



# AIRPORT MASTER PLAN

## CHAPTER 4 - ALTERNATIVES ANALYSIS



The previous chapter identified airside and landside facilities necessary to satisfy forecasted demand through the long-range planning period. The next step in the planning process is to identify and evaluate alternatives to meeting the defined needs of airport users as well as the City of San Angelo's airport vision.

Alternative development options are numerous; therefore, this chapter is organized into distinct airside (runways, navigational aids, taxiways, etc.) and landside (hangars, apron, terminal area, support facilities, and vehicle access) discussions. Within each of these areas, specific capabilities and facilities are required or desired. Each functional area interrelates and affects the development potential of the others. Therefore, all areas are examined both individually and collectively to ensure that the final plan is functional, efficient, and cost effective.

Each alternative is evaluated based on:

- Best Planning Tenets
- Operational Performance
- Environmental Implications

The key elements of this planning process are: (1) identification of alternative methods to address previously identified facility requirements; (2) evaluation of the alternatives, individually and collectively, allowing planners to gain a thorough understanding of the strengths, weaknesses, and other implications of each; and (3) selection of the recommended alternative.

It is important to recognize that this chapter must necessarily focus on the facility requirements (including timing) and other considerations, such as the Airport's strategic development objectives, site or environmental considerations, and other factors, although it may be easy to identify alternatives that do not meet the Airport's needs or fail to consider certain long-term development options, particularly if one highly visible issue seems to overshadow other planning elements.

## AIRSIDE ALTERNATIVES

Several alternative plans for the proposed airside development at SJT are described and evaluated on the following pages. These alternatives aim to address the airside facility requirements, as identified in the previous chapter, while complying with all applicable FAA guidance and regulations.

### Objectives

In addition to meeting the requirements determined by FAA standards and described in Chapter 3, there are several additional objectives identified by the Airport:

- Maintain the existing level of instrument approach capability
- Keep proposed projects within the existing airport boundary as much as practicable
- Increase operational efficiency of the Airport

## Alternatives Elements

The identification of alternatives begins with primary elements that require large contiguous areas of land as directed by FAA guidance (e.g., runways, taxiways, and associated safety areas). Once these are addressed, secondary elements are considered. These are the items that have greater flexibility in planning and can fill gaps around the primary elements (e.g., navigational aids [NAVAIDS], run-up aprons, etc.). Below is a list of both the primary and secondary elements.

### Primary Elements

The following primary elements are the focus of the alternatives

1. Runway 18-36 and Runway 3-21.
2. Approach lighting systems.
3. The closure of Runway 9-27 and conversion into a taxiway was already determined as a part of an earlier study and is included in this analysis as an existing assumption.
4. Taxiway system.

### Secondary Elements

The following secondary elements are identified on the alternatives and addressed on the preferred alternative.

1. Wind cone and segmented circle relocation out of safety areas.
2. Airport beacon relocation.
3. Aircraft run-up aprons.
4. Taxiway nomenclature.

## Projects Found on All Alternatives

Several of the projects that address both the primary and secondary elements are found on all of the airside alternatives. These projects are discussed below.

### Runway 3-21 and Runway 18-36 Intersection

The proximity of the Runway 18-36 and Runway 3 ends is the highest priority item to address on the airfield. Multiple methods of mitigating this issue were looked at as a part of the alternatives process. This analysis determined that the preferred way to deconflict the runways is either to shorten or extend the Runway 3 end. Shortening Runway 18-36 enough to clear Runway 3-21 would require removal of approximately 2,600 feet of pavement from the Runway 36 end. This was found to be unfeasible because it would leave only 3,600 feet of usable runway once the displaced threshold and declared distances on the Runway 18 end are considered.

### Runway 9-27 Decommissioning and Conversion to Taxiway

Prior to this planning process it was determined by the airport that Runway 9-27 will be decommissioned and converted into a taxiway. The existing width of the runway is 75 feet, while the required taxiway width is only 50 feet. Initially the full width of the existing runway will be used, and the width will be reduced to 50 feet at the next required reconstruction project.

### Removal of Pavement on Runway 18 End and Runway 36 End Extension

The existing Runway 18 threshold is displaced by 889 feet and declared distances are in effect due to the proximity of Knickerbocker Road to the Runway 18 end. In all alternatives, approximately 1,723 feet of pavement will be removed from the Runway 18 end to clear Knickerbocker Road from both the Runway 18-36 RSA and ROFA. This will also clear the central portion of the Runway 18 approach RPZ. As a part of this project a portion of Taxiway A and Taxiway B will be demolished, and a new entrance/exit taxiway will be constructed for the Runway 18 end.

### Demolish Taxiway A

This project corresponds to the decommissioning of Runway 9-27 and the removal of pavement from the Runway 18 end. Taxiway A currently serves as an entrance/exit taxiway for the Runway 9 end and it will no longer be needed once the runway is converted into a taxiway.

### Taxiway Renaming

In order to comply with the guidance found in *FAA Engineering Brief No. 89, Taxiway Nomenclature Convention*, multiple taxiways will need to be renamed. For the purpose of clarity, existing taxiway names are shown on Alternatives one through four and proposed taxiway names are used only on the Preferred Alternative.

### Runway 18-36 PAPI Relocation

Due to the proposed changes to both ends of Runway 18-36, the PAPI's will require relocation.

### Wind Cone and Segmented Circle Relocation

The wind cones near the Runway 18 and Runway 21 end, and the segmented circle east of Taxiway E are located within the ROFA and will be relocated to comply with FAA standards. The proposed locations are shown on the Preferred Alternative.

## Airside Alternatives

### Airside Alternative 1 – No Action

The first alternative is to take no action other than the decommissioning of Runway 9-27 into a taxiway. This alternative does not address the critical issue of the conflict between Runway 18-36 and the Runway 3 end. **Exhibit 4A** depicts the No Action airside alternative.

### Airside Alternative 2 – Reducing Cost

This alternative mitigates the runway end proximity issue by shortening the Runway 3 end approximately 1,500 feet. This would allow for a full-length RSA on the Runway 3 end that does not intersect with the Runway 18-36 RSA. The pavement removal would shorten Runway 3-21 to 4,400 feet. Rather than installing a new ILS on the shortened Runway 3 end, an ILS would instead be placed on the Runway 36 end. The proposed Runway 36 end extension would bring the total length of Runway 18-36 to 8,700 feet. Airside Alternative 2 is depicted in **Exhibit 4B**.

### Airside Alternative 3 – Maximize Runway Length

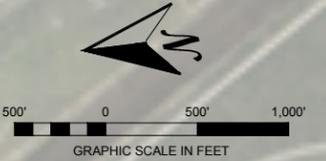
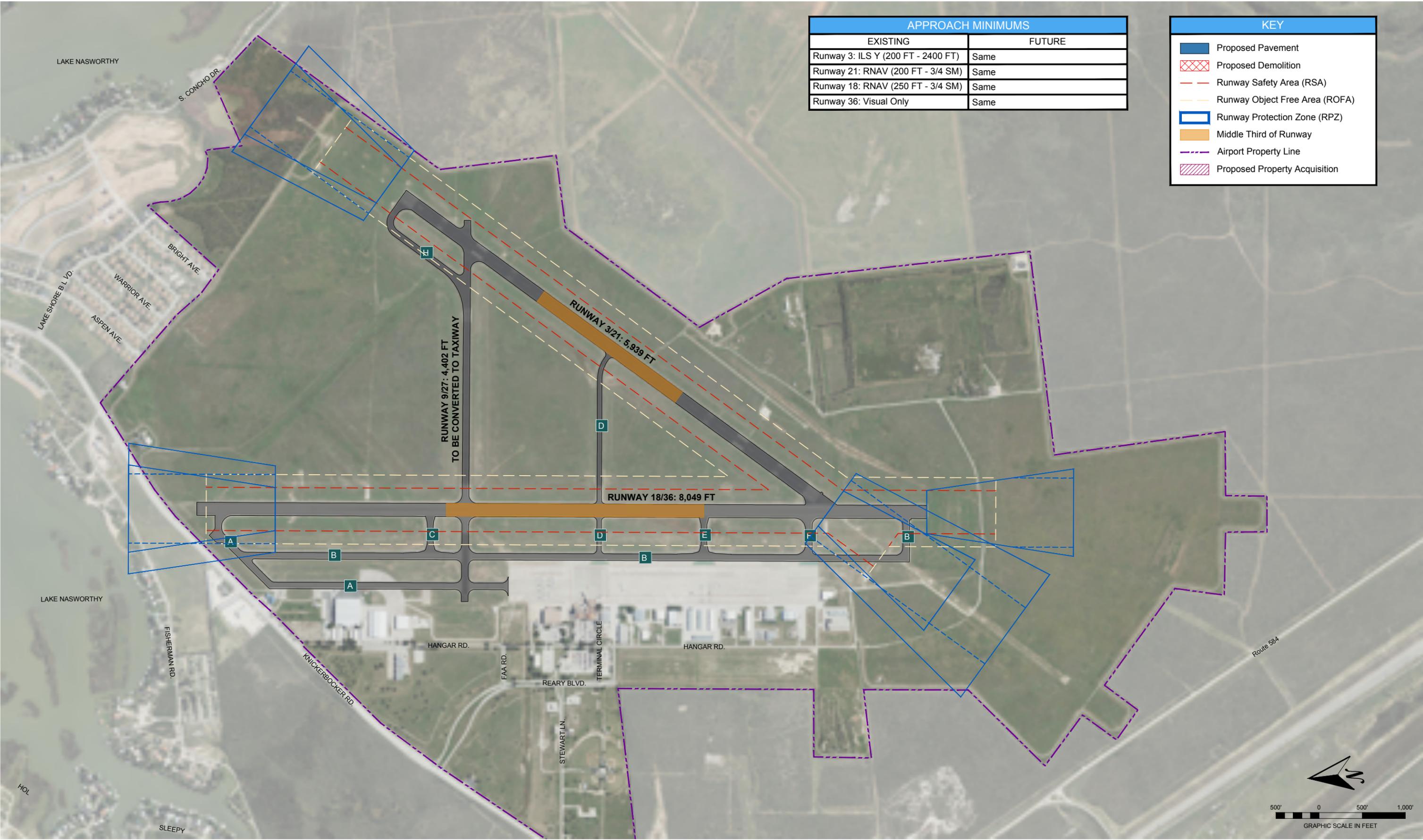
This alternative lengthens the Runway 3 end by approximately 1,745 feet. This extension, in concert with an extension on the Runway 36 end, clearly differentiates the runway ends without reducing the total length available. The length of the Runway 3 extension was maximized to keep the central portion of the RPZ clear from Route 584. An additional runway extension of 570 feet is proposed on the Runway 21 end which brings the total length of Runway 3-21 to 8,245 feet. The extension on the 21 end is limited by the central portion of the RPZ and S. Concho Dr. In this alternative, Runway 3 remains the primary instrument runway. Due to the change in runway ends on both Runway 3 and 21, the associated NAVAIDS and approach lighting systems will need to be relocated/replaced. Airside Alternative 3 is depicted in **Exhibit 4C**.

### Airside Alternative 4 – Planning for Future Expansion

Like Alternative 3, this alternative mitigates the runway end proximity issue by lengthening the Runway 3 end. This alternative takes a more conservative approach and only proposes for a 1,525-foot extension. In concert with runway safety area and protection zone improvements that takes Knickerbocker Road out of the central portion of the RPZ, an extension to the Runway 36 end would differentiate the runway ends while meeting runway length requirements. In this scenario, Runway 36 would become the primary instrument runway. Lastly, a full parallel taxiway is proposed on the east side of Runway 3-21. This would allow access for future aeronautical development on the east side of the Airport. Airside Alternative 4 is depicted in **Exhibit 4D**.

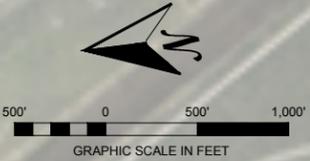
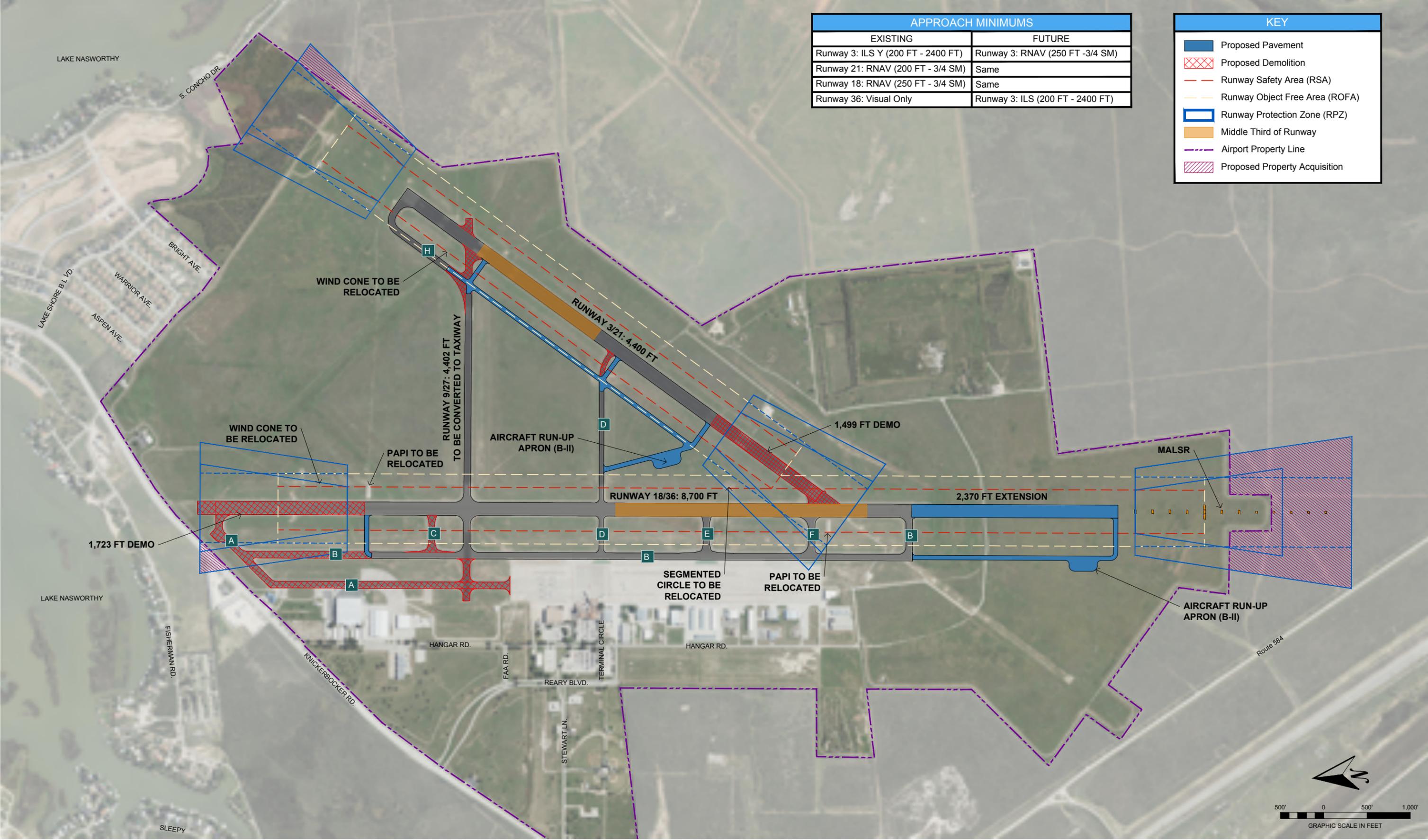
APPROACH MINIMUMS	
EXISTING	FUTURE
Runway 3: ILS Y (200 FT - 2400 FT)	Same
Runway 21: RNAV (200 FT - 3/4 SM)	Same
Runway 18: RNAV (250 FT - 3/4 SM)	Same
Runway 36: Visual Only	Same

KEY	
	Proposed Pavement
	Proposed Demolition
	Runway Safety Area (RSA)
	Runway Object Free Area (ROFA)
	Runway Protection Zone (RPZ)
	Middle Third of Runway
	Airport Property Line
	Proposed Property Acquisition



