SECTION 3
DEMAND/CAPACITY ANALYSIS AND FACILITY REQUIREMENTS

This section analyzes the ability of the current facilities at Pensacola Regional Airport (PNS) as documented in Section 1 to accommodate the aviation demand forecasts developed in Section 2. Strategic Planning Activity Levels (SPAL) have been established for several airport operational scenarios which were recommended by members of the Citizens Advisory Committee (CAC) and Technical Advisory Committee (TAC). Specific facility requirements are identified for these aviation activities.

The Airport's major component areas including airspace, airside and landside facilities have been analyzed to determine the necessary facility requirements. Typical industry requirements for commercial aviation and general aviation demand have been identified for various activity levels to indicate required facilities. It is important to note that the major components must be in balance with each other to achieve system optimization. Specific facility expansion and airport development alternatives to adequately meet the projected demand will be addressed in Section 4.

3.1 AIRSPACE

The airspace elements evaluated for PNS include the following: surrounding airspace, obstructions and navigational aids.

As discussed in Section 1, the airspace in the vicinity of PNS is controlled by several on-site air traffic control entities: the FAA Air Traffic Control Tower (ATCT) and Radar Approach and Departure Control (RADC). Off-site ATC facilities include the FAA's Air Route Traffic Control Centers (ARTCC) at Houston (ZHU) and Jacksonville (ZJX). Other ATC entities in the vicinity of PNS include Naval Air Station (NAS) Pensacola, NAS Whiting North, NAS Whiting South, and Navy Outlying Field (NOLF) Choctaw. It should be noted that there is no continuously operated ATCT in the Pensacola area.

The existing PNS ATCT began operating in May 1995 and is located approximately 1,300 feet southwest of the intersections of Runways 17-35 and 8-26. The ATCT operates daily from 5:30 a.m. to 12:00 a.m. for a total of 18-1/2 hours. When the ATCT is closed, the airspace above the Airport resorts to Class "E". A two-way radio is not required by pilots operating under VFR in Class "E" airspace. IFR operations are allowed in Class "E" airspace with an approved instrument approach to the Airport.

3.1.1 Surrounding Airspace. The airspace within a 25-nautical-mile radius of PNS was examined to identify factors which may impact aircraft operations of the forecasted activity. PNS is located in the area of Class "C" airspace and is identified as KPNS in current military flight publications.

Several NAS and NOLF military airfields are located in the vicinity of PNS. PNS's area of reserved airspace is thereby adjacent to the reserved airspace areas of these airports: Class "C" airspace of NAS Pensacola/Forrest Sherman Field, Class "C" airspace of NAS Whiting Field North and NAS Whiting South, Class "C" airspace of NOLF Choctaw, Class "E" airspace of NOLF Saufley, Class "E" airspace of NOLF Wolf, Class "E" airspace of NOLF Hollen and Class "E" airspace of NOLF Santa Rosa. Several public and private general aviation airports are also located in the airport vicinity. Public use airports include Coastal Airport, Ferguson Airport and Peter Prince Field. The airspace structure for these airports was discussed in Section 1.

The establishment of several reserved airspace corridors near PNS can influence future airspace capacity at the Airport. PNS and surrounding military airfields and public airports are all located within the Pensacola South Military Operating Area (MOA). This MOA is an area of military airspace reserved for high volume aircraft operations, high-speed flights and flight training. This MOA extends from 10,000 feet up to, but not including, 18,000 feet mean sea level (MSL) and is controlled by the PNS ATCT. The Pensacola North MOA is located approximately 25 nautical miles north of PNS and is controlled by the Jacksonville ARTCC.

Several areas of Restricted Airspace (R-2915A, R-2915B and R-2915C, See Figure 1.5) are located directly east of the Pensacola South MOA. Restricted airspace limits aircraft flight operations but does not prohibit aircraft operations within these areas. R-2915A and R-2915B extend up from the ground to an unlimited altitude; R-2915C extends up from 8,500 feet MSL to an unlimited altitude.

A Warning Area (W-155A) has been established south of PNS. A Warning Area is defined as an area of special use airspace that may contain hazards to nonparticipating aircraft operating in international airspace. This and adjacent offshore Warning Areas are utilized by military aircraft for training.

A Class "E" Federal Airway (V198-241) is located approximately 20 nautical miles north of PNS. The reserved airspace in this east-west airway extends from 1,200 feet up to 18,000 feet MSL and is eight nautical miles in width. A low-altitude IFR Military Training Route (IR 021) originates from NAS Whiting North. This one-way training route contains flight segments above and below 1,500 feet AGL.

With coordination between area ATC agencies and the continued preservation of the Airport's airspace by the City of Pensacola, U.S. Navy, and local municipalities, the existing airspace structure should be sufficient to meet the needs of PNS beyond the end of this planning period.

3.1.2 Obstructions. An Obstruction Chart (OC) and an Obstruction Data Sheet (ODS) has been previously prepared for PNS by the U.S. Department of Commerce's National Oceanic and Atmospheric Administration (NOAA). These documents provide data on obstructions and other objects located within the Airport's immediate airspace.

The OC for PNS, which was developed in September 1992, indicates that there are several objects located within the Airport's FAR Part 77 Imaginary Airspace Surfaces. These objects include trees, transmission towers, aeronautical navigational facilities, and airport buildings. Twenty-two trees and a transmission tower, located either underneath or adjacent to the Airport's runway approaches, are identified as obstructions. Any objects that are identified as obstructions should be lighted, marked or removed.

The OC depicts the operating length of Runway 8/26 as 4,700 feet. The OC and ODS should be updated to reflect current operating length of the crosswind runway (6,002 feet) to indicate the location of the new ATCT and to identify any obstructions located near Runway 8. This should be done in the short-term planning period (1998-2005) so that all airport obstructions can be identified and the proper action (i.e., marking or removal) can be taken.

3.1.3 Navigational Aids (NAVAIDS) and Landing Aids. NAVAIDS and landing aids are generally grouped into airport facility equipment that helps a pilot locate the airport, provide horizontal guidance information so a pilot can make a non-precision approach, provide horizontal and vertical guidance information so a pilot can make a precision instrument approach or provide visual cues to assist a pilot in locating the airport and making final landing corrections.

The Airport Surveillance Radar (ASR-8) at PNS assists in control of air traffic operating in the Airport's approach control airspace. The ASR can maintain radar coverage up to 60 miles and provide radar non-precision instrument approaches at the host and satellite airports. The ASR at PNS is located approximately 3,300 feet northeast of the intersection of Runways 17/35 and 8/26. Non-precision instrument approaches are provided by the ASR to all runways at PNS.

A Very-High Frequency Omni Directional Radio Range (VOR) provides horizontal/azimuth guidance to airborne aircraft and can serve as an airborne VOR station checkpoint. A VOR has been installed at NOLF Saufley, which is located 7.5 nautical miles west of PNS. This VOR currently supports a non-precision instrument approach to Runway 8 at the Airport.

A Non-Directional Radio Beacon (NDB) transmits low/medium frequency radio signals that provide bearing information and guides aircraft to its destination. A NDB can typically be found at an airport and is used for non-precision instrument runway approaches. The Pickens NDB, which is located 2.2 nautical miles south of PNS, supports non-precision instrument approaches to Runways 17 and 35.

A Remote Transmitter Receiver (RTR) is an unmanned communications facility that extends the communication range of the ATCT. The RTR at PNS is located on closed runway pavement just northwest of the ATCT.

To provide precision instrument approach capability into PNS, an Instrument Landing System (ILS) has been installed on Runway 17. The ILS contains several components: Glide Slope, Localizer, Inner Marker, Middle Marker, and Outer Marker. The ILS at PNS is supplemented with Simplified Short Approach Lighting System (SSALR), which provides lower visibility minimums for approaches to Runway 17.

Global Positioning System (GPS) is a satellite-based positioning and navigation system providing latitude, longitude, altitude and time information to aircraft installed with GPS receivers. GPS is currently approved as a supplemental navigational aid for enroute and non-precision instrument approaches. Non-precision instrument GPS overlay approaches have been established for PNS based on current VOR and NDB instrument approaches into the Airport.

Through the FAA's refinement of GPS technology and the ongoing development of Differential Global Positioning System (DGPS) instrumentation, all runways at PNS could eventually be provided with precision approach Category I capability. Therefore, it is recommended that the City of Pensacola pursue the establishment of stand-alone GPS/DGPS approach capability into PNS.

Table 3.1 presents the NAVAID facility requirements at PNS.

3.2 AIRFIELD FACILITIES

Airfield facilities include runways, taxiways and runway protection zones. This section addresses the ability of airside facilities to accommodate existing and future aviation demands.

Table 3.1 Facility Requirements: NAVAIDS
Pensacola Regional Airport - Master Plan Update

	Existing	2005	2010	2020
Runway 17				
Instrument Approach	Precision	Precision	Precision	Precision
Approach Type	ILS, NDB, GPS	ILS, NDB, DGPS	ILS, NDB, DGPS	ILS, NDB, DGPS
Approach Slope	50:1	50:1	50:1	50:1
Runway 35				
Instrument Approach	Non-Precision	Precision	Precision	Precision
Approach Type	NDB, GPS	ILS, DGPS, NDB	ILS, DGPS, NDB	ILS, DGPS, NDB
Approach Slope	34:1	50:1	50:1	50:1
Runway 8				
Instrument Approach[1]	Non-Precision	Non-Precision or Precision	Non-Precision or Precision	Non-Precision or Precision
Approach Type	VOR, GPS	VOR, GPS, DGPS	VOR, GPS, DGPS	VOR, GPS, DGPS
Approach Slope	34:1	34:1 or 50:1	34:1 or 50:1	34:1 or 50:1
Runway 26				
Instrument Approach[1]	Visual	Non-Precision or Precision	Non-Precision or Precision	Non-Precision or Precision
Approach Type	None	ILS, DGPS	ILS, DGPS	ILS, DGPS
Approach Slope	20:1	34:1 or 50:1	34:1 or 50:1	34:1 or 50:1

[1] – FAA Feasibility study will determine non-precision or precision instrument approach capabilities for Runway 8/26.
Source: RS&H Team, 1998.

3.2.1 Design Aircraft and Airport Reference Code. The FAA refers to the Aircraft Approach Category and the Airplane Design Group of the design aircraft at an airport as an Airport Reference Code (ARC). The ARC is a coding system used to relate airport design criteria to the operational and physical characteristics of the aircraft intended to operate at an airport. The FAA's Aircraft Approach Categories and Airplane Design Groups are listed in Table 3.2. Examples of aircraft classified by the Airplane Design Group are listed in Table 3.3.

To determine airfield facility requirements, FAA planning guidelines recommend the identification of an existing and future design aircraft. The design aircraft is typically defined as the most demanding aircraft that performs at least 250 annual departures (or 500 annual operations) from the longest runway at an airport. The *1989 Pensacola Regional Airport Master Plan* identified the Boeing 727 as the design aircraft for PNS, which has a corresponding ARC of C-III.

Table 3.2 Aircraft Approach Category and Airplane Design Group
Pensacola Regional Airport - Master Plan Update

Aircraft Approach Category	Approach Speed
Category A	Speed less than 91 knots
Category B	Speed 91 knots to less than 121 knots
Category C	Speed 121 knots to less than 141 knots
Category D	Speed 141 knots to less than 166 knots
Category E	Speed 166 knots or more
Airplane Design Group	**Wingspan**
Category I	Less than 49 feet
Category II	49 feet to less than 79 feet
Category III	79 feet to less than 118 feet
Category IV	118 feet to less than 171 feet
Category V	171 feet to less than 214 feet
Category VI	214 feet to less than 262 feet

Sources: FAA Advisory Circular 150/5300-13.

Table 3.3 Airplane Design Group Aircraft
Pensacola Regional Airport - Master Plan Update

Airplane Design Group	Representative Aircraft
I	Beech Baron 58A, Cessna 150, Gates Learjet 35A, Piper Navajo, McDonnell Douglas F-18, General Dynamics F-16
II	Beech King Air C90, Canadair Regional Jet, Cessna Citation III, Gulfstream IV, Grumman F-14, Saab 340
III	Airbus A-320, Boeing 727, Boeing 737, Douglas DC-9, Fokker 100, Gulfstream V, McDonnell-Douglas MD-80
IV	Boeing 757, Boeing 767, Airbus A-300, Douglas, DC-10, Lockheed C-141, Boeing MD-17, Boeing MD-11
V	Airbus 340, Boeing 747, Boeing 777
VI	Antonow AN-124, Lockheed C-5B

Sources: Jane's All The World's Aircraft.

There are multiple aircraft operating out of PNS that could be considered as the current design aircraft based on these criteria, including the Boeing 727-200, Boeing 737-300, MD-83 and the DC-9. Of these aircraft, the MD-80 is designated as the design aircraft for PNS. This aircraft is classified with an ARC of C-III. The future design aircraft for PNS is the Boeing 757, which has an ARC of

C-IV. Therefore, it would be prudent that in certain applications, planning and design should be completed based on an ARC of C-IV to accommodate for these larger aircraft in the future.

In Advisory Circular (AC) 150/5300-13, the FAA has established airfield dimensional standards pertaining to runway and taxiway widths, separations and building setbacks based on the design aircraft and corresponding ARC. Table 3.4 compares the existing airfield conditions at PNS with the FAA airfield geometry standards.

3.2.2 Airfield Capacity. With the guidelines outlined in FAA's AC 150/5060-5, *Airport Capacity and Delay*, VFR and IFR hourly capacity and the Annual Service Volume (ASV) were determined for the existing runway system at PNS. For any runway system, VFR hourly capacity is higher than IFR hourly capacity, based on any airport's ability to serve aircraft in clear weather. In IFR conditions, aircraft movement in and out of an airport is sequenced by ATC, and aircraft separation distances are increased for flight safety purposes. Therefore, the amount of aircraft operations in and out of an airport under IFR conditions is essentially restricted or reduced when compared to VFR conditions. The ASV is defined as a reasonable estimate of an airport's annual throughput ability (measured in annual aircraft operations) based on several airport variables, such as: airspace limitations, availability of a full-length parallel taxiway, exit taxiways and instrument approach capability.

In the FAA AC 150/5060-5, several ranges of VFR and IFR hourly operations and ASV annual operations have been developed for differing runway use configurations. The relative percentage of operations by classes of aircraft (or aircraft mix indexes, based on maximum takeoff weight) influences the hourly capacity and ASV in each runway system. The aircraft mix index represents the level of operations by class of aircraft.

Airfield capacity is influenced by runway configuration. The existing dual runway system (i.e., Runway 17-35 and 8-26) at PNS can be described as an intersecting runway system. This runway system has a VFR hourly capacity of 72 to 98 operations, IFR hourly capacity of 56 to 60 operations and an ASV of 200,000 to 265,000 annual operations. A single runway would provide a VFR hourly capacity of 51 to 98 operations, IFR hourly capacity of 50 to 59 operations and an ASV of 195,000 to 240,000 annual aircraft operations. Airfield capacity at PNS is currently determined to be an ASV of 200,000 annual operations, VFR hourly capacity of 77 operations and IFR hourly capacity of 57 operations.

Table 3.4 Airfield Geometry
Pensacola Regional Airport - Master Plan Update

Item	Existing Conditions		Airport Reference Code	
	17/35	8/26	ARC C-III	ARC C-IV
R/W Width	150'	150'	150'	150'
R/W Shoulder Width	25'	25'	20'	25'
R/W Blast Pad Width	200'	0'	140'	200'
R/W Blast Pad Length	200'	0'	200'	200'
R/W Safety Area Width	500'	500'	500'	500'
R/W Safety Area Length (beyond runway end)	1,000'	1,000'	1,000'	1,000
R/W OFA Width	800'	800'	800'	800'
R/W OFA Length (beyond runway end)	1,000'	1,000'	1,000'	1,000
T/W Width	75'	75'	50'	75'
T/W Shoulder Width	0'	0'	20'	25'
T/W Safety Area Width	118'	118'	118'	171'
T/W OFA Width	186'	186'	186'	259'
T/L OFA Width	162'	162'	162'	225'
R/W Centerline to Parallel T/W Centerline	500'	500'	400'	400'
R/W Centerline to Aircraft Parking Area	950'	750'	500'	500'
T/W Centerline to Parallel T/W / T/L Centerline	230'	230'	152'	215'
T/W Centerline to Fixed or Moveable Object	180'	180'	93'	129.5'
T/L Centerline to Parallel T/L Centerline	N/A	N/A	140'	198'
T/L Centerline to Fixed or Moveable Object	120'	120'	81'	112.5'

Note: R/W - Runway
T/W - Taxiway
T/L - Taxilane
OFA - Object Free Area

Source: FAA Advisory Circular 150/5300-13.
The RS&H Team, 1998.

Airfield capacity is also influenced by the availability of parallel runways. For instance, a single runway can accommodate between 195,000 and 240,000 annual aircraft operations, where as a dual parallel runway can serve between 260,000 and 370,000 annual aircraft operations. Increasing the separation distance between parallel runways will also increase an airport's hourly capacity.

Table 3.5 presents the Airport's existing airfield demand/capacity ratios to the year 2020, based on a comparison of the aviation demand presented in Section 2 to the existing airfield capacity discussed previously.

Table 3.5 Airfield Demand/Capacity Ratio
Pensacola Regional Airport - Master Plan Update

Activity	Existing	2005	2010	2020
Annual Operations	125,189	143,062	154,335	178,776
Annual Service Volume	200,000	200,000	200,000	200,000
Annual D/C Ratio	63%	72%	77%	89%
Peak Hour Operations	51	55	60	69
VFR Hourly Capacity	77	77	77	77
VFR Hourly D/C Ratio	66%	71%	78%	90%
IFR Hourly Capacity	57	57	57	57
IFR Hourly D/C Ratio	89%	96%	105%	121%

Source: RS&H Team, 1998.

As shown, peak hour aircraft operations are expected to increase from 51 in 1997 to 69 in 2020, corresponding to both VFR and IFR demand/capacity ratios exceeding 60 percent in 1997 and 90 percent in 2020. Annual aircraft operations at PNS were 125,189 in 1997 and are projected to increase to 178,776 in the year 2020, corresponding to an annual demand/capacity ratio exceeding 60 percent in 1997 to almost 90 percent in 2020. Considering this analysis with a parallel general aviation runway, ASV and VFR hourly capacity will increase, and the current airfield system will likely be able to serve aviation demand to the year 2020.

As both hourly and annual aviation demands near airfield capacity, aircraft delay will increase and eventually reach unacceptable levels. FAA guidelines recommend the planning and design for facility development when aviation activity levels reach 60 percent of ASV. Further, planning guidelines recommend that capacity enhancing construction should be complete when aviation activity levels reach 80 percent of annual capacity. Therefore, capacity enhancement planning for an additional parallel runway should be underway, as annual ratios are greater than 60 percent. Parallel runway construction should be complete when the Airport reaches 80 percent of annual capacity, which is expected during the planning period.

Capacity enhancement planning should also occur as peak hour demands near VFR and IFR hourly capacities. Specifically, as peak hour demand nears VFR hourly capacity, aircraft delay will reach unacceptable levels. Without capacity enhancement, this situation will occur at PNS during the planning period.

FAA guidelines permit parallel runways to be constructed as low as 700 feet apart. This close-in parallel runway system would be planned to serve small general aviation aircraft during VFR conditions only. The minimum runway-to-runway separation distance for simultaneous independent IFR operations is 3,400 feet. Considering either scenario, land area should be reserved for this third runway so that future development does not prevent this runway and related airport development from being constructed.

3.2.3 Pavement Conditions. In January 1998, a pavement condition survey of major airfield pavement surfaces was conducted. The results of this survey are contained in Appendix C - Airfield Pavement Investigation and summarized in Section 1. As was previously stated, much of the airfield pavements were observed to have the following pavement distresses: alligator, longitudinal, transverse and block cracking; rutting; raveling and corrugation. Table 3.6 provides the recommended facility requirements for the rehabilitation and maintenance of these pavements to allow these existing and improved facilities to continue to serve aviation demand at PNS.

