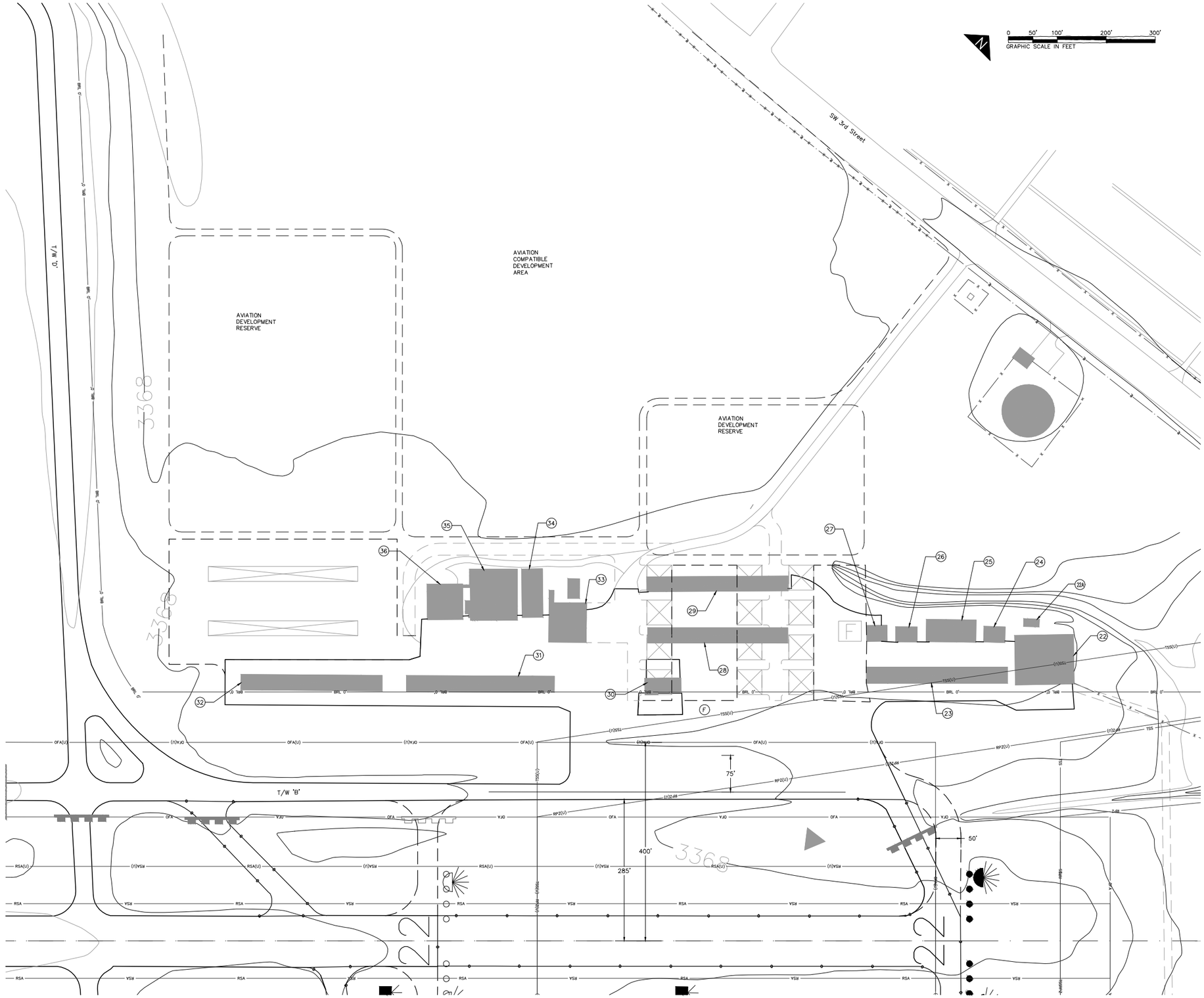
Figure E7 **TERMINAL AREA PLAN SOUTH**



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32	T-HANGAR	3380.6'
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35	HANGAR	3389.2'
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TERMINAL AREA PLAN – NORTH
PLAINVIEW AIRPORT
PLAINVIEW, TEXAS (PVW)

Texas Department of Transportation
Aviation Division

SHEET 9 OF 11

Figure E8 **TERMINAL AREA PLAN NORTH**

Land Use Drawing

The *LAND USE DRAWING*, presented in the following figure, depicts the existing and recommended use of all property contained within the airport boundary. The purpose is to provide the Airport Sponsor with a plan for leasing revenue-producing areas on the Airport. All existing and future development with the airport property will be compatible with the primary purpose and function of the Airport, and will generate lease revenue to support the operation of the Airport.

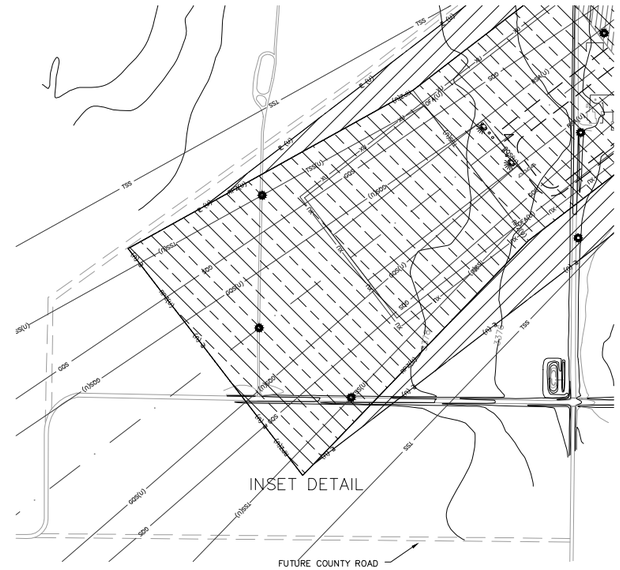
The Land Use Drawing also provides guidance to local authorities for establishing appropriate land use zoning near the Airport. As specified by the FAA, Grant Assurance #21, entitled *Compatible Land Use*, states that the Airport Sponsor, "will take appropriate action, to the extent reasonable including the adoption of zoning laws, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft."

Airport Property Map

The illustration entitled *AIRPORT PROPERTY MAP* indicates how the various tracts of land within the airport property line were acquired (e.g., federal funds, surplus property, local funds, etc.) and the dates of the acquisition. The purpose of the map is to provide documentation of the current and future aeronautical use of land acquired with federal funds and to identify parcels recommended for future property or easement acquisition, or release. According to existing property records, there are a total of 641.459 acres of fee simple property owned by the Airport Sponsor, with an additional 11.2087 acres controlled by the Airport through clear zone easements.

ON–AIRPORT LANDUSE

- AIRCRAFT OPERATIONS AREA
- TERMINAL/HANGAR DEVELOPMENT AREA
- AVIATION RELATED/NON–AVIATION DEVELOPMENT AREA



BUILDING TABLE

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3	T–HANGAR	3382.5'
4	T–HANGAR	3382.7'
5	T–HANGAR	3381.8'
6	ATCT & BEACON	3432.7'
7	T–HANGAR (TO BE REMOVED)	3389.3'
8	T–HANGAR (TO BE REMOVED)	3381.5'
9	T–HANGAR (TO BE REMOVED)	3381.5'
10	TERMINAL (TO BE REMOVED)	3380.1'
11	HANGAR (TO BE REMOVED)	3389.5'
11A	STORAGE (TO BE REMOVED)	3384.9'
12	T–HANGAR (TO BE REMOVED)	3379.9'
13	T–HANGAR (TO BE REMOVED)	3378.5'
14	HANGAR	3383.4'
15	HANGAR	3384.3'
16	HANGAR	3396.9'
17	HANGAR	3392.3'
18	BUSINESS OFFICE	3378.4'
19	NATIONAL GUARD ARMORY	3391.7'
20	FBO OFFICE	3376.3'
21	HANGAR (TO BE REMOVED)	3390.2'
22	HANGAR	3396.4'
22A	STORAGE BUILDING	3380.2'
23	T–HANGAR	3378.2'
24	HANGAR	3382.9'
25	HANGAR	3390.0'
26	HANGAR	3383.3'
27	HANGAR	3381.9'
28	T–HANGAR (TO BE REMOVED)	3378.3'
29	T–HANGAR (TO BE REMOVED)	3376.5'
30	FBO OFFICE (TO BE REMOVED)	3380.4'
31	T–HANGAR	3380.7'
32	T–HANGAR	3380.6'
33	HANGAR	3386.3'
34	HANGAR	3382.9'
35	HANGAR	3389.2'
36	HANGAR	3393.0'

AIRPORT DATA TABLE

	EXISTING	ULTIMATE
AIRPORT ELEVATION (MSL)	3374.0'	3377.2'
AIRPORT NAVIGATION AIDS	VOR, GPS	VOR, GPS
MEAN MAX TEMP (Hottest Month °F)	92°	92°
AIRPORT REFERENCE CODE (ARC)	B–II	C–II
TAXIWAY MARKING	CENTERSTRIPE	CENTERSTRIPE
TAXIWAY LIGHTING	NONE	LITL
AIRPORT REFERENCE POINT COORDINATES	34°10'05.3" N	34°09'57.46" N
	101°43'02.4" W	101°43'14.04" W

NOTES

DATUM COORDINATE SYSTEMS – HORIZONTAL DATUM NAD 1983 State Plane Texas North Central 42025 Feet, VERTICAL DATUM NAVD88.