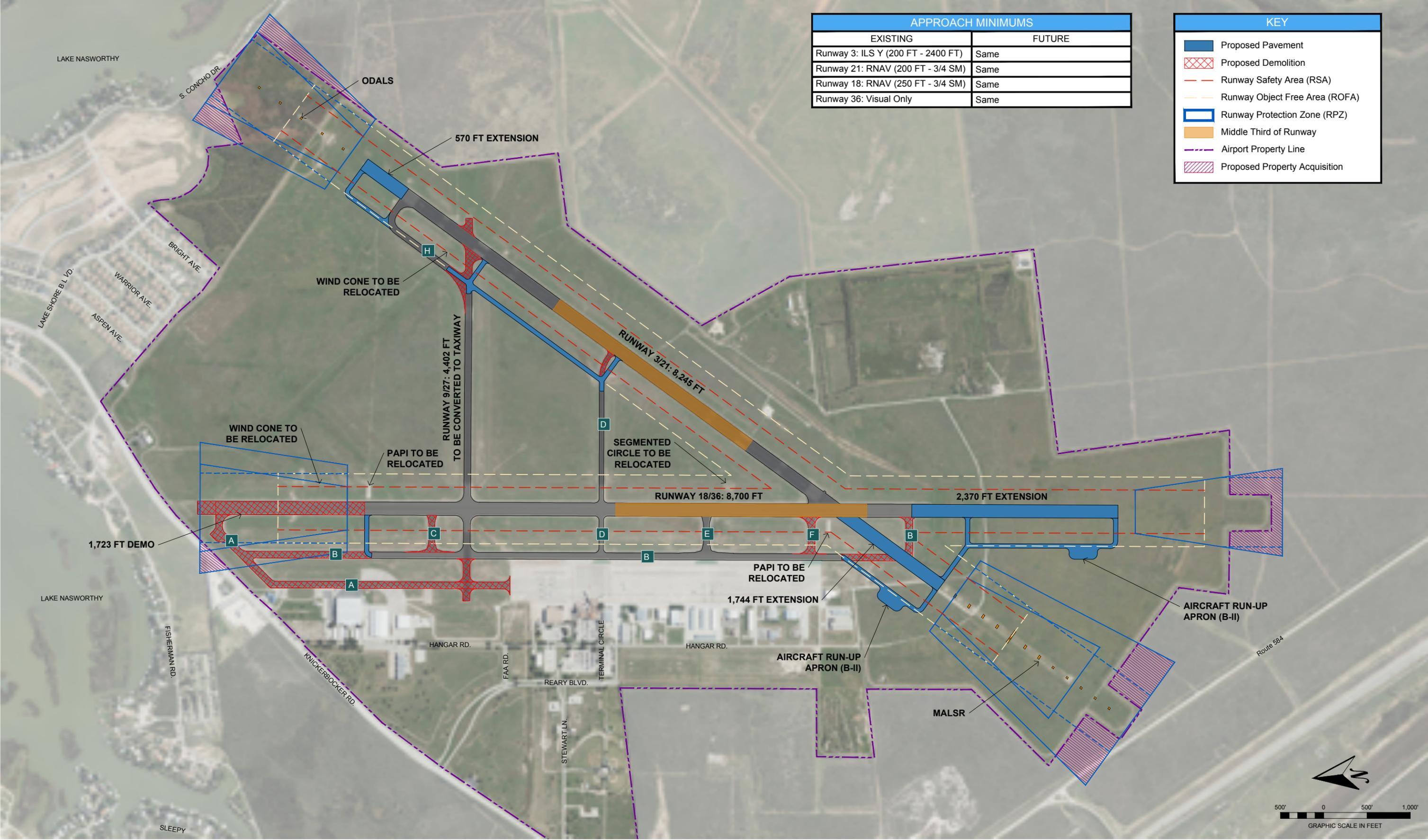
APPROACH MINIMUMS	
EXISTING	FUTURE
Runway 3: ILS Y (200 FT - 2400 FT)	Runway 3: RNAV (250 FT - 3/4 SM)
Runway 21: RNAV (200 FT - 3/4 SM)	Same
Runway 18: RNAV (250 FT - 3/4 SM)	Same
Runway 36: Visual Only	Runway 3: ILS (200 FT - 2400 FT)

KEY	
	Proposed Pavement
	Proposed Demolition
	Runway Safety Area (RSA)
	Runway Object Free Area (ROFA)
	Runway Protection Zone (RPZ)
	Middle Third of Runway
	Airport Property Line
	Proposed Property Acquisition



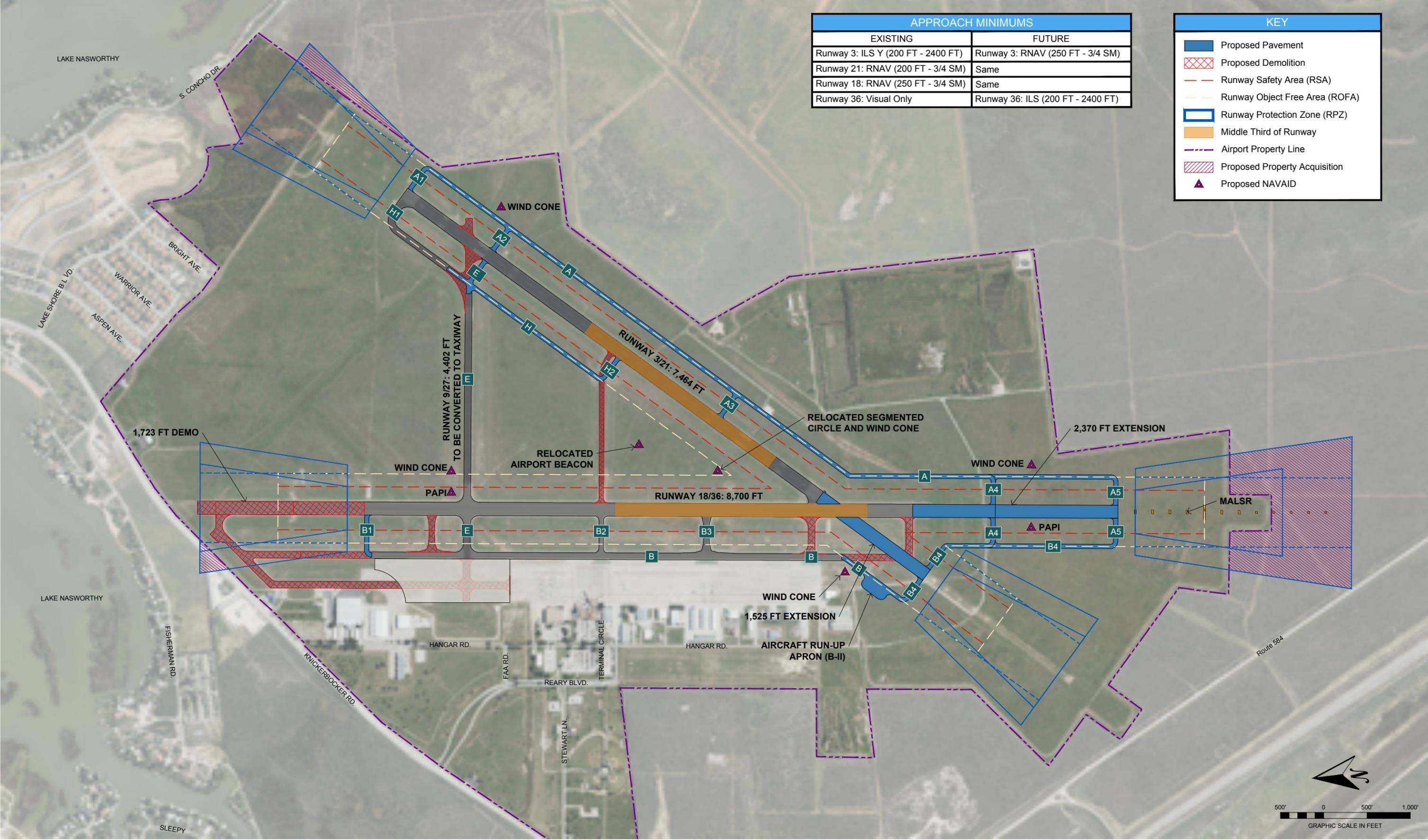
APPROACH MINIMUMS	
EXISTING	FUTURE
Runway 3: ILS Y (200 FT - 2400 FT)	Same
Runway 21: RNAV (200 FT - 3/4 SM)	Same
Runway 18: RNAV (250 FT - 3/4 SM)	Same
Runway 36: Visual Only	Same

KEY	
	Proposed Pavement
	Proposed Demolition
	Runway Safety Area (RSA)
	Runway Object Free Area (ROFA)
	Runway Protection Zone (RPZ)
	Middle Third of Runway
	Airport Property Line
	Proposed Property Acquisition



APPROACH MINIMUMS	
EXISTING	FUTURE
Runway 3: ILS Y (200 FT - 2400 FT)	Runway 3: RNAV (250 FT - 3/4 SM)
Runway 21: RNAV (200 FT - 3/4 SM)	Same
Runway 18: RNAV (250 FT - 3/4 SM)	Same
Runway 36: Visual Only	Runway 36: ILS (200 FT - 2400 FT)

KEY	
	Proposed Pavement
	Proposed Demolition
	Runway Safety Area (RSA)
	Runway Object Free Area (ROFA)
	Runway Protection Zone (RPZ)
	Middle Third of Runway
	Airport Property Line
	Proposed Property Acquisition
	Proposed NAVAID



## Associated Projects

Several projects were identified that are necessary to meet each of the alternative’s objectives. Due to the overlaps across alternatives, a matrix has been developed identifying each project and their inclusion in each alternative (see **Table 4A**).

<b>TABLE 4A</b>				
<b>Associated Projects</b>				
	<b>Alt. 1</b>	<b>Alt. 2</b>	<b>Alt. 3</b>	<b>Alt. 4</b>
Taxiway A and Portion of Taxiway B Pavement Demo		X	X	X
Runway 18 End Pavement Removal and Runway 36 End Extension		X	X	X
Runway 9-27 Converted into Taxiway	X	X	X	X
Wind Cone and Segmented Circle Rotation		X	X	X
Airport Beacon Relocation		X	X	X
Runway 21 End Extensions and NAVAID Relocation			X	
Runway 18-36 PAPI Relocation		X	X	X
New ILS on Runway 3 End			X	
New ILS on Runway 36 End		X		X
Taxiway C Demolition		X	X	X
Taxiway D Demolition				X
Property Acquisition on Runway 3 End			X	
Property Acquisition on Runway 21 End		X	X	X
Property Acquisition on Runway 18 End		X	X	X
Property Acquisition on Runway 36 End		X	X	X

## Alternative Evaluation Criteria

The evaluation of the alternatives followed the criteria as found in FAA's AC 150/5070-6B, *Airport Master Plans* and included the following:

- Best Planning Tenets
- Operational Performance
- Environmental Implications
- Financial Feasibility

### Best Planning Tenets

Several best planning tenets were selected to determine the most responsible and implementable alternative within this Airport Master Plan. These include:

- Flexibility to accommodate unforeseen change (e.g., increases or decreases in activity levels, changes to fleet mix, new users).
- Technically feasible (e.g., considers site constraints and other limitations).
- Conforms to the City's goal of keeping development on Airport property and not losing any operational capability.

### Operational Performance

An airport's ability to function as a system can be determined based on several factors:

- Capacity – The ability to accommodate future demand as determined in the facility requirements.
- Capability – The ability to meet airport design standards and ensure a safe operating environment.
- Operational efficiency – How well the alternatives work as a system to avoid delays, inefficiencies, airspace conflicts, etc. This also considers the coexistence of existing and future users.

### Environmental Implications

As discussed in Chapter 1 – Inventory, there are several environmental resources that may be impacted to some degree as a result of airport development. To review each of the NEPA environmental categories associated with SJT in more detail, please refer to the Environmental Inventory section of Chapter 1 of this Master Plan. The following are the environmental criteria identified for SJT:

- Biological resources
- Cultural or historic resources
- Wetlands
- Floodplains and surface waters
- Air quality

### Financial Feasibility

This analysis considers the impacts of each alternative in relation to the Airport’s economic viability, as well as that of the surrounding community. The analysis also considers the estimated development costs associated with the various alternatives, along with prospective funding sources. The following were assessed as a part of this analysis:

- Development costs – Includes anticipated costs of development and potential alternative funding sources. Alternative funding sources include those other than the City or the FAA, such as private business owners and/or developers.
- Job creation – The potential of each alternative to create employment and other economic development benefits for the Airport and immediate surrounding area.
- Financial Sustainability – Anticipated opportunities for revenue generation through increased activity, new businesses, etc. in order to increase the Airport’s ability to become more financially self-sufficient.

### Alternative Evaluation Summary

#### Evaluation Criteria Descriptions and Analysis

The evaluation criteria described above were applied to each airside alternative. **Table 4.2** contains a detailed summary of each alternative evaluation.

#### Evaluation Scoring

Based on the qualitative and quantitative assessments presented, each evaluation criteria were assigned a comparative rating. The rating system ranked each criterion as either Negative (-1), Neutral (0), or Positive (+1).

The environmental category criteria outnumbered the criteria in other categories; thus, to ensure balanced results, the environmental category was weighted accordingly to equate to the other categories. A summary of the airside alternatives’ evaluation scoring is presented in **Table 4B**.

Table 4.2 - Airside Alternatives Evaluation

	Description	Alternative 1: No Action	Alternative 2: Reducing Cost	Alternative 3: Maximize Runway Length	Alternative 4: Planning for Future Expansion
<b>Comparative Features</b>					
<b>Best Planning Tenets</b>					
<b>Flexibility</b>	Accommodates unforeseen change (e.g., increases or decreases in activity levels, changes to fleet mix, new users, etc.).	No change.	Runway 3-21 length is reduced to 4,400 feet limiting use by commercial aircraft.	This alternative shows the maximum possible runway lengths while still protecting the central portion of the RPZs. This would allow for a potential change in fleet mix or stage length of commercial operations.	The future east side parallel taxiway to Runway 3-21 would allow for additional aeronautical development on the east side of the airfield.
<b>Technically Feasible</b>	Considers site constraints and other limitations.	No change.	The proposed Runway 36 MALSR is off airport property.	The Runway 21 extension would require relocating an ALS off airport property and in an environmentally sensitive area. RSA and ROFA grading required in an environmentally sensitive area.	All improvements occur on airport property.
<b>Conforms to the City's Goals</b>	Conforms to the City's goal of keeping development on Airport property and not losing any operational capability.	No change.	The reduction in width of Runway 3-21 to 4,400 feet is a loss in operational capability. The future RPZ on the Runway 36 end extends significantly off airport property and would require an easement or acquisition.	This alternative maximizes operational capability, but requires locating an ALS and RSA/ROFA improvements off airport property.	All improvements occur on airport property, but total runway length is less than in other alternatives.
<b>Operational Performance</b>					
<b>Capacity</b>	Ability to accommodate future demand as determined in the facility requirements.	No change. Does not meet the recommended runway length of 8,700 feet.	Runway 18-36 is extended, but Runway 3-21 is reduced. Proximity of Runway 3 approach and departure surfaces to Runway 18-36 may restrict operations.	Provides maximum runway length and taxi routes.	Meets the recommended runway length of 8,700 feet and increases capacity through the addition of a parallel taxiway to the east side of Runway 3-21.
<b>Capability</b>	Ability to meet airport design standards and ensure a safe operating environment.	No change. Does not address current airfield deficiencies.	Runways are separated, but can not be operated simultaneously due to approach/departure surface clearance requirements.	Meets airport design standards and supports a safe operating environment.	Meets airport design standards and supports a safe operating environment.
<b>Operational Efficiency</b>	How well the alternatives work as a system to avoid delays, inefficiencies, airspace conflicts, etc. Considers the coexistence of existing and future users.	No change.	Moving the ILS to Runway 36 better accommodates IFR conditions and places commercial traffic closer to the terminal. Operations on Runway 18-36 would need to be restricted while Runway 3-21 is in use.	The Runway 36 extension allows Taxiway D to remain without crossing Runway 18-36 in the middle third of the runway. The ILS remains on Runway 3 which is less efficient for commercial operations.	Moving the ILS to Runway 36 better accommodates IFR conditions and places commercial traffic closer to the terminal. Future parallel taxiway provides additional taxi routes.

**Table 4.2 - Airside Alternatives Evaluation (Continued)**

	Description	Alternative 1: No Action	Alternative 2: Reducing Cost	Alternative 3: Maximize Runway Length	Alternative 4: Planning for Future Expansion
<b>Comparative Features</b>					
<b>Environmental Implications</b>					
<b>Biological Resources</b>	Adverse impacts to special status species and substantial loss, degradation, disturbance, or fragmentation of native species habitats or populations.	No change.	The proposed development occurs in areas previously identified as having the presence of biological resources. Additional environmental review and evaluation for all proposed development is needed prior to construction.	The proposed development occurs in areas previously identified as having the presence of biological resources. Additional environmental review and evaluation for all proposed development is needed prior to construction.	The proposed development occurs in areas previously identified as having the presence of biological resources. Additional environmental review and evaluation for all proposed development is needed prior to construction.
<b>Cultural or Historic Resources</b>	Potential for project to disturb any cultural, historic, or archaeological resources at the Airport.	No change.	Proposed development is not anticipated to have a significant impact. However, proposed development in previously undisturbed areas has to potential to impact underground resources, thus further review and coordination is needed prior to construction.	Proposed development is not anticipated to have a significant impact. However, proposed development in previously undisturbed areas has to potential to impact underground resources, thus further review and coordination is needed prior to construction.	Proposed development is not anticipated to have a significant impact. However, proposed development in previously undisturbed areas has to potential to impact underground resources, thus further review and coordination is needed prior to construction.
<b>Wetlands</b>	Wetlands identified at the north end of Runway 3-21.	No change.	The proposed development is not anticipated to have a significant impact.	The proposed Runway 21 extension and ALS location could impact wetlands identified in this area.	The proposed development is not anticipated to have a significant impact.
<b>Floodplains and Surface Waters</b>	Numerous floodplain resources, lakes, rivers, and other water bodies are located in the vicinity of the Airport.	No change.	There will be an increased amount of impervious surface due to the proposed development. Further review and coordination prior to construction is needed to determine impact to floodplains and surface waters.	There will be an increased amount of impervious surface due to the proposed development. Further review and coordination prior to construction is needed to determine impact to floodplains and surface waters.	There will be an increased amount of impervious surface due to the proposed development. Further review and coordination prior to construction is needed to determine impact to floodplains and surface waters.
<b>Air Quality</b>	Anticipated change in emissions.	No change.	There will be an increase in emissions associated with construction activity. Development is intended to accommodate projected demand and is not likely to have a significant impact on air quality.	There will be an increase in emissions associated with construction activity. Development is intended to accommodate projected demand and is not likely to have a significant impact on air quality.	There will be an increase in emissions associated with construction activity. Development is intended to accommodate projected demand and is not likely to have a significant impact on air quality.