3.2.4 Runway Requirements

Runway Orientation. The prevailing winds generally determine runway orientation and the need for a crosswind runway. FAA planning standards state that a runway system should provide a minimum of 95 percent of wind coverage. If a single runway direction cannot provide this level of coverage, then additional crosswind runway(s) may be needed.

A runway wind coverage analysis was conducted using the FAA's Airport Design Microcomputer Program Version 4.2D and ten years of historical wind data collected by the weather reporting station at PNS. Runway windroses were developed for the following weather conditions: Visual Flight Rules (VFR), Instrument Flight Rules (IFR), and All-Weather. The results of this runway wind coverage analysis, along with the windroses is presented in Section 1, Figure 1.12.

As shown, the existing primary runway (Runway 17/35) provides 95 or more percent wind coverage for all crosswind components during all wind conditions except under a 10.5 knot crosswind component during IFR conditions. The crosswind runway (Runway 8/26) provides at least 95 percent wind coverage only for the 16.0 and 20.0 knot crosswind components during All-Weather, IFR and VFR conditions. The combined runway system at PNS provides more than 95 percent wind coverage for all crosswind components during All-Weather, IFR and VFR conditions. Therefore, the current runway configuration at PNS is adequate with respect to providing sufficient wind coverage, and no additional crosswind runways are needed.

Table 3.6 Facility Requirements: Airfield Pavements
Pensacola Regional Airport - Master Plan Update

Pavement Surface	Composition	Existing Condition	2005	2010	2020
Runway 17-35	Asphalt (grooved)	Fair	Rehabilitate	Yearly Maintenance	Rehabilitate
Runway 8-26	Asphalt (grooved)	Fair	Rehabilitate	Yearly Maintenance	Rehabilitate
Taxiway "A" system	Asphalt	Fair	Rehabilitate	Yearly Maintenance	Rehabilitate
Taxiway "B" system	Asphalt	Fair	Rehabilitate	Yearly Maintenance	Rehabilitate
Taxiway "C" system	Asphalt	Good (new)	Yearly Maintenance	Yearly Maintenance	Rehabilitate
Taxiway "D" system	Asphalt	Good (new)	Yearly Maintenance	Yearly Maintenance	Rehabilitate
Air Carrier Apron[1]	Concrete	Good	Yearly Maintenance	Yearly Maintenance	Rehabilitate (partial)
Air Cargo Apron	Asphalt	Fair	Rehabilitate	Yearly Maintenance	Rehabilitate
GA Apron (southeast)	Asphalt	Good (new)	Yearly Maintenance	Yearly Maintenance	Rehabilitate
GA Apron (southwest)	Asphalt	Fair	Rehabilitate	Yearly Maintenance	Rehabilitate

[1] - Air carrier apron has been constructed in numerous phases and will need rehabilitation and regular maintenance at differing intervals.
Source: Reynolds, Smith and Hills, Inc., 1998.

Runway 17/35 provides a greater runway wind coverage than Runway 8/26. Therefore, if an additional parallel runway is required at PNS to satisfy future aviation demand, this new runway should be constructed parallel to Runway 17/35.

Runway Length Requirements. Runway length planning analysis was conducted to determine recommended runway length requirements for various categories of aircraft, as well as for specific aircraft. The physical layout of the Airport and the operating requirements of the design (or critical) aircraft typically dictate runway length requirements. The FAA's Airport Design Microcomputer Program was used to determine general runway length requirements for PNS. The results of this runway length analysis are listed in Table 3.7.

As shown, the existing runway system at PNS can generally accommodate 100 percent of small airplanes, 75 percent of large airplanes less than 60,000 pounds at 90 percent useful load and large airplanes (greater than 60,000 pounds) with a stage length up to 1,000 miles. Considering this analysis, it should be noted that direct flights to destinations greater than 1,000 miles can not likely be regularly accommodated.

Table 3.7 Aircraft Runway Length Requirements
Pensacola Regional Airport - Master Plan Update

Aircraft Category	Recommended Runway Length
Small airplanes (Less than 12,500 lbs.)	
100% of fleet (Less than 10 seats)	3,680 feet
Small airplanes (Less than 12,500 lbs.)	
100% of fleet (10 or more seats)	4,280 feet
Large airplanes (Between 12,501 lbs.-60,000 lbs.)	
75% of fleet @ 60% Useful Load	5,370 feet
75% of fleet @ 90% Useful Load	7,000 feet
100% of fleet @ 60% Useful Load	5,630 feet
100% of fleet @ 90% Useful Load	8,520 feet
Large Airplanes (Greater than 60,000 lbs.)	
500 Mile Stage Length	5,050 feet
1,000 Mile Stage Length	6,000 feet
2,000 Mile Stage Length	7,660 feet
3,000 Mile Stage Length	9,030 feet
B727-200	
60% Payload Factor	8,400 feet
75% Payload Factor	9,200 feet
90% Payload Factor	10,100 feet
100% Payload Factor	10,800 feet
MD-83	
60% Payload Factor	6,600 feet
75% Payload Factor	7,300 feet
90% Payload Factor	8,100 feet
100% Payload Factor	8,600 feet
B737-300	
60% Payload Factor	5,700 feet
75% Payload Factor	6,300 feet
90% Payload Factor	6,800 feet
100% Payload Factor	8,000 feet
B757-300	
60% Payload Factor	6,900 feet
75% Payload Factor	7,500 feet
90% Payload Factor	8,300 feet
100% Payload Factor	8,700 feet

Source: FAA Airport Design Microcomputer Program AD 4.2D.
Aircraft Manufacturer's Airport Planning Manuals
The RS&H Team, 1998.

An additional analysis was conducted to identify runway length requirements for the existing and future design aircraft at PNS on a "hot" day. Runway length requirements were determined for both existing air carrier aircraft operating at PNS, as well as the likely next generation of air carrier aircraft that is expected to regularly operate at PNS. Specific aircraft manufacturer's airport planning manuals were utilized to calculate aircraft takeoff runway length requirements for the Boeing 727-

200, MD-83, Boeing 737-300 and the Boeing 757-300. The results of these analyses are also listed in Table 3.8.

Table 3.8 Facility Requirements: Runway Length
Pensacola Regional Airport - Master Plan Update

	Existing	2005	2010	2020
Runway 17-35	7,000'	7,000'	8,000'	8,500'
Runway 8-26	6,000'	7,000'	7,000'	7,000'
General Aviation Runway	N/A	3700' - 4300'	3700' - 4300'	3700' - 4300'

Source: RS&H Team, 1998.

As shown, the corresponding required runway lengths range from 5,700 feet for a 60 percent load factor on the Boeing 737-300, to 8,700 feet for a 100 percent load factor on a Boeing 757-300. More specifically, the existing design aircraft (MD-83) requires a runway length between 6,600 feet and 8,600 feet on a "hot" day. The future design aircraft (Boeing 757-300) requires a runway length between 6,900 feet and 8,700 feet on a "hot" day. Therefore, the recommend primary runway length at PNS should be planned at approximately 8,500 feet.

FAA AC 150/5325-4A, *Runway Length Requirements for Airport Design* recommends that the crosswind runway length should be at least 80 percent of the primary runway length. A typical crosswind runway serves as a backup runway in the event of an emergency, or when the primary runway is closed due to maintenance. Runway 8/26 is the current crosswind runway. However, Runway 8/26 is also the preferred noise abatement runway, which serves as the preferred runway on a daily basis. Therefore, it is recommended that Runway 8/26 be considered for an extension to at least the current length of Runway 17/35, or 7,000 feet.

Considering prior planning of the general aviation parallel runway, it is recommended that this runway be planned at a length between 3,700 feet and 4,300 feet to serve small aircraft only. Table 3.8 presents a summary of the recommended runway lengths.

Runway Protection Zones. For the protection of people and property on the ground, the FAA has identified an area of land off each runway end as the Runway Protection Zone (RPZ). This area was formerly known as the Clear Zone. For paved runways, the trapezoidal-shaped RPZ is centered on the extended runway centerline starting 200 feet from the paved runway end. The RPZ varies in width and length based on runway instrument approach classification. The land located within the RPZ should be controlled by an airport through property deeds and/or avigation easements.

Table 3.9 shows the facility requirements through the planning period for the size of the RPZ for each runway end at PNS.

3.2.5 Taxiway Requirements. PNS has two full length parallel taxiways ("A" and "B") which are 75 feet in width, as well as a system of connector taxiways to provide access to and from the runways and the various aircraft parking aprons. According to FAA AC 150/5300-13, *Airport Design*, the standard taxiway width for Group III aircraft is 50 feet. The 75-foot width for the taxiways at PNS are planned to meet the design standards for both Group III and Group IV aircraft. Therefore, the current width of these taxiways will be sufficient to meet future demand. Taxiways "A" and "B" have a centerline to centerline runway separation of 487.5 feet. This separation exceeds the standard for Group III aircraft and will actually accommodate up to Group V aircraft.

The newly constructed general aviation area includes Taxiways "C" and "D," which also run parallel to Runways 17-35 and 8-26, respectively. These taxiways have a width of 35 feet, which meets the standard for Group II aircraft and will accommodate a majority of general aviation aircraft. The separation between Taxiway "D" and Runway 8-26 is 400 feet, which meets the standard for allowing Group V and lower aircraft to operate on the runway. Taxiway "C" is separated from Runway 17-35 by 940 feet. This will allow a parallel general aviation runway to have a 700-foot separation from existing Runway 17-35. This leaves a separation of 240 feet between Taxiway "C" and the future general aviation runway, which meets the standard for allowing Group II aircraft to operate on the general aviation runway. Also, it would be prudent to plan for larger than standard fillet radii for taxiway intersections in the general aviation area. This will better accommodate many of the larger aircraft that may be utilizing the general aviation facilities at PNS.

3.2.6 Approach and Landing Aids. Airports typically have visual aids that supplement the electronic NAVAIDS discussed in Paragraph 3.1.3 above. Lighting equipment at PNS includes High-Intensity Runway edge Lighting (HIRL) on Runway 17-35 and Medium-Intensity Runway edge Lighting (MIRL) on the Runway 8-26. Runways with either HIRL or MIRL should have Medium-Intensity Taxiway Lighting (MITL), which is installed on Taxiways "A" and "B" at PNS.

The SSALR approach lighting system installed north of Runway 17 is necessary for reduced visibility operations, as well as providing lower instrument approach approval minimums. The SSALR serves as an approach lighting aid for the ILS approach to Runway 17. If GPS/DGPS approaches are established for runways at PNS, it is recommended that an ALS be installed on all runways with GPS/DGPS approaches that are currently without an ALS.

Table 3.9 Facility Requirements: Runway Protection Zones
Pensacola Regional Airport - Master Plan Update

	Existing	2005	2010	2020
Runway 17				
Inner Width	1,000'	1,000'	1,000'	1,000'
Outer Width	1,750'	1,750'	1,750'	1,750'
Length	2,500'	2,500'	2,500'	2,500'
Runway 35				
Inner Width	1,000'	1,000'	1,000'	1,000'
Outer Width	1,510'	1,750'	1,750'	1,750'
Length	1,700'	2,500'	2,500'	2,500'
Runway 8				
Inner Width	500'	1,000'	1,000'	1,000'
Outer Width	1,010'	1,510'	1,510'	1,510'
Length	1,700'	1,700'	1,700'	1,700'
Runway 26				
Inner Width	500'	1,000'	1,000'	1,000'
Outer Width	1,010'	1,750'	1,750'	1,750'
Length	1,700'	2,500'	2,500'	2,500'
Runway 17L				
Inner Width	N/A	250'	250'	250'
Outer Width	N/A	450'	450'	450'
Length	N/A	1,000'	1,000'	1,000'
Runway 35R				
Inner Width	N/A	250'	250'	250'
Outer Width	N/A	450'	450'	450'
Length	N/A	1,000'	1,000'	1,000'

Source: FAA Advisory Circular 188/5300-13.
The RS&H Team, 1998.

To provide visual descent guidance to general aviation aircraft, Visual Approach Slope Indicator (VASI) equipment is located on Runways 8, 26 and 35. When these VASI units require major rehabilitation or replacement, a Generic Visual Glideslope Indicator (GVGI), such as Precision Approach Path Indicator (PAPI) equipment, should be installed.

Runway End Identifier Lights (REILs) are installed on both ends of Runway 8-26, as well as on the 35 end of Runway 17-35. REILs aid landing aircraft during low visibility and nighttime conditions on non-precision and visual runways.

To display prevailing wind conditions, a lighted wind direction indicator (wind cone) is currently installed midfield, approximately 600 feet northeast of the intersection of Runway 17-35 and Taxiway "B". No wind cones are located near individual runway ends at this time but should be considered in the future.

As a popular information tool for pilots and to reduce ATCT workload, automated weather observation equipment, such as an Automated Weather Observing Station (AWOS) or an Automated Surveillance Observing Station (ASOS), are installed at airports. This weather equipment can broadcast a real-time altimeter setting, density altitude, wind direction and speed, temperature, dewpoint, precipitation, visibility and ceiling information to pilots. The ASOS, which is a joint effort of the FAA, National Weather Service and Department of Defense, is the primary surface weather observing system in the nation and transmits weather information to pilots and weather forecasters. The ASOS also serves as an altimeter setting source needed in instrument approach procedures and should be maintained in operation. The ASOS at PNS is located about 300 feet east of Runway 17-35, about 1000 feet south of the threshold of Runway 17.

The FAA recommends that all airports install a system of runway/taxiway guidance signs in accordance with the standards found in FAA AC 150/5340-18C, *Standards For Airport Sign Systems*. Guidance signs include mandatory instruction holding position signs for runway/runway intersections, runway/taxiway intersections, ILS Critical Areas, and Runway Approach Areas. Additional taxiway guidance signs include runway/taxiway location, runway exit and taxiway direction, inbound/outbound destination, and information signage. Airports installing the components of the taxiway guidance sign system outlined in this advisory circular would then be in compliance with the airport certification requirements of FAR Part 139. This advisory circular also indicates that runway distance remaining signage should be installed on all runways used by turbojet aircraft.

Table 3.10 shows the facility requirements for these approach and landing aids at PNS.

3.3 LANDSIDE FACILITIES

Airport landside components include the passenger terminal area, ground access, general aviation area, cargo facilities, fuel farm, helicopter parking and Aircraft Rescue and Firefighting Facilities (ARFF). Landside facility requirements for the planning period are identified and discussed below. SPAL facility requirements have also been determined for landside facilities.

3.3.1 Air Carrier Terminal. Passenger terminal facilities at PNS include the main terminal building/concourse, air carrier ramp apron and surface parking lots.

Table 3.11 presents the terminal building facility requirements at PNS.

Table 3.10 Facility Requirements: Approach and Landing Aids
Pensacola Regional Airport - Master Plan Update

	Existing	2005	2010	2020
Approach Aids				
Runway 17	SSALR, VASI-4	SSALR, GVGI	SSALR, GVGI	SSALR, GVGI
Runway 35	VASI-4	ALS, GVGI	ALS, GVGI	ALS, GVGI
Runway 8	REIL, VASI-4	REIL, GVGI	ALS, GVGI	ALS, GVGI
Runway 26	REIL, VASI-4	REIL, GVGI	REIL, GVGI	REIL, GVGI
Runway 17L	N/A	GVGI	GVGI	GVGI
Runway 35R	N/A	GVGI	GVGI	GVGI
AWOS/ASOS	Yes	Yes	Yes	Yes
Lighting				
Runway 17-35	HIRL, CL, TDZ, MITL	HIRL, CL, TDZ, MITL	HIRL, CL, TDZ, MITL	HIRL, CL, TDZ, MITL
Runway 8-26	MIRL, MITL	MIRL, MITL	HIRL, CL, TDZ, MITL	HIRL, CL, TDZ, MITL
Runway 17L-35R	N/A	MIRL, LITL	MIRL, LITL	MIRL, LITL
Markings				
Runway 17-35	Precision	Precision	Precision	Precision
Runway 8-26	Non-Precision	Non-Precision	Precision	Precision
Runway 17R-35L	N/A	Visual	Visual	Visual

Note: SSALR - Simplified Short Approach Lighting System
GVGI - Generic Visual Glideslope Indicator
VASI - Visual Approach Slope Indicator
REIL - Runway End Identification Lighting
ALS - Approach Lighting System
HIRL - High Intensity Runway Edge Lighting
MIRL - Medium Intensity Runway Edge Lighting
CL - Centerline Lighting
TDZ - Touchdown Zone Lighting
MITL – Medium Intensity Taxing Edge Lighting
LITL – Low Intensity Taxing Edge Lighting

Source: RS&H Team, 1998.

Table 3.11 **Air Carrier Terminal Facility Requirements**
Pensacola Regional Airport - Master Plan Update

	Existing (Post Expansion)[1]	2005	2010	2020
Annual Enplanements	564,235	790,696	982,642	1,441,251
Annual Passengers	1,128,470	1,581,392	1,965,289	2,882,502
Total Peak Hour Passengers	371	499	579	854
SF/Total Peak Hour Passengers	420	380	355	300
Total Terminal Area (SF)	155,000	189,620	205,545	256,200
Number of Gates	8	12	13	16
Ramp Apron (SY)	85,000	125,000	135,000	165,000
Ticket Center Length (LF)	140	185	215	315
Baggage Claim Length (LF)	125	165	195	285
Curb Front	400	420	485	715

[1] - Expansion of the terminal building and a new parking garage are under construction at the time this report was prepared.
Source: RS&H Team, 1998.

3.3.2 **Ground Access and Parking.** Immediate access to the Airport is provided at four points along 12th Avenue between Summit Boulevard and Underwood Avenue. From south to north, access points are provided to general aviation, the main entrance to the terminal, the rental car/outlying parking area and the air cargo area.

Airport Boulevard which intersects 12th Avenue at the main entrance to the Airport provides the only direct route to and from the west. Presently, airport access to and from the interstate system is provided indirectly at the I-10/Davis Highway (SR 295) interchange and the I-110/Brent Lane interchange. Both routes require travel along congested arterial segments which lack prominent directional signage to the Airport.

Airport access to and from the east is provided via Summit Boulevard and Bayou Boulevard. North-south arterials which provide access to the Airport include Ninth Avenue and Scenic Highway. Access to and from US 98 and Pensacola Beach is provided by 12th Avenue to the east along Bayou Boulevard or west to I-110 at the Brent Lane interchange. Direct access to and from the interstate system in the Pensacola area is a critical need.

At the time of preparation of this report, a standard parking garage was under construction in front of the terminal. This garage, as well as all surface lots will need to be expanded as the airport grows.

No rail access to the Airport is currently available. The CSX Transportation Railroad line is located east of PNS and runs along the shoreline of Escambia Bay. The Burlington Northern Railroad line runs west of PNS.

Table 3.12 presents the ground access and parking facility requirements for PNS.

Table 3.12 Facility Requirements: Ground Access and Parking
Pensacola Regional Airport - Master Plan Update

	Existing (Post Expansion)[1]	2005	2010	2020
Structured Parking (spaces)	1050	1470	1830	2680
Surface Parking (spaces)	832	1165	1450	2125
Remote Public Parking (spaces)	502	700	875	1280
Rental Car Parking (spaces)	350	490	610	895
Curbfront Laneage	4	4	4	6
Inbound Laneage	2	2	2	3
Outbound Laneage	2	2	2	3

[1] – Expansion of the terminal building and a new parking garage are under construction at the time of report production.
Source: RS&H Team, 1998.

3.3.3 Air Cargo. Intermodal transportation facilities, such as airports, interface with one or more other transportation modes. With its prime aviation component and proximity to surface transportation corridors, PNS can become a significant intermodal transportation center with the development of airfield, air cargo and ground access facilities.

