Chapter Four

AIRPORT DEVELOPMENT ALTERNATIVES

AIRPORT DEVELOPMENT ALTERNATIVES

Prior to defining the recommended development program for Cox Field Airport (PRX), it is important to first analyze development potential as well as constraints to future development at the airport. The purpose of this chapter is to evaluate the ability to provide facilities which are needed to accommodate projected demand and meet the program requirements as defined in Chapter Three - Facility Requirements. In some cases, development needs are straight-forward, while for other situations, alternative methods for meeting projected aviation demand can be numerous.

In this chapter, airport development alternatives are analyzed for the airport, where applicable. The ultimate goal is to develop the underlying rationale which supports the final recommended Master Plan development concept. Through this process, an evaluation of the most realistic and best uses of airport property is made while factoring local development goals, physical and environmental constraints, and appropriate federal airport design standards.

Any development proposed by a Master Plan evolves from an analysis of projected needs. Though the needs were determined by the best methodology available, it cannot be assumed that future events will not change these needs.

The development alternatives for Cox Field Airport can be categorized into two functional areas: airside (runways, taxiways, navigational aids, etc.) and landside (general aviation

hangars, aprons, terminal area, etc.). Within each of these areas, specific facilities are required or desired. In addition, the utilization of the remaining airport property to provide revenue support for the airport and to benefit the economic development and well-being of the regional area must be factored in the analysis.

Each functional area interrelates and affects the development potential of the others. Therefore, all areas must be examined individually, and then coordinated as a whole, to ensure the final plan is functional, efficient, and cost-effective. The total impact of all these factors on the existing airport must be evaluated to determine if the investment in Cox Field Airport will meet the needs of the community, both during and beyond the planning period.

The alternatives presented in this chapter have been developed to meet the overall program objectives for the airport in a balanced manner. Through coordination with the Planning Advisory Committee (PAC), City of Paris, airport tenants, and general public, the alternatives (or combination thereof) will be refined and modified as necessary to develop the recommended development concept. Furthermore, there are many alternative development potentials, but those presented here are the most viable and feasible alternatives. A combination of alternatives or a refinement of a particular alternative can be selected. Therefore, the alternatives presented in this chapter should be thought of as a beginning point in the development of the recommended concept for Cox Field Airport.

NO-BUILD ALTERNATIVE

In analyzing and comparing the advantages and disadvantages of various alternatives, it is important to analyze the consequences of no future development at Cox Field Airport. The "no-build" or "do nothing" alternative essentially presents keeping the airport in its present condition and not providing for any type of expansion or improvement to the existing facilities (other than general airfield and City-owned hangar and terminal building maintenance projects). The primary result of this alternative, as with any growing air transportation market, would be the eventual inability of the airport to satisfy the increasing demands of the airport service area.

The activity at Cox Field Airport can largely be attributed to the City of Paris being a regional economic hub for the region. The general aviation industry has experienced extended periods of decline and growth over the last 20 years. While overall general aviation growth will be steady but slow, nationally based on current economic conditions, the demand for higher performance aircraft is experiencing the strongest rate of growth. This can be locally evidenced at Cox Field Airport by the aviation activity supporting local businesses such as Campbell's Soup, Townes Communications, and Kimberly-Clark, among others.

The analysis of facility requirements indicated a future need for improved facilities at Cox Field Airport. Improvements recommended in the previous chapter include strengthening

the Runway 17-35 pavement strength capacity, improving instrument approach capabilities, improving the taxiway system, and constructing additional hangar facilities. Without these improvements, regular users of the airport will be constrained from taking maximum advantage of the air transportation capabilities of the airport. Continual air traffic growth and changes in the mix of aircraft operating at the airport are placing increased demands on the airfield and changes in aircraft storage, apron, and taxiway needs.

The unavoidable consequence of the no-build alternative would involve the inability to attract potential airport users. Airport facilities are often the first impression many officials will have of the community. If the airport does not have the capability to meet the hangar, apron, or airfield needs of potential users, the capability of the City to attract businesses that rely on air transportation could be diminished. Following the no-build alternative would also not support the private businesses that have made investments at Cox Field Airport. As these businesses grow, the airport will need to be able to accommodate the infrastructure needs associated with the growth. Each of the businesses on the airport provides jobs for local residents, creates economic benefits for the community, and pays taxes for local government operations.

By owning and operating Cox Field Airport, the City of Paris is charged with the responsibility of developing aviation facilities necessary to accommodate aviation demand as well as to minimize operational constraints. Flexibility must be programmed into airport development to assure adequate capacity to account for the possibility of market conditions changing unexpectedly. Cox Field Airport is part of a system of public airports that serve the aviation needs of the region, state, and country as a whole. As such, the airport has a responsibility to provide adequate facilities to support the full range of general aviation activity in support of local and interstate commerce as predicated by federal directives and obligated by grant assurances.

To propose no further development at Cox Field Airport could adversely affect the long term viability of the airport, resulting in economic effects on the City of Paris and the region as a whole. The no-build alternative is also inconsistent with the long term goals of the Texas Department of Transportation (TxDOT) – Aviation Division and the Federal Aviation Administration (FAA), which are to enhance local and interstate commerce. Therefore, this alternative is not prudent or feasible and will no longer be considered in this study.

AIRPORT DEVELOPMENT OBJECTIVES

It is the overall objective of this effort to produce a balanced airside and landside complex to serve forecast aviation demands. However, before defining and evaluating specific alternatives, airport development objectives need to be outlined. The primary goal of the Master Plan is to define a development concept which allows for the

airport to be marketed, developed, and safely operated for the betterment of the region and its users. With this in mind, the following development objectives have been defined for this planning effort:

- Maintain an attractive, efficient, and safe aviation facility in accordance with federal, state, and local regulations.

- Develop facilities to efficiently serve general aviation users and encourage increased use of the airport, including business and corporate activity.

- Provide sufficient airside and landside capacity, efficiency, and safety through additional facility improvements which will meet the long term planning horizon level of demand for the airport and region.

- Identify any future land acquisition needs.

- Ensure that any recommended future development is environmentally compatible.

- Enhance local economic development through maximizing the use of available property.

- Identify opportunities for approved non-aeronautical use of certain areas on the airport to further diversify airport facility revenue-generating potentials.

The remainder of this chapter will describe various development alternatives for the airside and landside facilities. Within each of these areas, specific facilities are required or desired. Although each area is treated separately, planning must integrate the individual requirements so as to complement one another.

Exhibit 4A presents both airside and landside planning issues that will be specifically addressed. These issues are the result of the findings of the aviation demand forecasts and airport facility requirements evaluations, and include input from the PAC, airport staff, and general public.

AIRFIELD DEVELOPMENT OPTIONS

The purpose of this section is to identify and evaluate the various viable airside development options at Cox Field Airport to meet the program requirements set forth in Chapter Three. Airfield facilities are, by nature, the focal point of an airport complex. Airfield facility needs are often the most critical factor in the determination of airport development alternatives.

In particular, the runway and taxiway system requires the greatest commitment of land area to meet the physical layout of the system, as well as the required FAA and TxDOT safety standards. Moreover, the design of the airfield system defines minimum building set-back distances from the runway and object clearance standards. These criteria will be defined first in order to ensure that the fundamental needs of the airport are met. Therefore, airside requirements will be analyzed prior to detailing land use development alternatives.