Table 4.2 - Airside Alternatives Evaluation (Continued)

	Description	Alternative 1: No Action	Alternative 2: Reducing Cost	Alternative 3: Maximize Runway Length	Alternative 4: Planning for Future Expansion
<b>Comparative Features</b>					
<b>Financial Feasibility</b>					
<b>Development Costs</b>	Anticipated costs of development, considering potential alternative funding sources.	No change.	Approximately \$36 million in development costs including runway/taxiway pavement, NAVAID relocation, and airfield lighting and signage.	Approximately \$58 million in development costs including runway/taxiway pavement, NAVAID relocation, and airfield lighting and signage.	Approximately \$65 million in development costs including runway/taxiway pavement, NAVAID relocation, and airfield lighting and signage.
<b>Job Creation</b>	Via employment, economic development, etc.	No change.	Some temporary employment opportunities tied to project design and construction would occur.	Some temporary employment opportunities tied to project design and construction would occur.	Some temporary employment opportunities tied to project design and construction would occur. Additionally the construction of the east side Runway 3-21 parallel would facilitate future aeronautical expansion and additional jobs.
<b>Financial Sustainability</b>	Revenue generation through increased activity and new businesses, etc. in order to increase the Airport's ability to become more financially self-sufficient.	No change.	Reduction in size of Runway 3-21 would reduce pavement maintenance costs.	Longer runway lengths would allow airlines to offer more non-stop destinations if desired.	Runway 3-21 parallel would facilitate future aeronautical expansion and revenue.

**TABLE 4B**  
Airside Alternatives Evaluation Summary

	-1: Negative	0 : Neutral	+1: Positive	Alternative 1: No Action	Alternative 2: Reducing Cost	Alternative 3: Maximize Runway Length	Alternative 4: Planning for Future Expansion
<b>Comparative Features</b>							
<b>Best Planning Tenets = 25% Weighting Factor</b>							
Flexibility	-1	0	+1	-1	-1	1	1
Technically Feasible	0	0	0	-1	-1	-1	1
Conforms to the City's Goals	0	0	0	-1	-1	0	0
<b>Operational Performance = 25% Weighting Factor</b>							
Capacity	-1	0	0	0	0	1	0
Capability	-1	0	0	0	0	1	1
Operational Efficiency	-1	0	0	0	0	0	1
<b>Environmental Implications = 25% Weighting Factor</b>							
Biological Resources	0	0	0	-1	-1	-1	-1
Cultural or Historic Resources	0	0	0	0	0	0	0
Wetlands	0	0	0	0	0	-1	0
Floodplains and Surface Waters	0	0	0	-1	-1	-1	-1
Air Quality	0	0	0	-1	-1	-1	-1
<b>Financial Feasibility = 25% Weighting Factor</b>							
Development Costs	+1	0	0	-1	-1	-1	-1
Job Creation	0	0	0	+1	+1	+1	+1
Financial Sustainability	-1	0	0	+1	+1	+1	+1
<b>Summary Score</b>							
Summary Score	-4	-3.8	0.6	-3.8	-3.8	0.6	3.1
<b>Ranking</b>							
Ranking	4	3	2	4	3	2	1

### Preferred Airside Alternative

As shown in the previous tables, Alternative 4 received the highest summary score of all the alternatives. This alternative has been selected as the Preferred Airside Alternative. This alternative also incorporates proposed locations for wind cone and segmented circle relocations, the airport beacon relocation, and proposed taxiway nomenclature to meet FAA design standards. Cost estimates for the proposed improvements will be completed as part of the implementation and financial plan chapter.

## LANDSIDE ALTERNATIVES

This section of the alternatives analysis examines the future placement and feasibility of new or redeveloped landside facilities to address existing operational concerns, meet the facility requirements identified in the previous chapter, and achieve the airport's vision. It primarily evaluates development scenarios against several factors to determine a preferred development plan that minimizes environmental and community impacts while complying with applicable FAA regulations.

To a feasible extent, the development of landside alternatives aims to promote the highest and best use of airport property by delineating specific aviation activity areas in the interest of operational continuity and efficiency. This may include relocating facilities to provide for expansion of adjacent facilities, redeveloping facilities that are reaching or have exceeded their useful life, or reconfiguring facilities to improve operational efficiency.

In addition to meeting the facility requirements, airport development options also sought to:

- Define and delineate aviation, non-aviation, and other general land uses within the existing airport property limits;
- Evaluate the expansion capabilities of the aviation business and industrial functions of the airport, as well as the expansion of small general aviation aircraft storage facilities;
- Account for local and regional comprehensive plans; and
- Consider the financial feasibility of each viable landside alternative.

During the 20-year planning horizon, the existing commercial service terminal area will remain the core around which other aviation activities are coordinated. To provide the airport with the capability to respond to unforeseen demand, areas have been identified to accommodate facility improvements development beyond what is required to accommodate the forecasts prepared in this study.

The identification and evaluation of the landside alternatives are outlined as follows:

- Airport Land Use and Activity Areas
- Evaluation Criteria
- Commercial Aviation Alternatives

- Business Aviation Industrial Alternatives
- General Aviation Alternatives
- Support Facilities
- Preferred Development Alternative

### Airport Land Use and Activity Areas

Effective planning of airport landside development requires careful consideration of defined land use development areas and the relationship between airport activity centers. Activity centers include various designated areas within portions of airport property where certain aeronautical or non-aeronautical activity occurs.

In addition to the airfield operations area, the airport activity centers identified for SJT include, general aviation, commercial airline, air cargo, aviation business/industrial, and areas for various non-aeronautical uses, among others.

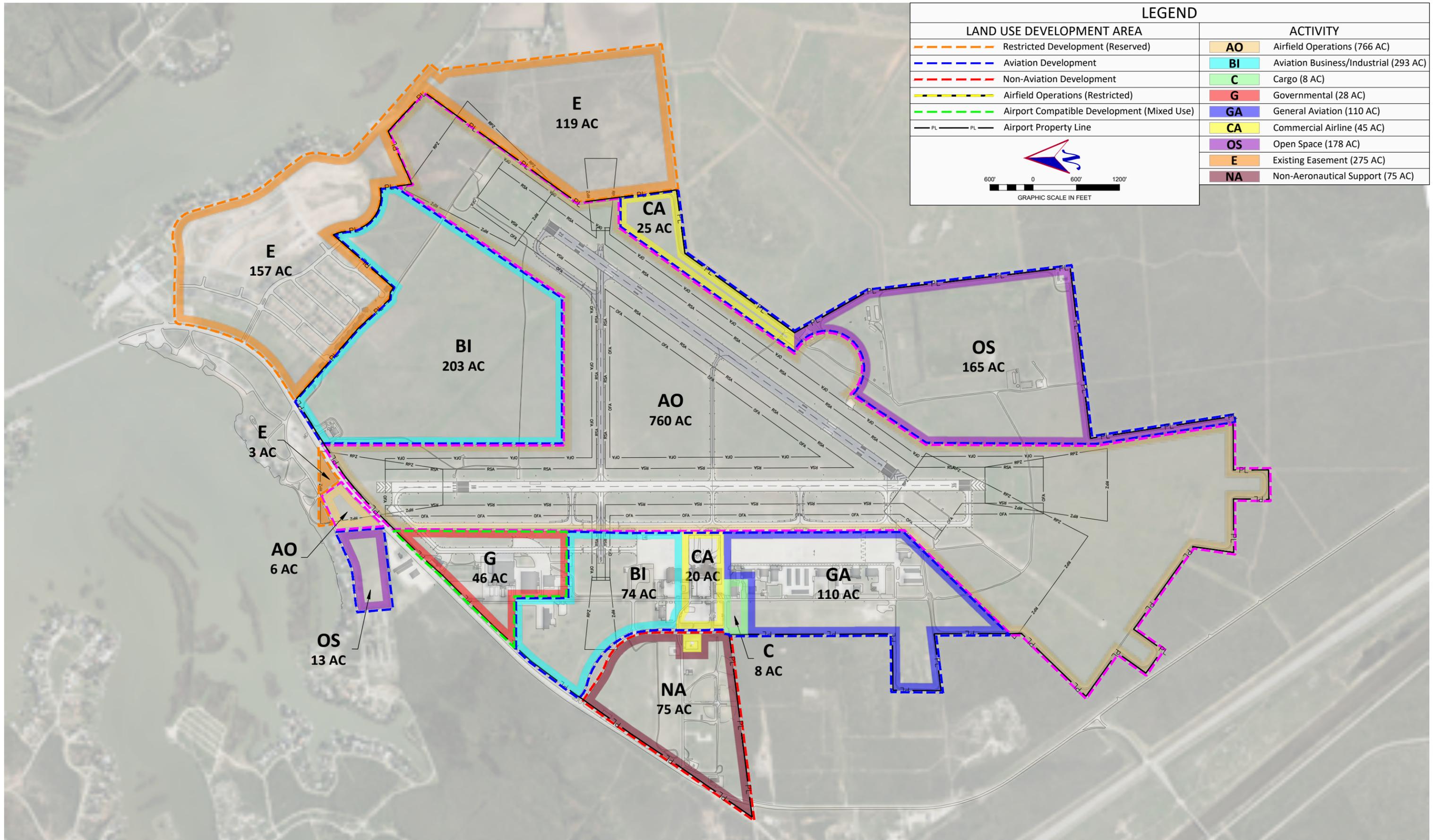
As aviation activity increases and new airport infrastructure becomes realized, the smooth functioning of these activity centers and the relationships between them will become increasingly important.

### Land Use Development Areas

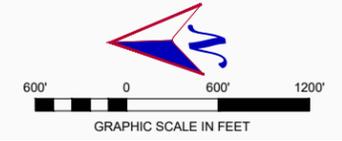
The identification of landside alternatives begins with the development of a land use plan to identify developable space and delineate activity areas to promote airport efficiency and avoid operational conflicts.

As shown in **Exhibit 4E** and listed below, the land uses at SJT include aviation, non-aviation, mixed-use, restricted development, and open space. The aviation, non-aviation, and mixed-use areas are comprised of activity centers to promote aviation safety and operational efficiency.

- Airfield Operations Area (AOA)
- Aviation Development
  - Commercial Aviation Activity Area (CA)
  - Aviation Business/Industrial
  - General Aviation
  - Air Cargo
- Non-Aviation Development
  - Non-Aeronautical Support
- Airport Compatible Development (Mixed Use)
  - Governmental
- Restricted Development
  - Existing Easement
- Open Space



LEGEND	
LAND USE DEVELOPMENT AREA	ACTIVITY
Restricted Development (Reserved)	<b>AO</b> Airfield Operations (766 AC)
Aviation Development	<b>BI</b> Aviation Business/Industrial (293 AC)
Non-Aviation Development	<b>C</b> Cargo (8 AC)
Airfield Operations (Restricted)	<b>G</b> Governmental (28 AC)
Airport Compatible Development (Mixed Use)	<b>GA</b> General Aviation (110 AC)
Airport Property Line	<b>CA</b> Commercial Airline (45 AC)
	<b>OS</b> Open Space (178 AC)
	<b>E</b> Existing Easement (275 AC)
	<b>NA</b> Non-Aeronautical Support (75 AC)



### Airfield Operations

The Airfield Operations Area (AOA) is a restricted access area that is primarily used for aircraft taxi, takeoff and landing. The AOA at SJT circumferences the airport runway and taxiway system and covers approximately 760 acres. Presented in the Airside Alternatives section, proposed development in the AOA is governed by FAA airport design standards and generally limited to infrastructure and navigational equipment to support the landing, take-off, and taxiing of aircraft.

### Aviation Development

The Aviation Development land use at SJT is comprised of several activity areas with direct or indirect airfield access and is therefore designated for aviation related development only.

The activity areas that comprise the Aviation Development land use at SJT are described as follows.

#### Commercial Aviation Activity Area (CA)

Commercial aviation is the part of civil aviation (non-military) that involves operating aircraft for compensation or hire to transport passengers or cargo. As such, the commercial activity area(s) at SJT support FAR Part 121 commercial air carrier activities, Part 135 aircraft charter activities, and air cargo activities.

The Commercial Activity areas at SJT include two distinct areas of airport property totaling approximately 45 acres of land. This includes 20 acres (+/-) on the airport's west side with limited expansion potential where the existing commercial airline activities are accommodated and a 25-acre area on the east side of the airport.

To meet the airport's objectives for supporting commercial air service within the planning period, this effort considered the following needs:

- Reconfiguration/expansion of the existing terminal building space to improve operational efficiency and accommodate additional air carrier activity.
- Reconfiguration/expansion of the short-term commercial terminal automobile parking facilities to improve operational efficiency and accommodate the needs of the existing rental car service providers.
- Identification of a suitable location for the development of a consolidated quick turnaround facility to better serve the functions of rental car service providers; and Since the existing tower has surpassed its useful life and presents a constraint to future air carrier terminal expansion, the
- Identification of a suitable location for the development of a new air traffic control tower.

Although the any relocation of commercial airline activities would likely occur beyond the planning period and coincide with the planned development of I-27 to the airport's east, it is recommended

that the 25 acres identified as “CA” on the east side be reserved for this potential, although the construction of a new commercial airline terminal in this area would still require land acquisition.

#### Aviation Business/Industrial (BI)

The Aviation Business/Industrial activity area identified at SJT is made up of nearly 300 acres of land among two areas; 203 acres north of Runway 9-27 in the midfield of the airport, and 74 acres (+/-) adjacent to the commercial terminal area between Taxiway B and Knickerbocker Road. As mentioned previously, the midfield area considers the eventual closure of Runway 9-27 and determined to be best suited for corporate business aviation and aviation industrial related development.

In the area west of Taxiway B and north of the Commercial Terminal, the airport’s Real Estate Development Strategy Plan (Appendix A) identified potential development of an Aviation Industrial Park, Aero Complex, and an Aviation Workforce Development Center.

While the findings of the Facility Requirements suggest that the airport has enough space within the 74-acre area to accommodate aviation business industrial development within the 20-year planning period, specific user needs could also be accommodated by development in the midfield area.

#### General Aviation (GA)

The General Aviation activity area includes approximately 110 acres of land adjacent to Taxiway B and south of the commercial terminal where based and transient civil aviation activities other than scheduled air services originate and terminate. To meet the GA objectives of the airport, this effort will provide a conceptual layout that considers how the development/redevelopment and/or a reconfiguration of this area would best accommodate the existing and anticipated general aviation aircraft storage needs at the airport.

#### Air Cargo (C)

Air cargo operations at the airport currently take place on the apron just south of the commercial terminal building and passenger parking areas. While the aviation forecasts did not identify any additional air cargo demand, the alternatives consider how the airport could accommodate expanded air cargo services if unforeseen demand occurs within the planning period.

#### Non-Aviation Development

Land use identified for non-aviation development includes area(s) best suited for non-aviation development. At SJT this area includes only one activity area identified as, Non-Aeronautical Support.

#### Non-Aeronautical Support (NA)

The 75-acre area identified as non-aeronautical support is located along Knickerbocker Road in the most western portion of the property and is identified as such due to its lack of direct airfield access and considered non-essential for aviation due to its remote location. Within the 75-acre area, the airport’s Real Estate Development Strategy Plan identified areas for the potential development of a Commerce Park and community-related activities.

### Airport Compatible Development

Land use identified as Airport Compatible/Mixed use is made up of revenue generating development consistent with on-going airport functions and the airport sponsor's objectives. Development in this area is triggered by demand and may or may not require airfield access.

### Restricted Development

Land Use identified as Restricted Development serves to maintain FAA safety/protection zones and prevent potential hazards to air navigation. At SJT, this land use is comprised of aviation easements associated with the runway protection zones and FAR Part 77 surfaces of the airport.

An aviation easement is a conveyance of a specified property interest for an area that restricts the use by the owner of the surface and yet assures the owner of the easement the right and privilege of a specific use contained within the easement document. Where it is determined that ownership in fee title is not necessary, an aviation easement may be used to secure airspace for airport and runway approach protection and may prohibit the construction of all above ground objects. Easements may also contain any number of additional restrictions as the airport owner deems necessary.

### Existing Easement (E)

Totalling approximately 275 acres, SJT maintains aviation (aviation) easements to the north, northeast and west of the airport. Generally, these easements are agreements between property owners and the airport that gives the airport air rights over property, which allows the regulation of structures or vegetation in the interest of aviation safety.

### RPZ Easement

For Runway Protection Zones (RPZs), airport owners should maintain sufficient interest to offer protection from obstructions and incompatible land use. While ownership of RPZ land in fee simple is recommended, a 13-acre easement is located north of Runway 18 is in place to avoid introducing potential hazards to air navigation.

### Existing Development Constraints

Other than the limited availability of public funds for airport development and the airport's desire to avoid having to relocate Knickerbocker Road, there are no known development constraints at the airport. Airport soil conditions present an environmental challenge that is common among all future development. This challenge can largely be overcome during the engineering design process for any new development.

### Landside Alternatives Evaluation Criteria

A set of evaluation criteria was developed to provide an equal and consistent assessment of each landside alternative. The criteria for the landside alternatives vary slightly from the airside alternatives in that the evaluation criteria considers airport land use compatibility and are weighted and defined differently. Other than Knickerbocker Road that cannot be relocated and soil

conditions that can largely be overcome during the engineering design process, and general funding availability, there are no known development constraints at the airport.

The evaluation criteria pose questions regarding how well each alternative satisfies user needs and considers best planning tenets, operational performance, environmental implications, and financial impacts and are described as follows:

### Best Planning Tenets

- Does the alternative meet or exceed user needs?
- Is the alternative compatible with airport land-use designations?
- Does the alternative provide flexibility to adjust to unforeseen changes?
- Does the alternative have any significant site constraints or pose significant engineering/construction challenges?
- Is the alternative compatible with the airport's vision?