NO KNOWN OFZ OBJECT PENETRATIONS

ALD LEGEND

FEATURE	EXISTING	ULTIMATE
RUNWAY/TAXIWAY OUTLINE		
RUNWAY/TAXIWAY TO BE REMOVED		
BUILDINGS/FACILITIES		
AIRPORT PROPERTY LINE		
AIRPORT PROPERTY LINE w/FENCE		
FENCE LINE		
BUILDING RESTRICTION LINE (BRL)		
AIRPORT REFERENCE POINT		
WIND CONE & SEGMENTED CIRCLE		
THRESHOLD LIGHTS		
RW END IDENTIFIER LIGHTS (REILS)		
C&G BEACON		
VGSI		
HOLD POSITION AND SIGN		
ASOS/AWOS		
PACS AND SACS MARKERS		
GROUND CONTOURS		
SIGNIFICANT OBJECT LOCATION		
TREES/BRUSH		
NONDIRECTIONAL BEACON (NDB)		

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TEXAS DEPARTMENT OF TRANSPORTATION AVIATION DIVISION

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DAVID FULTON, DIRECTOR, AVIATION DIVISION — DATE

AIRPORT SPONSOR

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SPONSOR ACKNOWLEDGES APPROVAL OF ALP BY TXDOT DOES NOT CONSTITUTE A COMMITMENT TO FUNDING.

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R4204600–130016.01

KJM — JUNE 2015
DESIGNED BY — DATE

JWB — JUNE 2015
DRAWN BY — DATE

LAND USE DRAWING
PLAINVIEW AIRPORT
PLAINVIEW, TEXAS (PVW)

Texas Department of Transportation Aviation Division

Figure E9 **LAND USE DRAWING**

AIRPORT PROPERTY DATA TABLE

TRACT	ACRES	TITLE	GRANTOR/REMARKS	COUNTY RECORD	DATE	PROJECT FUNDING
1-A	277.5	DEED	R.V. PAYNE	VOL. 154 PG. 362	6-5-44	.
1-B	92.5	DEED	J.M. O'NEILL	VOL. 154 PG. 362	7-8-44	.
1-C	92.5	DEED	FRANK TRUMBULL	VOL. 154 PG. 362	.	.
1-D-1	46.2	DEED	JOHN HART, ET UX	VOL. 154 PG. 362	7-24-44	.
1-D-2	46.2	DEED	JOHN HART, ET UX	VOL. 154 PG. 362	8-12-44	.
2	1.32	DEED	JAMES BRANDES, ET UX	VOL. 500 PG. 457	4-2-69	.
3	13.213	DEED	JAMES BRANDES, ET UX	VOL. 500 PG. 459	4-2-69	.
4-1	3.762	DEED	JAMES BRANDES, ET UX	VOL. 617 PG. 49	8-15-77	.
4-2	0.35	DEED	JAMES BRANDES, ET UX	VOL. 617 PG. 49	8-15-77	.
5	0.776	DEED	JAMES BRANDES, ET UX	VOL. 696 PG. 749	2-22-83	.
6-1	19.73	DEED	FLORA BRANDES, ET AL	VOL. 717 PG. 375	9-9-84	.
6-2	3.22	DEED	FLORA BRANDES, ET AL	VOL. 717 PG. 375	9-9-84	.
8	7.0	LEASE	TX NATIONAL CUARD ARMORY	VOL. 3 PG. 287	2-7-55	.
9	.	ORD.	ANNEXATION	VOL. 739 PG. 781	8-29-86	.
10	.	DEED	1/4 MINERAL RESERVATION	.	.	.
11	.	DEED	1/2 MINERAL RESERVATION	.	.	.
12	.	ROW	CITY TO SPS POWERLINE	VOL. 356 PG. 211	3-19-60	.
13	.	ROW	J.L. BAKER TO SPS POWERLINE	VOL. 355 PG. 119	6-14-61	.
14	.	ROW	J.L. BAKER TO SPS POWERLINE	VOL. 376 PG. 537	6-13-61	.
15	.	ROW	COUNTY TO HWY DEPT. ROAD	VOL. 749 PG. 35	4-23-87	.
16	6.375	ROW	CLEAR ZONE EASEMENT	VOL. 784 PG. 245	3-28-90	.
17	0.0214	ROW	CLEAR ZONE EASEMENT	VOL. 784 PG. 237	3-28-90	.
18	0.2881	ROW	CLEAR ZONE EASEMENT	VOL. 784 PG. 229	3-28-90	.
19	1.1243	ROW	CLEAR ZONE EASEMENT	VOL. 784 PG. 221	3-28-90	.
20	.	HPUWD	CHANGE OF BOUNDARIES	.	8-19-93	.
21	.	ROW	UNDERGROUND PHONE LINES	VOL. 808 PG. 113	10-22-91	.
22	3.3999	ROW	CLEAR ZONE EASEMENT	VOL. 784 PG. 253	3-28-90	.
23	22.688	DEED	RABY D. AND RUTH L GARRETT	VOL. 606 PG. 157	12-30-76	.
24	19.9	DEED	W.P. NEINAST	VOL. 231 PG. 169	4-30-52	.
25	1.6	DEED	J. TED SANDERS & PARTNERS LP	VOL. 314 PG. 543	1-15-2015	.
F-1	0.1	DEED	UNKNOWN (ULTIMATE)	.	.	.
F-2	106.6	DEED	UNKNOWN (ULTIMATE)	.	.	.

BUILDING TABLE

BUILDING NUMBER	DESCRIPTION	TOP ELEVATION
1	HANGAR	3391.7'
2	HANGAR	3392.1'
3	T-HANGAR	3382.5'
4	T-HANGAR	3382.7'
5	T-HANGAR	3381.8'
6	ATCT & BEACON	3432.7'
7	T-HANGAR (TO BE REMOVED)	3389.3'
8	T-HANGAR (TO BE REMOVED)	3381.5'
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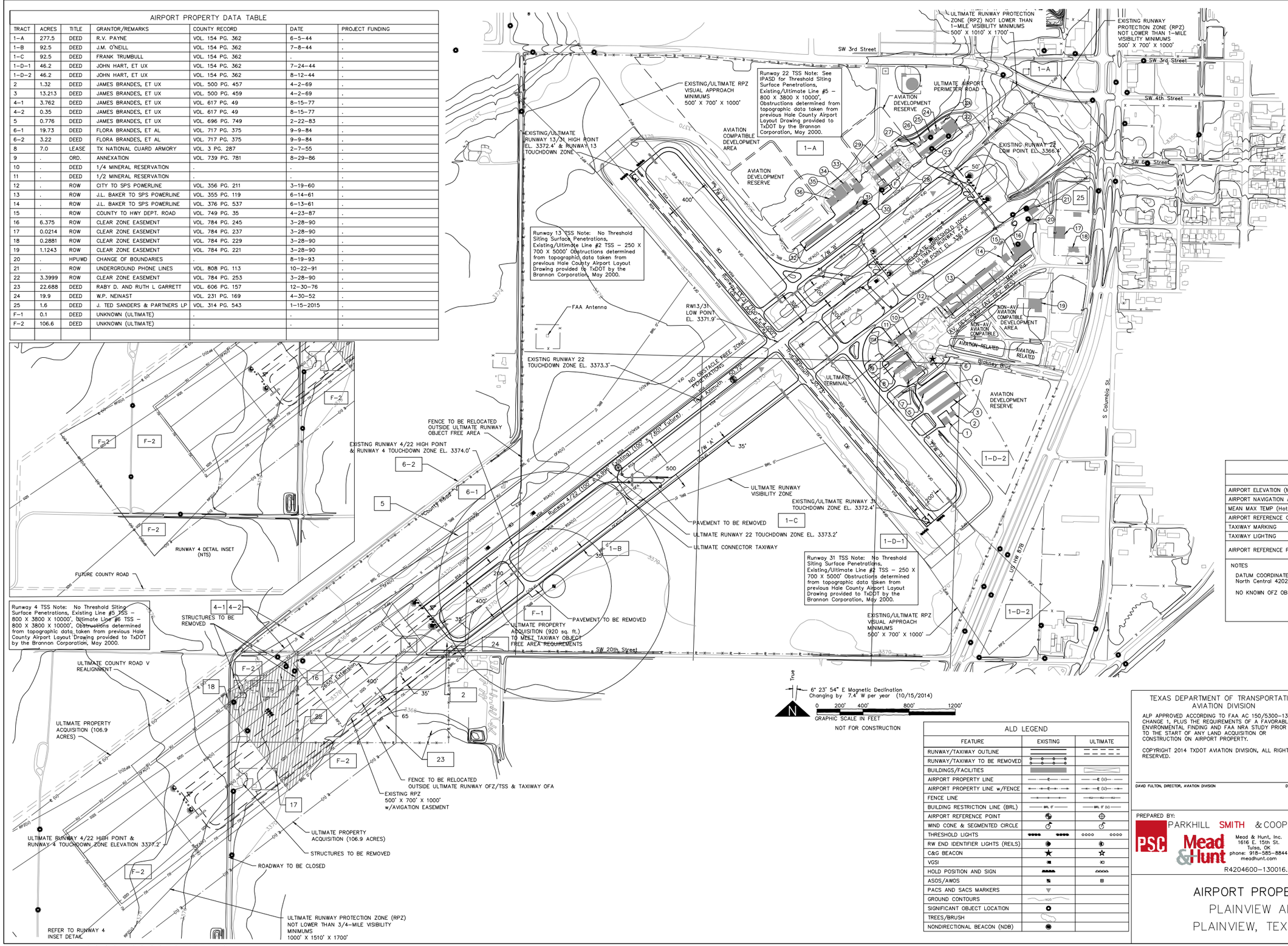
33	HANGAR	3386.3'
34	HANGAR	3382.9'
35	HANGAR	3389.2'
36	HANGAR	3393.0'