Air cargo facility needs vary among individual air cargo operators. Some air cargo carriers are ramp intensive, requiring only an apron area for parking of aircraft and trucks, storage of loading/unloading equipment and for the processing packages and shipments. Office space for this type of operation is typically provided by adjacent portable trailer. Other air cargo operators require not only apron space but a flightline warehouse/storage building with truck and aircraft docks and additional paved areas for the maneuvering of trailer trucks and the parking of delivery trucks.

Air cargo operations at PNS currently include DC-9 and turboprop aircraft. Narrow body turbojet aircraft, such as the DC-9 or Boeing 727, require approximately 1,500 square yards of parking apron. Turboprop aircraft, such as the Cessna Caravan, require approximately 500 square yards of parking apron.

A 1995 Airports Council International-North America (ACI-NA) survey of 75 domestic airports indicated an average warehouse utilization rate of 1.5 square feet for each annual ton of air cargo processed. These airports ranged between 1.0 to 2.6 square feet of air cargo space for each annual

ton of air cargo handled. The average utilization rate was used to determine air cargo building space requirements at PNS. The ACI-NA survey recommended planning factors of 0.6 truck docks and one employee parking space per 1,000 square feet of cargo building space to determine required air cargo facility components.

Table 3.13 lists the projected air cargo facility requirements.

Table 3.13 Facility Requirements: Air Cargo
Pensacola Regional Airport - Master Plan Update

	Existing	2005	2010	2020
Building Space (SF)	14,500	28,000	42,000	79,000
Apron Space (SY)	2,600	5,000	7,600	14,000
Truck Docks	8	17	25	47
Employee Parking	N/A	28	42	79

Source: RS&H Team, 1998.

3.3.4 Airport Rescue and Firefighting Facilities (ARFF). Airports that serve scheduled and unscheduled air carrier flights are required to provide firefighting facilities and equipment. The existing ARFF facility is located south of the new ATCT and is operated and maintained by the City of Pensacola. For FAR Part 139 certified airports, ARFF equipment requirements are identified by an airport's "Index" ranking (A, B, C, D, or E). This Index is determined by the length of the largest air carrier aircraft operating at the airport and the average number of daily departures conducted by this aircraft.

Table 3.14 lists the minimum ARFF equipment requirements for FAA certified airports.

PNS's corresponding ARFF index has been computed to be Index "C" between 1998 and 2005 and Index "D" for 2006 and beyond.

3.3.5 General Aviation Facilities. General aviation facilities are needed at PNS to accommodate the projected demand. These facilities include hangars, apron and a terminal building.

Aircraft storage requirements are based on forecasted levels of based aircraft and itinerant activity. It was assumed that 100 percent of itinerant/transient aircraft would be parked on the aircraft parking apron and 75 percent of all piston-engine aircraft would be stored in a hangar, with the remaining based aircraft parked on the aircraft parking apron. All multiengine turboprop, turbojet and helicopter aircraft were assumed to be stored in hangars. Transient aircraft tiedowns and parking apron requirements were determined for the projected peak day of the average month.

General aviation facility requirements for the planning period are listed in Table 3.15.

Table 3.14 FAR Part 139 ARFF Equipment Requirements

Pensacola Regional Airport - Master Plan Update

Airport Index	Number of Vehicles	Aircraft Length	Scheduled Departures	Agent and Water Foam Requirements
A	1	Less than 90 feet	1 or more	500 lbs. DC/HALON 1211 or 450 lbs. DC and 100 g. water
B	1	Equal or greater than 90 feet and less than 126 feet	5 or more	Index A equipment and 1,500 g. water
	2	Equal or greater than 126 feet or less than 159 feet	Less than 5	Index A equipment and 1,500 g. water
C	2	Equal or greater than 126 feet or less than 159 feet	5 or more	Index A and 3,000 g. water
	3	Equal or greater than 159 feet and less than 200 feet	Less than 5	Index A and 3,000 g. water
D	3	Equal or greater than 159 feet and less than 200 feet	5 or more	Index A and 4,000 g. water
		Greater than 200 feet	Less than 5	Index A and 4,000 g. water
E	3	Equal or greater than 200 feet	5 or more	Index A equipment and 6,000 g. water

Source: FAR Part 139.
Note: DC - Dry Chemicals
g – gallons

Table 3.15 Facility Requirements: General Aviation
Pensacola Regional Airport - Master Plan Update

	Existing	2005	2010	2020
Apron Space (SY)	60,000	66,000	72,000	82,000
Apron Tie Down Spaces	175	193	210	238
T-Hangar Units	30	63	68	75
Corporate Hangar Units	40	43	52	65
Corporate Hangar Area (SF)	60,000	65,000	77,500	97,500

Source: Reynolds, Smith and Hills, Inc.

3.3.6 Helicopter Parking Area. A helicopter parking area is located on closed runway pavement approximately 500 feet south of Runway 8-26. Six helicopter parking positions are located on this pavement northwest of the ATCT. As helicopter activity increases and these six parking positions are occupied, consideration should be given to further develop helicopter facilities.

3.3.7 Fuel Farm. The main aviation fuel farm at PNS is located north of the terminal building and west of the existing air cargo area. New or additional fuel storage facilities will be needed to accommodate projected aviation demand. Aircraft owner/pilot surveys indicated prospective users of the Airport will require several types of fuel: Aviation Gasoline (AVGAS) and Jet A Fuel.

The permanent fuel farm facility should be constructed to provide a two-week fuel supply and have expansion capability. At least two separate fuel tanks (i.e., AVGAS and Jet A) should be constructed to serve piston and jet aircraft. A typical regional air carrier fuel farm sizing ratio ranges between 1 to 1.5 gallons per annual aircraft operation. Fuel capacity at PNS will be planned at a ratio of 3 gallons of Jet A fuel to 1 gallon of AVGAS.

Airport fuel storage facility requirements are listed in Table 3.16.

Table 3.16 Facility Requirements: Fuel Storage Capacity
Pensacola Regional Airport - Master Plan Update

	Existing	2005	2010	2020
Jet A (gallons)	44,000	134,250	144,375	167,625
AVGAS (gallons)	10,000	44,750	48,125	55,875
Total	54,000	179,000	192,500	223,500

Source: Reynolds, Smith and Hills, Inc.

3.3.8 Summary. Consolidated airport facility requirements for both airside and landside facilities are presented in Tables 3.17 and 3.18, respectively.

3.4 STRATEGIC PLANNING ACTIVITY LEVEL (SPAL) FACILITY REQUIREMENTS

During previous airport master plan update meeting, SPALs were recommended for several airport operation scenarios (airfield capacity, terminal building capacity, widebody aircraft, air cargo, and commerce park) by the Citizens Advisory Committee and Technical Advisory Committee. Specific facility requirements are identified for each operational scenario below. The SPAL facility requirements are listed in Table 3.19. At each SPAL, a specific aviation activity level (i.e., a concern), a development trigger and corresponding airport facility action are presented.

Table 3.17 Airside Facility Requirements Summary
Pensacola Regional Airport - Master Plan Update

Facility	Existing	2005	2010	2020
NAVAIDS				
Runway 17				
Instrument Approach	Precision	Precision	Precision	Precision
Approach Type	ILS, NDB, GPS	ILS, NDB, DGPS	ILS, NDB, DGPS	ILS, NDB, DGPS
Approach Slope	50:1	50:1	50:1	50:1
Runway 35				
Instrument Approach	Non-Precision	Precision	Precision	Precision
Approach Type	NDB, GPS	ILS, DGPS, NDB	ILS, DGPS, NDB	ILS, DGPS, NDB
Approach Slope	34:1	50:1	50:1	50:1
Runway 8				
Instrument Approach	Non-Precision or Precision	Non-Precision or Precision	Non-Precision or Precision	Non-Precision or Precision
Approach Type	VOR, GPS	VOR, GPS, DGPS	VOR, GPS, DGPS	VOR, GPS, DGPS
Approach Slope	34:1	34:1 or 50:1	34:1 or 50:1	34:1 or 50:1
Runway 26				
Instrument Approach	Visual	Non-Precision or Precision	Non-Precision or Precision	Non-Precision or Precision
Approach Type	None	ILS, DGPS	ILS, DGPS	ILS, DGPS
Approach Slope	20:1	34:1 or 50:1	34:1 or 50:1	34:1 or 50:1
Airfield Demand/Capacity Ratio				
Annual Operations	125,189	143,062	154,335	178,776
Annual Service Volume	200,000	200,000	200,000	200,000
Annual D/C Ratio	63%	72%	77%	89%
Peak Hour Operations	51	55	60	69
VFR Hourly Capacity	77	77	77	77
VFR Hourly D/C Ratio	66%	71%	78%	90%
IFR Hourly Capacity	57	57	57	57
IFR Hourly D/C Ratio	89%	96%	105%	121%
Runway Length				
Runway 17-35	7,000'	7,000'	8,000'	8,500'
Runway 8-26	6,000'	7,000'	7,000'	7,000'
General Aviation Runway	N/A	3700' - 4300'	3700' - 4300'	3700' – 4300'
Approach and Landing Aids				
Approach Aids				
Runway 17	SSALR, VASI-4	SSALR, GVGI	SSALR, GVGI	SSALR, GVGI
Runway 35	VASI-4	ALS, GVGI	ALS, GVGI	ALS, GVGI
Runway 8	REIL, VASI-4	REIL, GVGI	ALS, GVGI	ALS, GVGI
Runway 26	REIL, VASI-4	REIL, GVGI	REIL, GVGI	REIL, GVGI
Runway 17L	N/A	GVGI	GVGI	GVGI
Runway 35R	N/A	GVGI	GVGI	GVGI
AWOS/ASOS	Yes	Yes	Yes	Yes

Table 3.17 Airside Facility Requirements Summary - Continue
Pensacola Regional Airport - Master Plan Update

Lighting				
Runway 17-35	HIRL, CL, TDZ, MITL	HIRL, CL,TDZ, MITL	HIRL, CL,TDZ, MITL	HIRL, CL,TDZ, MITL
Runway 8-26	MIRL, MITL	MIRL, MITL	HIRL, CL, TDZ, MITL	HIRL, CL, TDZ, MITL
Runway 17L-35R	N/A	MIRL, LITL	MIRL, LITL	MIRL, LITL
Markings				
Runway 17-35	Precision	Precision	Precision	Precision
Runway 8-26	Non-Precision	Non-Precision	Precision	Precision
Runway 17R-35L	N/A	Visual	Visual	Visual

Source: RS&H Team, 1998.

Table 3.18 Landside Facility Requirements Summary
Pensacola Regional Airport - Master Plan Update

Facility	Existing	2005	2010	2020
Air Carrier Terminal Building				
Annual Enplanements	564,235	790,696	982,642	1,441,251
Annual Passengers	1,128,470	1,581,392	1,965,289	2,882,502
Total Peak Hour Passengers	371	499	579	854
SF/Total Peak Hour Passengers	420	380	355	300
Total Terminal Area (SF)	155,000	189,620	205,545	256,200
Number of Gates	8	12	13	16
Ramp Apron (SY)	85,000	125,000	135,000	165,000
Ticket Center Length (LF)	140	185	215	315
Baggage Claim Length (LF)	125	165	195	285
Ground Access				
Structured Parking (spaces)	1050	1470	1830	2680
Surface Parking (spaces)	832	1165	1450	2125
Remote Public Parking (spaces)	502	700	875	1280
Rental Car Parking (space)	350	490	610	895
Curbfront Laneage (LF)	4	4	4	6
Inbound Laneage (LF)	2	2	2	3
Outbound Laneage	2	2	2	3
Curb Front	400	420	485	715
Air Cargo				
Building Space (SF)	14,500	28,000	42,000	79,000
Apron Space (SY)	2,600	5,000	7,600	14,000
Truck Docks	8	17	25	47
Employee Parking	N/A	28	42	79
General Aviation				
Apron Space (SY)	60,000	66,000	72,000	82,000
Apron Tie Down Spaces	175	193	210	238
T-Hangar Units	30	63	68	75
Corporate Hangar Units	40	43	52	65
Corporate Hangar Area (SF)	60,000	65,000	77,500	97,500
Fuel Storage Capacity				
Jet A (gallons)	44,000	134,250	144,375	167,625
AVGAS (gallons)	10,000	44,750	48,125	55,875
Total	54,000	179,000	192,500	223,500

Source: RS&H Team, 1998.

Table 3.19 SPAL Facility Requirements
Pensacola Regional Airport - Master Plan Update

SPAL	Concern	Trigger	Action Needed
1	Existing Airfield Capacity	77 VFR operations/hour.	Need operational GA Parallel Runway.
2	Airfield Capacity with Parallel GA Runway	145 VFR operations/hour.	Accept aircraft delay or develop additional capacity.
3	Existing Terminal Building Capacity with 1998 expansion	800,000 annual passenger enplanements.	Plan and construct terminal building expansion.
4	Wide Body Aircraft	Daily wide body aircraft operations.	Provide airfield setback criteria and adequate aircraft parking positions.
5	Air Cargo Capacity	Two all-cargo or express package carriers, or 10,000 tons annual cargo.	Develop additional buildings, aircraft parking area and ground access facilities.
6	Commerce Park Demand	Major Aviation related industrial land requests.	Purchase and re-develop adjacent land.

Source: RS&H Team, 1998.

PENSACOLA REGIONAL AIRPORT
AIRPORT MASTER PLAN UPDATE

SECTION 4
IDENTIFICATION AND EVALUATION OF ALTERNATIVES

The purpose of this section of the Airport Master Plan Update is to identify facility development alternatives for Pensacola Regional Airport (PNS) that will satisfy the facility requirements outlined in Section 3. These requirements were determined for the existing Airport as well as the Strategic Planning Activity Levels (SPALs) developed from the aviation demand forecasts in Section 2.

Four airport function areas have been examined: airfield, landside, surface access and land use/land acquisition. Preliminary development alternatives have been developed for these areas and were presented and evaluated in order to determine the preferred components of the overall development plan for PNS.

The "No Build" alternative is presented and discussed below as the base alternative. This alternative simply serves as a comparison for development in each alternative area.

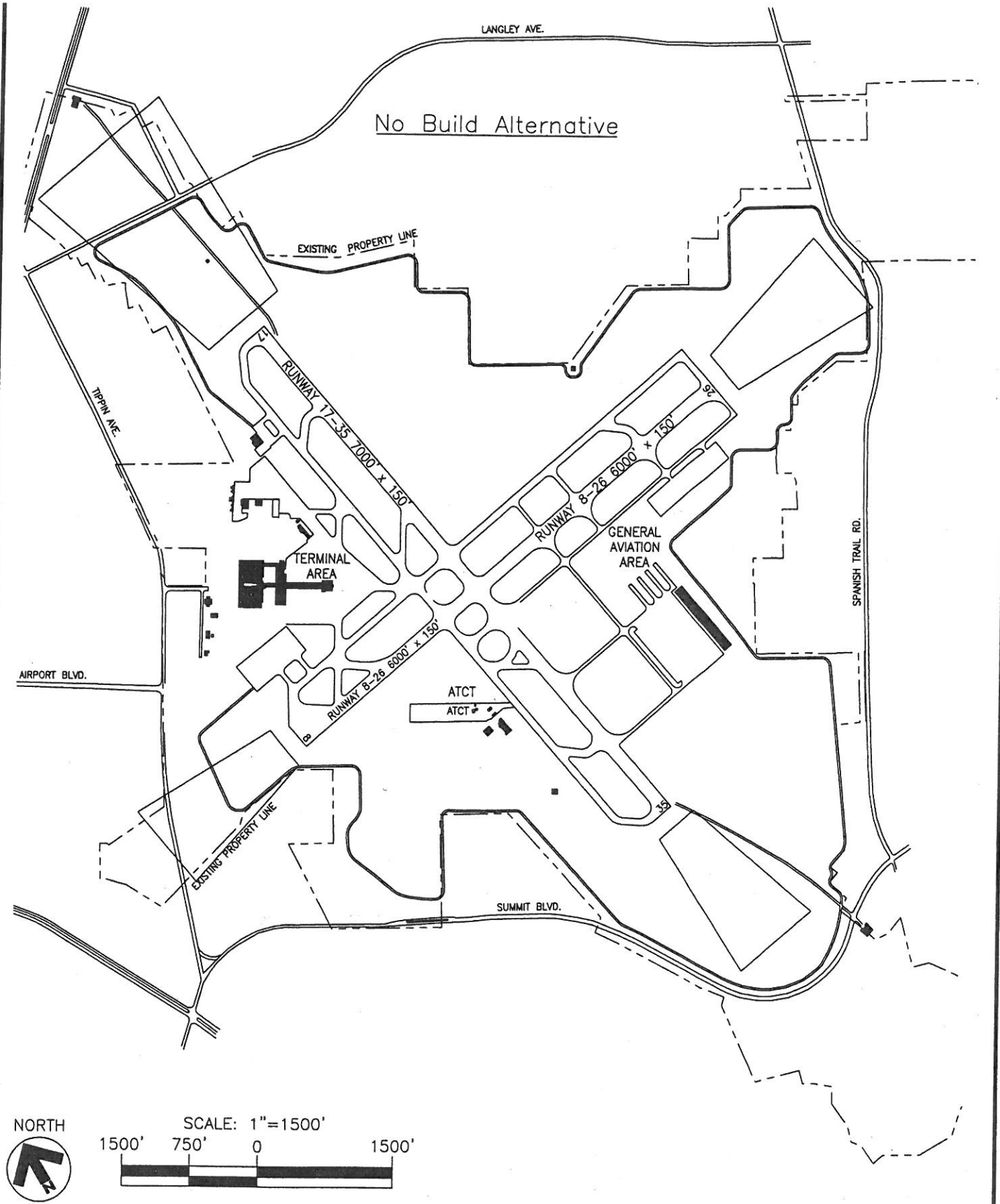
4.1 AIRFIELD

Several alternatives are proposed for the improvement of the existing runway system, which is the primary component of the airfield. The enhancement of other airfield facilities is discussed within each of these alternatives. The estimated cost for each of these alternatives includes the appropriate new lighting and signage equipment as well as the necessary paving, grading and drainage improvements. The costs have been developed to provide an order of magnitude estimate for comparison of each alternative. These costs should not be considered as total project costs or construction estimates. Figures 4.1 through 4.6 depict these alternatives.

"No Build" Alternative (Figure 4.1)

Simply maintaining the existing airfield serves as the base alternative. The primary runway (Runway 17-35) is currently 7,000 feet long, while the crosswind runway (Runway 8-26) is 6,000 feet long. Taxiway "A" runs parallel to Runway 17-35 and Taxiway "B" runs parallel to Runway 8-26. Both of these taxiways provide access to the main air carrier apron. Taxiways "C" and "D" facilitate general aviation aircraft in the newly developed general aviation area.

No improvements or corresponding costs are proposed in this alternative.



Source: Reynolds, Smith and Hills, Inc., 1998.

RS•H

Reynolds, Smith and Hills Inc.

Architectural, Engineering, Planning
and Environmental Services
Jacksonville, Florida

Pensacola Regional Airport
Master Plan Update

FIGURE 4.1

No Build Alternative

Alternative A-1: Extend Runway 17 (Figure 4.2)

This alternative consists of extending Runway 17 and parallel Taxiway "A" by 1,000 feet, bringing the length of Runway 17-35 to 8,000 feet. This alternative also considers the amount of land that would need to be controlled by the Airport, whether through avigation easement or outright purchase, for the establishment of a precision approach to Runway 17 and the Runway Protection Zone (RPZ). As can be seen in Figure 4.2, the RPZ for this case extends beyond the existing airport property. On the Runway 17 end, this area is 24.6 acres. This alternative would also require that Langley Avenue be relocated approximately 200 feet to the north in order to move it outside the Runway Safety Area (RSA) and Runway Object Free Area (ROFA). The Taxiway Object Free Area (TOFA) of extended Taxiway "A" would lie outside of the current airport property. Also, the existing Instrument Landing System (ILS), Simplified Short Approach Lighting System (SSALR), Touchdown Zone Lighting System (TZLS) and an FAA equipment shed would also have to be relocated.