### Operational Performance

- Does this alternative contribute to the development of a smoothly functioning airport with efficient movement of aircraft?
- Does this alternative leave flexibility for change and future surrounding development?
- Does the alternative accommodate forecasted growth throughout the planning period or provide for growth beyond the planning horizon?

### Environmental Implications

- What are the potential environmental effects of the alternatives per the impact categories defined in FAA Order 1050.1F, Environmental Impacts: Policies and Procedures and FAA Order 5050.4B, FAA Airports guidance for complying with the National Environmental Policy Act (NEPA)?

### Financial Impacts

- Is the alternative financially feasible?
- Does the alternative afford opportunities for airport management to increase revenue generation thereby improving the financial sustainability and cost effectiveness of the airport?
- What potential does the alternative provide for job creation?

### Landside Alternatives

The alternatives identified and evaluated in the following subsections have been created to meet or exceed the facility requirements summarized in **Table 4C**, except that the alternatives are also measured against a no-build or "Do-Nothing" alternative scenario. In some cases, where development scenarios have already been decided by the sponsor, the alternatives include only two options; the build and no-build scenario. The individual landside development alternatives are presented in four primary airport function categories and evaluated against one another. The highest scoring

alternatives among each function will comprise the preferred landside development alternative presented in the next chapter.

<b>TABLE 4C</b>	
Summary of Landside Facility Requirements	
<b>Commercial Aviation</b>	
<b>Terminal Area Requirements *</b>	
Aircraft Parking Positions	Expansion may be needed if new air carrier service is introduced
Boarding Gates	Expansion may be needed for simultaneous 3 gate operations
Inbound Baggage Makeup and Baggage Claim	Expansion may be needed if new air carrier is introduced
Terminal Access and Parking	Additional Short-term parking desired by sponsor
<b>Rental Car Services</b>	
Rental Car Parking	Rental Car Parking Layout Reconfiguration desired by sponsor
Rental Car Quick Turnaround	Consolidated QTA desired by sponsor (Current providers occupy two separate areas to fuel and prepare rental cars for use)
<b>Air Cargo Facilities</b>	
Cargo Facilities	No immediate Action Needed – Preserve Area to accommodate unforeseen demand
<b>Aviation Business Industrial Requirements</b>	
Aircraft Hangars	Construct additional T-hangars and conventional hangars
<b>General Aviation Requirements</b>	
Aircraft Hangars	Construct additional T-hangars and conventional hangars
<b>Support Facility Requirements</b>	
Aircraft Traffic Control Tower	No Immediate Action Needed – However facility is aging and does not meet ADA requirements. Maintenance is an ongoing challenge to identify recommended site for new ATCT if funding becomes available
Fuel Facilities	No immediate Action Needed – Consolidated Fuel Farm Facility desired by sponsor

\*Terminal requirements based on baseline forecast. If additional service is introduced on a similar schedule, improvements will be needed.

Comprised of individual components, landside development alternatives were developed for the existing airport functions at SJT and are categorized as follows:

### Commercial Aviation

- Commercial Terminal Building Improvement/Expansion
- Commercial Terminal Area Development
  - Auto Parking Expansion
  - Rental Car Parking Expansion/Reconfiguration and Consolidated Rental Car Quick Turnaround (QTA)Facilities
  - Air Cargo Expansion

### Business Aviation/Industrial

- Business/Corporate Aviation Hangar Development
- Specialized Aviation Services Operations Hangar Development
- Government Agency Services Expansion

### General Aviation

- General Aviation Hangar Development

### Airport Support Facilities

- Air Traffic Control Tower Site Selection
- Consolidated Aviation Fuel Farm Facilities
- Self-Serve GA fueling facility

All development options consider the maximum potential impact. In many cases, options shown may identify more development than demand may warrant when it comes time for construction. To preserve long-term flexibility and avoid any reconstruction costs, the alternatives identify the maximum potential outcome. If demand is not justified at the time of construction, this plan recommends incorporating future expansion into the design and construction. In such instances, an agreement between the airport, the FAA Airport District Office, and the entity providing engineering design services should be established.

## Commercial Aviation Landside Alternatives

### Commercial Terminal Building Improvement/Expansion

The Facility Requirements indicated that simultaneous two airline operations could cause existing airline operations to become congested. While there is no immediate need to expand or reconfigure the existing air carrier terminal today, the airport requested that the alternatives consider warranted improvements to accommodate additional air carrier service or simultaneous gate operations.

In addition to Alternative 1 (no-build scenario), Alternative 2 presented in **Exhibit 4F** and Alternative 3 presented in **Exhibit 4G** provide options that expand the existing terminal by providing an additional gate and passenger boarding bridge as well as the expanded baggage handling facilities.

Assessing the No-Build Commercial Terminal Building Alternative against the evaluation criteria is summarized as follows:

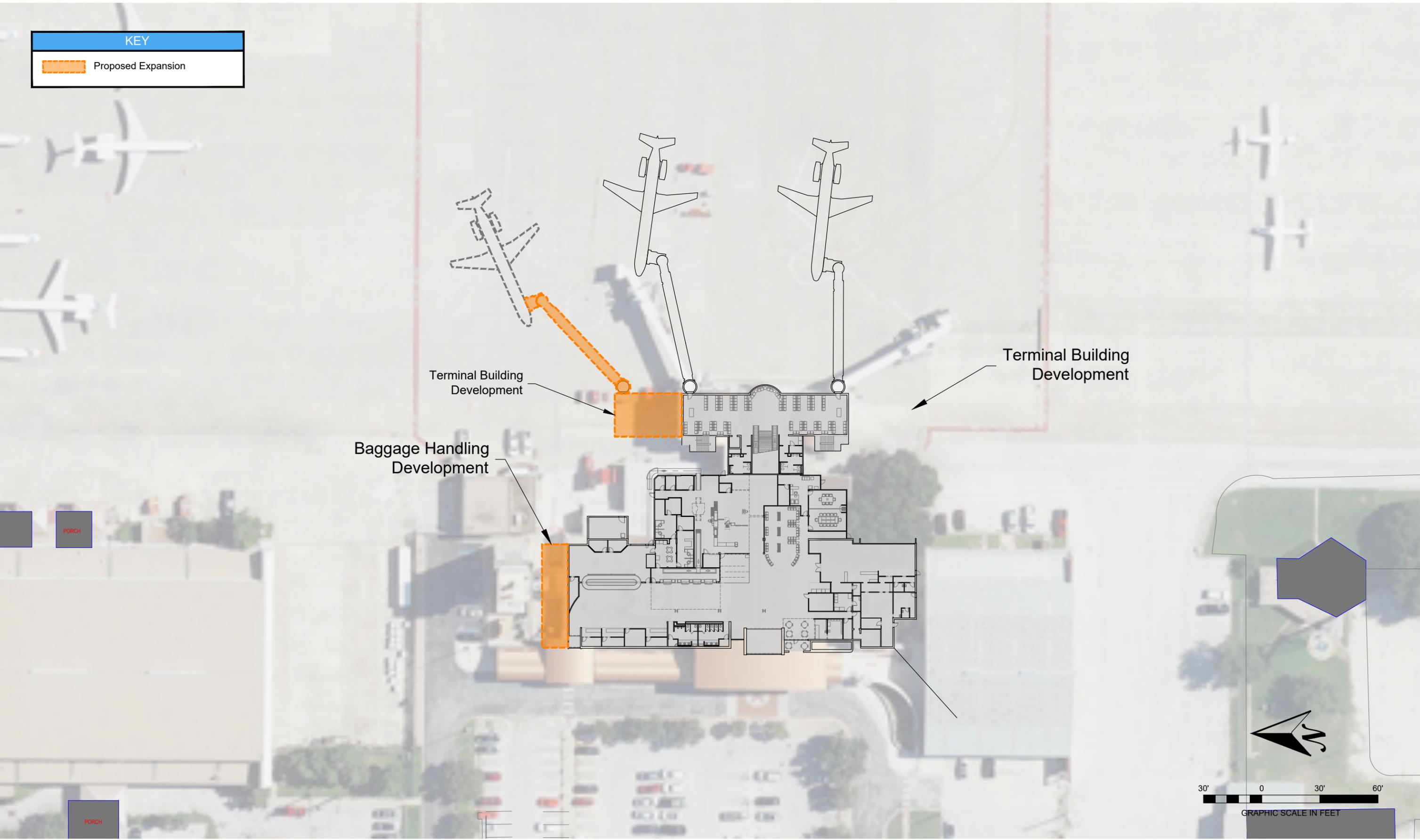
- **Best Planning Tenets** – In a no-build scenario the airport terminal area would continue to operate as it is today, with no disruptions to existing operations or the existing activity areas on the airport. This alternative is compatible with adjacent land uses as no new development is proposed that will impact either on or off-airport land use.
- **Operational Performance** - In a no-build scenario, the airport provides no flexibility for change and would be unprepared to respond to unforeseen demand if changes to existing flight schedules or additional air carrier demand presented itself.
- **Environmental Implications** - As no changes to the airport are proposed under this alternative, no environmental impacts will occur as a result of this alternative.
- **Financial Impacts** - As no new development is proposed as part of the No-Build Alternative, the potential to generate additional revenue or create jobs is non-existent.

The assessment of Commercial Terminal Building Alternative 2 and Alternative 3 against the evaluation criteria is summarized as follows:

- **Best Planning Tenets** – In Alternative 2 the airport would be better prepared to meet unforeseen changes in commercial service demand by having a terminal development plan in place. However, these alternatives would cause some disruption to existing operations as the airport would likely lose the use of one of its three existing gates as improvements are made. The no-build alternative is not desirable since the airport would be unprepared if unforeseen demand presented itself.
- **Operational Performance** – Of the existing terminal alternatives, Alternative 2 would maintain continuity with existing commercial aircraft operations without impacting air cargo and GA operations to the south and would allow the airport to effectively respond to unforeseen demand if changes to existing flight schedules or additional air carrier demand presented itself. Alternative 3 encroaches on the airport’s Security Identification Display Area (SIDA) and would negatively impact existing operations on the apron since air carrier aircraft taxiing to the gate would likely interfere with on-going cargo operations and GA operations to the south.
- **Environmental Implications** – Since changes are limited to the confines of the existing terminal area, no environmental impacts are anticipated.

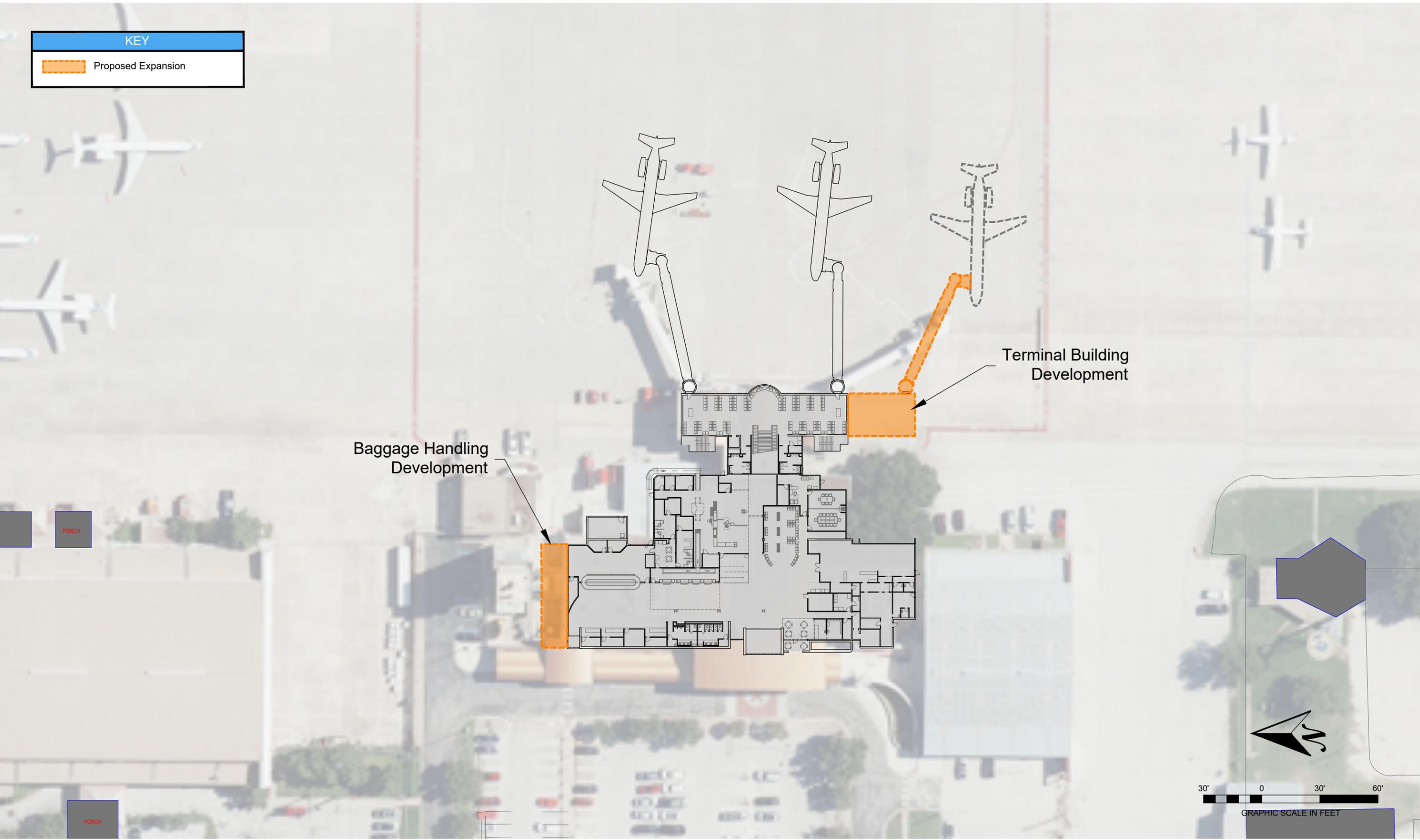
**KEY**

 Proposed Expansion



KEY

Proposed Expansion



- Financial Impacts** – While the costs associated with making improvements to the existing terminal would initially have negative financial impacts, the potential to generate additional revenue and create jobs over the long-run has the potential to provide a greater benefit to the airport and city over time.

The evaluation of the alternatives for commercial terminal building improvements are presented in **Table 4D**.

<b>TABLE 4D</b>				
Commercial Terminal Development Alternatives				
-1: Negative 0: Neutral 1: Positive	Commercial Terminal Development	Commercial Terminal Development	Commercial Terminal Development	
	Alt 1	Alt 2	Alt 3	
<b>Best Planning Tenets = 25% Weighting Factor</b>				
Land Use Compatibility	0	0	0	
Technical Feasibility	0	0	0	
Airport Vision Alignment	-1	1	1	
<b>Operational Performance = 25% Weighting Factor</b>				
Capacity	-1	1	1	
Capability	-1	1	-1	
Operational Efficiency	1	0	-1	
<b>Environmental Implications = 25% Weighting Factor</b>				
Biological Resources	0	0	0	
Cultural or Historic	0	0	0	
Wetlands	0	0	0	
Floodplains and Surface	0	0	0	
Air Quality	0	0	0	
<b>Financial Feasibility = 25% Weighting Factor</b>				
Development Costs	1	-1	-1	
Job Creation	-1	1	1	
Financial Sustainability	-1	1	1	
<b>Summary Score</b>	<b>-5</b>	<b>4</b>	<b>1</b>	
<b>Recommended</b>	<b>Commercial Terminal Development Alternative 2</b>			

## Commercial Terminal Building Improvement/Expansion Alternatives Conclusion

The inability to respond to unforeseen changes in demand and operational drawbacks make Alternative 1 and Alternative 3 unworthy of serious consideration. Therefore, it is recommended that the ALP depict an area to expand the existing air carrier terminal to the north and the airport pursue a separate stand-alone terminal study to determine a preferred terminal design improvement option and associated costs for expanding the existing terminal.

### Commercial Terminal Area – Auto Parking and Hangar Redevelopment

Airport discussions during the planning process revealed that aircraft charter activities, the timing/overlap of flights, and the relatively high number of work trucks that occupy short-term parking causes the short-term automobile parking to become constrained. Another generator of automobile parking demand that causes challenges to automobile parking is the restaurant inside the terminal, on the non-secure portion of the building. While actual parking demand associated with the restaurant is not specifically known, restaurant business typically peaks during lunchtime hours and its patrons, who don't require airline tickets for access, use the short-term parking area that is currently free of charge.

Considering these discussions, alternatives to improve and reconfigure the various terminal area facilities were studied.

During development of the alternatives for this area, it was determined that structural and fire suppression improvements in excess of \$1 million would be required before the hangar could be occupied by a new tenant. Furthermore, it has been made apparent that the significant size of the hangar is a deterrent to prospective tenants. Consequently, the redevelopment of this area was considered.

In addition to the No-Build Alternative (Alternative 1), alternatives that provide additional short-term parking and the redevelopment of the AMCOM South hangar area were developed.

Commercial Terminal Automobile Parking Alternative 2 presented in **Exhibit 4H** sought to meet airport objectives by developing a scenario that does the following:

- Adds 62 additional automobile parking spaces to the existing short-term lot;
- Relocates and expands the rental car auto parking area providing for 160 total spaces;
- Plans for the removal and redevelopment of the AMCOM South hangar area; and
- Provides overflow auto parking facilities to accommodate parking associated with proposed aviation business/industrial hangar facilities and additional unforeseen aircraft charter customers.

Commercial Terminal Auto Parking and Hangar Alternative 3 presented in **Exhibit 4I** sought to meet airport objectives by developing a scenario that does the following:

- Adds 62 additional automobile parking spaces to the existing short-term;

- Relocates rental car auto parking area providing for 71 spaces and a rental car quick turnaround facility.
- Plans for the removal and redevelopment of the AMCOM South hangar area; provides two new aircraft hangar storage facilities; and
- Provides auto parking facilities (60 spaces) for the proposed hangar facilities and additional overflow parking.