AIRPORT DATA TABLE

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AIRPORT REFERENCE POINT COORDINATES	34°10'05.3" N	34°09'57.46" N
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NOTES

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NO KNOWN OFZ OBJECT PENETRATIONS

ALD LEGEND

FEATURE	EXISTING	ULTIMATE
RUNWAY/TAXIWAY OUTLINE		
RUNWAY/TAXIWAY TO BE REMOVED		
BUILDINGS/FACILITIES		
AIRPORT PROPERTY LINE		
AIRPORT PROPERTY LINE w/FENCE		
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AIRPORT REFERENCE POINT		
WIND CONE & SEGMENTED CIRCLE		
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RW END IDENTIFIER LIGHTS (REILS)		
C&G BEACON		
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HOLD POSITION AND SIGN		
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TITLE, AIRPORT SPONSOR'S REPRESENTATIVE

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R4204600-130016.01

KJM — JUNE 2015 — DESIGNED BY — DATE

JWB — JUNE 2015 — DRAWN BY — DATE

AIRPORT PROPERTY MAP
PLAINVIEW AIRPORT
PLAINVIEW, TEXAS (PVW)

Texas Department of Transportation — Aviation Division

SHEET 11 OF 11

Figure E10 **AIRPORT PROPERTY MAP**

Master Plan

Hale County Airport

Implementation

Implementation

INTRODUCTION. This chapter provides a strategy for implementing the necessary improvements that satisfy the expected aviation demand while also providing assistance in establishing economic viability for the Airport. The overall concept is to maximize opportunities for receiving TxDOT and FAA grants, within the context of, and in recognition of, the amount of local funds available for capital needs.

It is recognized that future demand for facilities cannot accurately be predicted at the Airport, especially during the latter stages of the 20-year planning period. Therefore, particular emphasis is placed on the initial portion of the planning period, the first five years. Here, projections are more definable and the magnitude of program accomplishment is more pronounced. Additionally, carefully guided development within the initial planning stages is essential to the future expansion of the Airport and the continued enhancement of aviation development.

Implementation Schedule and Project List

A proactive list of capital improvement projects has been assembled from the facility requirements analysis and the conceptual development plan resented previously. The implementation schedule and project list are divided into three phases: short-term (1-5 years); intermediate-term (6-10 years); and long-term (11-20 years). The short-term implementation schedule lists projects in the priority order by year; the intermediate- and long-term schedule and projects are listed in priority order without year designators. Hale County Airport's implementation schedule, project list, and associated costs are presented in Tables F1, F2, and F3 of this chapter. It should be noted that it is anticipated the implementation schedule will invariably change as local, state, and federal priorities evolve over the coming years.

Cost Estimates

Individual project cost estimates have been prepared for the improvements identified as necessary during the 20-year planning period. Facility costs have been formulated using unit prices extended by the size of the particular project and tempered with specific considerations related to the region, the Airport, and the individual development sites. That being said, these estimates are intended for planning purposes only and should not be construed as construction cost estimates, which can only be compiled following the preparation of detailed engineering plans and specifications. All cost estimates presented in the following tables are based on 2013 costs; no increases have been made based on inflation for future year projects.

The cost estimates have been categorized by the total project cost, that part of the total cost anticipated to have FAA funding participation administered through TxDOT Aviation Division State Block Grant program, that portion to be borne locally by the Hale County Airport Board, and that amount anticipated to be funded through private entities (i.e., individual tenants, business enterprises, or other private third-party sources). However, in some cases where it is justified by projected revenue, these projects might be financed by revenue bonds or special tax assessments. Additionally, local funding can include state or local economic development funds, regional commissions and organizations, or other units of local government.

As presented in the tables, the project cost estimates total approximately $53,672,183 for the entire 20-year period, which is an annual average amount of $2,683,609. The anticipated TxDOT total share is some $44,740,417 with an annual average amount of $2,237,021. An estimated $6,683,828 will be required from local funding mechanisms, with an annual average expenditure of $334,191. The private share is anticipated at $2,247,936 with an annual average of some $112,397.

Of the total project costs, roughly $18,342,850 is projected to be spent during the first five-year period, $13,899,638 in the second five-year period, and $21,429,695 during the last ten-year period. The TxDOT share of project costs includes expenditures of $15,123,838 during the first five years, $11,573,921 during the second five years, and $18,042,658 during the last ten years. Local funding of the total project costs includes expenditures of $3,219,011 in the first five years,

$1,346,613 in the second five years, and $2,118,204 in the last ten years. Privately funded projects include none anticipated during the first five-year time period, $979,103 during the second five-year period, and $1,268,833 during the last ten-year period.

The proposed improvements for each phase are illustrated graphically by time period on the figure entitled *PHASING PLAN*. These are merely suggested schedules and variance from them will almost certainly be necessary, especially during the latter time periods. Attention has been given to the first five years as being the most critical, and the scheduled projects outlined in that time period should be adhered to as much as possible and feasible. The demand for certain facilities and the economic reality of their development are prime factors influencing the timing of individual project implementation. Care must be taken to provide for adequate lead-time for detailed planning and construction of facilities in order to meet aviation demands. It is also important to minimize the disruptive scheduling where a portion of the facility may become inoperative due to construction, and to prevent extra costs resulting from improper project scheduling.

Capital Improvement Program (CIP)

The projects, phasing, and costs presented in this Master Plan CIP are the best projections that can be made at the time of formulation. The purpose is to provide a reasonable projection of capital needs, which can then be used in fiscal programming to test for financial feasibility. To assist in the preparation of the Airport's CIP that the Airport keeps on file and updates annually with TxDOT Aviation Division, the first phase of the project lists and cost estimates has been organized in a format similar to that used by TxDOT Aviation Division. However, it is understood that as soon as it is published, the long-term project list presented here begins to be out of date and, therefore, will always differ to some degree with the Airport's five-year CIP on file with the FAA.

Table F1 **PHASE ONE (1-5 YEARS) DEVELOPMENT PLAN PROJECT COSTS**

Project Description	Total Cost[1]	FAA/TxDOT[2]	Local[3]	Private[4]
2015 Projects				
A.1 Rehabilitate and Mark Airfield Pavement (Runway 4/22, Runway 13/31, Taxiways A, B, E, and F, South Development Area Apron and Access Taxiways to Hangars #1, #2, #3, #4, and #5), Reconstruct and Mark Taxiways B and D, Construct Airport Perimeter Road, Replace Runways 4/22 and 13/31 MIRL, Directional Sign Faces, and Electrical Vault	$5,646,683	$5,082,015	$564,668	
A.2 Consolidate All Airport Assets Under City/County Ownership	$550,000	$495,000	$55,000	
Sub-Total/2015 Projects	**$6,196,683**	**$5,577,015**	**$619,668**	
2016 Projects				
Sub-Total/2016	**$0**	**$0**	**$0**	
2017 Projects				
A.3 Remove Hangar #21	$196,000	$176,400	$19,600	
A.4 Improve Miller Boulevard, Reconstruct West Side of North Development Area Apron, and Taxiway B	$4,430,709	$3,810,409	$620,299	
Sub-Total/2017	**$4,626,709**	**$3,986,809**	**$639,899**	
2018 Projects				
A.5 Construct FBO/Service Hangar With Automobile Access and Parking	$840,893	$741,667	$99,225	
A.6 Remove or Relocate Hangars #12 and #13	$44,440	$39,996	$4,444	
A.7 Construct One Multi-Aircraft Hangar, Including Apron/Taxilane Access and Automobile Access and Parking	$792,076	$689,898	$102,178	
Sub-Total/2018	**$1,677,408**	**$1,471,561**	**$205,847**	
2019 Projects				
A.8 Construct T-Hangar With Apron	$733,968	$660,571	$73,397	
A.9 Remove Hangars #9, #10, #11, and #11A	$67,600	$60,840	$6,760	
A.10 Construct Terminal Building With Apron, Fuel Storage/ Dispensing System, Automobile Access and Parking Improvements, and Reconstruct Blakney Boulevard	$5,040,482	$3,367,042	$1,673,440	
Sub-Total/2019	**$5,842,050**	**$4,088,453**	**$1,753,597**	
Total/Phase I (2015-2019)	**$18,342,850**	**$15,123,838**	**$3,219,011**	**$0**

Notes:
[1] Cost estimates, based on 2014 data, are intended for planning purposes and do not reflect a detailed engineering evaluation.
[2] Eligible for FAA AIP, Non-Primary Entitlement (NPE), and Discretionary grants administered through TxDOT Aviation Division State Block Grant program.
[3] Local match requirement from current revenues, cash reserves, bonds, etc. 90%/10% split for AIP, NPE, and Discretionary grants.
[4] Could include funding from revenue bonds or special tax assessments.