AIRSIDE ISSUES

- Improvements necessary to meet FAA's ARC C-II and D-II standards including runway safety and object free areas
- Improve Runway 17-35 pavements including increasing the strength to 60,000 pounds single gear wheel loading (SWL)
- Consider the closure of up to two crosswind runways
- Consider the extension of Taxiway A to the south end of Runway 17-35
- Locate runway/taxiway holdlines per FAA criteria
- Consider improvements necessary to accommodate improved instrument approaches to Runway 17-35 down to Category I visibility minimums
- Consider improving crosswind runway instrument approaches down to ¾-mile visibility minimums
- General pavement and drainage maintenance and improvements

LANDSIDE ISSUES

- Maximize land available for aviation use in order to meet demand and optimize financial resources
- Layout of future hangars that is convenient but also allows for ultimate build-out
- Redevelopment of land currently used for airside purposes if a crosswind runway is decommissioned
- Maximize revenue production of land to include non-aviation uses

PARIS TEXAS

Exhibit 4A
ALTERNATIVE ISSUES

AIRPORT REFERENCE CODE (ARC) DESIGNATION

The design of airfield facilities is based, in part, on the physical and operational characteristics of aircraft using the airport. The FAA and TxDOT utilize the Airport Reference Code (ARC) system to relate airport design requirements to the physical (wingspan and tail height) and operational (approach speed) characteristics of aircraft conducting 250 or more operations annually at the airport. While this can at times be represented by one specific make and model of aircraft, most often an airport's ARC is represented by a grouping or family of different aircraft which collectively conduct more than 250 annual operations at the airport.

The critical aircraft operational threshold is utilized to justify the need to develop and/or upgrade airport facilities to meet a higher ARC. This is done to ensure that an airport is cost-effectively constructed while balancing the safety needs to meet the aircraft that are using, or have the potential to use, the airport on a regular basis. It is not uncommon, however, for aircraft to operate at airports that are not designed to meet that aircraft ARC designation. At Cox Field Airport, for example, Campbell's Soup has utilized Gulfstream V aircraft in support of their business operations. The G-V is an ARC D-III aircraft. Annual operations by this aircraft, however, have not met the 250 critical aircraft threshold. As a result, the airport does not currently need to conform to ARC D-III standards.

The majority of based aircraft at Cox Field Airport fall within approach categories A and B and Airplane Design Group (ADG) I and II (refer to Chapter Three for a full discussion of the ARC). The mix of itinerant aircraft is more diverse and includes aircraft in ARCs B-I, B-II, C-I, C-II, C-III, D-I, D-II, and D-III. Aircraft in ARCs C/D-I through C/D-III are the most demanding aircraft to operate at the airport (due to higher approach speeds); however, these aircraft currently conduct less than 250 annual operations at the airport. Therefore, at this time, the most demanding approach category for the airport is approach category B. The wingspans of the most demanding aircraft fall within ADG II.

The potential exists in the future for increased use of the airport by business turboprop and turbojet aircraft. This follows the national trend of increased business and corporate use of turboprop and turbojet aircraft, steady sales and deliveries of turboprop and turbojet aircraft, and expanded fractional ownership programs for these aircraft. With a 6,002-foot primary runway, larger business jet operations are relatively capable of flying coast-to-coast from Cox Field Airport. The hot weather conditions that prevail in the area during the summer months can be a limiting factor for the operation of some aircraft models; however, the current runway length is capable of handling all business jet aircraft up to and including ARC C/D-III, such as the Gulfstream V.

As noted in the previous chapter, TxDOT has classified Cox Field Air-

port as a Regional Airport by functional category. As such, the airport should be planned to accommodate high performance aircraft including air taxi, commuter, and charter aircraft activity. The designated ARC for a Regional Airport in TxDOT's system is B-II through C-III. As a result, alternative analysis will evaluate facility development that will meet, at a minimum, ARC C-II aircraft standards for Runway 17-35. Ultimate consideration will also be given to the needs of ARC D-II/III as these aircraft have historically utilized the airport. It should be noted that the airport design requirements for approach categories C and D are generally the same with only a few minor differences as will be outlined in the following sections.

Runways 3-21 and 14-32 are designed for crosswind coverage support, especially for small aircraft up to and including ARC B-II. Analysis in the previous chapter considered the ultimate closure of at least one of the crosswind runways. Alternative analysis will consider several options for the crosswind runways; however, the alternatives will only consider maintaining up to ARC B-II standards to meet the needs of aircraft requiring the crosswind runway availability.

AIRFIELD CAPACITY

FAA Order 5090.3C, *Field Formulation of the National Plan of Integrated Airport Systems* (NPIAS), indicates that improvements for airfield capacity should be planned once annual operations reach 60 to 75 percent of the airport annual service volume (ASV). For Cox Field Airport, long term operation projections will not reach 60 percent of the existing crosswind runway configuration ASV. Thus, no capacity improvements are required. Analysis and planning will aim for improving runway vacancy times.

RUNWAY ORIENTATION

Runways should be designed in a manner to provide the most efficient use of local wind conditions. In the Paris region, wind patterns are generally from the south, approximately 70 percent of the year. Northerly wind conditions typify cold fronts associated with winter weather or during some spring and summer storm patterns. As a result, the optimum orientation for a runway at Cox Field Airport is north to south. This can be evidenced by the airport wind rose presented in the previous chapter on Exhibit 3B. Primary Runway 17-35 provided 93.84 percent crosswind coverage for all winds during the previous ten years. The FAA generally requires a single runway system to meet 95 percent crosswind coverage for all components. If the 95 percent threshold is not met by the single runway alignment, a crosswind runway can be supported through FAA grant mechanisms.

Cox Field Airport was initially constructed to serve as a military training field. The triangular orientation of runway system is typical of a military training field. In the civilian system, however, maintaining three runways can be costly to develop and maintain. As such, the FAA and TxDOT require

that each runway be justified so as to receive federal or state funding assistance. At Cox Field Airport, primary Runway 17-35 does not fully meet FAA standards for a single runway orientation. As noted, the single runway should meet or exceed 95 percent crosswind coverage for all components. Runway 17-35 falls short of the 95 percent threshold for 10.5-knot crosswind components; however, it does meet the crosswind coverage requirements for all other components. As a result, at least one crosswind runway could be eligible for federal and/or state funding assistance. The crosswind runway would need to meet the needs of small aircraft up to ARC B-II, per FAA crosswind component requirements.

It should be noted that the current crosswind coverage provided by Runway 17-35 would generally be acceptable by the FAA. For example, if Cox Field Airport did not currently have a crosswind runway, the FAA and/or TxDOT would not financially support the development of a new crosswind runway. Moreover, federal and/or state funding for the maintenance of three runways at Cox Field Airport is not likely. It is not the intention of this planning process to promote the elimination of any runways; however, the reality of limited funding resources will likely require closure of at least one runway during the scope of this study. The existing crosswind runways are currently operational but will likely require pavement maintenance and drainage improvements within the scope of this study's planning horizons. As a result, the alternative analysis will evaluate the options of closing at least one of the crosswind runways. The analysis does not intend to imply that closure is an imminent option as the crosswind runway(s) could remain operational until their useful life, safety of operations, or limited financial resources dictate closure.

RUNWAY LENGTH

Primary Runway 17-35 is currently 6,002 feet long while both crosswind runways are 4,624 feet long. Analysis in the previous chapter indicated that the runway system provides adequate length for nearly all airplanes that currently use, or are forecast to use, the airport. During hot periods or for long stage lengths, some aircraft may require a longer runway as noted in Table 3F of the previous chapter; however, these aircraft operations are few. Moreover, these operators could limit useful loads or make a fuel stop prior to their destination as an option.

The current length of both crosswind runways meets the requirements of all small airplanes for which it is needed. As presented in Table 3F, a 3,900-foot long runway should be provided to meet the needs of 100 percent of all small airplanes. This generally includes all piston-powered aircraft up to and including ARC B-II. In order to provide for small business jets through ARC B-II, the runway should be at least 4,500 feet long.

RUNWAY WIDTH

As previously discussed in Chapter Three, the critical design aircraft and

approach visibility minimums determine runway width requirements. All three runways at Cox Field Airport are currently 150 feet wide. For primary Runway 17-35, future planning considers ½-mile visibility approach minimums and ARC C/D-II design standards. FAA standards call for a 100-foot wide runway given these circumstances. It should be noted that a project currently under design at the airport calls for Runway 17-35 to be narrowed to 100 feet, and, as such, the alternatives to follow call for the ultimate runway width to adhere to 100 feet.