Commercial Terminal Auto Parking and Hangar Alternative 4 presented in **Exhibit 4J** sought to meet airport objectives by developing a scenario that does the following:

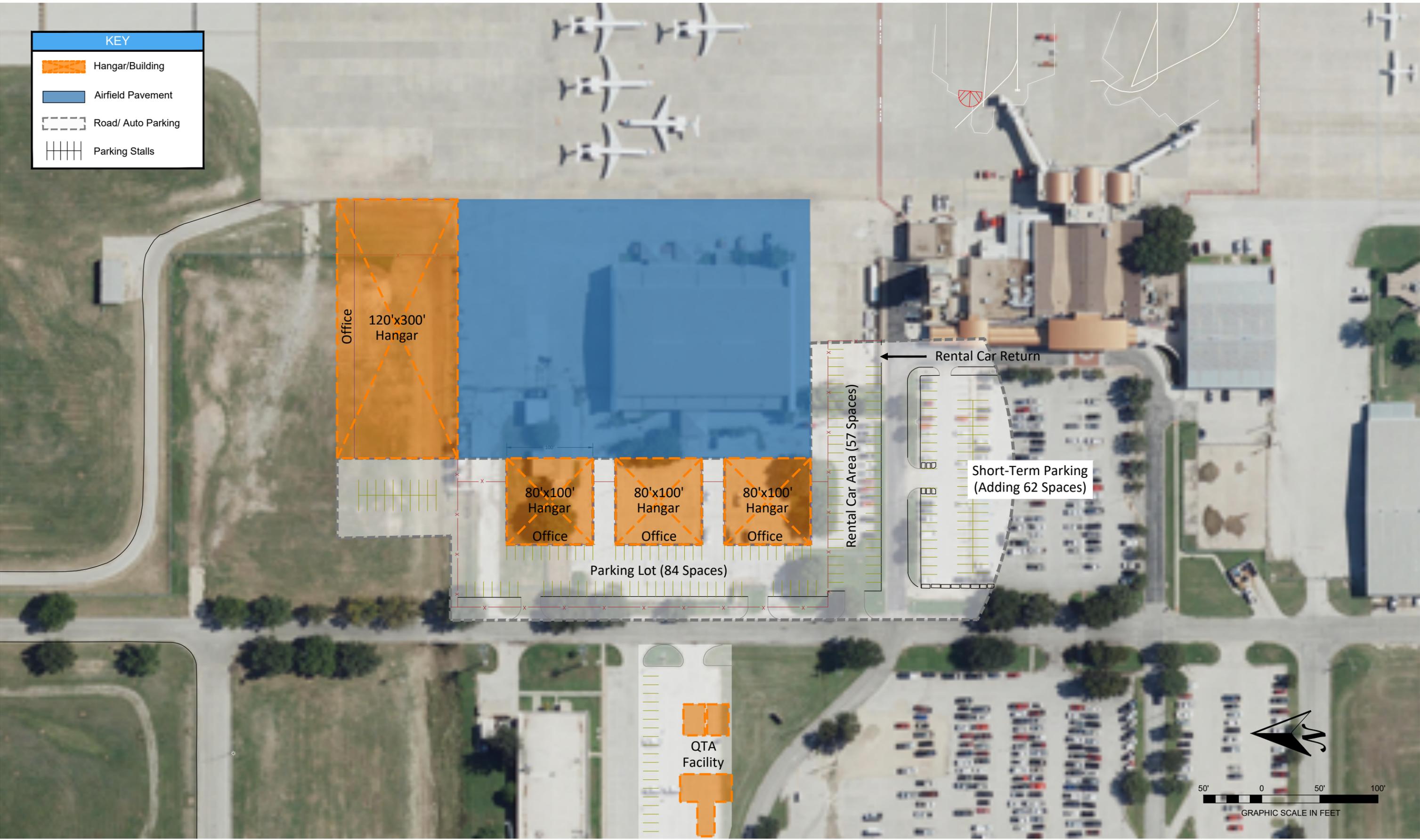
- Adds 62 additional automobile parking spaces to the existing short-term lot by relocating the rental car parking;
- Relocates rental car auto parking area providing for 57 spaces.
- Plans for the removal and redevelopment of the AMCOM South hangar area; provides three (3) new 80' x 100' aircraft hangar storage facilities; and
- Provides 84 auto parking spaces to accommodate new hangar facility parking needs and additional overflow parking.

The assessment of a Terminal Area No-Build Alternative against the evaluation criteria is summarized as follows:

- **Best Planning Tenets** – In a no-build scenario the airport terminal area would continue to operate as it is today, with no improvements to short-term parking capacity or disruption to existing operations. This alternative is compatible with adjacent land uses as no new development is proposed.
- **Operational Performance** - In a no-build scenario, the airport provides no flexibility for change and would not accommodate unforeseen growth. Perhaps more importantly, a no-build scenario does not support the need for improved capacity and efficiency for the rental car service providers or commercial passengers who leave their cars parked at the airport when traveling on air carrier or charter aircraft.
- **Environmental Implications** – Since no changes to the airport are proposed under this alternative, no environmental impacts are associated with this alternative.
- **Financial Impacts** - Since new development is not proposed in the No-Build Alternative, there are no associated development costs and the potential to generate additional airport revenue or job creation does not exist.

**KEY**

- Hangar/Building
- Airfield Pavement
- Road/ Auto Parking
- Parking Stalls



The assessment of the Commercial Terminal Area Development Alternative 2, 3, and 4 against the evaluation criteria is summarized as follows:

- **Best Planning Tenets** – In Alternative 2 the airport would improve the auto parking and rental car functions of the airport. Redeveloping the AMCOM South hangar area would also enable the airport to meet the near and long-term demand for aviation business/industrial facilities. This alternative would temporarily disrupt the existing automobile operations as the airport would temporarily lose a portion of its short-term lot and require users to park further from the terminal. From a social and political standpoint, the expansion of automobile parking and the redevelopment of the AMCOM South Hangar area has the support of local government officials who view this alternative favorably. Alternative 2 is also most desired since it provides more hangar space than Alternative 3 and more flexibility for user needs than Alternative 4. Since this area provides optimal space for aviation specific use, a QTA facility in this area as shown in Alternative 3 and Alternative 4 does not make the highest and best use of this space.
- **Operational Performance** – Alternative 2 provides flexibility for change and would allow the airport to effectively respond to unforeseen demand if changes to existing flight schedules or additional air carrier demand presented itself. While the development of landside terminal area improvements would cause temporary disruption to existing activities, the benefits of proposed development outweigh the short-term negative impacts.
- **Environmental Implications** – Other than the potential need to address stormwater impacts that could occur as a result of additional impervious surface, no negative environmental impacts are anticipated.
- **Financial Impacts** – By improving the automobile parking facilities and rental car services infrastructure, the potential to generate additional revenue through a new auto parking fee structure and land leases provide financial sustainability benefits through long-term revenue that would likely outweigh the short-term costs to the city. By making the highest and best use of this space for aviation purposes. Alternative 2 has the greatest revenue generating potential out of all three.

The alternatives for commercial terminal area development improvements have been assessed and summarized in **Table 4E**.

**TABLE 4E**

Commercial Terminal Area Development Alternatives

-1: Negative 0 : Neutral 1 :Positive	Terminal Development No-Build Alt 1	Terminal Area Development Alt 2	Terminal Area Development Alt 3	Terminal Area Development Alt 4
<b>Best Planning Tenets = 25% Weighting Factor</b>				
Land Use Compatibility	0	0	-1	-1
Technical Feasibility	0	0	0	0
Airport Vision Alignment	-1	1	0	0
<b>Operational Performance = 25% Weighting Factor</b>				
Capacity	-1	1	0	0
Capability	-1	1	0	0
Operational Efficiency	-1	1	1	1
<b>Environmental Implications = 25% Weighting Factor</b>				
Biological Resources	0	0	0	0
Cultural or Historic Resources	0	0	0	0
Wetlands	0	0	0	0
Floodplains and Surface Waters	0	-1	-1	-1
Air Quality	0	0	0	0
<b>Financial Feasibility = 25% Weighting Factor</b>				
Development Costs	1	-1	-1	-1
Job Creation	-1	1	0	0
Financial Sustainability	-1	1	0	0
<b>Summary Score</b>	<b>-7</b>	<b>4</b>	<b>-2</b>	<b>-2</b>
<b>Recommended Alternative</b>	<b>Terminal Area Development Alternative 2</b>			

### Commercial Terminal Area Auto Parking and Hangar Development Alternatives Conclusion

Based on input received from the master planning committees and airport leadership, Alternative 2 is preferred. The selection of this alternative was made since it maximizes vehicle parking spaces, separates rental cars from general airport parking and the proposed redevelopment of the AMCOM. South hangar area is optimal and meets the aviation needs of potential tenants interested in developing facilities at the airport in the near term.

### Commercial Terminal Area – Rental Car Quick Turn Around Facility Development

Rental Car Quick Turn-Around (QTA) buildings are innovative airport facilities that allow rental car service providers to clean and fuel rental cars most efficiently to meet the current demands of airport customers. To improve the efficiency of how these functions are executed today, and accommodate future growth, potential locations for the development of a consolidated QTA facility were identified.

Coupled with expanded rental car automobile parking facilities, a consolidated QTA will allow the rental car services providers to operate much more efficiently. Additionally, a consolidated QTA facility has the potential to attract a new rental car service provider(s) to the airport.

In the no-build, Alternative 1 scenario, the rental car providers would see no improvement to their current operations. Rental Car Quick Turn Around Facility Development Site Alternatives 2,3, and 4 are presented in **Exhibit 4K**.

The assessment of a Rental Car Quick Turn Around Facility No-Build Alternative (Alternative 1) against the evaluation criteria is summarized as follows:

- **Best Planning Tenets** – In a no-build scenario, the rental car service providers would continue to operate as they do today, with no improvements to existing operations. This alternative is compatible with adjacent land uses as no new development is proposed.
- **Operational Performance** - In a no-build scenario, the airport provides no flexibility for change and would not accommodate unforeseen growth and the likelihood of attracting new business is diminished. Perhaps more importantly, a no-build scenario does not support the need for improved efficiency for the rental car service providers.
- **Environmental Implications** – Since no changes to the airport are proposed under this alternative, there are no associated environmental impacts.
- **Financial Impacts** - Since new development is not proposed in Alternative 1, there are no associated development costs and the potential to generate additional airport revenue or job creation does not exist.

KEY

--- QTA Area



The assessment of the Rental Car Quick Turn Around Facility Alternatives 2, 3, and 4 against the evaluation criteria are summarized as follows:

- **Best Planning Tenets** – Alternatives 2, 3 and 4 do not have any known site constraints from an engineering/design standpoint and each include enough space for the development of a QTA facility. However, from a land use compatibility, flexibility, and airport vision perspective, Alternative 2 has the least number of drawbacks. Alternative 3 conflicts with the proposed redevelopment of the AMCOM South hangar and Alternative 4 conflicts with the proposed land use identified in the Airport Real Estate Strategy Plan.
- **Operational Performance** – Alternatives 2, 3, and 4 all have the same general proximity to the terminal building and share the same operational characteristics regarding location. However, when compared to Alternatives 3 and 4, Alternative 2 has a larger footprint and provides more flexibility for change. Additionally, since the location of Alternative 2 is slightly more remote than Alternatives 3 and 4, Alternative 2 would cause the least disruption to existing activities during construction.
- **Environmental Implications** – Other than the potential need to address stormwater impacts that could occur as a result of additional impervious surface, no environmental impacts are anticipated.

The evaluation of the Rental Car QTA development site alternatives assessment is presented in **Table 4F**.

**TABLE 4F**  
Rental Car QTA Development Site Alternatives

-1: Negative 0 : Neutral 1 :Positive	QTA No-Build Alt 1	QTA Development Site Alt 2	QTA Development Site Alt 3	QTA Development Site Alt 4
<b>Best Planning Tenets = 25% Weighting Factor</b>				
Land Use Compatibility	0	0	-1	-1
Technical Feasibility	0	0	0	0
Airport Vision Alignment	-1	1	-1	-1
<b>Operational Performance = 25% Weighting Factor</b>				
Capacity	-1	1	-1	-1
Capability	-1	1	1	1
Operational Efficiency	-1	1	1	1
<b>Environmental Implications = 25% Weighting Factor</b>				
Biological Resources	0	0	0	0
Cultural or Historic Resources	0	0	0	0
Wetlands	0	0	0	0
Floodplains and Surface Waters	0	-1	-1	-1
Air Quality	0	0	0	0
<b>Financial Feasibility = 25% Weighting Factor</b>				
Development Costs	1	-1	-1	-1
Job Creation	-1	1	1	1
Financial Sustainability	-1	1	1	1
Summary Score	-5	4	-1	-1
<b>Recommended Alternative</b>	<b>Rental Car QTA Development Site Alternative 2</b>			

### Rental Car QTA Development Site Alternatives Conclusion

Except for the no-build scenario, each of the alternatives provide enough space for the development of a consolidated Rental Car QTA Facility and each would provide improved operational efficiency.

However, since Alternative 3 and Alternative 4 have land use compatibility drawbacks and do not align with the airport’s vision for overall development, Alternative 2 is the selected option. It is recommended that this area be depicted on the ALP.

### Commercial Terminal Area – Air Cargo Development

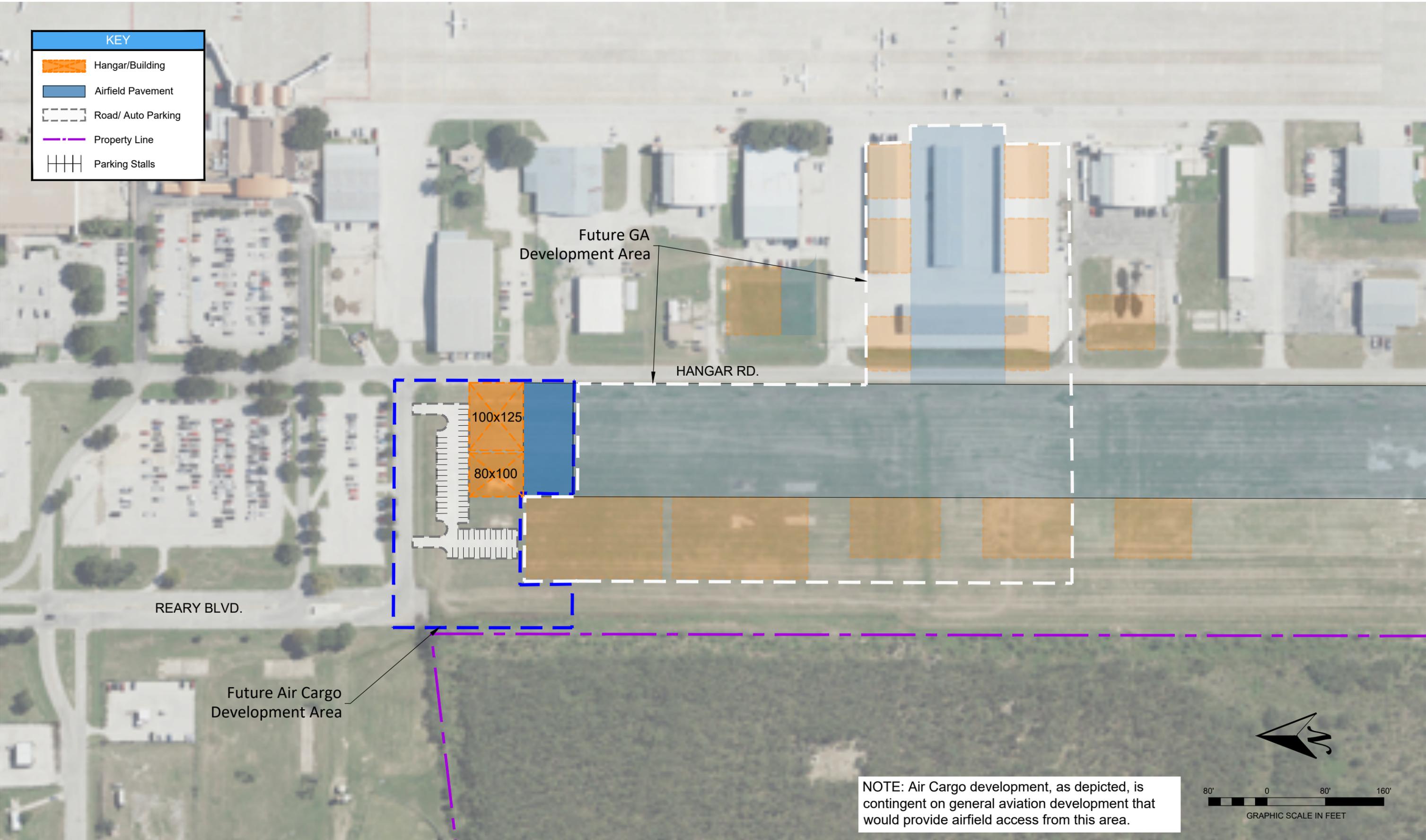
To address the unforeseen demand for additional air cargo facilities, the alternatives sought to identify a potential location for expanding the air cargo functions of the airport. While the actual size of these facilities is unknown today, it is assumed that an additional facility, comparable in size to the existing air cargo facility is sufficient for planning purposes. By identifying a specific location for air cargo development and depicting it on the ALP, the airport will be better prepared to accommodate air cargo development if the need arises.