Table F2 **PHASE TWO (6-10 YEARS) DEVELOPMENT PLAN PROJECT COSTS**

Project Description	Total Cost[1]	FAA/TxDOT[2]	Local[3]	Private[4]
B.1 Overlay and Mark Runway 4/22 and Taxiways A and B	$4,820,211	$4,338,190	$482,021	
B.2 Overlay and Mark Runway 13/31 and Taxiway D	$3,054,673	$2,749,205	$305,467	
B.3 Purchase Approximately 108 Acres, Including Three Residences To The Southwest of Existing Airport Property	$406,750	$366,075	$40,675	
B.4 Construct One Multi-Aircraft Storage Hangar, Including Apron/Taxilane Access and Automobile Parking, and Relocate Fences Beyond ROFA	$1,267,719	$1,140,947	$126,772	
B.5 Construct Right Angled Taxiway E	$383,340	$345,006	$38,334	
B.6 Roadway Pavement Maintenance (Perimeter Road, Miller Boulevard, and Blakney Boulevard)	$136,400	$68,200	$68,200	
B.7 Remove Hangars #7 and #8	$26,680	$24,012	$2,668	
B.8 Construct Three Corporate Hangars With Taxiway Access and Automobile Access and Parking	$979,103			$979,103
B.9 Rehabilitate and Mark All Airfield Pavement	$2,824,762	$2,542,286	$282,476	
Total/Phase II (2019-2023)	**$13,899,638**	**$11,573,921**	**$1,346,613**	**$979,103**

Notes:
[1] Cost estimates, based on 2013 data, are intended for planning purposes and do not reflect a detailed engineering evaluation.
[2] Eligible for FAA AIP, Non-Primary Entitlement (NPE), and Discretionary grants administered through TxDOT Aviation Division State Block Grant program.
[3] Local match requirement from current revenues, cash reserves, bonds, etc. 90%/10% split for AIP, NPE, and Discretionary grants.
[4] Could include funding from revenue bonds or special tax assessments.

Table F3 **PHASE THREE (11-20 YEARS) DEVELOPMENT PLAN PROJECT COSTS**

Project Description	Total Cost[1]	FAA/TxDOT[2]	Local[3]	Private[4]
C.1 Extend Runway 4/22 and Taxiway A 2,655 Feet To The Southwest (Including MIRL/MITL Installation and County Road V Relocation), Replace existing VASI with PAPI, Relocate Runway 22 Threshold, Construct Two Entrance Taxiways, and Demo Runway and Taxiway Pavements	$8,968,563	$8,071,707	$896,856	
C.2 Overlay Runway 4/22 and Taxiways A and B	$4,820,211	$4,338,190	$482,021	
C.3 Overlay Runway 13/31 and Taxiway D	$3,050,673	$2,745,605	$305,067	
C.4 Construct Three Corporate Hangars, With Apron/Taxilane Access and Automobile Parking	$1,268,833			$1,268,833
C.5 Construct Two Multi-Aircraft Storage Hangars, Including Apron/Taxilane Access and Automobile Parking	$1,747,992	$1,510,265	$237,727	
C.6 Crack Seal, Rehabilitate, and Mark All Airfield Pavement	$1,088,624	$940,571	$148,053	
C.7 Install PAPI on Runways 13 and 31	$484,800	$436,320	$48,480	
Total/Phase III (2024-2033)	**$21,429,695**	**$18,042,658**	**$2,118,204**	**$1,268,833**
GRAND TOTAL	**$53,672,183**	**$44,740,417**	**$6,683,828**	**$2,247,936**

Notes:
[1] Cost estimates, based on 2013 data, are intended for planning purposes and do not reflect a detailed engineering evaluation.
[2] Eligible for FAA AIP, Non-Primary Entitlement (NPE), and Discretionary grants administered through TxDOT Aviation Division State Block Grant program.
[3] Local match requirement from current revenues, cash reserves, bonds, etc. 90%/10% split for AIP, NPE, and Discretionary grants.
[4] Could include funding from revenue bonds or special tax assessments.

LEGEND

- Phase I Projects (1-5 Years)
- Phase II Projects (6-10 Years)
- Phase III Projects (11-20 Years)

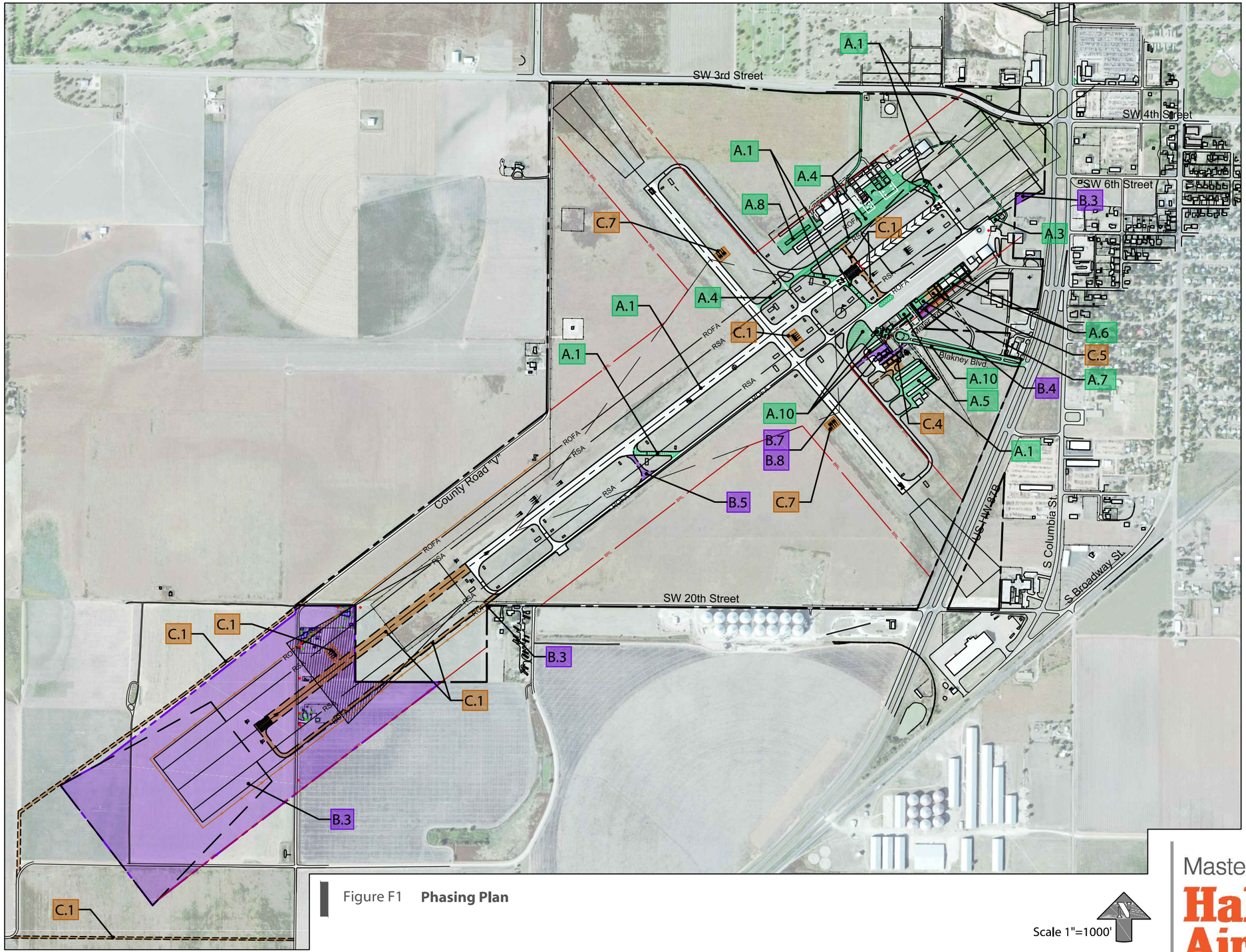

Figure F1 **Phasing Plan**

Scale 1"=1000'

Master Plan
Hale County Airport

Implementation Strategy

The development plan and program presented in this chapter is aggressive; the monetary commitments are significant. However, it is a solid plan that represents the Airport's best opportunity for meeting its potential and obligations. The plan also represents a series of choices and alternatives for the Airport. The ultimate success of Hale County Airport does not rely upon the completion of every single capital project contained in the development plan. To meet realistic funding expectations, it may be necessary to weigh the capital projects in a thoughtful and global manner. In other words, to keep from being short-sighted in its choices, the Hale County Airport Board may be required to selectively implement the capital projects. Knowing the full scope of development possibilities enables the Airport to capitalize on opportunities, respond to financial realities, and select development items that are in harmony with the overall development plan.