ARC B-II design standards for visual runways and runways served by an instrument approach procedure with not lower than ¾-mile visibility minimums require only a 75-foot wide runway, similar to what is being proposed for the crosswind runway system. The current width of the crosswind runways is twice as large as FAA design standards require. Future consideration should be given to narrowing the crosswind runway to be ultimately maintained at the airport, as the FAA and TxDOT will likely only provide funding assistance for a 75-foot crosswind runway. As a result, the alternatives call for reducing the crosswind runway width to 75 feet.

RUNWAY SAFETY AREAS

The design of airfield facilities includes both the pavement areas to accommodate landing and ground operations of aircraft as well as imaginary safety areas to maintain aircraft operational areas free of obstructions that could affect the safe operation of aircraft at the airport. The safety areas include the runway safety area (RSA) and object free area (OFA).

The FAA defines the OFA as "a two dimensional ground area surrounding runways, taxiways, and taxilanes which is clear of objects except for objects whose location is fixed by function (i.e., airfield lighting)." The RSA is defined as "a surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway."

The FAA has placed a higher significance on maintaining adequate RSAs at all airports due to recent aircraft accidents. Under Order 5200.8, effective October 1, 1999, the FAA established a Runway Safety Area Program. The Order states, “The goal of the Runway Safety Area Program is that all RSAs at federally obligated airports and all RSAs at airports certificated under 14 CFR Part 139 shall conform to the standards contained in Advisory Circular 150/5300-13, *Airport Design*, to the extent practical.” Under the Order, each regional airports division of the FAA is obligated to collect and maintain data on the RSA for each runway at federally obligated airports. The FAA has been visually inspecting the RSAs at each federally obligated airport for the last ten years with a goal to complete the program by 2015. In Texas, TxDOT has been given the responsibility to administer and inspect the RSAs at the general aviation airports.

As mentioned in Chapter Three, all runways currently meet RSA and OFA standards for ARC B-II. Runway 17-35 is being considered to be upgraded to meet ARC C/D-II standards. The areas west and south of the Runway 35 threshold do not conform to FAA design criteria for ARC C/D-II OFA and RSA due to the location of trees and the routing of Little Sandy Creek. In order to conform to ARC C/D-II RSA standards, the trees will need to be removed and the creek re-routed or channeled via pipe or box culvert beneath the RSA. The creek may be located in the OFA as long as it is below the RSA elevation; however, all trees in the OFA must be removed.

INSTRUMENT APPROACHES

This section will present information regarding the potential for improved instrument approach procedures. Where possible, approach minimums should be as low as possible in balance of practical safety and financial constraints. The best approach minimums possible will prevent aircraft from having to divert to another airport, which can cause financial hardship for the operator and on-airport businesses.

Runway 17-35 is currently served by localizer performance with vertical guidance (LPV) global positioning system (GPS) approaches. Runway 35's LPV approach provides visibility minimums not lower than ¾-mile, while Runway 17's LPV approach is for not lower than one-mile visibility. There are no published instrument approaches to either crosswind runway.

As previously discussed in Chapter Three, advancements continue to be made in global positioning system (GPS) navigation that can provide a more cost-effective and attractive means of obtaining Category I (CAT I) instrument approaches which provide ½-mile visibility minimums and 200-foot cloud ceilings. This includes the continued development of the Wide Area Augmentation System (WAAS). WAAS provides for approaches with both course and vertical navigation. This capability was historically only provided by an instrument landing system (ILS), which requires extensive on-airport facilities. The GPS-WAAS could allow for approach minimums to be lower than ¾-mile visibility, down to CAT I minimums, in the future.

In order to achieve an approach providing less than one mile visibility minimums, the corresponding runway end generally requires the installation of an approach lighting system. Examples of approach lighting systems for approaches with not lower than ¾-mile visibility minimums would include a medium intensity approach lighting system (MALS), omnidirectional approach lighting system (ODALS), or a lead-in light system (LDIN). For CAT I approaches, a medium intensity approach lighting system with runway alignment lights (MALSR) is required.

If feasible and/or practical, approaches providing for as low as CAT I minimums for both ends of Runway 17-35 and not lower than ¾-mile visibility for both ends of the crosswind runway will be planned. Lower approach minimums will allow operations at the

airport, when in the past, aircraft may have had to divert to another airport for landing, or delay departure from the origination point awaiting weather improvements at Cox Field Airport. Moreover, the projected increase in business jet operations at the airport signify a need for improved instrument approach procedures.

RUNWAY PROTECTION ZONES

The runway protection zone (RPZ) is a trapezoidal area beginning 200 feet from each runway end and is sized in accordance to critical aircraft associated with the runway and/or the types of approved instrument approaches for the runway. The function of the RPZ is to enhance the protection of people and property on the ground. Land uses prohibited in the RPZ include residences, places of public assembly (e.g., churches, schools, office buildings, shopping centers, etc.), wildlife attractants, and fuel farms.

The FAA strongly recommends fee-simple ownership of the RPZ by the airport. In cases where outright ownership is not feasible, other land use control measures can be pursued, such as avigation easements or land use zoning.

The existing RPZs were detailed in the previous chapter. The RPZ serving Runway 35 is the only RPZ which currently extends beyond airport property. The ¾-mile visibility approach associated with Runway 35 has an associated RPZ which extends 1,900 feet beyond the runway threshold. Approximately 22 acres of the existing RPZ are outside of current property bounds. Future planning considers improved visibility approaches to all runways. Each alternative will consider the property acquisition to meet RPZ needs, if any, based on the proposed visibility minimum improvements.

TAXIWAYS

The current location and number of taxiways at Cox Field Airport is adequate to provide access to existing landside facilities and the runway system. However, in order to provide increased efficiency and safety at the airport, additional taxiway exits should be planned.

Any runway served by a precision approach must be served by a parallel taxiway which extends to the runway threshold. Currently, parallel Taxiway A does not extend to the south end of Runway 17-35. Alternative analysis will consider fully extending Taxiway A to the south end of the runway.

HOLDLINES

Runway and taxiway holdlines are specifically placed to prevent aircraft from entering active movement areas prior to authorization or when safety allows. The location of the holdline is determined by the type of aircraft operations traversing the particular movement area.

ARC B-II runway design requires holdlines to be placed 200 feet perpen-

dicular to the runway centerline. For larger aircraft in ARC C-II, a minimum holdline placement of 250 feet perpendicular to the runway centerline is required. Furthermore, the required distance is increased by one foot for every 100 feet above mean sea level (MSL) for runways with approach category D aircraft design. Cox Field Airport has a published elevation of 547 feet MSL. Thus, to meet ARC D-II at Cox Field Airport, the holdlines should be located 255 feet perpendicular to the runway centerline.

Based on design standards, any holdline associated with the crosswind runways should be located no nearer than 200 feet from runway centerline. Holdlines associated with Runway 17-35 should be located no nearer than 250 feet for ARC B/C-II design and 255 feet for ARC D-II design.

Currently, all holdlines located on taxiways west of Runway 17-35 and Taxiway B east of the runway are set 250 feet from the runway centerline. This currently meets standard up to and including ARC C-II. These holdlines would have to be relocated an additional five feet to meet ARC D-II standards. Holdlines on access taxiways leading from Runway 17-35 east to the Runway 3 and 14 thresholds, however, are set 175 feet from the Runway 17-35 centerline. Obviously, this dimension does not meet FAA standard. The holdlines are placed so as to provide 200 feet separation from each crosswind threshold end, but in doing so, they are located too near Runway 17-35. As a result, any aircraft holding on the access taxiway to depart Runway 3 or 21 will be holding in the ARC C/D-II RSA for Runway 17-35. This arrangement will likely prohibit any improved instrument approach procedures from being implemented. Alternatives have been developed which consider a method of meeting holdline requirements for all proposed runways based on ultimate critical aircraft standards.

GENERALIZED LAND USE

Typically, land use is categorized as a landside alternative function. For the Cox Field Airport planning process, however, ultimate land use will be influenced by the proposed airfield layout plan. The airport currently encompasses more than 1,500 acres of land. More than half of the total airport property is located to the east of primary Runway 17-35. As a result, the use of property to the east of Runway 17-35 will be dictated by which crosswind runway(s) is proposed in the final development plan. Each airfield alternative presents differing uses of airport property based on the proposed airfield layout.