In the No-Build, (Alternative 1) scenario, a location for additional air cargo facilities would not be identified. If a location for air cargo expansion is not identified, the airport would be less prepared to respond to events that could trigger a need for new or expanded air cargo facilities. Moreover, this could lead to future air cargo facilities that do not promote continuity with existing operations.

Air Cargo Expansion Site Alternative 2 is presented in **Exhibit 4L**.

**KEY**

-  Hangar/Building
-  Airfield Pavement
-  Road/ Auto Parking
-  Property Line
-  Parking Stalls



NOTE: Air Cargo development, as depicted, is contingent on general aviation development that would provide airfield access from this area.

The assessment of an Air Cargo expansion do-nothing alternative (Alternative 1) and Alternative 2 against the evaluation criteria are summarized as follows:

- **Best Planning Tenets** – In a do-nothing scenario, the airport would be less prepared to accommodate the to develop additional/expanded air cargo facilities. By identifying a specific location for new or expanded air cargo facilities, land use compatibility with existing designations would be maintained. Alternative 2 is contingent upon additional development that would expand the aircraft movement capabilities of this area. Otherwise, Alternative 2 as shown, does not have airfield access.
- **Operational Performance** - In a do-nothing scenario, a specific area for air cargo development would not be shown on the ALP. While this would not prohibit such facilities to be developed, the likelihood of introducing operational conflicts is increased since not identifying a specific area may result in air cargo development occurring at a location on the airport that is suboptimal. Alternative 2 ensures that air cargo expansion can be accommodated in an area of sufficient size and the operations associated with such facilities promote continuity with existing operations. Notably however, for Alternative 2 to be realized, additional improvements to GA facilities and configuration would need to occur to provide aircraft access west of Hangar Road.
- **Environmental Implications** – In Alternative 1, since no location for air cargo development is proposed under this alternative, the environmental impacts are unknown. Alternative 2 allows for the environmental impacts associated with additional air cargo development to be understood in advance of actual demand.
- **Financial Impacts** – In Alternative 1, since no location for air cargo development is proposed under this alternative, job creation potential and additional airport revenue through a new land lease is unknown. Alternative 2 provides a footprint for air cargo development where construction costs, job creation, and potential revenues can be estimated.

The evaluation of the Air Cargo Expansion site alternatives assessment is presented in **Table 4G**.

**TABLE 4G**  
Air Cargo Development Site Alternatives

-1 : Negative 0 : Neutral 1 : Positive	Air Cargo No-Build Alt 1	Air Cargo Development Site Alt 2
<b>Best Planning Tenets = 25% Weighting Factor</b>		
Land Use Compatibility	-1	1
Technical Feasibility	0	0
Airport Vision Alignment	-1	1
<b>Operational Performance = 25% Weighting Factor</b>		
Capacity	-1	1
Capability	-1	1
Operational Efficiency	-1	1
<b>Environmental Implications = 25% Weighting Factor</b>		
Biological Resources	0	1
Cultural or Historic Resources	0	1
Wetlands	0	1
Floodplains and Surface Waters	0	-1
Air Quality	0	0
<b>Financial Feasibility = 25% Weighting Factor</b>		
Development Costs	0	1
Job Creation	-1	1
Financial Sustainability	-1	1
<b>Summary Score</b>	<b>-7</b>	<b>10</b>
<b>Recommended Alternative</b>	<b>Air Cargo Development Site Alternative 2</b>	

**Air Cargo Development Site Alternatives Conclusion**

It is recommended that the recommended development site shown in Alternative 2 be depicted on the Aior ALP. The alternative was primarily selected over the Do-Nothing alternative since this gives the airport the ability to effectively respond to the need for expanded air cargo facility development in a manner that promotes land use compatibility and operational efficiency. Additionally, by understanding the size of the area preserved for future air cargo development, Alternative 2 allows the airport to estimate the financial implications associated with expanded air cargo facilities.

## Business Aviation/Industrial Landside Alternatives

### Aviation Business/Industrial Aviation Hangar Development

Considering the availability of existing developable space and the eventual closure of Runway 9-27, aviation compatible sites and opportunities for expansion have been identified to accommodate future aviation business/industrial hangar development. Since the west side of the airport, adjacent to Taxiway A appears to be ample for the planning period, no specific alternatives have been evaluated for this area. However, if development within the airport midfield is desired, it is critical that the design and configuration of aircraft aprons and movement areas consider the airport's vision for the full build-out of this area. **Exhibit 4M** presents a concept that considers how development in this area provides for aircraft movements to and from the runway(s).

In addition, the alternatives considered insight gained through airport discussions and the development of the Airport Real Estate Development Strategy Plan which included significant outreach to better define the number of and size of hangars that would best suit the needs of potential airport tenants. More specifically, discussions with airport tenants suggested that a hangar size of 100' by 120' is optimal, and discussions with US Customs and Border Protection indicated that the development of a 120' by 150' would be ideal to accommodate their P-3 Orion aircraft.

As mentioned, the existing size and condition of the hangars associated with the former AMCOM Maintenance Repair and Overhaul (MRO) facility suggests that the redevelopment of that site provides the highest and best use. For business and industrial development, the most desired and suitable hangar size was a 12,000 square foot hangar. Smaller hangars are not capable of accommodating the types of aircraft that come to SJT for maintenance and repair services.

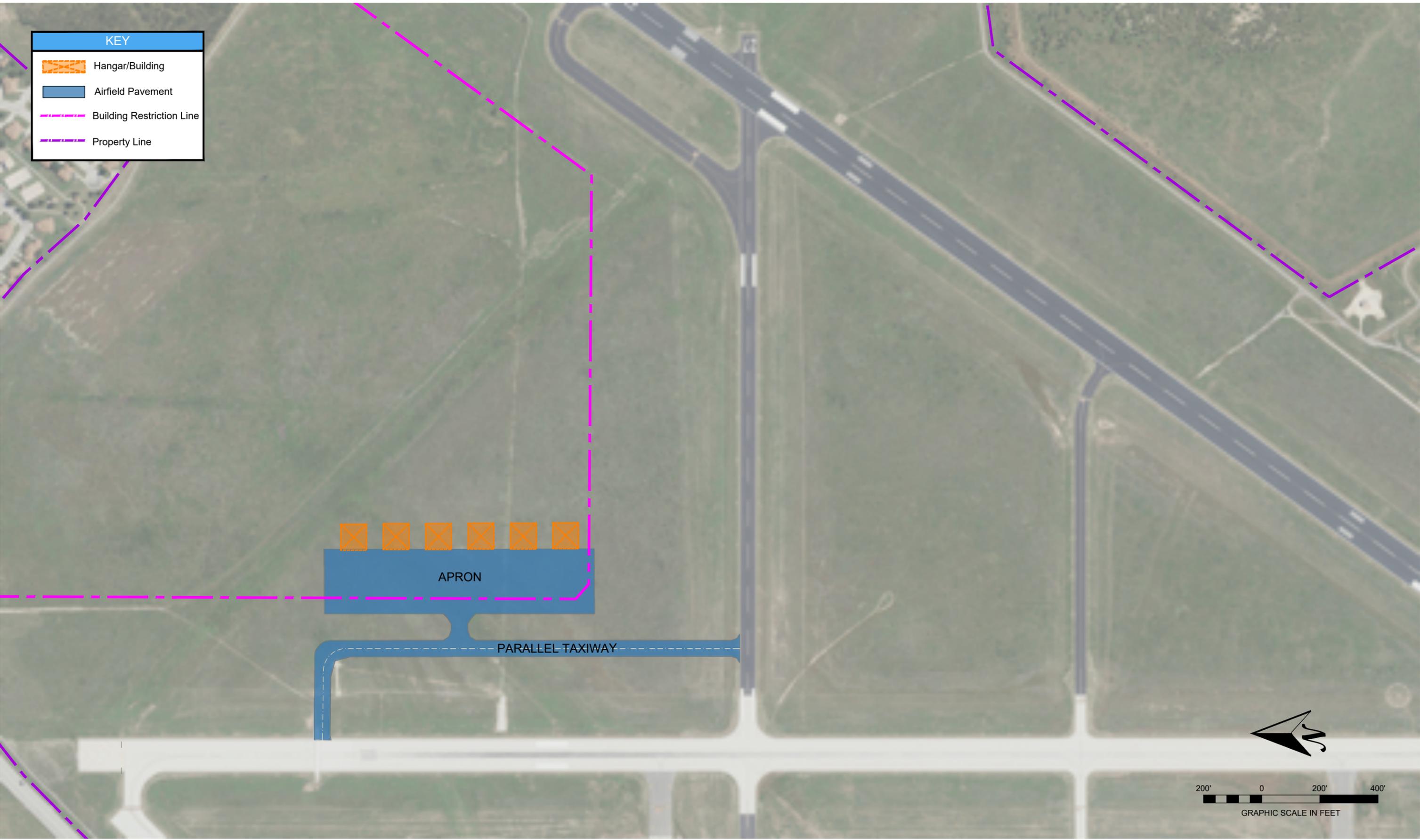
The aviation business/industrial hangar alternatives also sought to provide a full buildout of this area to include hangars of various sizes to accommodate a full-range of aircraft anticipated to operate in this area.

Also considered in these alternatives is the existing aircraft paint facility, a proven benefit to the airport. While the location of this facility is not ideal, it was determined too costly to relocate; therefore, it is assumed the facility will remain in its current location. However, to ensure the future viability of this facility, aircraft access improvements are needed. Since this facility offers the ability to co-locate supporting aircraft maintenance tenants; therefore, it will be preserved for continued similar uses.

Finally, it is critical that the design of the taxiways and aprons in this area commensurate with the aircraft needing access to this area to maintain safety avoid restrictions.

**KEY**

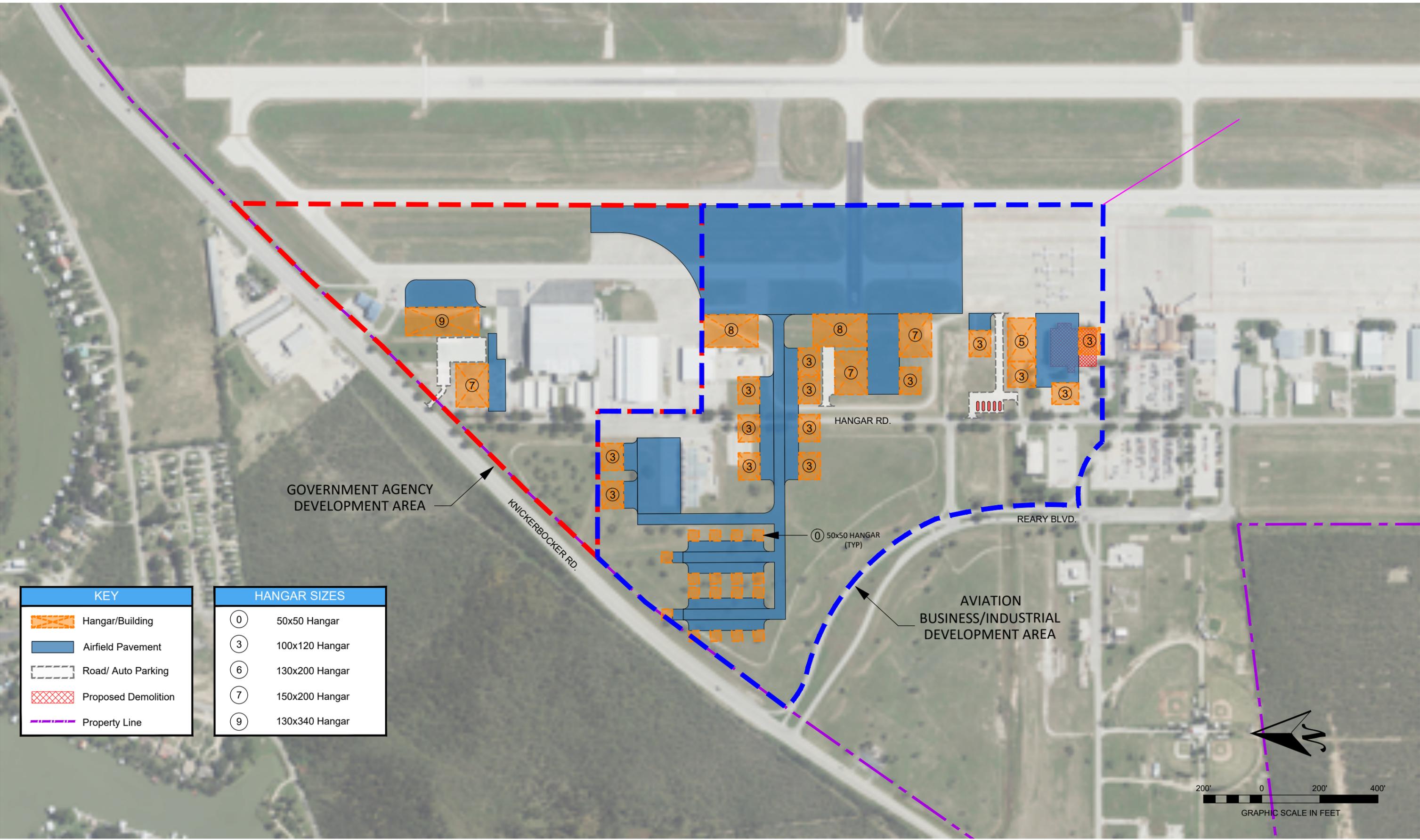
- Hangar/Building
- Airfield Pavement
- Building Restriction Line
- Property Line



While a No-Build Alternative wouldn't preclude the airport from developing future aviation business/industrial hangars, merely identifying general space on the ALP for such development would not promote operational efficiency throughout the planning period. Alternatives 2 and 3 presented in **Exhibit 4N** and **Exhibit 4O** sought to provide alternatives that provide an adequate yet reasonable number of hangars, and:

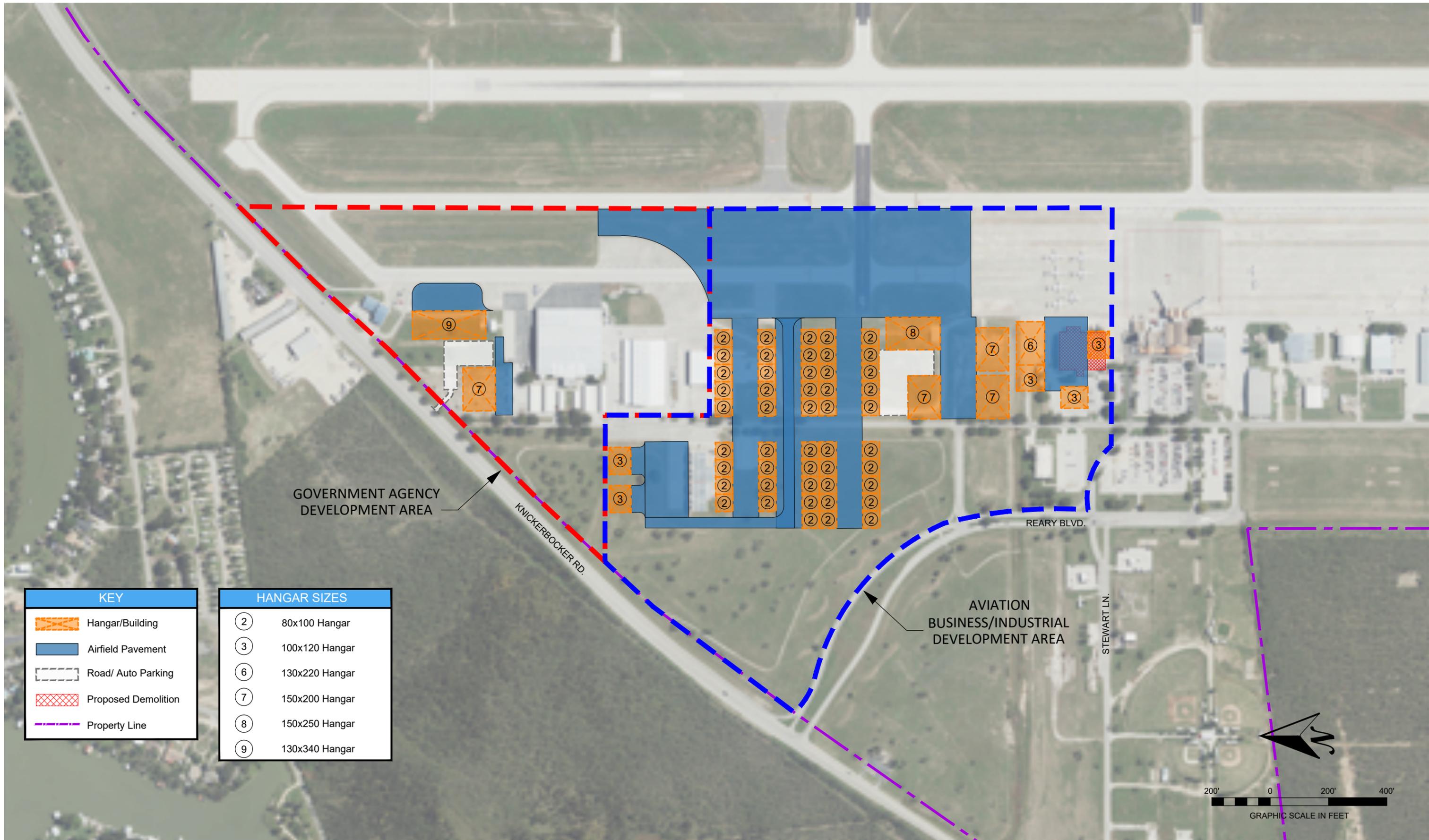
- Accommodate a full range of aircraft most likely to require hangar facilities;
- Maintain/provide access to existing paint facilities;
- Consider current airport tenants and their use of the area; and
- Provide operational continuity with other airport functions and activity areas.