The projects represented as potentially needed are based on *forecast demand*; only those projects that are required by *actual demand* will be proposed for construction. If the actual demand does not materialize as anticipated, a number of the proposed projects will have to be revised, delayed, or potentially eliminated. It should be noted that the level of FAA funding is governed by congressional appropriations to the AIP, and the amount dedicated to any one specific airport is determined by demonstrated and documented need compared to need at other airports within the regional and national airport system. The object of this Master Plan for Hale County Airport is to provide a flexible planning document that is useful for directing airport development that meets the future aviation demand safely, efficiently, and properly as it occurs.

Summary

It is recognized that maintenance and operation expenses will increase as the Airport develops and additional facilities are completed. Revenues generated by additional airport facilities should also increase and help offset increased maintenance and operation expenses. It is a worthy and feasible goal that operational expenses and revenues should balance. This relationship must be monitored closely so that future imbalances can be anticipated and provided for in the budgeting and capital improvement processes.

If aviation demands continue to indicate that improvements are required, and if the proposed improvements prove to be environmentally acceptable, the financial implications presented in this chapter are likely to be acceptable for the FAA, TxDOT Aviation Division, and the Hale County Airport Board. However, it must be remembered that this is only a programming analysis and not a financial commitment on the part of any entity (i.e., the FAA, TxDOT Aviation Division, or the Hale County Airport Board). If the cost of an improvement project is not financially feasible, it will not be pursued at that time.

Master Plan

Hale County Airport

Appendix

Appendix

Appendix One – 2011 & 2012 TFMSC Datasets
Appendix Two – FAA Template for Comparing Airport Planning and TAF Forecasts
Appendix Three = Lear 45 Runway Length Analysis

Appendix One – 2011 & 2012 TFMSC Datasets

TFMSC Report

Hale County Airport

From 01/2011 To 12/2011 | Airport=PVW

2011	Aircraft	User Class	Physical Class	Departures	Arrivals	Total Operations
	-1 - unknown	General Aviation	-	1	17	18
	-1 - unknown	Other	Piston	8	5	13
	AA5 - American AA-5 Traveler	General Aviation	Piston	4	5	9
	AC11 - North American Commander 112	General Aviation	Piston	4	4	8
	AC50 - Aero Commander 500	General Aviation	Piston	1	2	3
	AC56 - Aero Commander 560	General Aviation	Piston	0	1	1
	AC95 - Gulfstream Jetprop Commander 1000	General Aviation	Piston	0	1	1
	AEST - Piper Aero Star	General Aviation	Piston	24	32	56
	AS65 - Aérospatiale AS-366	Military	-	1	0	1
	B350 - Beech Super King Air 350	General Aviation	Turbine	5	4	9
	B752 - Boeing 757-200	Air Carrier	Jet	0	1	1
	BE20 - Beech 200 Super King	Air Carrier	Turbine	8	8	16
	BE20 - Beech 200 Super King	General Aviation	Turbine	30	32	62
	BE23 - Beech 23 Sundowner	General Aviation	Piston	1	0	1
	BE30 - Raytheon 300 Super King Air	General Aviation	Turbine	3	3	6
	BE33 - Beech Bonanza 33	General Aviation	Piston	7	8	15
	BE35 - Beech Bonanza 35	General Aviation	Piston	26	30	56
	BE36 - Beech Bonanza 36	General Aviation	Piston	21	37	58
	BE55 - Beech Baron 55	General Aviation	Piston	17	20	37
	BE58 - Beech 58	General Aviation	Piston	5	4	9
	BE60 - Beech 60 Duke	General Aviation	Piston	7	7	14
	BE76 - Beech 76 Duchess	General Aviation	Piston	1	0	1
	BE9L - Beech King Air 90	Air Carrier	Turbine	1	1	2
	BE9L - Beech King Air 90	General Aviation	Turbine	18	17	35
	BL17 - Bellanca Viking	General Aviation	Piston	13	26	39
	BL20 - Equipment Unidentified	General Aviation	-	0	1	1
	BL26 - Viking; Bellanca Aircraft	General Aviation	Piston	0	1	1
	BL30 - Beech 33 Debonair	General Aviation	Piston	0	1	1
	BL8A - unknown	General Aviation	-	0	1	1
	C152 - Cessna 152	General Aviation	Piston	1	0	1
	C170 - Cessna 170	General Aviation	Piston	1	0	1
	C172 - Cessna Skyhawk 172/Cutlass	General Aviation	Piston	12	21	33
	C177 - Cessna 177 Cardinal	General Aviation	Piston	1	1	2
	C180 - Cessna 180	General Aviation	Piston	1	0	1
	C182 - Cessna Skylane 182	General Aviation	Piston	9	11	20
	C185 - Cessna Skywagon 185	General Aviation	Piston	1	1	2
	C206 - Cessna 206 Stationair	General Aviation	Piston	16	15	31
	C210 - Cessna 210 Centurion	General Aviation	Piston	11	17	28
	C25A - Cessna Citation CJ2	General Aviation	Jet	8	8	16
	C25B - Cessna Citation CJ3	General Aviation	Jet	3	3	6
	C310 - Cessna 310	General Aviation	Piston	3	3	6
	C340 - Cessna 340	General Aviation	Piston	3	3	6
	C414 - Cessna Chancellor 414	General Aviation	Piston	5	7	12
	C421 - Cessna Golden Eagle 421	General Aviation	Piston	14	21	35
	C425 - Cessna 425 Corsair	General Aviation	Turbine	7	8	15
	C500 - Cessna 500/Citation I	General Aviation	Jet	2	2	4
	C501 - Cessna I/SP	General Aviation	Jet	2	2	4
	C510 - Cessna Citation Mustang	General Aviation	Jet	28	29	57
	C525 - Cessna CitationJet/CJ1	General Aviation	Jet	5	8	13
	C525 - Cessna CitationJet/CJ1	Air Taxi	Jet	1	1	2
	C550 - Cessna Citation II/Bravo	General Aviation	Jet	15	14	29
	C560 - Cessna Citation V/Ultra/Encore	General Aviation	Jet	8	9	17
	C56X - Cessna Excel/XLS	Air Taxi	Jet	1	1	2
	C650 - Cessna III/VI/VII	General Aviation	Jet	1	1	2
	C750 - Cessna Citation X	Air Taxi	Jet	1	1	2
	C77R - Cessna Cardinal RG	General Aviation	Piston	2	2	4
	C82R - Cessna Skylane RG	General Aviation	Piston	0	1	1
	CL30 - Bombardier (Canadair) Challenger 300	General Aviation	Jet	1	1	2
	COL - Lancair Columbia All Series	General Aviation	-	0	1	1
	COL4 - Lancair LC-41 Columbia 400	General Aviation	Piston	4	3	7
	COUR - Helio U-10 Super Courier	General Aviation	Piston	1	1	2
	D328 - Dornier 328 Series	Military	Turbine	1	1	2
	DA20 - Diamond DA 20	General Aviation	Jet	1	0	1
	DA40 - Diamond Star DA40	General Aviation	Piston	2	2	4
	DH8 - Bombardier DHC8 All Series	General Aviation	Turbine	0	1	1