REVENUE SUPPORT LAND USES

Due to the large amount of land on airport property exceeding the space needed for forecast aviation demand, planning will include the outright release and sale of property and/or reusing portions of the airport for non-aeronautical purposes such as commercial, industrial, or office park development. The City does not have the approval to sell or re-use airport property for non-aeronautical pur-

poses at this time. This requires specific approval from the FAA. The Master Plan does not gain approval for sale or non-aeronautical land reuse, even if shown in the Master Plan and on the Airport Layout Plan (ALP). A separate request justifying the sale or re-use of airport property for non-aeronautical uses will be required once the Master Plan is complete. The Master Plan can be a source for developing that justification.

Federal law obligates an airport sponsor to use all property shown on an ALP and/or Property Map for public airport purposes. A distinction is not made between property acquired locally and property acquired with federal assistance. However, property acquired with federal assistance or transferred surplus property from the federal government may have specific covenants or restrictions on its use different from property acquired locally.

These obligations will require that the City work with TxDOT to formally request a release from the terms, conditions, reservations, and restrictions contained in any conveyance deeds and assurances in previous grant agreements. A release is required even if the airport desires to continue to own the land and only lease the land for development. The obligations relate to the use of the land just as much as to the ownership of the land.

U.S. Code 47153 authorizes the FAA to release airport land when it is convincingly clear that:

a. Airport property no longer serves the purpose for which it was conveyed. In other words, the airport does not need the land now or in the future because it has no aviation-related or aeronautical use, nor does it serve as approach protection, a compatible land use, or a noise buffer zone.

b. The release will not prevent the airport from completing the purpose for which the land was conveyed. In other words, the airport will not experience any impacts from relinquishing the land.

c. The release is actually necessary to advance the civil aviation interests of the counters. In other words, there is a measurable and tangible benefit for the airport or the airport system.

Ultimately, the ability of the City to sell or re-use airport property for non-aeronautical revenue production will rest upon a determination by the FAA that portions of airport property are no longer needed for airport-related or aeronautical uses. To prove that land is not needed for aeronautical purposes, an assessment and determination of the area that will be required for aeronautical purposes will be needed. The Master Plan provides this analysis.

A formal request to the FAA for a release from federal obligations will have ten distinct elements. The elements of the request will include:

1. A description of the obligating conveyance instrument or grant.

2. A complete property description including a legal description of the land to be released.

3. A description of the property condition.

4. A description of federal obligations.

5. The kind of release requested (lease or sale).

6. Purpose of the release.

7. Justification for the release.

8. Disposition and market value of the released land.

9. Reinvestment agreement. A commitment by the City to reinvest any lease revenues exclusively for the improvement, operation, and maintenance of the airport.

10. Draft instrument of release.

An environmental determination will also be required. While FAA Order 1050.1E, *Environmental Policies and Procedures*, states that a release of an airport sponsor from federal obligations is normally categorically excluded and would not normally require an Environmental Assessment, the issuance of a categorical exclusion is not automatic and the FAA must determine that no extraordinary circumstances exist at the airport. Extraordinary circumstances would include an environmental impact to any of the environmental resources governed by federal law. An Environmental Assessment may be required if there are extraordinary circumstances.

AIRFIELD ALTERNATIVES

Based on the development options presented in the previous section, three airfield alternatives were developed. The basis of each alternative centers on the ultimate configuration of the runway system. One alternative considers closure of both runways, while the remaining two options outline the closure of one crosswind runway. As previously mentioned, this analysis is not to be considered a promotion of runway closure, simply the long term plan associated with the reality that funding assistance for needed maintenance may not be available. As a result, the closure of at least one runway is likely.

AIRFIELD ALTERNATIVE A

The first alternative considers the ultimate closure of both crosswind runways as depicted on **Exhibit 4B**. This alternative would be feasible only if financial support for both crosswind runways were non-existent. The resulting concept would include a singular runway which does not fully meet FAA crosswind component coverage for 10.5 knots. The alternative assumes that the RSA and OFA obstructions south and west of the Runway 35 end would be improved to meet standards. The alternative also depicts the potential shift of the holdlines to 255 feet from runway centerline to meet approach category D standards.

The alternative also includes the extension of parallel Taxiway A to the south end of Runway 17-35. As outlined earlier, a taxiway leading to the

threshold is required in order for the runway to be served by precision approaches or approaches with lower than ¾-mile visibility minimums. The proposed extension would extend from the acute angled taxiway, extending parallel to and 400 feet west (centerline to centerline), adjacent to the southernmost 1,200 feet of the runway. Furthermore, a project currently under design at the airport calls for narrowing Runway 17-35 to 100 feet as mentioned earlier in this chapter. These concepts are included in all airfield alternative proposals.

Closure of both crosswind runways would leave approximately 926 acres to the east of the Runway 17-35 safety areas (OFA and RPZs) as depicted on **Exhibit 4B**. The proposed alternative considered the use or reservation of 407 acres of that total for aviation purposes. The FAA typically does not support the sale or re-use for non-aviation purposes of land adjacent to the runway considered "flight line." Moreover, the designation was made with the location of other airfield navigation aids. The proposed aviation reserve area would include facilities such as the tetrahedron, segmented circle, automated weather observation system (AWOS), and remote communication air-to-ground (RCAG) antenna array. These facilities would need to be maintained through the planning period. Moreover, an additional 157 acres west of the existing terminal area are proposed to be reserved for aviation purposes as well.

Airfield Alternative A does propose the sale or re-use for non-aviation purposes of 519 acres of land east of Runway 17-35 and 140 acres adjacent to Airport Road/F.M. 1508. The areas to the east of the runway system have limited to no ground access and lack all utilities. This area would be prime for outright sale as long as it was to be ultimately developed as a compatible land use. If the land could be zoned as industrial and/or commercial, the FAA may be agreeable to its release. If it were not possible to secure such a zoning designation, then the land could be developed by the City of Paris as an on-airport industrial/business park. Land along Airport Road would be ideally suited for non-aviation uses as a means to improve airport revenues.

Both ends of Runway 17-35 are proposed for CAT I approach visibility minimums. As depicted, the RPZs would extend 2,700 feet beyond the runway thresholds. The RPZ for Runway 17 would remain on existing airport property. As previously noted, approximately 22 acres of the existing Runway 35 RPZ already extends outside of airport property. If a CAT I approach is implemented on Runway 35, a total of 51.9 acres would need to be acquired. Both ends of the runway would need to be served by a MALSR as depicted.

AIRFIELD ALTERNATIVE B

The second airfield alternative, presented on **Exhibit 4C,** considers the ultimate closure of only one crosswind runway. As depicted, Airfield Alternative B considers the closure of Runway 14-32 while Runway 3-21 would remain operational. The resultant two-runway airfield system would provide

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NORTH

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SCALE IN FEET

519 Acres

407 Acres

MALSR

255′ 255′ Runway 17-35 6,002′ x 150′ 255′ 255′ Ultimate 6,002′ x100′ 255′ 400′ 255′

MALSR

95 Acres

Little Sandy Creek

62 Acres

98 Acres

Airport Road

Collier Drive

42 Acres

FM 1508 to US 271

271

PROPERTY ACQUISITION REQUIRED FOR RPZ WITH ASSOCIATED APPROACH MINIMUMS

RUNWAY	Visibility Minimums		
	1-Mile	3/4-Mile	1/2-Mile
Runway 17	0	0	0
Runway 35	N/A	22	51.9

LEGEND

LAND USE

- Avigation Easement
- Aquire Property Interests
- Aviation Research / Open
- Industrial, Commercial, or Release

DESIGN

- Airport Property Line
- Runway Safety Area (RSA)
- Object Free Area (OFA)
- Ultimate Airport Pavement
- RPZ — Runway Protection Zone
- MALSR — Medium Intensity Approach Lighting System w/ Runway Alignment Indicator Lights