The estimated order of magnitude planning cost of this alternative is $6,000,000.

Alternative A-2: Extend Runway 35 (Figure 4.3)

Similar to Alternative A-1, this alternative also increases the length of Runway 17-35 to 8,000 feet. This would be accomplished by extending Runway 35 and Taxiway "A" by 1,000 feet. This alternative also considers the amount of land that would need to be controlled by the Airport, through avigation easement or outright purchase, for the establishment of a precision approach and RPZ to Runway 35. As can be seen in Figure 4.3, the RPZ for this case extends beyond the existing airport property. On the Runway 35 end, the area is 2.3 acres. This would require the relocation of the existing Runway End Identification Lights (REILs) and Visual Approach Slope Indicator (VASI).

The estimated order of magnitude planning cost of this alternative is $5,200,000.

Alternative A-3: Extend Both Ends of Runway 17-35 (Figure 4.4)

This alternative also increases the overall length of Runway 17-35 to 8,000 feet, by extending both ends of the runway and both ends of Taxiway "A" by 500 feet. This alternative also considers the amount of land that would need to be controlled by the Airport, whether through aviation easement or outright purchase. As can be seen in Figure 4.4, the RPZs for this case extends beyond the existing airport property. As in Alternatives A-1 and A-2, the ILS and SSALR equipment on the Runway 17 end and the REILs and VASI equipment on the Runway 35 end would need to be relocated. The Taxiway "A" TOFA again would lie outside of the existing airport property line on the Runway 17 end. However, Langley Avenue would not require relocation under this alternative. The estimated order of magnitude planning cost of this alternative is $6,100,000.

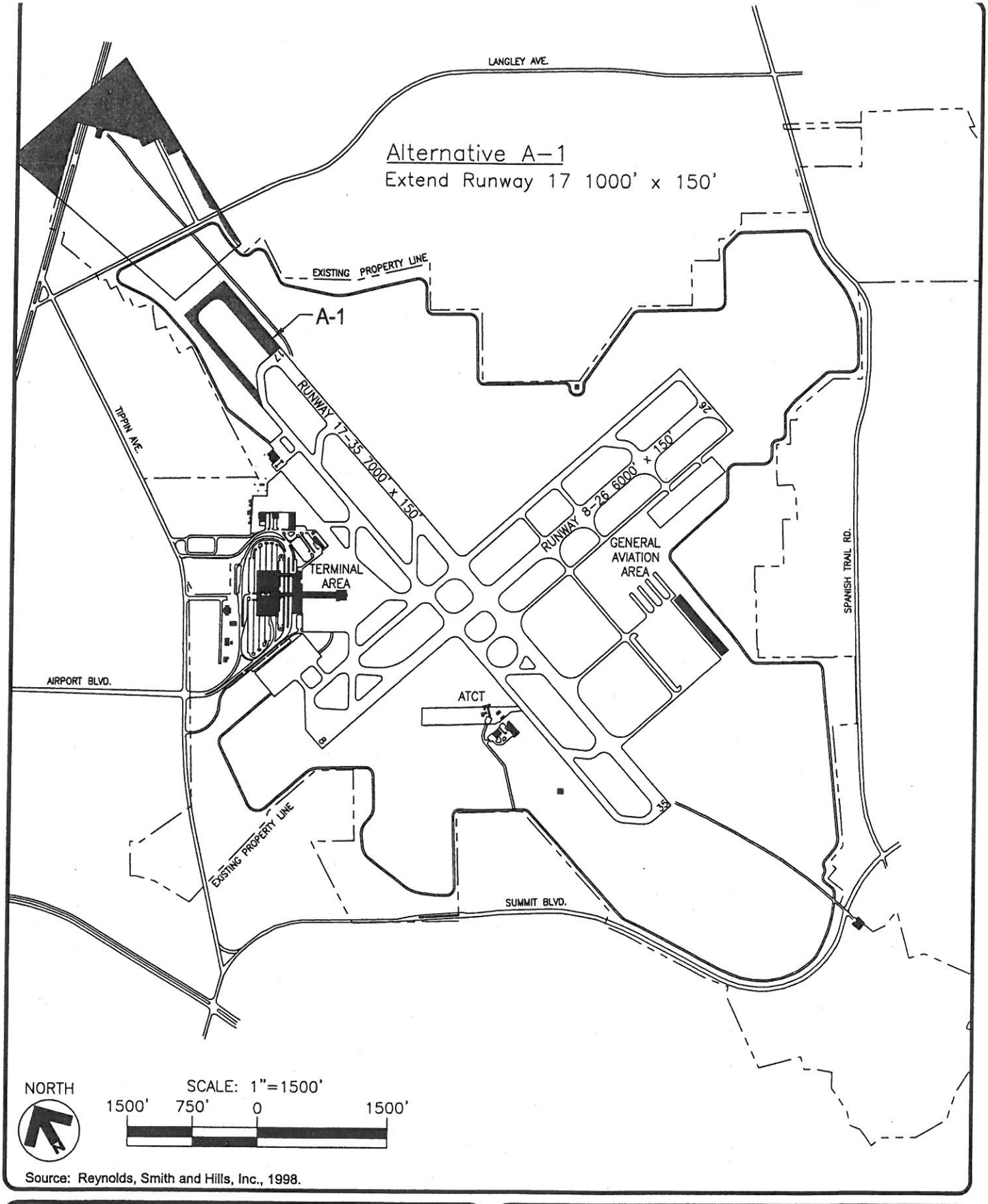


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FIGURE 4.2

Alternative A-1

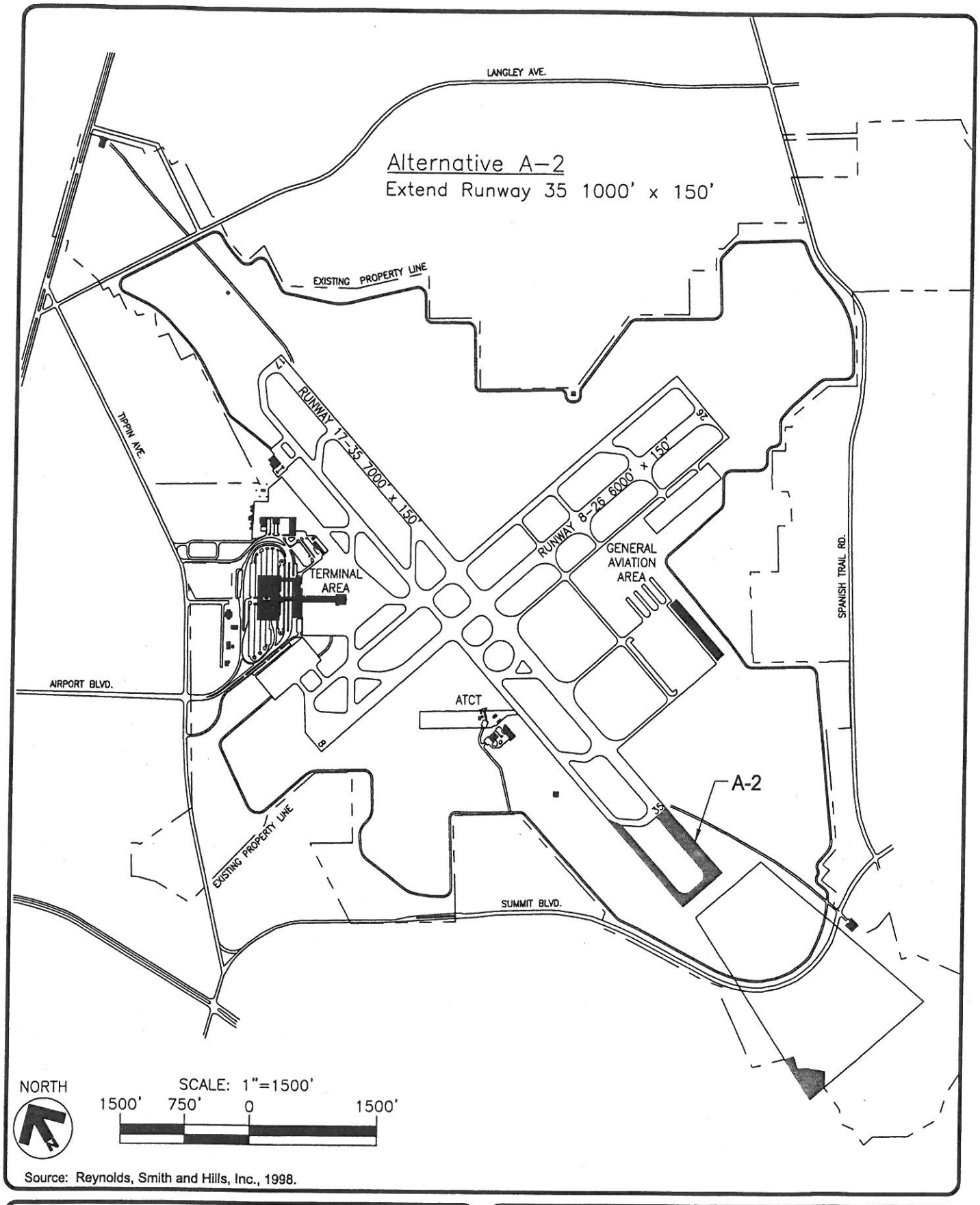

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FIGURE 4.3

Alternative A-2

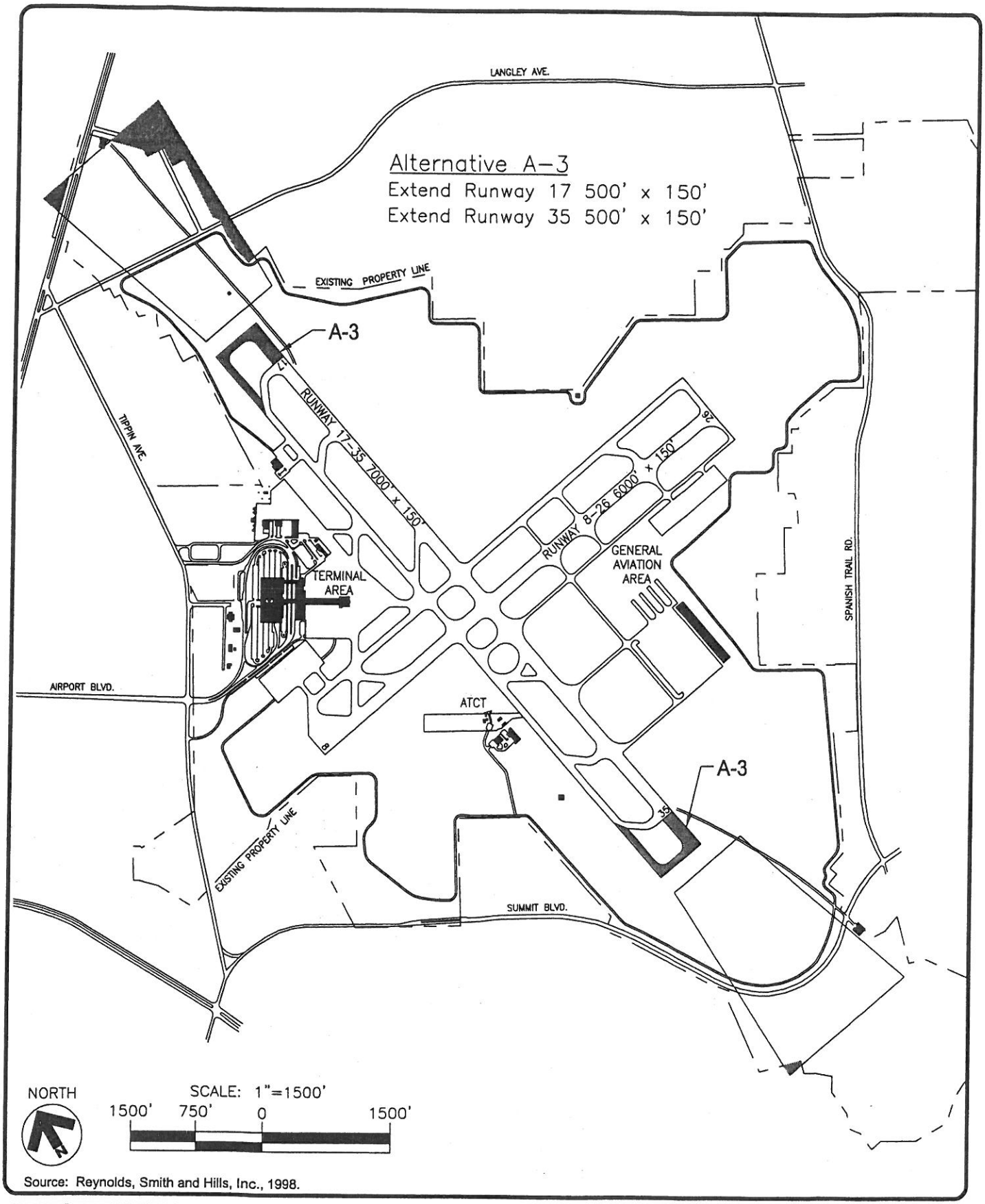

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FIGURE 4.4

Alternative A-3

Alternative A-4: Extend Runway 26 (Figure 4.5)

This alternative consists of extending the crosswind runway (Runway 8-26) on the 26 end by 1,000 feet to a total length of 7,000 feet. This alternative also considers the amount of land that would need to be controlled by the Airport, whether through avigation easement or outright purchase, (Alternative A-4). As can be seen in Figure 4.5, a precision approach on the Runway 26 end forces the RPZ to extend beyond the existing airport property by a total of 9.1 acres. This would include the extension of Taxiways "B" and "D" as well. This alternative would require the relocation of the existing REILs and VASI equipment on the 26 end of the Runway.

The estimated order of magnitude planning cost of this alternative is $6,900,000.

Alternative A-5: Construct General Aviation Runway 17L-35R (Figure 4.6)

A parallel general aviation runway is proposed under this alternative. This runway would be 3,700 feet long and 75 feet wide and be offset 700 feet to the east of the primary runway, placing it 240 feet offset from existing Taxiway "C" in the general aviation area. This alternative would also include extending Taxiway "C" and a connector taxiway between Runway 17-35 and the new general aviation runway.

The estimated order of magnitude planning cost of this alternative is $4,100,000.

4.2 LANDSIDE

Alternatives for landside development at PNS have been broken into four areas: terminal, general aviation, helicopter and fuel farm. Several alternatives have been considered for each of these areas, taking into consideration the demand forecasts provided in Section 2 and the facility requirements developed in Section 3. Again, the costs developed for each of these alternatives are shown to provide an order of magnitude estimate.

4.2.1 Terminal Area. Alternatives within the terminal area include consideration for the passenger terminal building, air cargo facilities and commercial/industrial development.

Alternative T-1: South Terminal Development and North Cargo Development (Figure 4.7)

This alternative consists of expanding the existing terminal to the south. The total expansion measures approximately 50,000 square feet and includes expanding the main terminal to the south in line with the existing terminal building and the addition of a new concourse perpendicular to Runway 8-26. With this configuration, the new concourse would be approximately 170 feet long and remain outside of the FAR Part 77 surface of Runway 8-26. This would provide four to six additional aircraft parking positions. Also under this alternative, air cargo facilities would be developed to the north of the existing air cargo