DV20 - Diamond DV-20	General Aviation	Piston	0	2	2
EA50 - Eclipse 500	General Aviation	Jet	5	5	10
EXP - McDonnell MD-902 Explorer	General Aviation	-	0	1	1
F900 - Dassault Falcon 900	General Aviation	Jet	0	1	1
G150 - Gulfstream G150	General Aviation	Jet	1	1	2
GLAS - New Glasair	General Aviation	Piston	3	1	4
GLF5 - Gulfstream V/G500	General Aviation	Jet	5	5	10
GLF5 - Gulfstream V/G500	Other	Jet	1	1	2
H25B - BAe HS 125/700-800/Hawker 800	General Aviation	Jet	2	2	4
HXB - Experimental Aircraft	General Aviation	-	1	2	3
LANC - Avro 683 Lancaster	General Aviation	Piston	0	1	1
LJ24 - Bombardier Learjet 24	General Aviation	Jet	1	1	2
LJ31 - Bombardier Learjet 31/A/B	General Aviation	Jet	13	11	24
LJ31 - Bombardier Learjet 31/A/B	Military	Jet	0	1	1
LJ31 - Bombardier Learjet 31/A/B	Other	Jet	0	1	1
LJ35 - Bombardier Learjet 35/36	Other	Jet	1	1	2
LJ45 - Bombardier Learjet 45	General Aviation	Jet	22	24	46
LJ60 - Bombardier Learjet 60	General Aviation	Jet	4	4	8
LNC4 - Lancair 4	General Aviation	-	0	1	1
M20P - Mooney M-20C Ranger	General Aviation	Piston	3	7	10
M20T - Turbo Mooney M20K	General Aviation	Piston	4	5	9
MAUL - Maule Aircraft	General Aviation	-	0	1	1
MO20 - Mooney M-20	General Aviation	Piston	0	5	5
MU2 - Mitsubishi Marquise/Solitaire	General Aviation	Turbine	1	1	2
MU3 - unknown	General Aviation	Jet	1	0	1
MU30 - Mitsubishi MU300/ Diamond I	General Aviation	Jet	2	3	5
P210 - Riley Super P210	General Aviation	Piston	0	1	1
P28 - Piper Cherokee	General Aviation	Piston	0	1	1
P28A - Piper Cherokee	General Aviation	Piston	3	4	7
P28R - Cherokee Arrow/Turbo	General Aviation	Piston	4	5	9
P32R - Piper 32	General Aviation	Piston	2	1	3
P46 - unknown	General Aviation	-	0	1	1
P46T - Piper Malibu Meridian	General Aviation	Turbine	9	9	18
PA20 - Piper PA-20 Pacer	General Aviation	Piston	0	1	1
PA22 - Piper PA-22 Tri-Pacer	General Aviation	Piston	2	0	2
PA23 - Piper PA-23	General Aviation	Piston	1	3	4
PA24 - Piper PA-24	General Aviation	Piston	2	7	9
PA27 - Piper Aztec	General Aviation	Piston	2	2	4
PA28 - Piper Cherokee	General Aviation	Piston	0	6	6
PA30 - Piper PA-30	General Aviation	Piston	3	2	5
PA31 - Piper Navajo PA-31	General Aviation	Piston	6	9	15
PA32 - Piper Cherokee Six	General Aviation	Piston	4	1	5
PA34 - Piper PA-34 Seneca	General Aviation	Piston	1	5	6
PA46 - Piper Malibu	General Aviation	Piston	3	3	6
PA47 - unknown	General Aviation	-	0	1	1
PA60 - Aero Star	General Aviation	Piston	0	2	2
PAY1 - Piper Cheyenne 1	General Aviation	Turbine	3	3	6
PAY3 - Piper PA-42-720 Cheyenne 3	General Aviation	Turbine	1	0	1
PC12 - Pilatus PC-12	General Aviation	Turbine	6	6	12
PC12 - Pilatus PC-12	Military	Turbine	1	2	3
RV6 - AIEP Air Beetle	General Aviation	Piston	0	1	1
RV7 - Experimental RV-7	General Aviation	Piston	1	0	1
RV8 - RV-4/6/7/8; VANS	General Aviation	Piston	1	2	3
RV9 - Experimental	General Aviation	-	0	1	1
SR20 - Cirrus SR-20	General Aviation	Piston	4	3	7
SR22 - Cirrus SR 22	General Aviation	Piston	15	17	32
SW3 - Fairchild Swearingen SA-226T/TB Merlin 3	General Aviation	Turbine	1	1	2
SW4 - Swearingen Merlin 4/4A Metro2	Air Carrier	Turbine	1	0	1
TBM7 - Socata TBM-7	General Aviation	Turbine	8	8	16
TBM8 - Socata TBM-850	General Aviation	Turbine	9	10	19
TRI2 - unknown	Air Carrier	Piston	1	0	1
TRIN - Socata TB-21 Trinidad	General Aviation	Piston	1	1	2
V22 - Bell V-22 Osprey	Military	-	0	1	1
WW24 - IAI 1124 Westwind	General Aviation	Jet	1	1	2
Total:			**544**	**678**	**1,222**

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Sources: Traffic Flow Management System Counts (TFMSC), Aviation System Performance Metrics (ASPM)

TFMSC Report

Hale County Airport

From 01/2012 To 12/2012 | Airport=PVW

2012 Aircraft	User Class	Physical Class	Departures	Arrivals	Total Operations
-1 - unknown	Air Carrier	-	0	1	1
-1 - unknown	General Aviation	-	1	14	15
-1 - unknown	Military	-	0	1	1
-1 - unknown	Other	Piston	6	4	10
AA1 - American AA-1 Trainer	General Aviation	Piston	1	0	1
AC90 - Gulfstream Commander	General Aviation	Turbine	1	0	1
AC95 - Gulfstream Jetprop Commander 1000	General Aviation	Piston	6	6	12
AEST - Piper Aero Star	General Aviation	Piston	16	14	30
AS65 - Aérospatiale AS-366	Military	-	1	1	2
B17 - Boeing B-17 Flying Fortress	General Aviation	-	1	0	1
B350 - Beech Super King Air 350	Air Carrier	Turbine	1	2	3
B350 - Beech Super King Air 350	General Aviation	Turbine	3	3	6
B738 - Boeing 737-800	Air Carrier	Jet	0	1	1
B752 - Boeing 757-200	Air Carrier	Jet	0	1	1
BE13 - unknown	General Aviation	-	0	1	1
BE17 - Beech YC-43 Traveler	General Aviation	Piston	0	1	1
BE20 - Beech 200 Super King	Air Carrier	Turbine	5	4	9
BE20 - Beech 200 Super King	General Aviation	Turbine	36	38	74
BE33 - Beech Bonanza 33	General Aviation	Piston	5	9	14
BE35 - Beech Bonanza 35	General Aviation	Piston	27	28	55
BE36 - Beech Bonanza 36	General Aviation	Piston	46	47	93
BE40 - Raytheon/Beech Beechjet 400/T-1	General Aviation	Jet	4	4	8
BE55 - Beech Baron 55	General Aviation	Piston	8	6	14
BE58 - Beech 58	General Aviation	Piston	7	10	17
BE60 - Beech 60 Duke	General Aviation	Piston	16	25	41
BE99 - Beech Airliner 99	Freight	Piston	1	0	1
BE9L - Beech King Air 90	General Aviation	Turbine	29	30	59
BE9T - Beech F90 King Air	General Aviation	Turbine	2	2	4
BL16 - Undefined Equipment	General Aviation	-	0	2	2
BL17 - Bellanca Viking	General Aviation	Piston	12	24	36
BL18 - unknown	General Aviation	Piston	0	1	1
BL20 - Equipment Unidentified	General Aviation	-	1	2	3
BL26 - Viking; Bellanca Aircraft	General Aviation	Piston	1	2	3
BL30 - Beech 33 Debonair	General Aviation	Piston	0	1	1
BL7 - unknown	General Aviation	-	0	1	1
BL8 - Bellanca 8 Scout	General Aviation	Piston	0	1	1
BLNC - unknown	General Aviation	-	1	0	1
C150 - Cessna 150	General Aviation	Piston	0	1	1
C172 - Cessna Skyhawk 172/Cutlass	General Aviation	Piston	5	18	23
C180 - Cessna 180	General Aviation	Piston	4	4	8
C182 - Cessna Skylane 182	General Aviation	Piston	6	13	19
C185 - Cessna Skywagon 185	General Aviation	Piston	1	0	1
C205 - Cessna 205	General Aviation	Piston	1	0	1
C206 - Cessna 206 Stationair	General Aviation	Piston	2	4	6
C207 - Cessna Turbo Stationair 7	General Aviation	Piston	1	1	2
C208 - Cessna 208 Caravan	General Aviation	Turbine	2	2	4
C210 - Cessna 210 Centurion	General Aviation	Piston	9	16	25
C25A - Cessna Citation CJ2	Air Carrier	Jet	4	4	8
C25A - Cessna Citation CJ2	General Aviation	Jet	6	6	12
C25B - Cessna Citation CJ3	General Aviation	Jet	1	1	2
C25C - Cessna Citation CJ3	General Aviation	Jet	1	1	2
C310 - Cessna 310	General Aviation	Piston	2	2	4
C337 - Cessna Turbo Super Skymaster	General Aviation	Piston	1	1	2
C340 - Cessna 340	General Aviation	Piston	2	2	4
C414 - Cessna Chancellor 414	General Aviation	Piston	4	5	9
C414 - Cessna Chancellor 414	Other	Piston	1	1	2
C421 - Cessna Golden Eagle 421	General Aviation	Piston	51	52	103
C421 - Cessna Golden Eagle 421	Other	Piston	0	1	1
C425 - Cessna 425 Corsair	General Aviation	Turbine	3	4	7
C441 - Cessna Conquest	General Aviation	Turbine	3	5	8
C500 - Cessna 500/Citation I	General Aviation	Jet	1	1	2
C501 - Cessna I/SP	General Aviation	Jet	1	1	2
C510 - Cessna Citation Mustang	General Aviation	Jet	10	10	20
C525 - Cessna CitationJet/CJ1	Air Carrier	Jet	4	5	9
C525 - Cessna CitationJet/CJ1	General Aviation	Jet	4	4	8
C525 - Cessna CitationJet/CJ1	Other	Jet	1	1	2
C550 - Cessna Citation II/Bravo	General Aviation	Jet	12	12	24
C560 - Cessna Citation V/Ultra/Encore	General Aviation	Jet	6	7	13
C56X - Cessna Excel/XLS	General Aviation	Jet	1	1	2