RPZ not lower than 1 mile

RPZ not lower than 3/4 - mile

RPZ lower than 3/4 - mile

PARIS TEXAS

Exhibit 4B
AIRFIELD ALTERNATIVE A

09MP11-4B-6/17/10

NORTH

0 1000 2000

SCALE IN FEET

341 Acres

235 Acres

118 Acres

500′

Runway 3-21 4,324′x 150′ Ultimate 4,024′x 75′

See Inset

MALSR

255′ 255′

Runway 17-35 6,002′x 150′

255′ 255′

Ultimate 6,002′x100′

MALSR

271

95 Acres

Little Sandy Creek

55 Acres

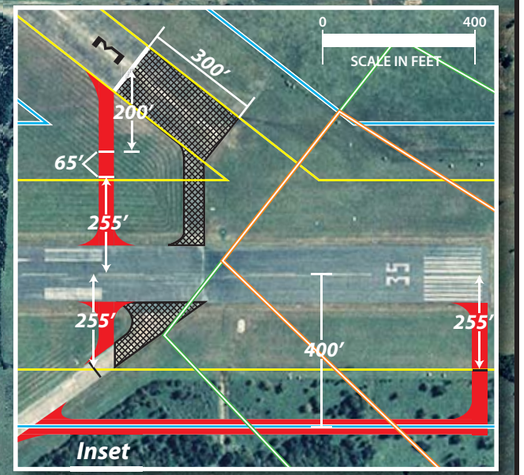
98 Acres

Collier Drive

42 Acres

Airport Road

FM 1508 to U.S. 271



PROPERTY ACQUISITION REQUIRED FOR RPZ WITH ASSOCIATED APPROACH MINIMUMS

RUNWAY	Visibility Minimums 1-Mile	3/4-Mile	1/2-Mile
Runway 17	0	0	0
Runway 35	N/A	22	51.9
Runway 3	0	2.92	Not Planned
Runway 21	0	0	Not Planned

LEGEND

LAND USE

- Avigation Easement
- Aquire Property Interests
- Aviation Research / Open
- Industrial, Commercial, or Release

DESIGN

- Airport Property Line
- Runway Safety Area (RSA)
- Object Free Area (OFA)
- Ultimate Airport Road
- Ultimate Airport Pavement
- Pavement to be Removed
- RPZ — Runway Protection Zone
- MALSR — Medium Intensity Approach Lighting System w/ Runway Alignment Indicator Lights

RPZ not lower than 1 mile

RPZ not lower than 3/4 - mile

RPZ lower than 3/4 - mile

PARIS TEXAS

Exhibit 4C
AIRFIELD ALTERNATIVE B

combined wind coverage of 95.78 percent for 10.5 knots. As a result, the combined coverage would exceed the FAA crosswind component requirements.

Analysis presented in the previous section outlined the required distance for holdline placement for Runway 17-35 at 250 feet for approach category C and 255 feet for approach category D aircraft. For Runway 3-21, the holdline is required to be 200 feet from runway centerline. Aircraft departing Runway 3 must transition to the runway end via Taxiway A, crossing Runway 17-35, then holding on an access taxiway at a point 200 feet from the Runway 3 centerline. The holdline position meets the requirements for Runway 3; however, it is too near Runway 17-35 at only 175 feet (from centerline). This placement holds aircraft squarely inside the Runway 17-35 RSA for ARC C/D-II design. If an improved instrument approach is to be achieved and to meet design standards, ultimate planning must consider relocation of the holdline.

Airfield Alternative B presents the only viable solution to meet the holdline needs of both runways. Unfortunately, it requires the relocation of the Runway 3 threshold 300 feet to the northeast as depicted on the exhibit highlighted in the inset. The relocated threshold and reconfigured access taxiway will allow for the taxiway to provide 65 feet of holding space between the two holdlines properly set for each runway. It should be noted that the critical aircraft design of ARC B-II only supports a width of 75 feet. As a result, the proposed alternative presents the ultimate crosswind Runway 3-21 as 4,024 feet long by 75 feet wide.

Ultimate land uses presented by the alternative would include a larger aviation reserve than the previous alternative. As depicted, Airfield B would allow for up to 459 acres of aviation development east of Runway 17-35. It should be noted that the southern half of the 341 acres proposed as aviation reserve may be available for non-aviation purposes as well. Any development east of Runway 17-35 and south of Runway 3-21 would require substantial infrastructure investments to include roadway access from U.S. Highway 271. An alternative alignment of such a road is depicted on **Exhibit 4C**. The 235 acres of land in the northeastern quadrant of the airport could be planned to be sold or re-used for non-aviation uses.

The land use proposed west of the terminal area is similar to the previous alternative but includes approximately seven acres less aviation reserve due to the location of the Runway 3 RPZ. As a result, the west side aviation reserve land proposed would be 150 acres. Land proposed for non-aviation purposes along Airport Road/F.M. 1508 would include approximately 140 acres.

AIRFIELD ALTERNATIVE C

The third and final airfield alternative considers closure of Runway 3-21 and long term maintenance of Runway 14-32 as depicted on **Exhibit 4D**. The combined crosswind coverage for Airfield Alternative C would be 97.97

percent for 10.5 knots, exceeding FAA requirements.

Taxiway access to Runway 14 would also need to be modified to meet holdline and RSA requirements. The existing holdline east of Runway 17-35 is set at 175 feet which would place aircraft holding to takeoff on Runway 14 in the Runway 17-35 RSA. Thus, Airfield Alternative C considers the relocation of the Runway 14 threshold 280 feet south. The relocated runway and reconfigured access taxiway would allow for 65 feet of holding space between the holdlines for both runways as depicted on **Exhibit 4D**, highlighted in the inset. As a result, Runway 14-32 would have an ultimate length of 4,064 feet and a proposed width of 75 feet to meet ARC B-II standards. Both ends of the runway could support an RPZ for not lower than one mile visibility minimums on airport property; however, if a not lower than ¾-mile visibility minimum approach is implemented on Runway 32, approximately four acres of land would need to be acquired in fee or easement for the associated RPZ.

The ultimate land use proposed for this alternative would allow for 138 acres of aviation reserve south of the intersection of the runways. An additional 170 acres of aviation reserve is proposed to the north and east of Runway 14-32. Approximately 398 acres of the northeastern corner of the airport could be sold or re-used for non-aviation purposes. Infrastructure improvements for land uses east of Runway 17-35 would be required, including a road as proposed on **Exhibit 4D**.

Proposed land uses west of the terminal area are similar to the previous alternatives. As depicted, approximately 148 acres would be reserved for aviation uses, which is slightly less than the previous alternatives due to the location of the Runway 14 RPZ. Approximately 150 acres of land is available for non-aviation use along Airport Road/F.M. 1508.

AIRFIELD SUMMARY

The most significant differences in all airfield alternatives lie in which crosswind runway should be proposed for ultimate closure. Again, closure should only be considered when maintenance is required and funds are not available. That will likely occur at some point in the next 20 years. Given Runway 17-35's inability to meet FAA crosswind coverage for 10.5 knots and that a crosswind runway already exists, it is very likely that TxDOT will continue to financially support one crosswind runway. Financial support for both crosswind runways is not likely. As a result, the consultant has deemed Airfield Alternative A as undesirable. The availability of a crosswind runway not only supports crosswind coverage for small aircraft but also provides an alternative runway for when the primary runway is closed for any reason (pavement maintenance, emergency, etc.).