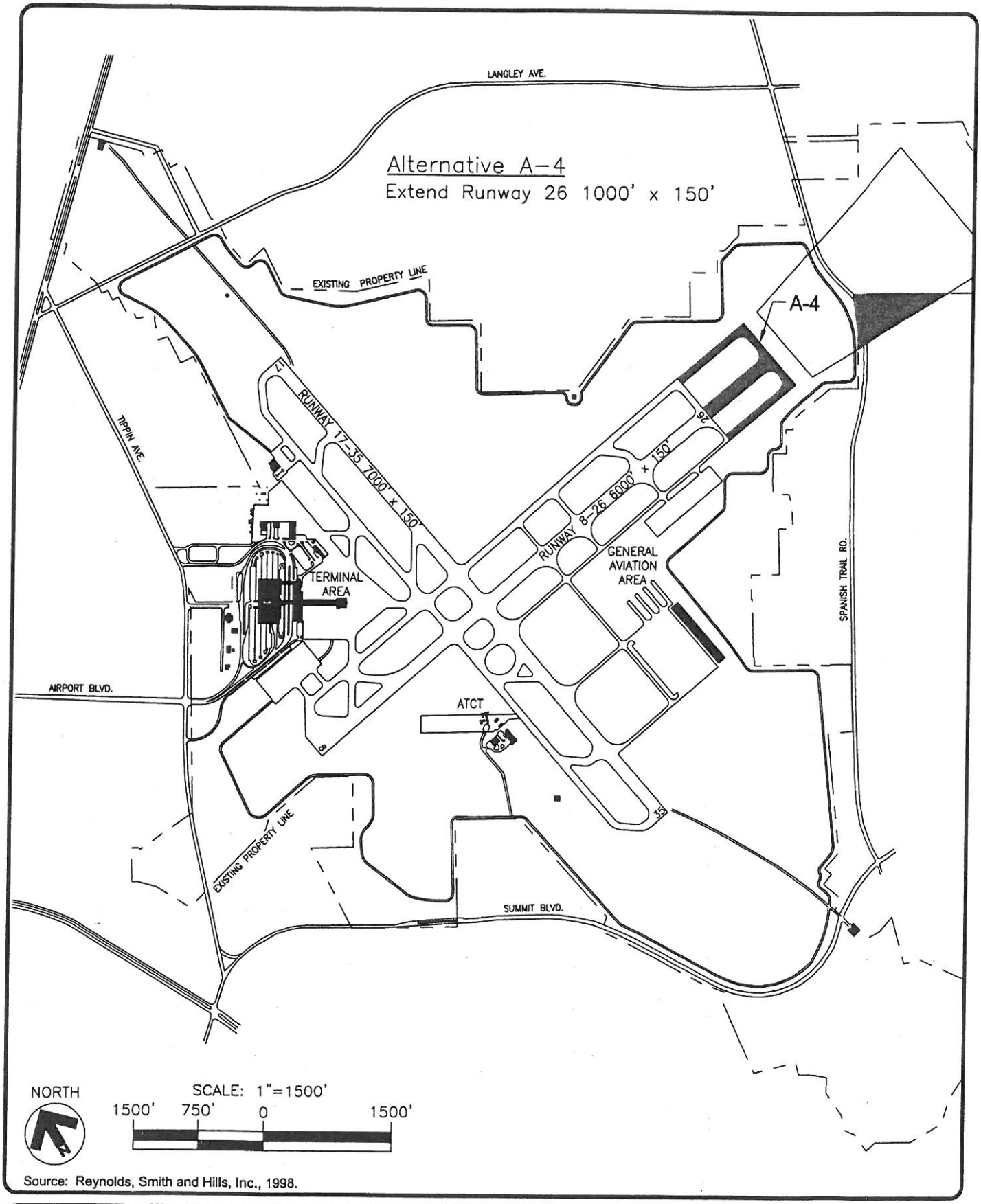

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FIGURE 4.5

Alternative A-4

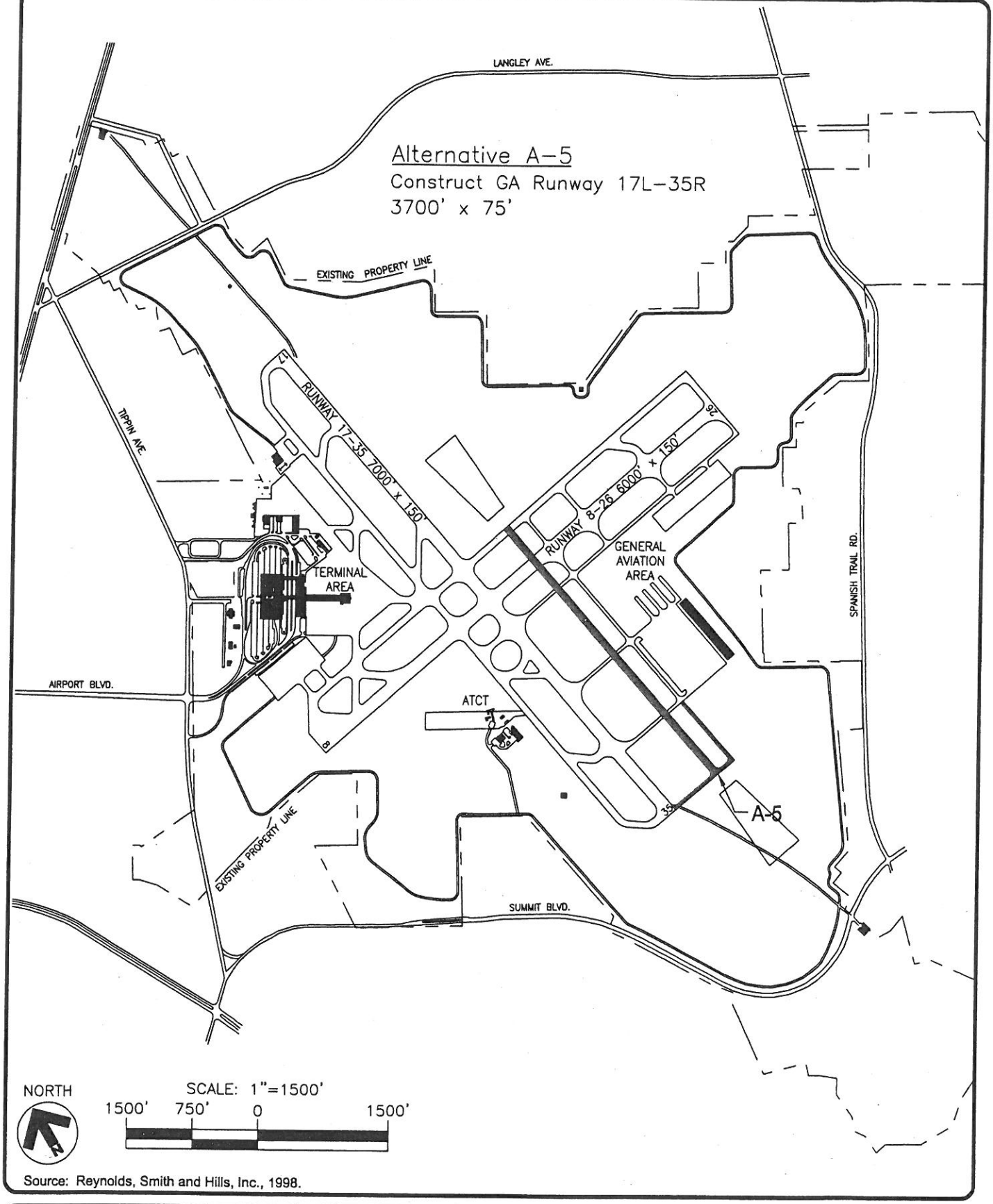

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FIGURE 4.6

Alternative A-5

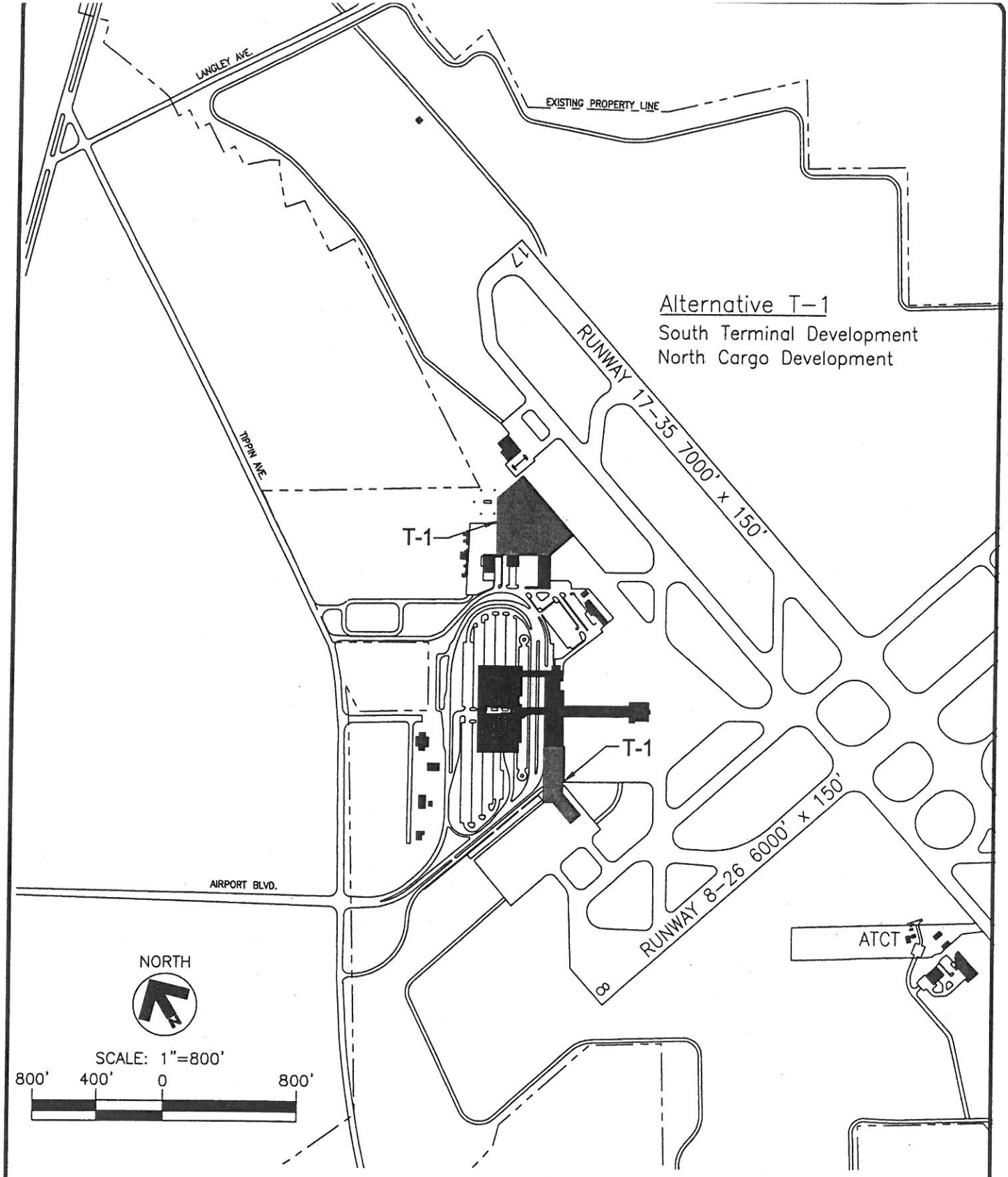

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FIGURE 4.7

Alternative T-1

building. This would include the necessary buildings, apron, connector taxiways, truck maneuvering areas and automobile parking.

The estimated order of magnitude planning cost of this alternative is $15,400,000.

Alternative T-2: North Terminal Development and South Cargo Development (Figure 4.8)

This terminal area alternative consists of expansion of the terminal to the north. The total expansion measures approximately 60,000 square feet and includes expanding the main terminal to the north in line with the existing terminal building and the addition of a new concourse perpendicular to Runway 17-35. This configuration would allow the new concourse to measure approximately 350 feet in length and remain outside of the FAR Part 77 surface of Runway 17-35, providing an additional eight to ten aircraft parking positions. Also, air cargo facilities would be relocated and expanded from the existing location to the existing apron area south of the terminal. The existing FAA TRACON building located just north of the terminal building would need to be relocated under this alternative as well.

The estimated order of magnitude planning cost of this alternative is $22,900,000.

Alternative T-3: North Terminal Development and North Air Cargo/Industrial Development (Figure 4.9)

This alternative is similar to the terminal expansion developed in Alternative T-2. This would provide approximately 60,000 square feet of additional terminal space and aircraft parking positions for an additional eight to ten aircraft. Air cargo facilities would be developed to the north the existing air cargo facility, and expand parallel to Runway 17-35. Also under this alternative, commercial/industrial development is proposed in the area bounded by Langley Avenue, Tippin Avenue and the existing airport property line. Again, the existing FAA TRACON building would have to be relocated under this alternative.

The estimated order of magnitude planning cost of this alternative is $36,400,000, excluding development of the commercial/industrial area.

4.2.2 General Aviation (GA) Area

Alternatives within the general aviation area are based on the relocated GA facilities in the southeast quadrant of the airfield. Consideration to fully relocate the GA facilities from this area was discarded because the facilities that exist now are not planned to reach the end of their useful life until well after the planning period for this Master Plan Update.

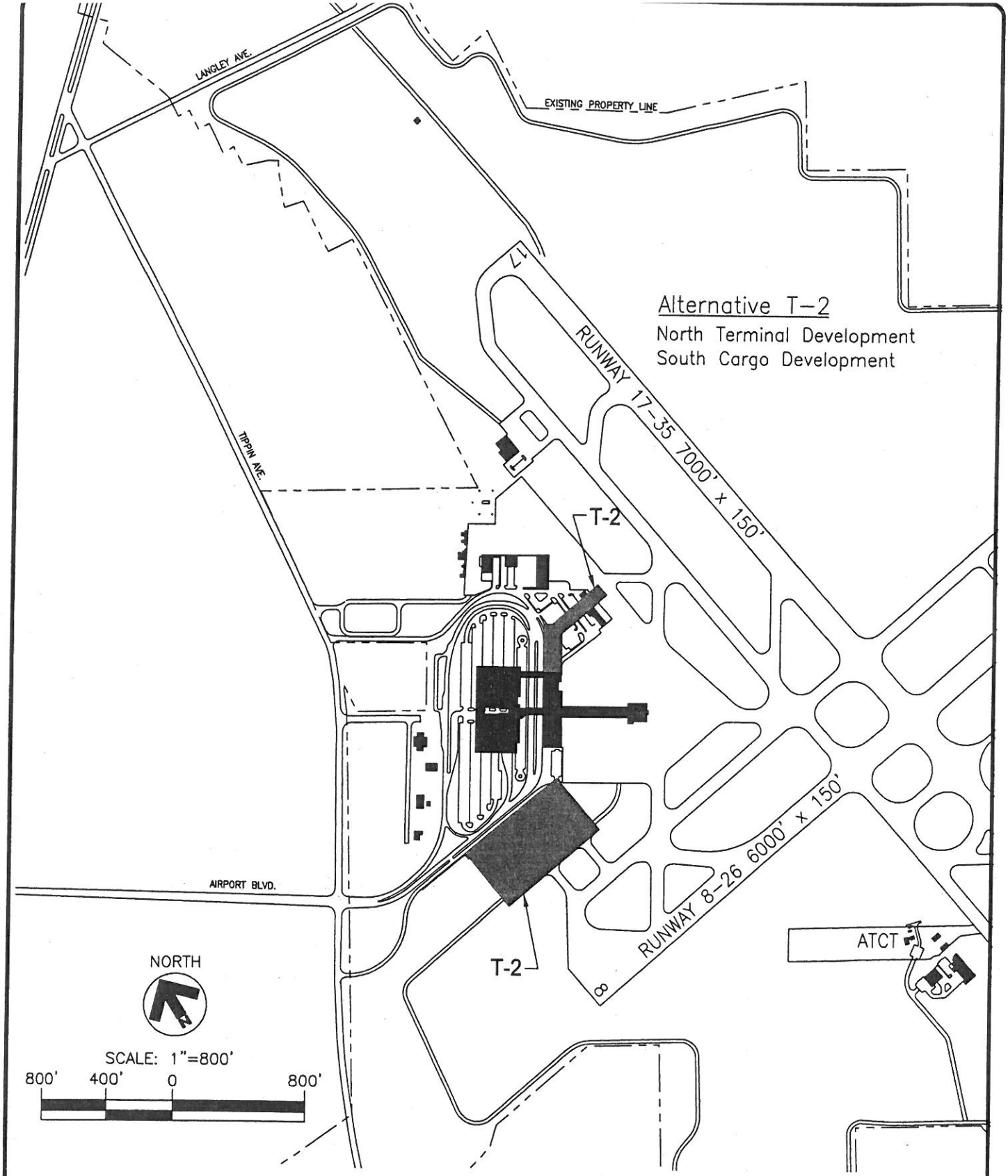

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FIGURE 4.8

Alternative T-2

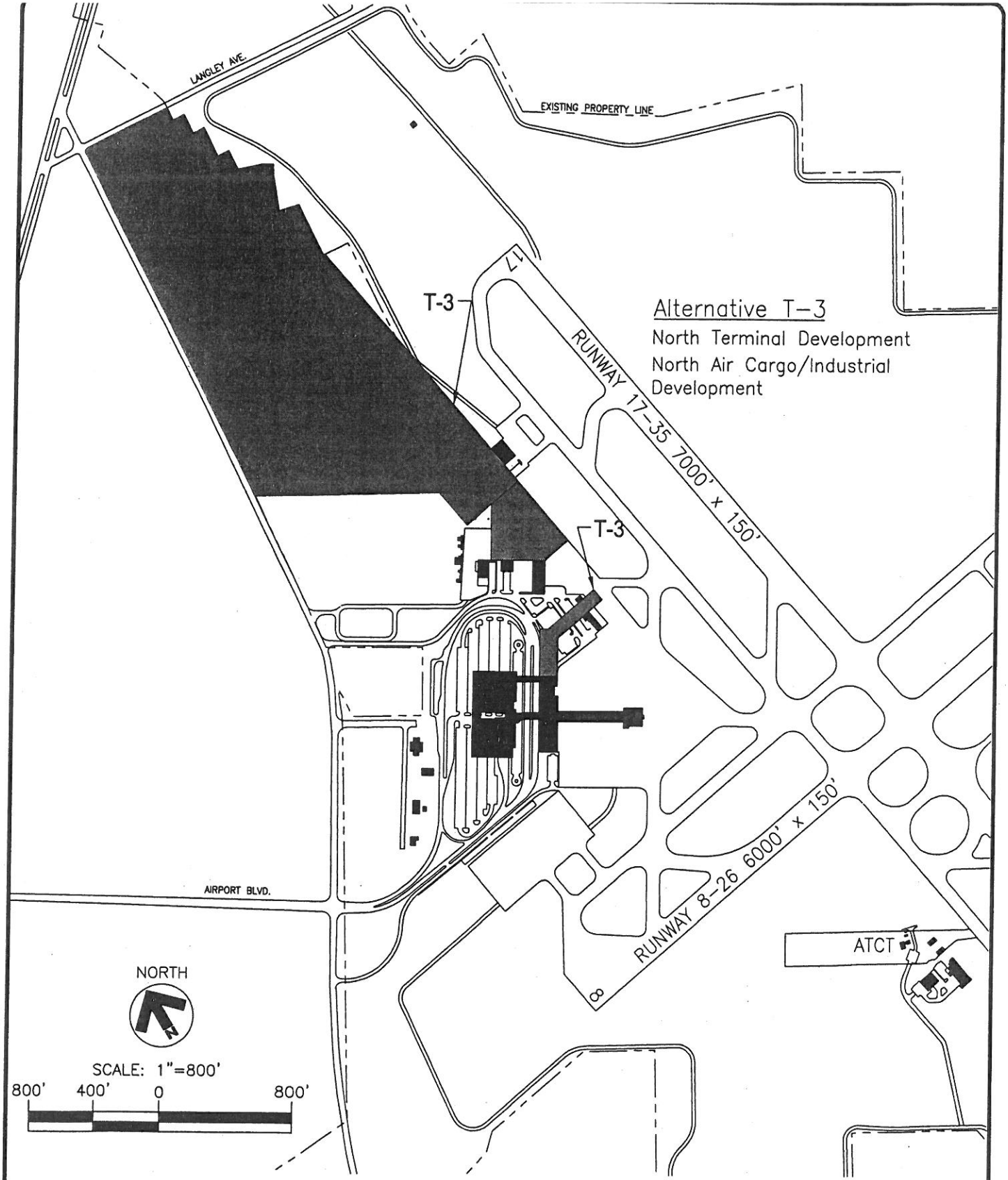

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FIGURE 4.9

Alternative T-3

Alternative G-1: Expand Tie Down Apron and Corporate Apron (Figure 4.10)

This alternative consists of expansion of both the existing corporate apron south and east of Runway 26 and the existing tie-down apron west of Runway 35. The corporate apron would expand in line with the existing apron along Taxiway "D". This corporate apron expansion has an area of approximately 27,000 square yards, roughly doubling the size of the existing corporate apron. The tie-down apron would expand in line with the existing apron to the south. This tie-down apron expansion has an area of approximately 60,000 square yards, again roughly doubling the size of the existing tie-down apron. Additional hangar buildings could be constructed along these apron expansions in line with the existing hangars.

The estimated order of magnitude planning cost of this alternative is $9,800,000.

Alternative G-2: Additional Tie Down Apron Expansion (Figure 4.11)

If the tie-down apron expansion described in Alternative G-1 were completed, then this Alternative G-2 includes a further expansion of this apron, again in line with the existing facilities in this area.

The estimated order of magnitude planning cost of this alternative is $6,600,000.

Alternative G-3: Develop North General Aviation Facilities (Figure 4.12)

This alternative involves developing additional general aviation facilities north of Runway 8-26 in the northeast quadrant of the airfield. This would include the construction of an apron and associated connector taxiways that would provide access to Taxiway "B," as well as hangars and automobile parking and ground access. The area shown in Figure 4.12 was developed so that these facilities would not interfere with the RPZ of the GA runway described in Alternative A-5.

The estimated order of magnitude planning cost of this alternative is $7,000,000.

4.2.3 Helicopter Area

Alternative H-1: Develop Helicopter Parking at Existing Location (Figure 4.13)

This alternative involves keeping the helicopter parking area in the location that it currently exists: just west of the Air Traffic Control Tower south of Runway 8-26. This facility is currently utilizing pavement that previously was used as a runway, which has been abandoned. Development considered within this area would include the construction of multiple storage hangars, as well as pavement rehabilitation.

The estimated order of magnitude planning cost of this alternative is $1,000,000.