C680 - Cessna Citation Sovereign	General Aviation	Jet	1	1	2
CL30 - Bombardier (Canadair) Challenger 300	General Aviation	Jet	1	1	2
COL3 - Lancair LC-40 Columbia 400	General Aviation	Piston	1	1	2
COL4 - Lancair LC-41 Columbia 400	General Aviation	Piston	4	4	8
CRUZ - CRUZ FELIX SKYBOLT	General Aviation	Piston	1	1	2
DA40 - Diamond Star DA40	General Aviation	Piston	1	1	2
EA50 - Eclipse 500	General Aviation	Jet	3	3	6
EXP - McDonnell MD-902 Explorer	General Aviation	-	0	1	1
FA50 - Dassault Falcon/Mystère 50	General Aviation	Jet	1	1	2
GALX - IAI 1126 Galaxy/Gulfstream G200	General Aviation	Jet	0	1	1
GLAS - New Glasair	General Aviation	Piston	1	2	3
GLF5 - Gulfstream V/G500	General Aviation	Jet	5	6	11
H25B - BAe HS 125/700-800/Hawker 800	Air Carrier	Jet	1	1	2
H25B - BAe HS 125/700-800/Hawker 800	General Aviation	Jet	2	2	4
H53 - Sikorsky RH-53 Sea Stallion	Military	-	1	1	2
HXA - Experimental Aircraft (Cruise IAS < 101 KT)	General Aviation	-	0	1	1
HXC - Experimental Aircraft	General Aviation	-	1	0	1
J230 - unknown	General Aviation	-	0	2	2
J230 - unknown	Military	-	0	1	1
JAB4 - unknown	General Aviation	Piston	0	1	1
LJ31 - Bombardier Learjet 31/A/B	General Aviation	Jet	15	14	29
LJ35 - Bombardier Learjet 35/36	General Aviation	Jet	1	1	2
LJ45 - Bombardier Learjet 45	Air Carrier	Jet	1	1	2
LJ45 - Bombardier Learjet 45	General Aviation	Jet	21	22	43
LJ60 - Bombardier Learjet 60	General Aviation	Jet	1	1	2
LNC2 - Lancair 360	General Aviation	Piston	0	1	1
M20P - Mooney M-20C Ranger	General Aviation	Piston	8	7	15
M20T - Turbo Mooney M20K	General Aviation	Piston	6	5	11
MU2 - Mitsubishi Marquise/Solitaire	General Aviation	Turbine	1	2	3
P210 - Riley Super P210	General Aviation	Piston	0	2	2
P28A - Piper Cherokee	General Aviation	Piston	3	5	8
P28B - Piper Turbo Dakota	General Aviation	Piston	2	1	3
P28R - Cherokee Arrow/Turbo	General Aviation	Piston	0	1	1
P46T - Piper Malibu Meridian	General Aviation	Turbine	4	4	8
PA24 - Piper PA-24	General Aviation	Piston	2	4	6
PA24 - Piper PA-24	Other	Piston	0	1	1
PA27 - Piper Aztec	General Aviation	Piston	1	4	5
PA28 - Piper Cherokee	General Aviation	Piston	0	2	2
PA31 - Piper Navajo PA-31	General Aviation	Piston	1	1	2
PA32 - Piper Cherokee Six	General Aviation	Piston	2	4	6
PA34 - Piper PA-34 Seneca	General Aviation	Piston	1	3	4
PA44 - Piper Seminole	General Aviation	Piston	0	2	2
PA46 - Piper Malibu	General Aviation	Piston	9	9	18
PA47 - unknown	General Aviation	-	1	0	1
PA60 - Aero Star	General Aviation	Piston	0	3	3
PARO - Piper Cherokee Arrow	General Aviation	Piston	1	0	1
PAY2 - Piper Cheyenne 2	General Aviation	Turbine	1	1	2
PAY3 - Piper PA-42-720 Cheyenne 3	General Aviation	Turbine	1	0	1
PC12 - Pilatus PC-12	Air Carrier	Turbine	0	1	1
PC12 - Pilatus PC-12	General Aviation	Turbine	7	7	14
PC12 - Pilatus PC-12	Military	Turbine	1	2	3
PRM1 - Raytheon Premier 1/390 Premier 1	General Aviation	Jet	3	3	6
RV10 - Experimental	General Aviation	-	1	0	1
RV6 - AIEP Air Beetle	General Aviation	Piston	0	1	1
RV7 - Experimental RV-7	General Aviation	Piston	0	2	2
RV7A - Experimental	General Aviation	-	0	1	1
RV8 - RV-4/6/7/8; VANS	General Aviation	Piston	1	1	2
S35G - unknown	General Aviation	-	0	1	1
SR20 - Cirrus SR-20	General Aviation	Piston	2	2	4
SR22 - Cirrus SR 22	Air Carrier	Piston	1	1	2
SR22 - Cirrus SR 22	General Aviation	Piston	11	16	27
TBM7 - Socata TBM-7	General Aviation	Turbine	2	2	4
TBM8 - Socata TBM-850	General Aviation	Turbine	24	24	48
V22 - Bell V-22 Osprey	Military	-	0	1	1
Total:			**548**	**671**	**1,219**

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Sources: Traffic Flow Management System Counts (TFMSC), Aviation System Performance Metrics (ASPM)

Appendix Two – FAA Template for Comparing Airport Planning and TAF Forecasts

Template for Comparing Airport Planning and TAF Forecasts

(Sample data shown - replace with actuals)

AIRPORT NAME: Hale County Airport

	Year	Airport Forecast	TAF	AF/TAF (% Difference)
Passenger Enplanements				
Base yr.	2012	67	50	34.0%
Base yr. + 5yrs.	2017	68	55	23.6%
Base yr. + 10yrs.	2022	70	60	16.7%
Base yr. + 15yrs.	2027	75	65	15.4%
Commercial Operations				
Base yr.	2012	0	0	#DIV/0!
Base yr. + 5yrs.	2017	0	0	#DIV/0!
Base yr. + 10yrs.	2022	0	0	#DIV/0!
Base yr. + 15yrs.	2027	0	0	#DIV/0!
Total Operations				
Base yr.	2012	22,110	29,523	-25.1%
Base yr. + 5yrs.	2017	22,765	30,923	-26.4%
Base yr. + 10yrs.	2022	23,365	32,394	-27.9%
Base yr. + 15yrs.	2027	24,865	33,933	-26.7%

NOTES: TAF data is on a U.S. Government fiscal year basis (October through September).
AF/TAF (% Difference) column has embedded formulas.

Template for Summarizing and Documenting Airport Planning Forecasts

(Sample data shown - replace with actuals)

A. Forecast Levels and Growth Rates

AIRPORT NAME: Hale County Airport — **Specify base year:** 2012

	Base Yr. Level	Base Yr. + 1yr.	Base Yr. + 5yrs.	Base Yr. + 10yrs.	Base Yr. + 15yrs.	Average Annual Compound Growth Rates: Base yr. to +1	Base yr. to +5	Base yr. to +10	Base yr. to +15
Passenger Enplanements									
Air Carrier						#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Commuter						#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
TOTAL	0	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Operations									
Itinerant									
Air carrier						#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Commuter/air taxi						#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Total Commercial Operations	0	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
General aviation	13,110	13,197	13,545	13,943	14,939	0.7%	0.7%	0.6%	0.9%
Military	155	155	155	155	155	0.0%	0.0%	0.0%	0.0%
Local									
General aviation	6,635	6,679	6,855	7,057	7,561	0.7%	0.7%	0.6%	0.9%
Military	2,210	2,210	2,210	2,210	2,210	0.0%	0.0%	0.0%	0.0%
TOTAL OPERATIONS	22,110	22,241	22,765	23,365	24,865	0.6%	0.6%	0.6%	0.8%
Instrument Operations	1,106	1,135	1,252	1,402	1,616	2.7%	2.5%	2.4%	2.6%
Peak Hour Operations	8	8	8	9	9	0.0%	0.0%	1.2%	0.8%
Cargo/mail (enplaned+deplaned tons)						#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Based Aircraft									
Single Engine (Nonjet)	54	54	54	56	59	0.0%	0.0%	0.4%	0.6%
Multi Engine (Nonjet)	10	10	10	10	11	0.0%	0.0%	0.0%	0.6%
Jet Engine	0	0	0	0	0	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Helicopter	3	3	4	4	5	0.0%	5.9%	2.9%	3.5%
Other	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%
TOTAL	67	67	68	70	75	0.0%	0.3%	0.4%	0.8%

B. Operational Factors

	Base Yr. Level	Base Yr. + 1yr.	Base Yr. + 5yrs.	Base Yr. + 10yrs.	Base Yr. + 15yrs.
Average aircraft size (seats)					
Air carrier					
Commuter					
Average enplaning load factor					
Air carrier					
Commuter					
GA operations per based aircraft	295	297	300	300	300

Note: Show base plus one year if forecast was done. If planning effort did not include all forecast years shown interpolate years as needed, using average annual compound growth rates.