The most reasonable airside development concept for Cox Field Airport will include a crosswind runway option. The two options presented in Alternatives B and C would meet the ultimate needs of the airport. Alterna-

09MP11-4C-6/17/10

NORTH

0 1000 2000

SCALE IN FEET

398 Acres

170 Acres

138 Acres

Runway 14-32 4,624' x 150' Ultimate 4,344' x 75'

MALSR

255'

Runway 17-35 6,002' x 150'

255'

255'

Ultimate 6,002' x100'

255' 400' 255'

MALSR

See Inset

98 Acres

Little Sandy Creek

86 Acres

62 Acres

42 Acres

Collier Drive

Airport Road

FM 1508 to U.S. 271

271

0 400

SCALE IN FEET

280'

14

200'

65'

255'

17

255'

Inset

LEGEND

LAND USE

- Avigation Easement
- Aquire Property Interests
- Aviation Research / Open
- Industrial, Commercial, or Release

DESIGN

- Airport Property Line
- Runway Safety Area (RSA)
- Object Free Area (OFA)
- Ultimate Airport Road
- Ultimate Airport Pavement
- Pavement to be Removed
- RPZ — Runway Protection Zone
- MALSR — Medium Intensity Approach Lighting System w/ Runway Alignment Indicator Lights

RPZ not lower than 1 mile

RPZ not lower than 3/4 - mile

RPZ lower than 3/4 - mile

PROPERTY ACQUISITION REQUIRED FOR RPZ WITH ASSOCIATED APPROACH MINIMUMS

RUNWAY	Visibility Minimums		
	1-Mile	3/4-Mile	1/2-Mile
Runway 17	0	0	0
Runway 35	N/A	22	51.9
Runway 14	0	0	Not Planned
Runway 32	0	4.11	Not Planned

Exhibit 4D
AIRFIELD ALTERNATIVE C

tive B would provide a shorter crosswind runway option due to holdline issues and the need to relocate the Runway 3 threshold 300 feet, but would only be 20 feet shorter than the Alternative C option. Alternative B would provide a runway system that has a lower combined crosswind coverage than Alternative C, but it would provide more development opportunities east of Runway 17-35.

The selected airfield alternative will be determined with collaboration with the City of Paris, TxDOT, planning advisory committee, airport users, and the general public. The recommended development concept will be outlined in the next chapter.

LANDSIDE DEVELOPMENT OPTIONS

The purpose of this section is to identify and evaluate viable landside alternatives at Cox Field Airport to meet program requirements set forth in the previous chapter. While the airfield is comprised of facilities where aircraft movement occurs (runways, taxiways, etc.), other "landside" functions occur outside this area. The primary aviation functions to be accomplished landside at Cox Field Airport include aircraft storage hangars, aircraft parking aprons, a general aviation terminal building, and automobile parking and access. The interrelationship of these functions is important to defining a long-range landside layout for general aviation uses at the airport.

The orderly development of the airport terminal area, those areas along the flight line parallel to the runway, can be the most critical, and often times the most difficult to control on the airport. A development approach of taking the path of least resistance can have a lasting and costly effect on the long-term viability of an airport. Allowing development without regard to a functional plan could result in a haphazard array of buildings and small apron areas, which will eventually preclude the most efficient use of valuable space along the flight line.

Activity in the aviation development areas have been planned for high, medium, and low intensity levels at the airport. The high-activity area should be planned and developed to provide aviation services on the airport. An example of the high-activity areas is the airport terminal building and adjoining aircraft parking apron, which provides tiedown locations and circulation for aircraft. In addition, large conventional hangars used for fixed base operators (FBOs), corporate aviation departments, or storing a large number of aircraft would all be considered a high-activity use area. The best location for high-activity areas is along the flight line near midfield, for ease of access to all areas on the airfield. Extensive infrastructure would need to be provided to these areas.

The medium-activity use category defines the next level of airport use and primarily includes smaller corporate aircraft owners that may desire executive hangar storage on the airport. The best location for medium-activity

use is off the immediate flight line, but still readily accessible to aircraft including corporate jets. If this area is to be located along the flight line, it is best to keep it out of the midfield area of the airport, so as to not cause congestion with transient aircraft utilizing the airport. Parking and utilities such as water and sewer should also be provided in this area.

The low-activity use category defines the area for storage of smaller single and multi-engine aircraft. Low-activity users are personal or small business aircraft owners who prefer individual space in T-hangars. Low-activity areas should be located in less conspicuous areas. This use category will require electricity, but in most cases does not require water or sewer utilities unless specific operator demands warrant.

Ideally, terminal area facilities at airports should follow a linear configuration parallel to the primary runway system. The linear configuration allows for maximizing available space while providing ease of access to terminal facilities from the airfield. At Cox Field Airport, the existing terminal area includes a linear flight line and medium to low activity area adjacent and west of the flight line. The location and routing of Little Sandy Creek present difficulty when considering future flight line development. If traditional linear development were done, additional crossings of the creek with taxiways and roadways would be required. Obviously, crossing the creek with roads and taxiways will significantly inflate landside development to a point where the costs could prohibit development. As a result, proposed alternatives for landside development have been considered which minimize added costs whenever possible. The landside alternatives to follow will address development in specific areas on the airport. Separation of activity levels and efficiency of layout will be discussed as well.

In addition to the functional compatibility of the aviation development areas, the proposed development concept should provide a first-class appearance for Cox Field Airport. As previously mentioned, the airport serves as a very important link to the entire region whether it is for business or pleasure. Favorable aesthetics should be given high priority in all public areas, as the airport can serve as the first impression a visitor may have of the community.

Landside alternative options were summarized previously on **Exhibit 4A**. The following briefly describes proposed landside facility improvements.

AIRCRAFT HANGAR DEVELOPMENT

The facility requirements indicated a need for the development of more aircraft storage hangars at Cox Field Airport. Hangar development takes on a variety of sizes corresponding with varied different uses.

Commercial general aviation activities are essential to providing the necessary services needed on an airport. This includes businesses involved with, but not limited to, aircraft rental

and flight training, aircraft charters, aircraft maintenance, line service, and aircraft fueling. These types of operations are commonly referred to as FBOs. The facilities associated with businesses such as these include large conventional type hangars that hold multiple aircraft. High levels of activity often characterize these operations, with a need for apron space for the storage and circulation of aircraft. These facilities are best placed along ample apron frontage with good visibility from the runway system for transient aircraft. Utility services are needed for these types of facilities, as well as automobile parking areas.

The mix of aircraft using Cox Field Airport is expected to include more business class aircraft which have larger wingspans. These larger aircraft require greater separation distances between facilities, larger apron areas for parking and circulation, and larger hangar facilities.

Another need indicated was additional space for the storage of smaller aircraft. This primarily involves T-hangars. Since storage hangars often have lower levels of activity, these types of facilities can be located away from the primary apron areas, in more remote locations of the airport. Limited utility services are needed for these areas.

Other types of hangar development can include executive hangars for accommodating more than one aircraft simultaneously. Typically, these types of hangars are used by corporations with company-owned aircraft or by an individual or group of individuals with multiple aircraft. These hangar areas typically require all utilities and segregated roadway access. Currently, executive hangars make up over half of the combined hangar space made available at Cox Field Airport.

LANDSIDE DEVELOPMENT ALTERNATIVES

A series of landside alternatives have been examined for the west side of the airport. As previously discussed, this area can accommodate the forecast aviation demand through the planning period of this Master Plan and is the most readily available for development given existing roadway access and utility infrastructure. These alternatives include general aviation facility development providing for separation of activity levels. The goal of this analysis is to indicate development potentials which would provide Cox Field Airport with a specific goal for future development. The resultant plan will aid the City in strategic marketing of available airport properties.

LANDSIDE ALTERNATIVE 1

Landside Alternative 1 is depicted on **Exhibit 4E**. This alternative proposes that future aviation-related development would take place west of the existing terminal area. This alternative considers ease of implementation paramount.

As depicted on the exhibit, Landside Alternative 1 simply allows for the extension of hangar facilities west of the westernmost hangar facilities adjacent

and north of Collier Drive. The terminal area taxiway would need to be extended to the west as shown. As a result, the alternative would provide for an additional five executive box hangars along the north side of the extended taxiway. On the south side of the taxiway, an additional three nested T-hangars and three connected box hangar facilities are proposed. In support of ground access to the northern hangar facilities in the area, a new road is proposed. The road would allow for hangar owners/users to directly access their facility without traversing an active taxiway. As a result, security is enhanced.

The proposed concept also includes allowance for a large conventional hangar to be located adjacent to the airport's largest hangar (Hangar T), located south of the terminal building. This development would require the southerly extension of the main aircraft parking apron and automobile access around Hangar T.