In addition to the two alternatives discussed herein, there were several other conceptual layouts prepared for this area that the airport considered suboptimal. However, since the hangar development in this area will be triggered by demand and mostly funded through private investment, it is likely that the actual layout will vary from the recommended concept.



KEY	
	Hangar/Building
	Airfield Pavement
	Road/ Auto Parking
	Proposed Demolition
	Property Line

HANGAR SIZES	
①	50x50 Hangar
③	100x120 Hangar
⑥	130x200 Hangar
⑦	150x200 Hangar
⑨	130x340 Hangar



GOVERNMENT AGENCY DEVELOPMENT AREA

KNICKERBOCKER RD.

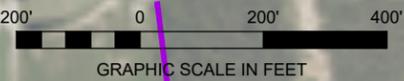
REARY BLVD.

AVIATION BUSINESS/INDUSTRIAL DEVELOPMENT AREA

STEWART LN.

KEY	
	Hangar/Building
	Airfield Pavement
	Road/ Auto Parking
	Proposed Demolition
	Property Line

HANGAR SIZES	
②	80x100 Hangar
③	100x120 Hangar
⑥	130x220 Hangar
⑦	150x200 Hangar
⑧	150x250 Hangar
⑨	130x340 Hangar



The assessment of the Aviation Business/Industrial Aviation Hangar Development No-Build Alternative against the evaluation criteria is summarized as follows:

- **Best Planning Tenets** – In a do-nothing scenario the area north of the terminal area would go unplanned and continue to operate as it is today, with no improvements to existing user needs or disruption to the way things operate today until triggered by demand, at which point the airport risks development that could be out of line with the long-range vision of the airport and city.. This alternative is compatible with adjacent land uses as no new development is proposed that will impact either on or off-airport land use.
- **Operational Performance** - In a no-build scenario, the airport still provides flexibility in this area but risks pursuing private development that may constrain future development of that area.
- **Environmental Implications** - As no changes to the airport are proposed under this alternative, environmental impacts of the entire area are largely unknown and would have to be addressed on a case by case basis as development demand warrants.
- **Financial Impacts** - As no specific development plan is proposed as part of the No-Build Alternative, the potential to understand the overall value and revenue generating capabilities of this area does not exist.

The assessment of the Aviation Business/Industrial Aviation Hangar Development Area Alternative 2 and Alternative 3 against the evaluation criteria are summarized as follows:

- **Best Planning Tenets** – In Alternative 2 the airport would be better prepared to ensure land use compatibility and due to the various hangar sizes, have the flexibility to meet the aviation business industrial needs of the area.
- **Operational Performance** – Alternatives 2 and 3 provide flexibility for developing infrastructure in a strategic manner while maintaining land use compatibility and operational efficiency. However, with a fuller range of hangar sizes, Alternative 2 provides more flexibility in accommodating user needs.
- **Environmental Implications** – With the exception of environmental permitting requirements and stormwater impacts that could occur as a result of additional impervious surface, the environmental overview suggests that development of this area is likely to receive a categorical exclusion, without the need of a detailed environmental assessment.

- **Financial Impacts** – By understanding a relatively specific buildout as depicted in Alternative 1 the airport can better understand the total revenue generating capabilities this area could provide. In the same manner, the airport can understand the potential for job creation, and overall economic impact potential of the airport over the planning horizon. While initial short-term costs to the city are relatively low since all development in this area is assumed by private development, the city might incur initial short-term costs associated with marketing activities, economic development outreach, and high level site assessments they may choose to perform to better advertise the development potential of this site.

The evaluation of the Aviation Business/Industrial development alternatives assessment is presented in **Table 4H**.

**TABLE 4H**  
Aviation Business/Industrial Development Alternatives

-1 : Negative 0 : Neutral 1 : Positive	Aviation Business/Industrial Development No-Build Alt 1	Aviation Business/Industrial Development Alt 2	Aviation Business/Industrial Development Alt 3
<b>Best Planning Tenets = 25% Weighting Factor</b>			
Land Use Compatibility	0	1	1
Technical Feasibility	0	1	1
Airport Vision Alignment	-1	1	0
<b>Operational Performance = 25% Weighting</b>			
Capacity	-1	1	1
Capability	-1	1	0
Operational Efficiency	-1	1	1
<b>Environmental Implications = 25% Weighting</b>			
Biological Resources	0	0	0
Cultural or Historic Resources	0	0	0
Wetlands	0	0	0
Floodplains and Surface Waters	0	-1	-1
Air Quality	0	0	0
<b>Financial Feasibility = 25% Weighting Factor</b>			
Development Costs	1	-1	-1
Job Creation	-1	1	1
Financial Sustainability	-1	1	1
<b>Summary Score</b>	<b>-5</b>	<b>6</b>	<b>4</b>
<b>Recommended Alternative</b>	<b>Aviation Business/Industrial Area Development Alternative 2</b>		

**Aviation Business/Industrial Area Development Alternatives Conclusion**

Among the two development options that depict an aviation business/industrial hangar development plan, Alternative 2 is most capable of meeting the expectations of existing and potential tenants, preserves existing land use, and is aligned with the airport’s vision. It is recommended that the recommended development shown in Alternative 2 be depicted on the ALP.

## Governmental, Non-Aviation, and Aeronautical Support

In proximity to the Business Aviation/Industrial functions of the airport, the Real Estate Strategy Plan referenced earlier, identified potential Aviation Compatible/Mixed-Use development that should be considered in conjunction with the recommendations of this alternatives analysis.

### Airport Compatible Development

Land use identified as Airport Compatible/Mixed use is made up of revenue generating development consistent with on-going airport functions and the airport sponsor's objectives. Development in this area is triggered by demand and may or may not require airfield access.

This 27-acre space has been identified as Governmental and was considered in the airport's Real Estate Development Strategy Plan to provide continuity with the existing activities in this area. More specifically, the strategy plan identified five (5) acres for future expansion to accommodate CBP ancillary facilities or storage, potential UAV service infrastructure, or programmatic space.

The Non-Aviation and Airport Compatible Mixed-Use areas are depicted on **Exhibit 4P**.

**EXHIBIT 4P**  
Airport Compatible Mixed-Use



As potential tenants seek opportunities for development, flexibility with hangar and taxiway access must be considered. In doing so, the way hangars and support facilities are constructed may differ from what is shown in Alternative 2. As development is pursued in this area, it is critical that access to the paint hangar area be maintained for aircraft up to ARC C-III. Development should always consider the ultimate ability of the airport to accommodate a wide range of airport users and tenants.

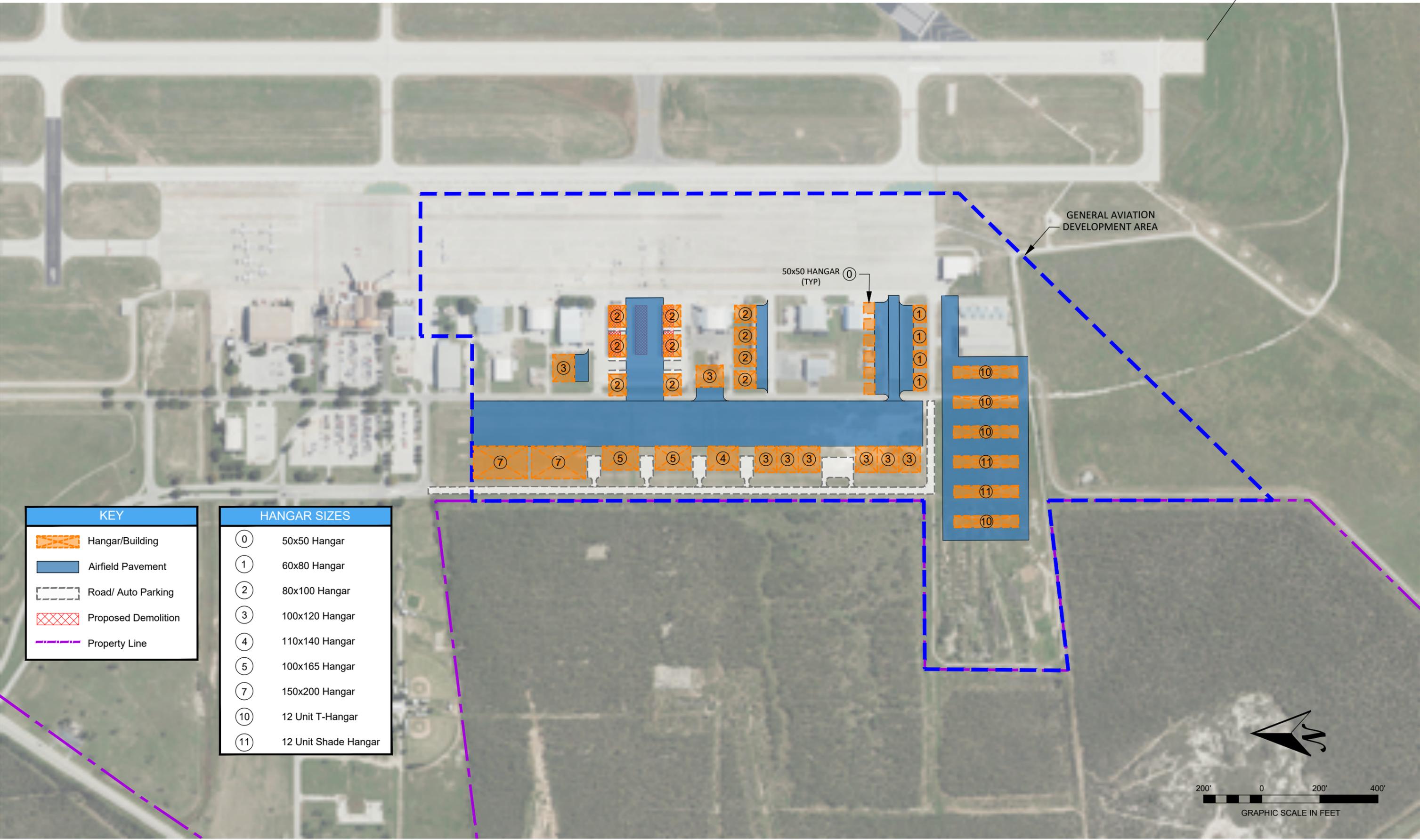
### General Aviation Development Area Alternatives

Airport planning principles recommend that to a feasible extent, airport development aim to consolidate similar activities such that the comingling of aircraft of vastly different sizes and types is avoided. While complete segregation is most desirable, the location of existing use areas at SJT make absolute consolidation difficult since one contiguous apron serves a full range of aircraft and the existing commercial airline terminal is situated between GA hangars that serve various functions. The airport activity centers depicted on the airport land use exhibit did however identify one consolidated 110-acre area to accommodate the hangar needs of small and midsize aircraft (Group I & Group II).

Notably, there is limited space available on the existing flight line for development of additional hangars. Based on input from tenants and users there is an immediate need for hangar development; therefore, the alternatives analysis included in this section includes development of the west side of hangar road. Considering the limited space currently available, it is important that access to this area is suitable for a full-range of aircraft. Additionally, should cargo demand increase during the planning period it, air cargo development adjacent to the existing facilities would be most advantageous; therefore, access to the east side of hangar road should be maintained to accommodate larger cargo aircraft.

General Aviation Development Area Alternatives 2 and 3 presented in **Exhibit 4Q** and **Exhibit 4R** sought to meet the airport's objectives for its General Aviation functions to the most feasible extent by developing a scenario that:

- Provides areas for near-term box hangars and T-hangars;
- Provides near-term development areas to accommodate the airport's existing hangar waiting list;
- Provides a scenario to redevelop/replace existing infrastructure;
- Provides a long-term GA hangar development layout to understand long-term GA hangar capacity;
- Identifies existing hangar facilities with increasing maintenance costs due to age, and evaluate the removal and relocation of such facilities;
- Segregates GA users by aircraft type, size and operational needs.

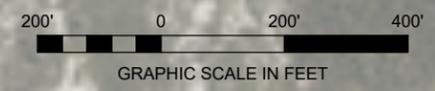


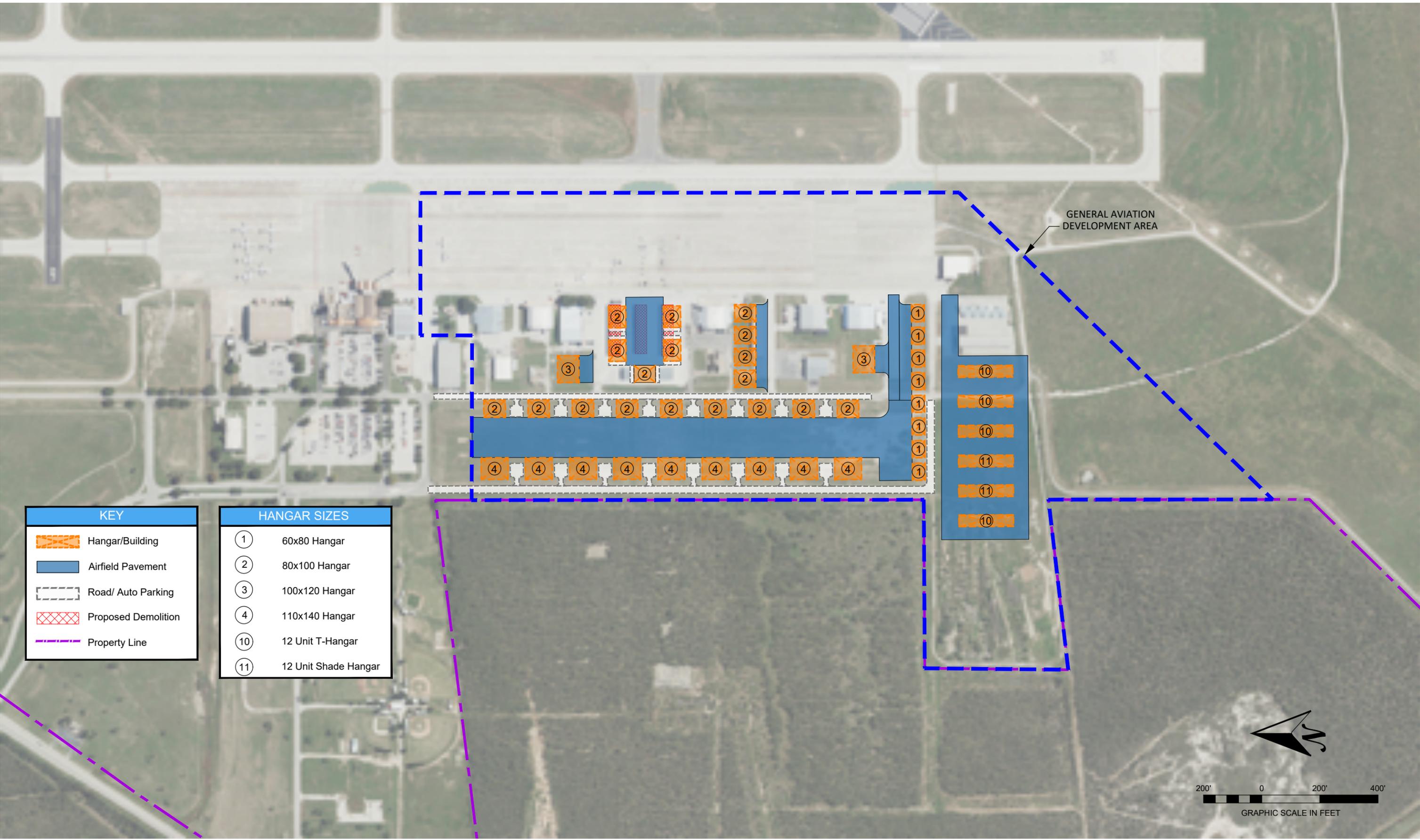
GENERAL AVIATION  
DEVELOPMENT AREA

50x50 HANGAR  
(TYP) ①

KEY	
	Hangar/Building
	Airfield Pavement
	Road/ Auto Parking
	Proposed Demolition
	Property Line

HANGAR SIZES	
①	50x50 Hangar
②	60x80 Hangar
③	80x100 Hangar
④	100x120 Hangar
⑤	110x140 Hangar
⑥	100x165 Hangar
⑦	150x200 Hangar
⑩	12 Unit T-Hangar
⑪	12 Unit Shade Hangar





KEY	
	Hangar/Building
	Airfield Pavement
	Road/ Auto Parking
	Proposed Demolition
	Property Line

HANGAR SIZES	
①	60x80 Hangar
②	80x100 Hangar
③	100x120 Hangar
④	110x140 Hangar
⑩	12 Unit T-Hangar
⑪	12 Unit Shade Hangar



The assessment of the **General Aviation Hangar Development, No-Build Alternative** against the evaluation criteria is summarized as follows:

- **Best Planning Tenets** - In a no-build scenario the airport would not meet user needs or the airport's vision for future development
- **Operational Performance** - In a no-build scenario, the airport still provides flexibility in this area but risks pursuing private development that may constrain future development of facilities in the GA activity area.
- **Environmental Implications** - As no changes to the airport are proposed under this alternative, environmental impacts of the entire area are largely unknown and would have to be addressed on a case by case basis as development demand warrants.
- **Financial Impacts** - Since no specific development plan is proposed as part of the No-Build Alternative, it is not possible to understand the overall value and revenue generating capabilities of this area.