NOTE: Right hand side of worksheet has embedded formulas for average annual compound growth rate calculations.

Appendix Three – Lear 45 Runway Length Analysis

BOMBARDIER
AEROSPACE

LEARJET **45**

Mission Planning Guide

APRIL 2000

WEIGHT STATEMENT

Weight Limits	lb (kg)
Ramp	20,750 (9,412)
Takeoff	20,500 (9,299)
Landing	19,200 (8,709)
Zero Fuel	16,000 (7,257)

Usable Fuel Capacity
6,062 lb
905 U.S. gal @ 6.7 lb/gal
3,426 l
2,750 kg

Weight Buildup	
Basic Empty Weight[1]	12,780 (5,797)
Optional Equipment Allowance	370 (168)
Two Crew	400 (181)
Operating Weight	13,550 (6,146)

Capacities	
Useful Load[2]	7,200 (3,266)
Payload with Full Fuel[3]	1,138 (516)
Maximum Payload[4]	2,450 (1,111)
Maximum Baggage Weight	500 (227)

Notes:

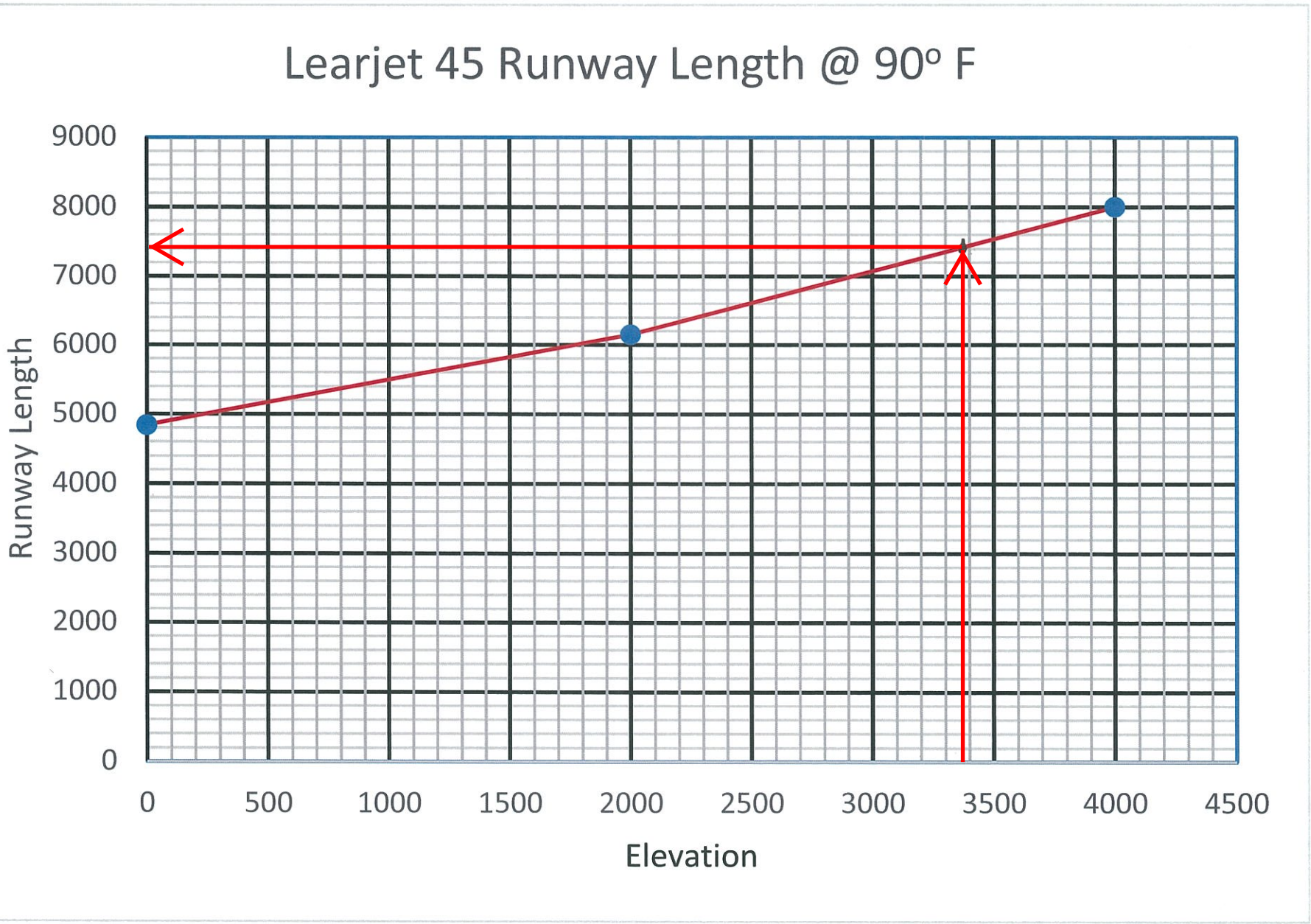
1. *Empty weight includes standard aircraft avionics, paint, interior, single-point refueling, thrust reversers, trapped fluids and unusable fuel.*
2. *Maximum ramp weight less operating weight.*
3. *Maximum ramp weight less operating weight less full fuel weight.*
4. *Zero fuel weight less operating weight.*

TAKEOFF PERFORMANCE

TAKEOFF DISTANCE – FEET

FAR 25 runway requirement, optimum flap setting. Zero wind, zero slope, anti-skid ON, anti-ice OFF, optimum APR/autospoilers setting

Takeoff Weight	Temperature 60°F(16°C)	70°F(21°C)	80°F(27°C)	90°F(32°C)	100°F(38°C)
Sea Level					
20,500 lb	4,366	4,444	4,532	4,840	5,728
19,500 lb	3,937	3,998	4,076	4,271	4,997
18,500 lb	3,691	3,747	3,817	3,938	4,331
17,500 lb	3,496	3,551	3,615	3,723	4,001
16,500 lb	3,350	3,400	3,460	3,532	3,736
15,500 lb	3,290	3,340	3,400	3,468	3,600
2,000 ft					
20,500 lb	4,666	4,758	5,254	6,148	7,480
19,500 lb	4,208	4,283	4,607	5,340	6,444
18,500 lb	3,936	3,998	4,188	4,607	5,521
17,500 lb	3,726	3,787	3,967	4,225	4,702
16,500 lb	3,565	3,618	3,734	3,936	4,281
15,500 lb	3,500	3,552	3,648	3,778	3,976
4,000 ft					
20,500 lb	5,074	5,636	6,810	7,998	---
19,500 lb	4,540	4,895	5,895	6,930	8,439
18,500 lb	4,229	4,441	5,047	5,918	7,181
17,500 lb	4,001	4,185	4,510	4,999	6,051
16,500 lb	3,814	3,932	4,220	4,541	5,117
15,500 lb	3,742	3,837	4,011	4,208	4,616
6,000 ft					
20,500 lb	6,236	7,308	8,920	---	---
19,500 lb	5,451	6,335	7,677	9,084	---
18,500 lb	4,833	5,472	6,570	7,673	9,623
17,500 lb	4,514	4,846	5,617	6,506	7,913
16,500 lb	4,200	4,500	4,937	5,485	6,508
15,500 lb	4,066	4,231	4,521	4,895	5,537
8,000 ft					
20,500 lb	8,172	9,690	---	---	---
19,500 lb	7,059	8,319	10,417	---	---
18,500 lb	6,127	7,144	8,624	10,956	---
17,500 lb	5,329	6,107	7,317	8,650	---
16,500 lb	4,876	5,295	6,089	7,078	---
15,500 lb	4,514	4,870	5,314	5,975	---


Learjet 45 Runway Length @ 90° F
Runway Length
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
0
500
1000
1500
2000
2500
3000
3500
4000
4500
Elevation

Master Plan

Hale County Airport

PSC

Mead&Hunt