Analysis in Chapter Three indicated the need for additional fuel storage capacity at the airport through the long term planning horizon. This alternative calls for the expansion of the existing fuel farm adjacent to the existing fuel storage facility. This alternative concept will be included in all alternatives.

LANDSIDE ALTERNATIVE 2

Landside Alternative 2 is depicted on **Exhibit 4F**. As depicted, this alternative considers expansion of hangar facilities to the west and north of existing terminal hangars. Two additional executive box hangars and two additional connected box hangar facilities are proposed to the west of the existing hangars.

As presented, however, this alternative would require the removal/relocation of the airport maintenance facility so as to allow a taxiway to provide access to a new hangar development area to the north. The taxiway would allow for access to seven executive box hangars and six T-hangars/connected box hangars. The layout will require the addition of a roadway network as depicted on the exhibit.

LANDSIDE ALTERNATIVE 3

Exhibit 4G depicts Landside Alternative 3. This alternative is the first to propose the development of hangars on the south side of Collier Drive, south and west of the terminal building. This alternative would require a new taxiway to be extended from the south end of the main ramp which will have to cross over Little Sandy Creek. Obviously, this alternative would be more costly than the previous one for that reason. While this alternative may not be the best choice for short term implementation, it could serve long term demand after taking an approach similar to Alternatives 1 and/or 2.

Proposed development for Landside Alternative 3 centers around the taxiway in a "pod" type development scheme. Each quadrant could include three executive box hangars with four

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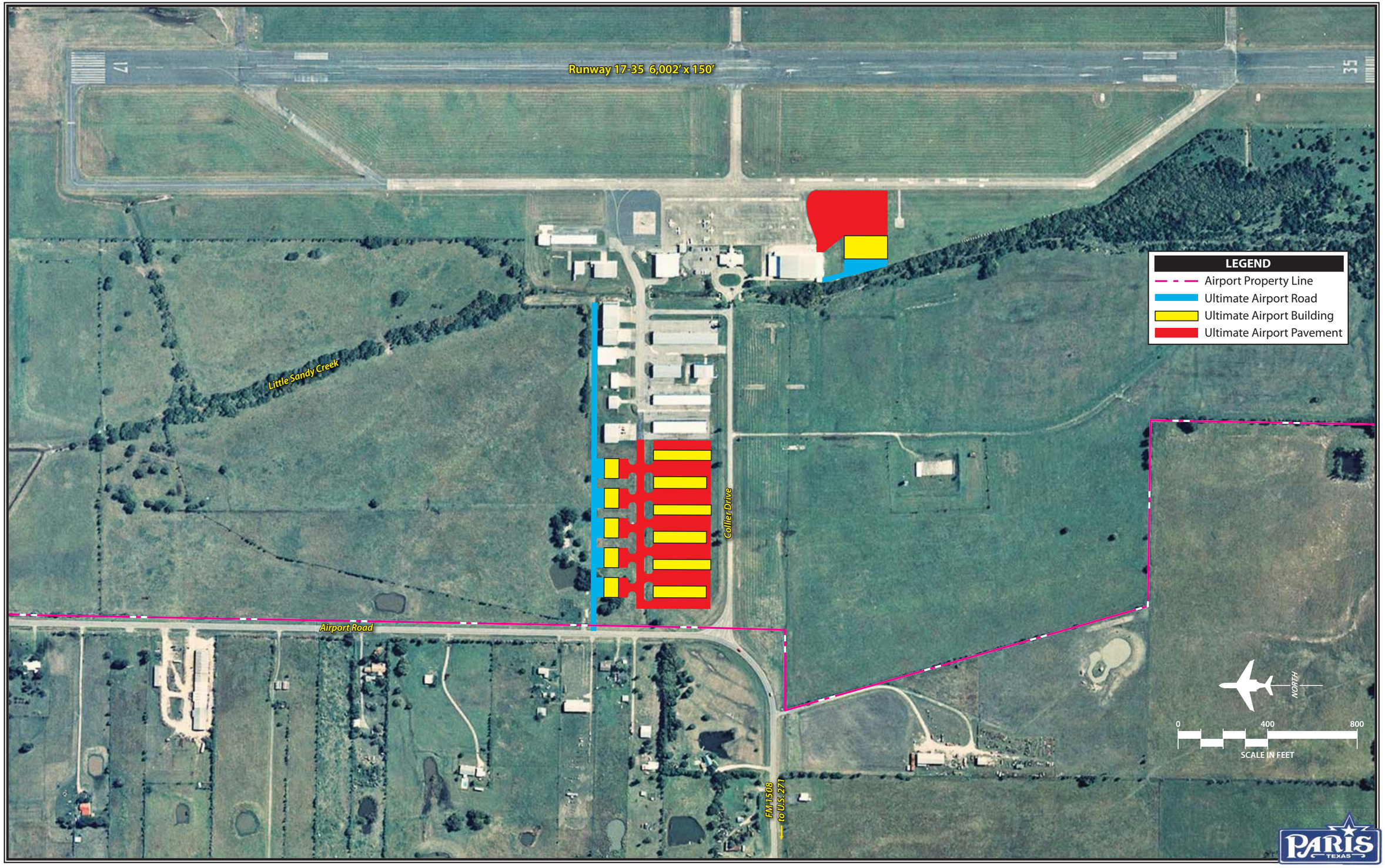

Exhibit 4E
LANDSIDE ALTERNATIVE 1

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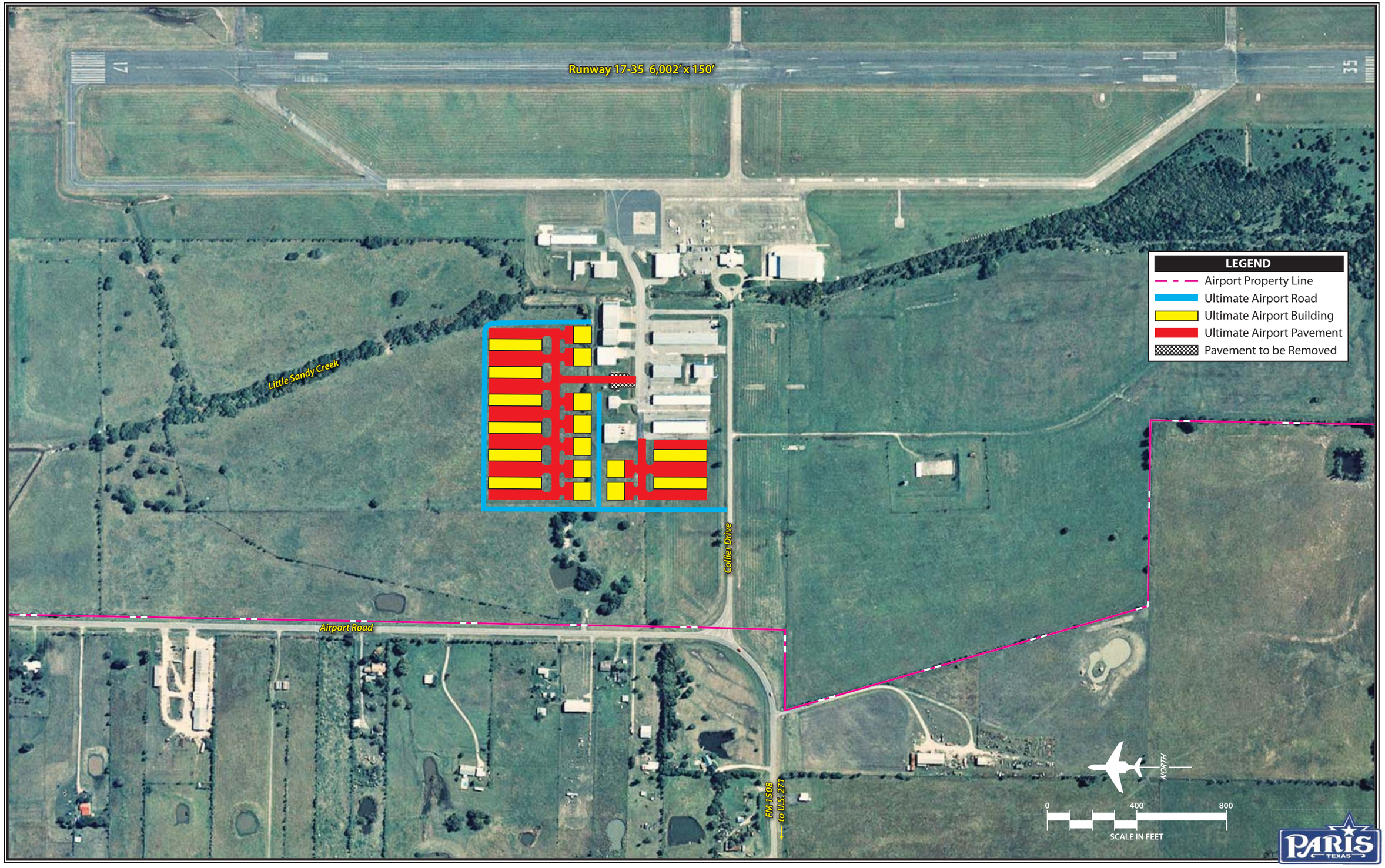