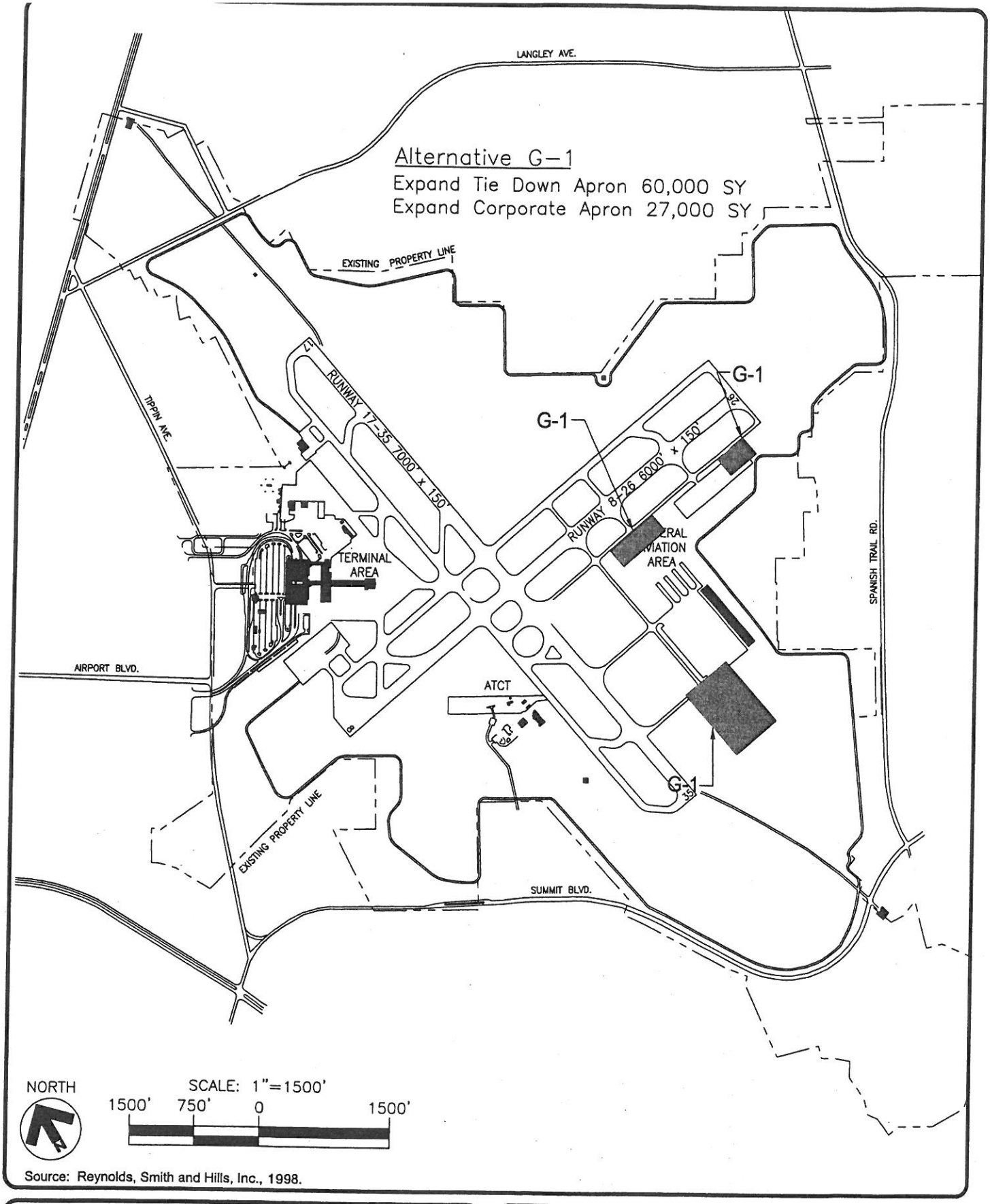

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FIGURE 4.10

Alternative G-1

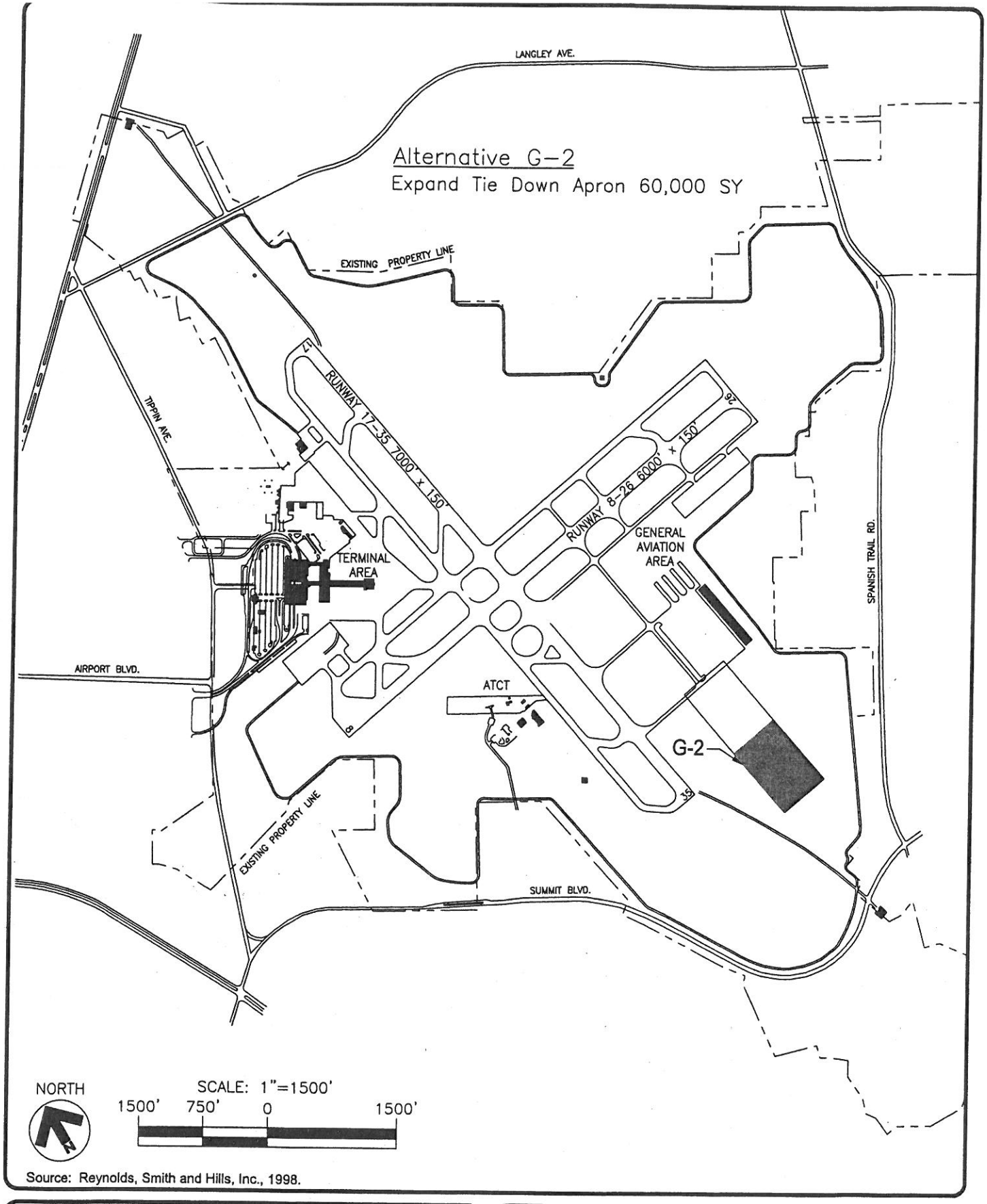

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FIGURE 4.11

Alternative G-2

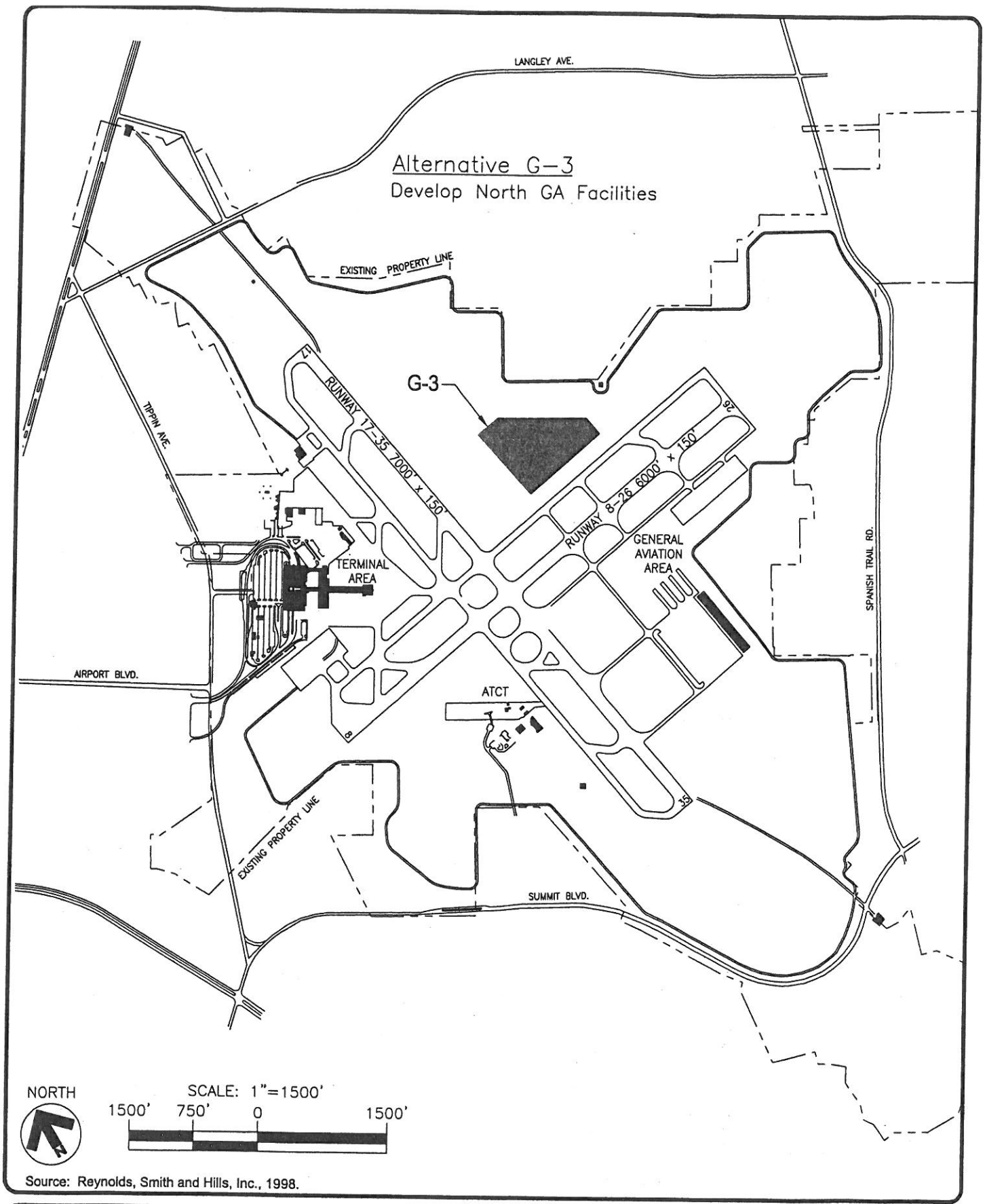

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FIGURE 4.12

Alternative G-3

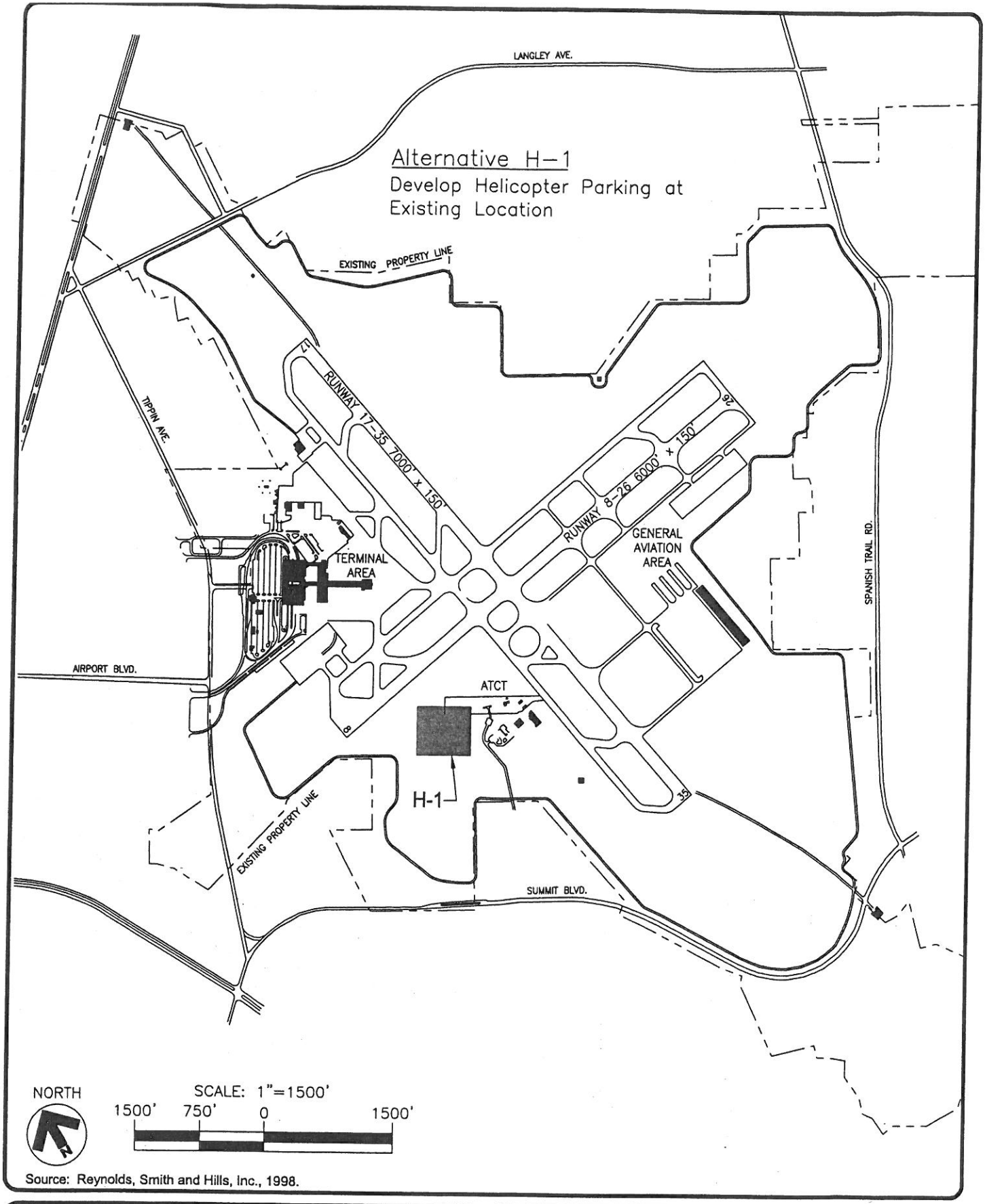

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FIGURE 4.13

Alternative H-1

Alternative H-2: Develop Helicopter Parking at GA Area (Figure 4.14)

This alternative involves relocating the existing helicopter parking area to the existing GA area. This would include providing new facilities just south of the existing GA tie-down apron, including a paved parking area and multiple hangar facilities.

The estimated order of magnitude planning cost of this alternative is $1,200,000.

4.2.4 Fuel Farm

Alternative F-1: Develop Existing Fuel Farm Location (Figure 4.15)

Under this alternative, the existing fuel farm, located just off of Tippin Avenue and west of the terminal and cargo areas, would be kept and further developed. Development for this alternative would include upgrade and increase in capacity of the existing fuel tanks.

The estimated order of magnitude planning cost of this alternative is $2,000,000.

Alternative F-2: Develop General Aviation (GA) Area (Figure 4.16)

This alternative includes a new fuel farm facility located in the existing GA area, just south of the existing tie-down apron, as well as maintaining the existing fuel farm off Tippin Avenue. This would allow all general aviation fueling to operate independently of the fueling for commercial and air cargo aircraft. This alternative would include the necessary ground access for fuel trucks as well as the fuel farm tanks and equipment.

The estimated order of magnitude planning cost of this alternative is $2,000,000.

Alternative F-3: Develop New Fuel Farm Area (Figure 4.17)

This alternative involves developing a new fuel farm north of Runway 8-26 in the northeast quadrant of the airfield. This alternative would allow the existing fuel farm, located off Tippin Avenue, to continue to be used as a daily fuel farm with an underground pipeline connecting the existing fuel farm to the new fuel farm north of Runway 8-26. Fuel trucks would be able to serve the GA area through airport access roads around the east end of Runway 8-26.

The estimated order of magnitude planning cost of this alternative is $2,000,000.