Much like the assessment of Aviation Business/Industrial hangar development alternatives, the assessment of the General Aviation Hangar Development Area Alternatives 2 and 3 against the evaluation criteria is summarized as follows:

- **Best Planning Tenets** – While both Alternative 2 and 3 provide sufficient overall hangar space to meet future GA Hangar needs, Alternative 2 is aligned closer with the airport's objectives and vision than Alternative 3 since it can be implemented more effectively in the short-term to meet existing needs and provides a concept that considers a fuller range of hangar sizes.
- **Operational Performance** – Alternatives 2 and 3 both provide flexibility in developing infrastructure strategically while maintaining land use compatibility and operational efficiency. However, Alternative 2 provides better aircraft access and maneuverability.
- **Environmental Implications** – With the exception of environmental permitting requirements and stormwater impacts that could occur as a result of additional impervious surface, the environmental overview suggests that development of this area is likely to receive a categorical exclusion, without the need of a detailed environmental assessment.
- **Financial Impacts** – By understanding detailed buildout capabilities of the GA Development Area, the concepts presented in both Alternative 2 and Alternative 3 allow the airport to better understand the total revenue generating capabilities this area may provide. In the same manner, the airport can understand the potential for job creation, and overall economic impact potential of the airport over the planning horizon.

The evaluation of the General Aviation development area alternatives assessment is presented in **Table 4I.**

<b>TABLE 4I</b>			
<b>General Aviation Development Area Alternatives</b>			
<b>-1 : Negative</b>	<b>General Aviation Hangar Development No-Build</b>	<b>General Aviation Hangar Development</b>	<b>General Aviation Hangar Development</b>
<b>0:Neutral</b>	<b>Alt 1</b>	<b>Alt 2</b>	<b>Alt 3</b>
<b>1:Positive</b>			
<b>Best Planning Tenets = 25% Weighting Factor</b>			
Land Use Compatibility	0	1	1
Technical Feasibility	0	1	1
Airport Vision Alignment	-1	1	0
<b>Operational Performance = 25% Weighting Factor</b>			
Capacity	-1	1	1
Capability	-1	1	1
Operational Efficiency	-1	1	0
<b>Environmental Implications = 25% Weighting Factor</b>			
Biological Resources	0	0	0
Cultural or Historic Resources	0	0	0
Wetlands	0	0	0
Floodplains and Surface Waters	0	-1	-1
Air Quality	0	0	0
<b>Financial Feasibility = 25% Weighting Factor</b>			
Development Costs	1	-1	-1
Job Creation	-1	1	1
Financial Sustainability	-1	1	1
<b>Summary Score</b>	<b>-5</b>	<b>6</b>	<b>4</b>
<b>Recommended Alternative</b>	<b>General Aviation Development Area Alternative 2</b>		

### General Aviation Development Area Alternatives Conclusion

It is recommended that the development concept shown in Alternative 2 be depicted on the ALP. This alternative was selected over Alternative 3 primarily because the aircraft access points in this alternative provide better operational and implementation benefits. Additionally, the aircraft maneuverability capabilities provided by Alternative 2 are favorable.

## Airport Support Facilities Development Alternatives

The last area of consideration in the alternatives analysis includes airport support facilities since they are generally a function of all previous analyses. Like all previous No-Build scenarios (Alternative 1), the no-build alternative is the airport's existing condition. For SJT, airport support alternatives focused on infrastructure related to air traffic control and fueling facilities.

### Air Traffic Control Tower Site Selection

The current air traffic control tower is over 60 years old, does not meet ADA requirements, and building maintenance is ongoing challenge. Although there is no immediate funding available for the construction of a new air traffic control tower facility, the alternatives considered potential development site locations for a new tower if funding becomes available.

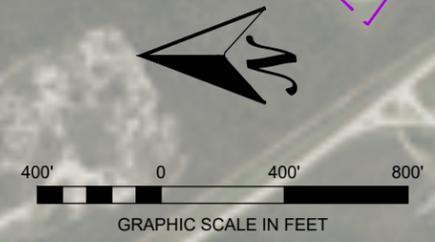
**Exhibit 4S** provides three potential sites for the development of a new air traffic control tower.

Considering line-of-site requirements, solar impacts, and the proposed development of other airport facilities previously discussed, the recommended site for a new air traffic control tower is Alternative 2. When compared to the locations identified in Alternative 3 and 4 which conflict with the airport's vision and other proposed development, Alternative 2 provides the best location from an operational standpoint.

The assessment of the ATCT development site alternatives against the evaluation criteria is summarized as follows:

- **Best Planning Tenets** - In a no-build scenario the airport would continue to experience maintenance challenges with the existing ATCT that does not meet ADA requirements. When compared against Alternatives 3 and 4, Alternative 2 is most compatible with airport land use and would support existing commercial terminal building expansion.
- **Operational Performance** - In a no-build scenario, the airport would continue to operate as it does today with an air traffic control tower that over time, has become more difficult to maintain. The construction of a new ATCT would have some operational impacts during removal of the existing tower and any tenant(s) on the proposed site.
- **Environmental Implications** - While no changes to the airport are proposed under a no-build alternative, there are no known environmental impacts associated with any of the site options. However, since Alternative 2 is in proximity to other proposed development, it is likely that by the time a new ATCT is likely to be constructed, the environmental documentation for that area will have been completed.
- **Financial Impacts** - Although no specific development plan is proposed as part of the No-Build Alternative, the cost to maintain the existing ATCT is likely to increase over time. The financial impacts are generally the same among Alternative 2, 3 and 4 in terms of financial feasibility and job creation.

KEY	
	Existing ATCT
	Site Option 2
	Site Option 3
	Site Option 4
	Property Line



### Consolidated Aviation Fuel Farm Development Site Alternatives

As identified in the airport inventory, the airport has several fuel farm locations in various locations on the airport. Operationally, this existing condition is inefficient and requires the maintenance of several facilities, of various age and condition that serve a common function. The development alternatives sought to identify a new location, independent of any of the existing locations that could accommodate one consolidated fuel farm facility.

**Exhibit 4T** provides two potential sites for the development of a consolidated fuel farm facility.

Due to its location within the AOA and proximity and access to the aircraft aprons, the recommended site for a new consolidated fuel farm facility is Alternative 2. If a new facility was to be located outside the AOA, additional permits and authorizations would be required for fuel truck operators.

The assessment of the consolidated fuel farm development site alternatives against the evaluation criteria is summarized as follows:

- **Best Planning Tenets** – With limited potential for expansion and no improvement depicted on the ALP a no-build scenario (Alternative 1), would continue to operate as they do today, inefficiently, to and from multiple locations.
- **Operational Performance** - In a no-build scenario, inefficient fuel farm operations will continue with fuel trucks required to drive to and from various locations. Alternative 2 provides more operational benefits than Alternative 3 considering that it remains in the AOA.
- **Environmental Implications** - While no changes to the airport are proposed under a no- build alternative, the development of a new consolidated fuel farm would be subject to the required environmental documentation associated with fuel farm activities.
- **Financial Impacts**–Although no specific development plan is proposed as part of the No-Build Alternative, the cost to maintain the existing fuel farm facilities and the roads traveled by airport fuel trucks is likely to increase over time. The financial impacts are generally the same among Alternative 2 and 3 in terms of financial feasibility and job creation.

**KEY**

-  Tank/Structure
-  Access Road
-  Fuel Farm Area



### General Aviation Self-Serve Fueling Facility

During the public involvement component of the master planning effort, the GA users of the airport brought to the attention of the project team and airport leadership, the desire for a General Aviation self-serve fueling facility at the airport.

In response, the alternatives analysis sought to identify a location that could accommodate a self-serve GA fueling facility without conflicting with proposed hangar development presented earlier.

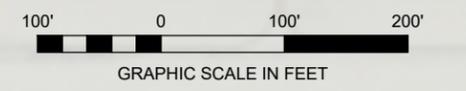
In coordination with airport leadership, a recommended development site for a GA self-serve fueling facility was identified on the north end of the General Aviation apron (**Exhibit 4U**).

The assessment of a self-serve GA fuel facility development No-Build (Alternative 1) and a development option (Alternative 2) against the evaluation criteria are summarized as follows:

- **Best Planning Tenets** – In a no-build scenario, the airport would continue to operate without a self-serve fuel facility. This Alternative does not meet the airport user need identified in the public involvement program. Alternative 2 provides a suitable site that is compatible with existing land use without conflicting with proposed aircraft hangar development.
- **Operational Performance** - In a no-build scenario, GA aircraft fueling operations would continue as they are today. The development of a self-serve fuel facility as shown in Alternative 2 would likely cause some negative impacts to GA apron operations. However, these impacts would likely diminish over time as aircraft taxiing to and from the self-serve fueling area becomes more routine among regular users.
- **Environmental Implications** - While no changes to the airport are proposed under a no- build alternative, the development of a new self-serve GA fueling facility would be subject to the required environmental documentation associated fuel farm facilities.
- **Financial Impacts** – The status quo, No-Build Alternative has no initial negative financial implications since there are no associated development costs, neither would this alternative provide any long-term financial benefits, since a new revenue stream would not be established. Conversely, while the costs of development associated with Alternative 2 presents an initial financial drawback, these costs could eventually be outweighed by a new revenue stream that the self-serve facility would provide the airport.

**KEY**

-  Tank/ Structure
-  Airfield Pavement
-  GA Self-Serve Fueling Area
-  Access Road



### Ultimate Commercial Development

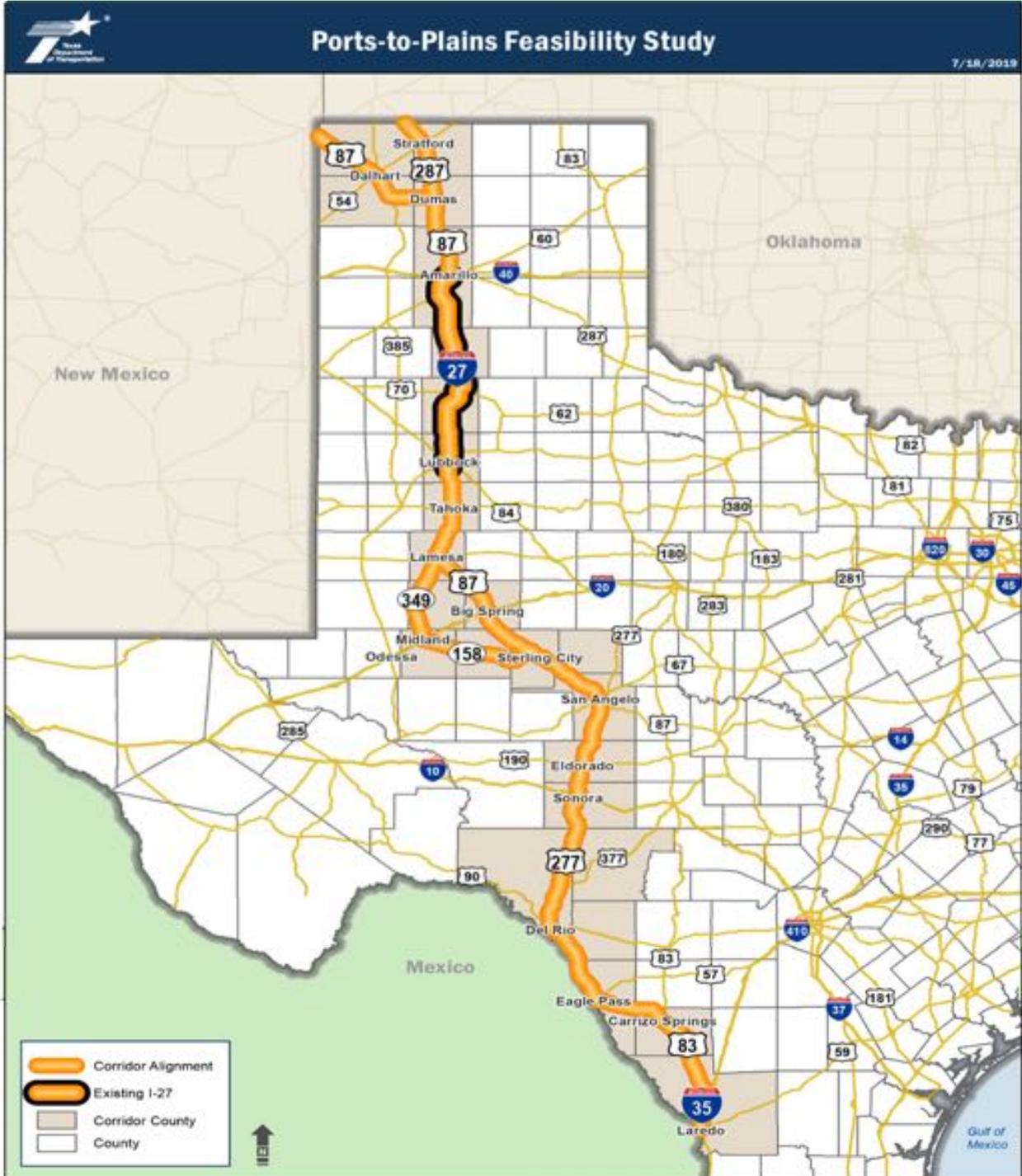
Considering the volatile nature of the aviation industry and the difficulties in predicting how outside influences might impact the need for new airport development, this plan sought to provide SJT with a bigger picture of how the airport might look if commercial air service demand grows beyond the capabilities of the airport's west side. As previously stated, the current terminal is adequate to meet the commercial forecasts prepared for this plan through 2037. However, commercial passenger enplanements beyond those estimated for two airline operations (101,192), or simultaneous 3-gate operations would trigger the need for additional analyses. Given the limited expansion potential in the current terminal area, a viable option to accommodate commercial air service on the opposite side (east side) of the airport could be provided through a detailed terminal area study.

Two known potential influences that could trigger higher than anticipated air carrier demand made it especially important for this study to at least understand airport property impacts that could be associated with relocating commercial aviation functions to the airport's east side.

The first potential influence includes an on-going study by the Texas Department of Transportation that is evaluating the feasibility of improvements to Interstate Highway 27 that would create a continuous flow, four-lane divided highway, including improvements that extend I-27 to the south, as part of the Ports-to-Plains trade corridor (**Exhibit 4V**). In 1998 Congress designated this as a High Priority Corridor to provide the efficient transportation of goods and people from Mexico, through West Texas, Oklahoma, New Mexico, Colorado and ultimately Canada and the Pacific Northwest.

The second known potential influence is a proposed minor arterial road that although unlikely to impact air cargo facility demand as much as an extension of I-27, still has the potential of increasing the demand for new commercial air service development, if an airport access road were to connect the new arterial roadway to new commercial terminal facilities on the airport's east side (**Exhibit 4W**).

**EXHIBIT 4V**  
TxDOT Ports-to-Plains Feasibility Study Corridor Map



**EXHIBIT 4W**

City of San Angelo Long-Range Surface Transportation Plan



Since the specific needs for new commercial passenger or air cargo development resulting from these proposed roadway improvements are largely unknown, the alternatives shown in **Exhibit 4X** were created primarily to understand the amount of additional land that the airport would need to acquire. When either one of these roadway improvements come to fruition, it is recommended that the airport develop new forecasts as part of an air cargo and terminal study that will determine the recommended size, cost and configuration of this ultimate development.

For the purposes of this plan, the ultimate commercial terminal and air cargo alternatives, are only evaluated against a do-nothing alternative that does not identify future land acquisition. Since almost any commercial air service development on the airport's east side would likely require additional airport property, the benefits of having land the land available for development outweigh the associated financial drawbacks. It is recommended that the ALP identify the future land acquisition needed to accommodate new commercial air service and air cargo facilities east of Runway 3-21.



## Landside Alternatives Summary

The selected development option among each of the assessed alternatives for their respective activity center had varying evaluation scores. The following table (**Table 4J**) summarizes the preferred development alternative selected for each category or area evaluated. The preferred alternative is made up of each of the development alternatives that scored the highest and will consider any feedback received from the airport, FAA, and the community through the public involvement program.

The following section provides a narrative that describes the final development recommendations and presents a composite figure of the preferred alternative that will be shown on the ALP.

The Implementation Plan that proceeds the following section will describe how the actual development of the airside and landside recommendations will be phased over the planning horizon and include preliminary opinions of development costs that will be incorporated into the Airport Capital Improvement Plan.

**TABLE 4J**

**Preferred Airport Landside Alternatives Summary**

**Commercial Aviation**

**Existing Commercial Terminal Building**

Expand existing commercial passenger terminal to the north and add an additional passenger boarding bridge. Expand existing baggage handling facilities to the south.

**Commercial Terminal Area**

Recapture 60 (+/-) short-term automobile parking spaces by relocating existing rental car parking. Construct new rental parking lot (150 +/-), redevelop AMCOM South Hangar Area and provide a development area for four (4) new corporate/industrial hangars with associated aircraft pavement.

**Consolidated Rental Car QTA**

Preserve the area east of Reary Boulevard at the intersection of Stewart Lane and Reary Boulevard and construct a new consolidated rental car quick turnaround facility.

**Air Cargo Facilities**

Preserve the area west of Hangar Road and west of the existing air cargo facilities for the expansion/development of new air cargo facilities (hangar and apron area)

**General Aviation**

**Aviation Business/Industrial Hangar Facilities**

Maximize the development of Aviation Business/Industrial facilities in the Aviation Business/Industrial Area through the closure of Runway 9-27 and the construction/redevelopment of a new apron area.

**General Aviation Hangar Facilities**

Maximize Hangar Development in the Existing GA Development Area through a combination of conventional hangars and nested T hangar development with adequate taxilanes/movement areas and access points.

**GA Self-Serve Fueling Facility**

Preserve the area south of the existing General Aviation Apron in the vicinity of Taxiway B and F.

**Support Facilities**

**Air Traffic Control Tower**

Preserve the area immediately south of the existing Air Cargo Apron for the development/construction of a new air traffic control tower.

**Consolidated Fuel Farm Facility**

**Ultimate Commercial Development**

Acquire 30-50 acres of additional land for the development of new commercial terminal and air cargo development east of Runway 3-21.