Exhibit 4F
LANDSIDE ALTERNATIVE 2

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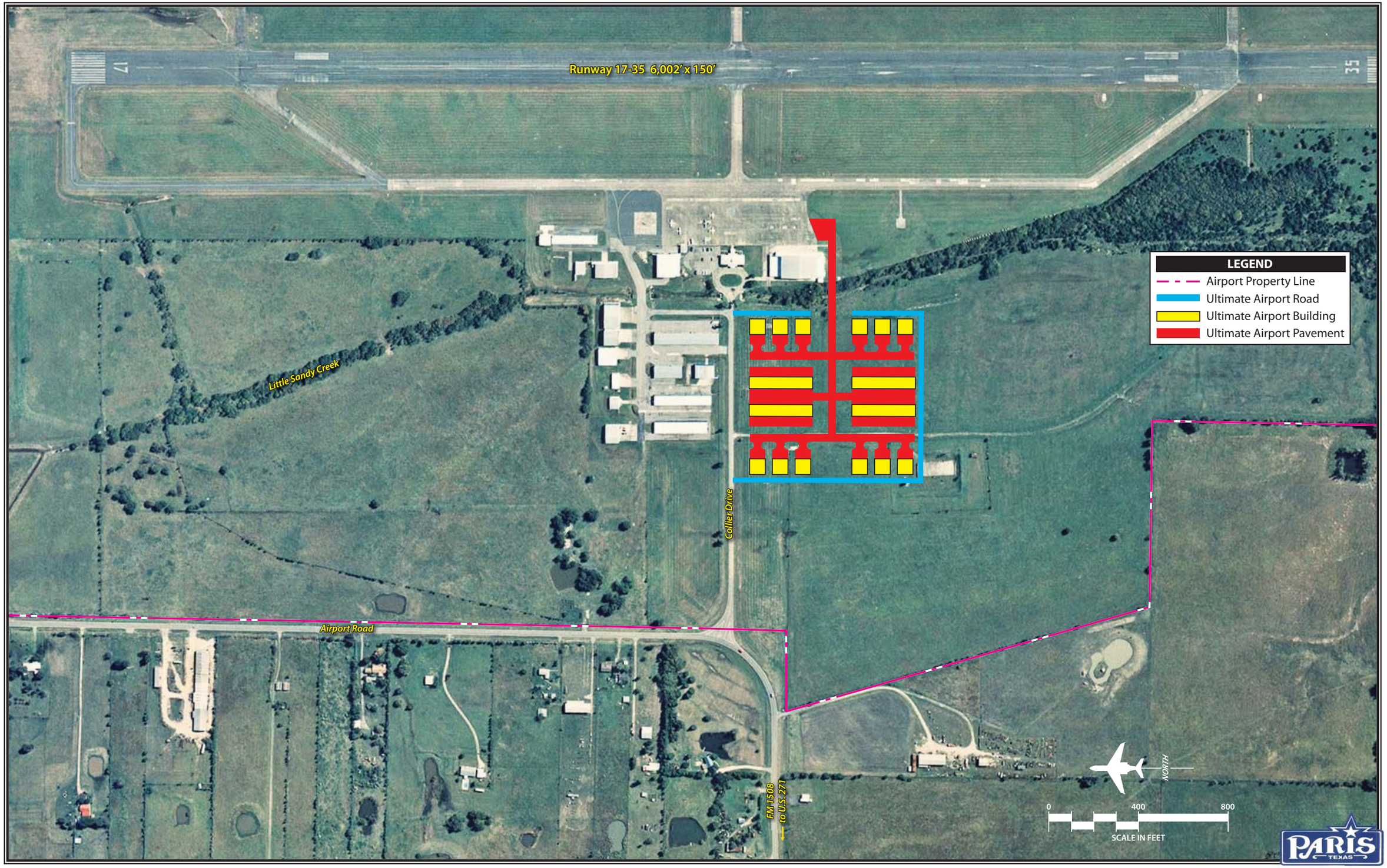

Exhibit 4G
LANDSIDE ALTERNATIVE 3

T-hangars located in the center, all served by the single taxiway. A new road from Collier Drive extending south and then east would be needed for ingress/egress. The westernmost executive box hangars would require the closure/relocation of the City of Paris firefighting training facility.

LANDSIDE ALTERNATIVE SUMMARY

All three alternatives could more than accommodate the hangar space requirements projected for the long term. Moreover, the land use concepts associated with the airfield alternatives could provide ample land for aviation and non-aviation revenue support uses for periods well beyond the scope of this study. The primary goal with the landside alternative examination is to spur thought for direction of landside development in the short term that does not hinder long term goals and ultimate development options.

Landside Alternative 1 will satisfy hangar demand through the planning period in a manner that is efficient and cost-effective. The primary drawback with development as proposed in Alternative 1 would be the single taxiway serving a large number of aircraft. The taxiway would be approximately 1,600 feet long and would serve 10 executive hangars and more than 80 connected box, T-hangars, and shade hangars. Obviously, this arrangement would promote immediate development opportunity at minimized costs; however, the alternative would create a bottleneck for taxiing operations.

Landside Alternative 2 provides a balance between ease of development and improved taxi efficiency. The alternative would allow for limited hangar development to the west, while also providing a new taxi route for additional growth. Moreover, at some point in the future, the northernmost hangars could be served by a taxiway that extends east to the main apron allowing for two-way access to the hangar area. Such a taxiway would have to traverse Little Sandy Creek and would increase costs. The benefit of this alternative is that it can be implemented as depicted within the scope of this study and later expanded to add a taxiway access point to the apron at some point in the future. The primary negative aspect with this alternative would be higher infrastructure costs associated with more taxiway and roadway pavements.

Landside Alternative 3 would provide a balance to the terminal area while offering improved taxiing efficiencies. Its implementation, however, would require the construction of an access taxiway which must traverse over Little Sandy Creek. The alternative is sound but will cost more than Alternatives 1 and 2 to implement. As a result, this alternative could be approached in the long term after following the concepts provided in Alternative 1 or 2.

SUMMARY

The process utilized in assessing the airside and landside development alternatives involved a detailed analysis of short and long term requirements, as well as future growth potential. Current and future airport design standards were factored at every stage in the analysis. Safety, both in the air and on the ground, was given a high priority in the analysis of alternatives.

After review and input from the PAC, City officials, airport users, and the public, a recommended concept will be developed by the consultant. The resultant plan will represent an airside facility that fulfills the safety design standards and a landside complex that can be developed as demand dictates. The development plan for Cox Field Airport must represent a means by which the airport can evolve in a balanced manner, both on the airside and landside, to accommodate the forecast demand. In addition, the plan must provide flexibility to meet activity growth beyond the long range planning horizon.

The following chapters will be dedicated to refining these basic alternatives into a final development concept with recommendations to ensure proper implementation and timing for a demand-based program.