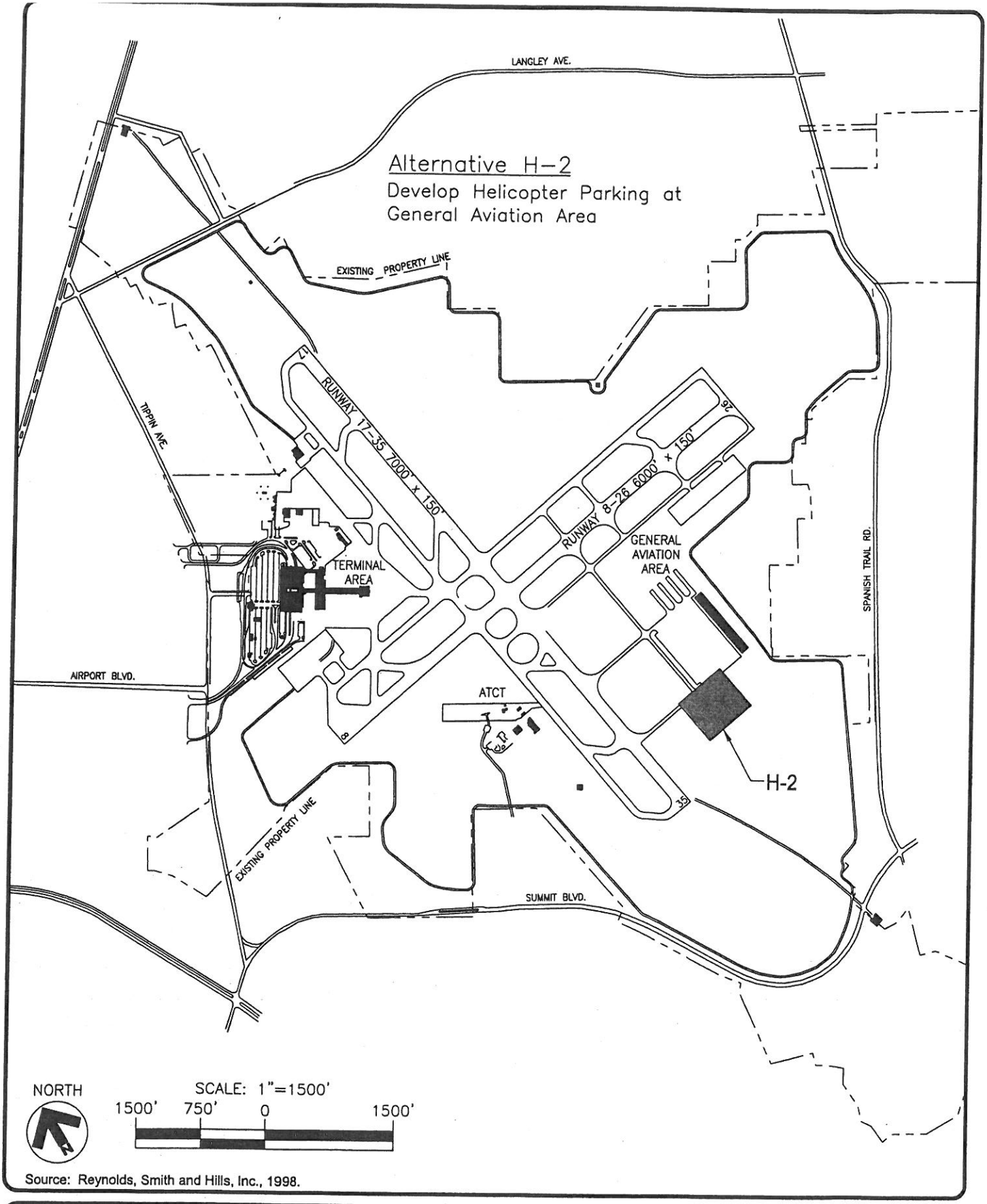

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FIGURE 4.14

Alternative H-2

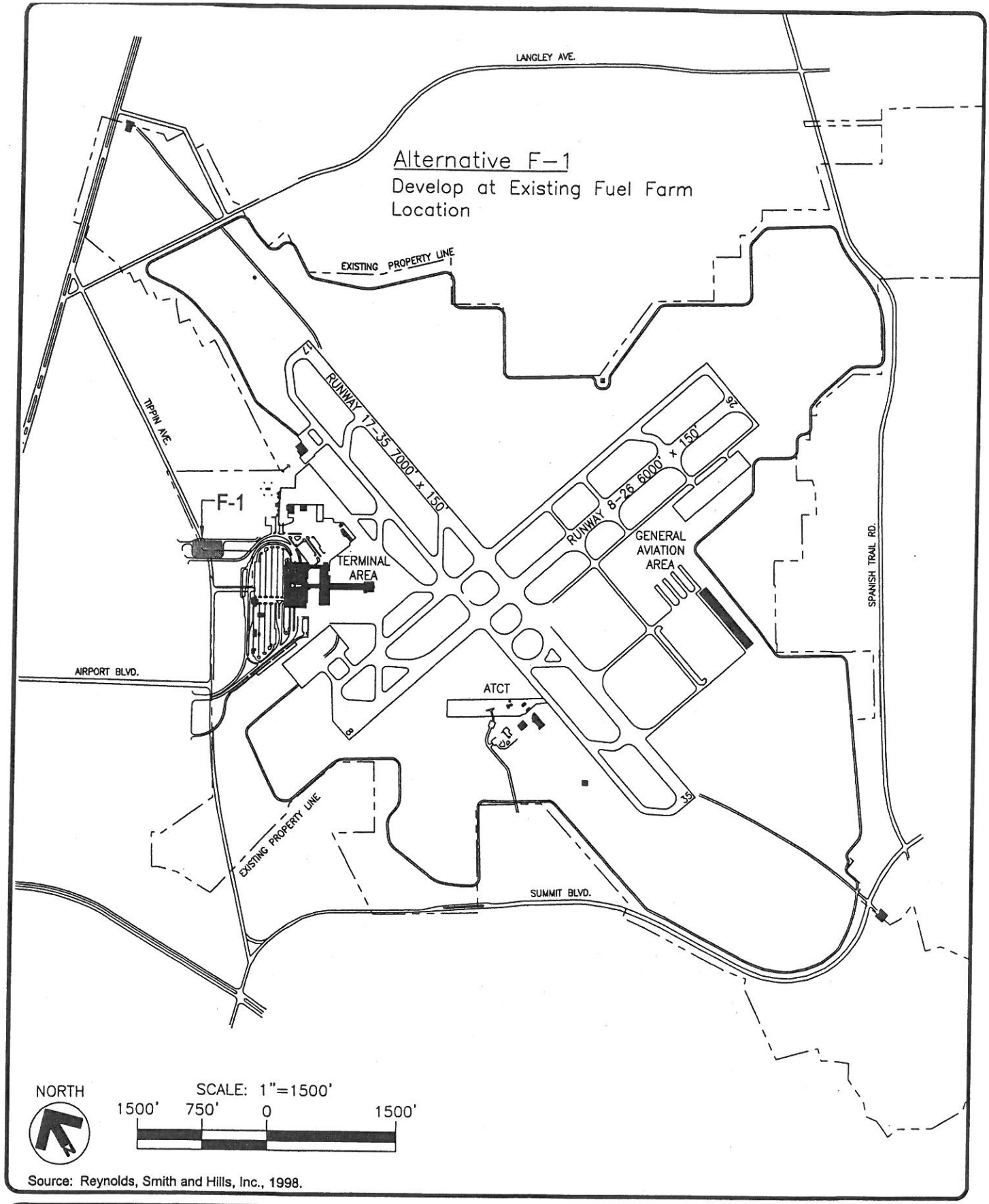

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FIGURE 4.15

Alternative F-1

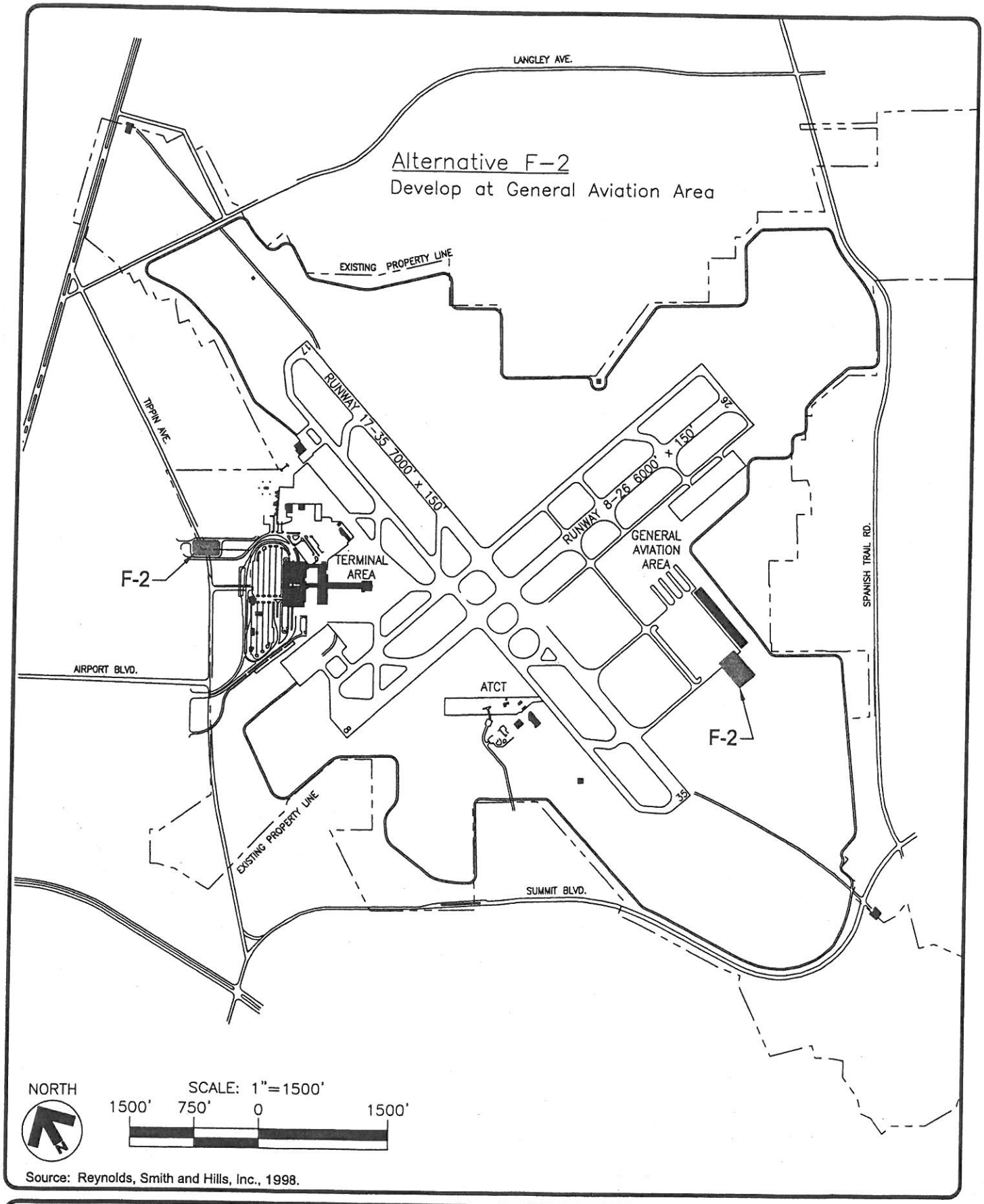

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FIGURE 4.16

Alternative F-2

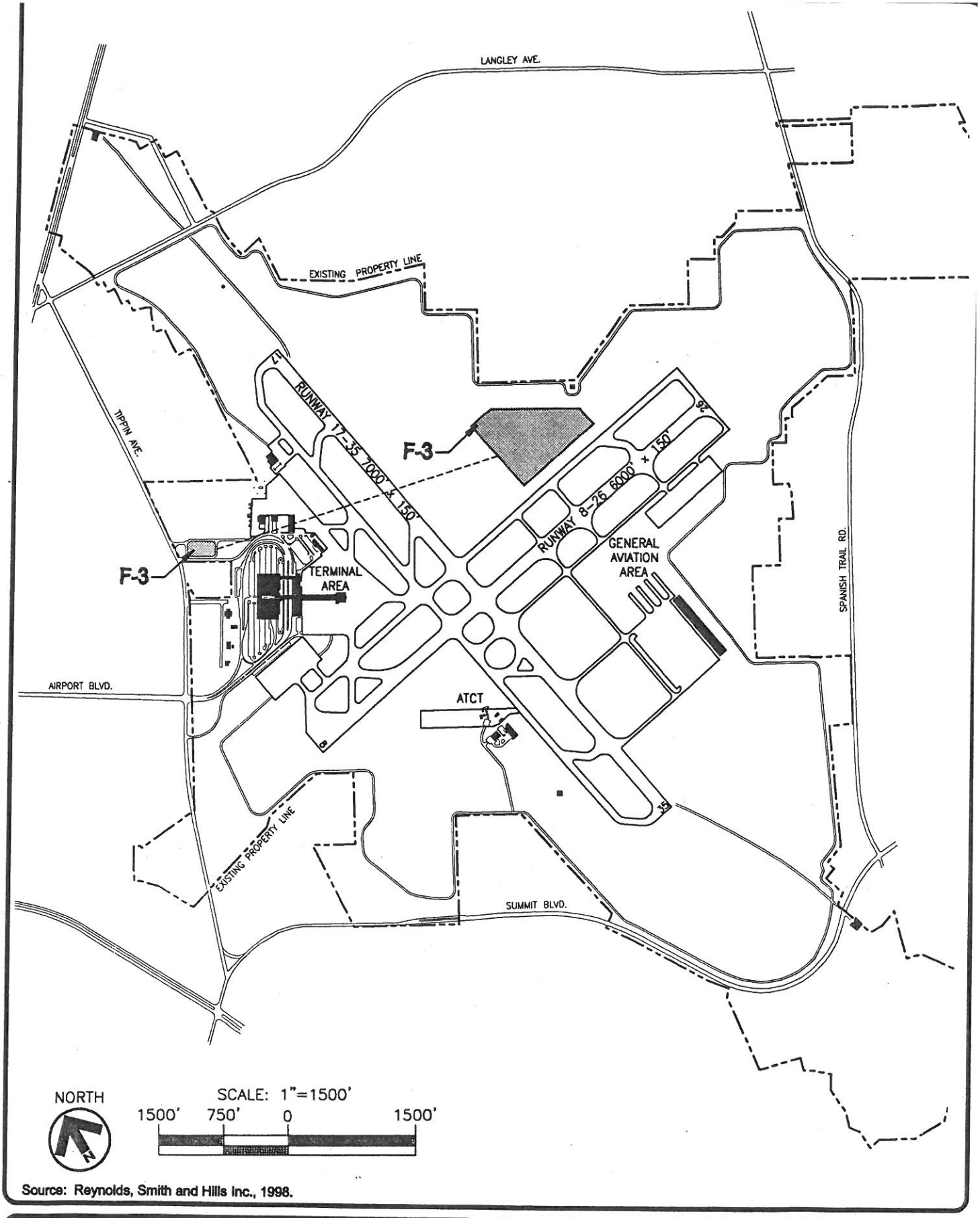

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Figure 4.17

Alternative F - 3

4.3 SURFACE ACCESS

Immediate access to the Airport is provided at four points along 12th Avenue between Summit Boulevard and Underwood Avenue. From south to north, access points are provided to the old GA area, the main entrance to the terminal, the rental car/outlying parking area and the air cargo area.

Airport Boulevard intersects 12th Avenue at the main entrance to the Airport and provides the only direct route to and from the west. Presently, airport access to and from the interstate system is provided indirectly at the I-10/Davis Highway (SR 295) interchange and the I-110/Brent Lane interchange. Both routes require travel along congested arterial segments which lack prominent directional signage to the Airport.

Airport access to and from the east is provided via Summit Boulevard and Bayou Boulevard. North-south arterials which provide access to the Airport include 9th Avenue and Scenic Highway. Access to and from US 98 and Pensacola Beach is provided by 12th Avenue to the east along Bayou Boulevard or west to I-110 at the Brent Lane interchange. Direct access to and from the interstate system in the Pensacola area is a critical need.

Alternative S-1: Surface Access 1 (Figure 4.18)

Primary Access Route (PAR): Airport Boulevard is a five-lane urban section from the Airport at 12th Avenue to Davis Highway. Major intersection improvements on Airport Boulevard at 9th Avenue and Davis Highway are programmed for construction in the Florida Department of Transportation (FDOT) Five-Year Work Program. Additionally, Escambia County has programmed construction dollars for widening the two-lane section of Airport Boulevard to a five-lane section west of Davis Highway to Old Palafox.

The FDOT has completed a Project Development Study (PD&E) and Interchange Justification Report (IJR) for a new interchange with I-110 at Airport Boulevard. The improvement includes a service road connection between the existing interchange at Brent Lane to the new interchange at Airport Boulevard. This improvement is listed in the Pensacola Long Range Transportation Plan and Interstate Master Plan as a Stage 2 Cost Feasible improvement (2001-2005). This project addresses a critical need of the PNS and is key to the long-term viability of the Airport.

Future Access Route (FAR): Long-term planned improvements include an interchange with I-10 at 9th Avenue. The project is presently included in Stage 3 (2005-2020) of the PUATS Cost Feasible Plan and the Interstate Master Plan. In past years, opposition by property owners in the immediate vicinity of the proposed interchange delayed advancement of this improvement. Local and regional

demand for additional north-south access to I-10 has magnified in recent years, increasing focus on this potential improvement. This proposed interchange is a critical component required to meet current airport access needs and to facilitate future development concepts.

Importantly, the planned improvements to enhance airport access to I-10 and I-110 are consistent with the ESCAROSA Vision Plan, which identifies a desire for regional airport service along the I-10 corridor.

Finally, because PNS serves regional air travel demand along US 98 to the east, future alternatives for a new Pensacola Bay Bridge crossing should consider airport access as one of the primary considerations. Further, intermodal connectivity with the Airport should be incorporated into the Transit Development Plan (TDP), the PUATS Long-Range Transportation Plan, Corridor Management Studies, and the Congestion Management System (CMS). Specifically, linking airport trips to the Downtown Trolley System and linking the Downtown Trolley System to the Pensacola Beach Trolley System should be explored for short-term implementation.

4.3.1 Surface Access For Future Development Concepts

One future development concept involves development of a business park to serve airfield and airport-related industries. The target location for development of the proposed business park is the mixed residential/commercial area north of the Airport called Campus Heights, which is adjacent to the current air cargo area.

Access to the proposed business park would likely require an additional access point on 12th Avenue and possibly on Langley Avenue. Locating the business park entrance at 12th Avenue and Underwood Avenue would offer the potential for signalization, assuming necessary signal spacing could be achieved. This improved access point might also replace the existing air cargo access road. Important to the success of this alternative is implementation of the 9th Avenue/I-10 interchange to provide direct interstate access to both the proposed business park and the terminal. In the event that the business park alternative is not implemented and air cargo remains at the current location, an improved entrance, possibly signalized, should be considered. Importantly, signalizing the air cargo entrance must be kept at the greatest distance possible from the existing signalized intersection at Airport Boulevard.

4.4 LAND USE/LAND ACQUISITION

Land use concepts for airfield, terminal area, air cargo, general aviation, fuel farm and surface access alternatives have been previously presented in this Master Plan Update. The remainder of this section addresses the possible need for an aviation-related industrial park at the Airport.

Alternative L-1: Air Cargo/Industrial Area (Figure 4.19)

This alternative corresponds to the area in Alternative T-3 described as a possible aviation-related industrial park and air cargo/industrial development area. The total area off of existing airport property and bounded by Langley Avenue and Tippin Avenue is 62.0 acres.

The estimated order of magnitude planning cost of this alternative cannot be determined at this time.

4.5 ALTERNATIVES SUMMARY

The airport development alternatives were presented and discussed with both the Citizens Advisory Committee and Technical Advisory Committee, as well as the general public at an open-house workshop. The committees recommended that the following alternatives be further refined in this Airport Master Plan Update:

Airfield

- Alternate A-1 only to a 500-foot extension to Runway 17 so the runway safety area remains on airport property.
- Alternate A-2 to the full 1,000-foot extension of Runway 35.
- Alternate A-4 with 1,000-foot extension on Runway 26.
- Alternate A-5 construct 3,700-foot parallel GA runway.

Landside

- Alternate T-3: North terminal concourse and north air cargo/commerce park development.
- Alternate G-1: Expand GA area around existing facilities.
- Alternate R-2: Develop fuel farm in GA area for GA aircraft and existing facility for air carrier aircraft.
- Alternate L-1: Establish air cargo/commerce park for revenue enhancement and land use compatibility.

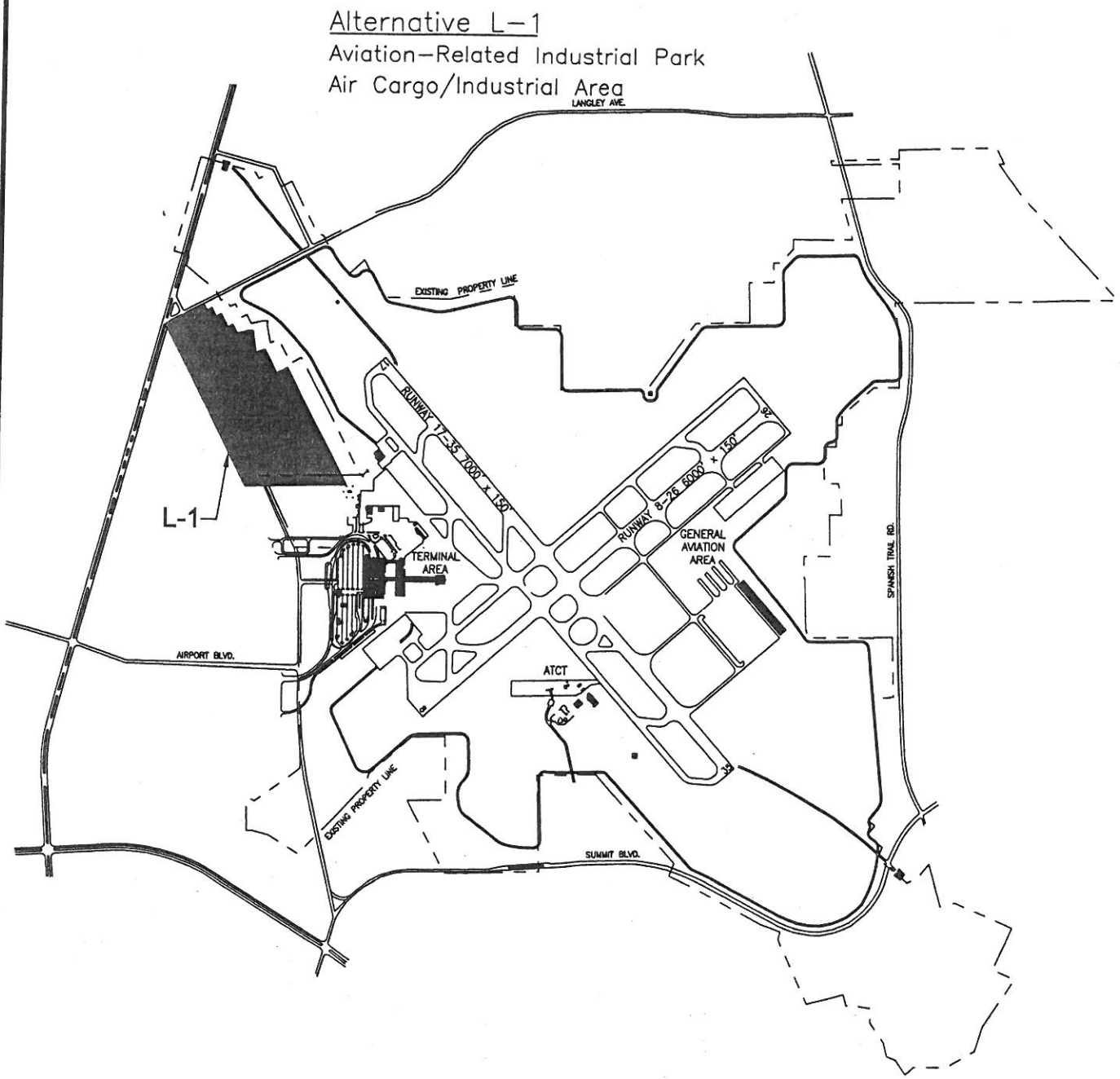

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FIGURE 4.19

Alternative L-1

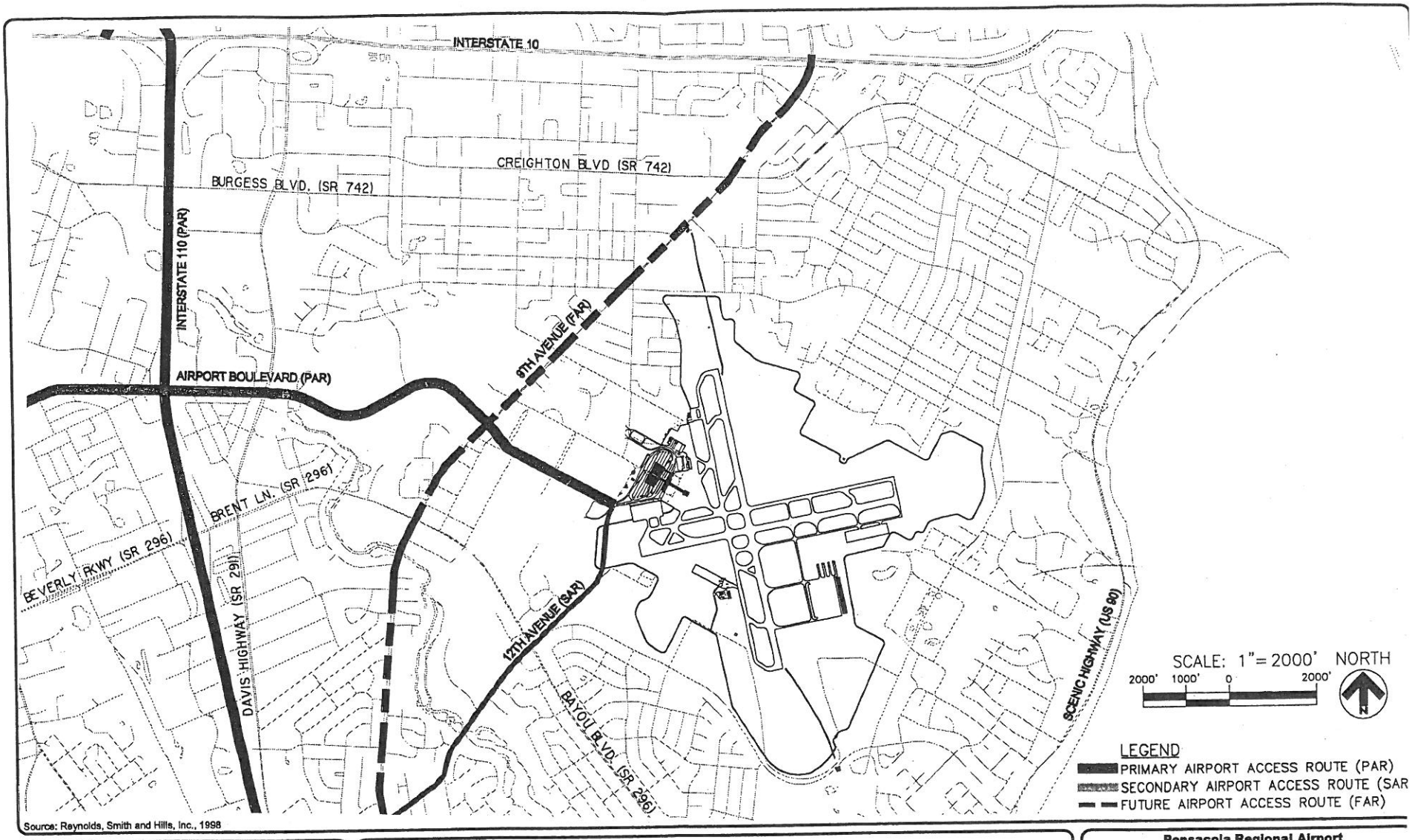

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FIGURE 4.18

Alternative S - 1

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SECTION 5
ENVIRONMENTAL OVERVIEW

5.1 INTRODUCTION

An airport is an important transportation resource that provides both metropolitan and rural areas with access to the national transportation system, as well as being a direct stimulator to local and regional economies. Because of the size and nature of an airport, it may generate impacts to the natural, social and economic systems in the area. Through careful planning and implementation of mitigation measures, an airport can provide valuable transportation services, economic development and be compatible with the surrounding environment.

As part of this Airport Master Plan Update, an overview of environmental conditions at Pensacola Regional Airport (PNS) has been prepared to examine the potential impacts of the proposed airport development alternatives. The major airport development projects recommended in this Master Plan Update include the following:

- 500 foot extension on the north end of Runway 17-35
- 1000 foot extension on the south end of Runway 17-35.
- 1000 foot extension of the east end of Runway 8-26.
- Expansion of the terminal building and parking garage to the north.
- Construction of a 3,700-foot general aviation runway east of existing Runway 17-35.
- Development of additional general aviation facilities.
- Development of an airport commerce park, including landside and air cargo facilities.

The primary emphasis of this environmental overview is to present the general environmental conditions at PNS and to provide information on potential environmental impacts related to airport development. This information will be used to determine what specific projects and environmental concerns may require further study in a federal-level Environmental Assessment (EA), Environmental Impact Statement (EIS) or other specialized environmental study in the future.

This environmental overview has been developed using information supplied through coordination with local, regional, state and federal governmental personnel and other offices involved with environmental planning in the vicinity of the PNS. A list of these agencies is presented in Appendix B.

5.2 FEDERAL ENVIRONMENTAL REQUIREMENTS

The National Environmental Policy Act (NEPA) of 1969 provides for the study and documentation of the impacts of any proposed federal action. NEPA, legislative mandates and Presidential Executive Orders outline specific federal agency environmental review requirements. The Federal Aviation Administration (FAA) is typically the lead governmental agency that is obligated to review major airport development and improvement actions proposed by an airport sponsor, as most major projects involve some form of funding grant request by the airport sponsor to the FAA. As a result, the FAA must review the project for impacts prior to providing funding. It is mandated by Congress, and implemented through NEPA, that adverse environmental impacts be avoided or minimized to the greatest possible extent when federal dollars are being used. NEPA requires that alternatives be considered to avoid or reduce potential adverse affects, to identify necessary mitigation measures and to document public participation in the decision-making process. The guiding document in airport environmental matters is FAA Order 5050.4A, *Airport Environmental Handbook*.

Three levels of FAA environmental review of development projects are outlined in Order 5050.4A. Each review is dependent upon the level of development being proposed. The three levels of FAA environmental review are:

- Those development projects which are normally categorically excluded from further environmental analysis.
- Those development projects normally requiring an EA.
- Those development projects normally requiring an EIS.

5.2.1 Categorical Exclusions. FAA Order 5050.4A defines certain airport development projects as being categorically excluded from formal environmental study. When a project is identified as a Categorical Exclusion (CE), the proposed airport development project is allowed to proceed without further environmental studies. In 5050.4A, airport development actions normally categorically excluded from environmental review (EA or EIS) include:

- Runway, taxiway, apron or loading ramp construction or repair work including extension, strengthening, reconstruction, resurfacing, marking, grooving, fillets and jet blast facilities and new heliports on existing airports (except where such action would create environmental impacts off airport property).
- Installation or upgrading of airfield lighting systems, including runway end identifier lights, visual approach aids, beacons and electrical distribution systems.
- Installation of miscellaneous items including segmented circles, wind or landing direction indicators, measuring devices or fencing.

- Construction or expansion of passenger handling facilities.
- Construction, relocation or repair of entrance and service roads.
- Grading or removal of obstructions on airport property and erosion control actions with no off-airport impacts.
- Landscaping generally, and landscaping or construction of physical barriers to diminish impact of airport blast and noise.
- Projects to carry out noise compatibility programs.
- Land acquisition and relocation associated with any of the above items.
- Federal release of airport land.
- Removal of displaced thresholds.

5.2.2 Environmental Assessment. An EA examines potential impacts to determine whether the impacts exceed a predefined threshold of significance or create sufficient controversy to require the FAA to prepare a full EIS, or if the FAA can provide a Finding of No Significant Impact (FONSI). The FAA will either issue a FONSI as a result of the EA review process and the proposed airport development can proceed, or it will determine that an EIS must be prepared. Actions normally requiring an EA include the following:

- A new airport location.
- A new runway.
- A major runway extension.
- Runway strengthening that would result in a 1.5 DNL (the average day-night sound level) increase in noise impacting a sensitive area within the 65 DNL contour.
- Construction or relocation of entrance or service road connections to public roads which adversely affect the capacity of such public roads.
- Land acquisition associated with any of the above items including land acquisition that would result in the relocation of residential units when there is evidence of insufficient compatible replacement dwellings, major disruption of business activities, or acquisition which involves land covered under Section 4(f) of the DOT Act.
- Establishment or relocation of an ILS or an approach lighting system.
- An airport development action which involves extraordinary circumstances or involves Section 4(f) lands; land areas or structures eligible for or designated as significant, historical, archeological, architectural or cultural significance; land acquisition for conversion of farmland; impacts to wetlands, coastal areas, or floodplains; or endangered or threatened species.

5.2.3 Environmental Impact Statement. If proposed development will likely result in a significant environmental impact, an EIS may be required. An EIS is a thorough review process that provides federal, state, regional, local and other agencies an opportunity to participate on the project as coordinating or commenting agencies. The detail of the EIS is determined either by the EA, or during the FAA environmental scoping process. Full evaluation of the proposed project or action, as well as all reasonable and prudent alternatives, must be undertaken. Actions normally requiring an EIS include:

- The development of a first-time airport layout plan, or airport location approval for a commercial service airport in a Standard Metropolitan Statistical Area (SMSA).
- Financial participation in, or airport layout plan approval of, a new runway capable of handling air carrier aircraft at a commercial service airport in an SMSA.

5.3 FEDERAL, STATE, REGIONAL AND LOCAL ENVIRONMENTAL COORDINATION

In addition to satisfying FAA regulations, proposed airport development also needs to comply with federal, state, regional and local environmental and permitting requirements and will require approval by those agencies. Potential federal, state, regional and local agencies, other than the FAA, that would be involved in the review process for PNS include:

1. City of Pensacola
2. City of Pensacola Engineering Department
3. City of Pensacola Planning Department
4. Florida Department of Environmental Protection - Northwest District
5. Public Information Office, Northwest Florida Water Management District
6. Northeast Gulf Watersheds Ecosystem – United States Fish and Wildlife Service
7. Planning and Environmental Division - United States Army Corps of Engineers - Mobile District
8. United States Department of the Interior, Bureau of Land Management - Eastern States Office
9. United States Department of Agriculture - Forest Service
10. National Park Service Southeast Support Office
11. Florida Department of State, Division of Historical Resources
12. National Marine Fisheries Service, Southeast Regional Office (SERO), Protected Resources Division
13. Public Affairs Office, United States Environmental Protection Agency
14. Federal Emergency Management Agency
15. Florida Department of Community Affairs, Florida Coastal Zone Management Program
16. Escambia County Department of Growth Management

17. Florida Department of Community Affairs, Florida Coastal Zone Management Program
18. West Florida Regional Planning Council

5.4 AIRPORT MASTER PLAN ENVIRONMENTAL OVERVIEW

The environmental overview prepared for this Master Plan Update is neither intended nor required to be prepared at the level of detail required for an EA or EIS. Its intended purpose is to provide a review of the environmental issues that may need to be considered in a future formal environmental study.

A preliminary analysis of environmental conditions related to the Airport's recommended development alternatives was evaluated in relation to the 21 impact categories outlined in FAA Order 5050.4A. These impact categories include:

- Noise
- Compatible Land Use
- Social Impacts
- Induced Socioeconomic Impacts
- Air Quality
- Water Quality
- DOT Section 4(f) Lands
- Historic, Architectural, Archaeological and Cultural Resources
- Biotic Communities
- Endangered and Threatened Species of Flora and Fauna
- Wetlands
- Floodplains
- Coastal Zone Management Program
- Coastal Barriers
- Wild and Scenic Rivers
- Prime and Unique Farmland
- Energy Supply and Natural Resources
- Light Emissions
- Solid Waste Impacts
- Construction Impacts
- Other Considerations

Discussion is provided below on the potential impacts to these environmental categories resulting from the proposed Airport master plan development.

5.4.1 Noise. Noise is defined as "undesirable sound" and is one of the major concerns of both airport owners and airport neighbors. Various measurement methods (known as noise metrics) have been developed to measure sound. Aircraft sound levels are also measured using the A-weighted decibel scale (dBA). This noise metric was developed because it approximates how the human ear hears sound.

Aircraft noise, while measured in dBA, is a cumulative measurement over a 24-hour period, based on annual traffic activity which is referred to as the average day-night sound level (or DNL). The EPA has identified DNL as the most appropriate means of evaluating airport noise. Most public agencies addressing noise exposure, including FAA, the Department of Defense (DOD) and the Department of Housing and Urban Development (HUD), have formally adopted DNL as the most appropriate measure to determine noise impacts. FAA requires that DNL be used in describing cumulative noise exposure and in identifying aircraft noise/land use compatibility issues.

DNL sound levels can be measured through noise monitoring or can be calculated through computer noise modeling. Most airport noise studies utilize computer-generated DNL estimates depicted in terms of equal-exposure noise contours (similar to contour lines of equal elevation on a topographic map). The computer program used to develop average annual day-night aircraft noise contours is the FAA's Integrated Noise Model (INM). These noise contours depict noise impact areas based on input of an airport's activity levels, fleet mix, day-night operations percentage, approach and takeoff profiles and flight tracks. The purpose of airport noise analysis is to examine existing and future noise impacts on the nearby land uses and surrounding community.

Noise control plans have been successfully implemented at both the national and local levels. The FAA has reduced aircraft noise by mandating retirement of aircraft that do not meet established noise reduction standards. At the local level, cities and counties have successfully formulated and implemented land use controls that have reduced the number of incompatible land uses in the vicinity of airports. However, there still is a need for a standardized method of determining the impact of noise on airports. In response to this need, the FAA established a program to produce noise compatibility studies. This program is implemented through FAR Part 150.

FAR Part 150 includes the following elements:

- Provisions for the development and submission to the FAA of Noise Exposure Maps (NEM) and Noise Compatibility Programs (NCP) by airport owners;
- Use of standard noise units, methods and analytical techniques;

- Identification of land uses that are normally compatible or incompatible with various noise levels in the vicinity of an airport; and
- Procedures and criteria for approval or disapproval of noise compatibility programs by the FAA.

The FAA requires that the NEM show the 65, 70 and 75 DNL contours. Of these three categories, the 75 DNL noise contour reflects the most severe impact, while the 65 DNL noise contour reflects the least severe impact. Human tolerance to noise has been determined to be below 65 DNL, and land areas outside the 65 DNL noise contour are considered to be non-noise-impacted compatible land uses. At or above 65 DNL, measures should be taken to mitigate sound to limit or eliminate interference with human activities. Residential, and some business and commercial, development is not normally compatible within the 65 to 75 DNL noise contour unless sound insulation or other mitigating actions are taken. It is recommended that the Airport should own all land above 75 DNL to ensure compatible land uses are maintained.

Table 5.1 provides a detailed listing of normally compatible land uses based on FAR Part 150. However, the responsibility for determining the acceptable and permissible land uses remains with the local authorities (i.e., City of Pensacola). As the airport owner and sponsor, the City of Pensacola is charged by FAA grant assurances to ensure that local ordinances provide the necessary protection for airport property. Section 5.4.2 further examines off-airport land use compatibility.

Summary of 1990 Noise Compatibility Study

In 1990, the City of Pensacola commissioned a noise compatibility study pursuant to FAR Part 150 guidelines. The report recommended five noise abatement strategies and five land use strategies designed to reduce the impact of noise on surrounding land uses. All the strategies were recommended by the Technical Coordinating Committee, Citizen's Advisory Committee and the Airport management. The following strategies were approved by the Pensacola City Council and subsequently by the FAA:

Approved Noise-Abatement Strategies

The noise abatement strategies focused on operational and environmental control mechanisms. The first noise abatement strategy approved was to implement a runway use program. Under this strategy, the Airport would construct a 1,000-foot extension to Runway 8 and designate Runway 8 as the preferential runway for departure.

Table 5.1 Land Use Compatibility Guidelines with Yearly Day-Night Average Sound Levels Pensacola Regional Airport - Master Plan Update

	Yearly Day-Night Average Sound Level (DNL) in Decibels					
Land Use	**Below 65**	**65-70**	**70-75**	**75-80**	**80-85**	**Over 85**
Residential						
Residential, Other than Mobile Homes and Transient Lodgings	Y	N(1)	N(1)	N	N	N
Mobile Home Parks	Y	N	N	N	N	N
Transient Lodging	Y	N(1)	N(1)	N(1)	N	N
Public Use						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and Nursing Homes	Y	25	30	N	N	N
Churches, Auditoriums and Concert Halls	Y	25	30	N	N	N
Governmental Services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
Commercial Use						
Offices, Business and Professional	Y	Y	25	30	N	N
Wholesale and Retail-Building Materials, Hardware and Farm Equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail Trade-General	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing, General	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and Optical	Y	Y	25	30	N	N
Agriculture (Except Livestock) and Forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock Farming and Breeding	Y	Y(6)	Y(7)	N	N	N
Mining and Fishing, Resource Production and Extraction	Y	Y	Y	Y	Y	Y
Recreation						
Outdoor Sports Arenas and Spectator Sports	Y	Y(5)	Y(5)	N	N	N
Outdoor Music Shells, Amphitheaters	Y	N	N	N	N	N
Nature Exhibits and Zoos	Y	Y	N	N	N	N
Amusements Parks, Resorts and Camps	Y	Y	Y	N	N	N
Golf Courses, Riding Stables and Water Recreation	Y	Y	25	30	N	N

Source: FAR Part 150, 1993.

Key:
- SLUCM: Standard Land Use Coding Manual.
- Y (Yes): Land use and related structures compatible without restrictions.
- N (No): Land use and related structures are not compatible and should be prohibited.
- NLR: Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
- 25, 30 or 35: Land use and related structures generally compatible; measures to achieve NLR of 25, 30 or 35 dB must be incorporated into design and construction of structure.

Table 5.1 **Land Use Compatibility Guidelines with Yearly Day-Night Average Sound Levels - Continued**
Pensacola Regional Airport - Master Plan Update

*The designations contained in this table do not constitute a federal determination of any use of land covered by the program as acceptable or unacceptable under federal, state or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for these determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

Notes:

(1) Where the community determines that residential or school use must be allowed, measures to achieve outdoor to indoor NLR of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as five, ten or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year-round. However, the use of NLR criteria will not estimate outdoor noise problems.

(2) Measure to achieve NLR 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal level is low.

(3) Measures to achieve NLR 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal level is low.

(4) Measures to achieve NLR 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal level is low.

(5) Land use compatible provided special sound reinforcement systems are installed.

(6) Residential buildings require a NLR of 25.

(7) Residential buildings require a NLR of 30.

(8) Residential buildings not permitted.

This strategy would reduce the number of people within 65 DNL by 75 percent. However, increased DNL levels in the vicinity of LaVallet Park (located near the flight path at the end of Runway 8) would need to be mitigated. This strategy also recommended land use regulations be implemented on vacant property through acquisition or avigation easements.

The second noise abatement strategy approved was implementation of a cut-back in takeoff thrust in an effort to reduce the impacts on residential areas. This is only recommended for implementation on Runway 26 and Runway 35 departures. It is not recommended on Runway 8 or 17, since the departure paths are over water bodies or over housing that is outside the 65 DNL.

The third noise abatement strategy approved was to plant a vegetative barrier 50 feet in width and 5,000 feet in length. An alternative strategy, the construction of a sound wall, was discarded as a possible strategy due to the cost and aesthetic quality concerns of homeowners.

The fourth noise abatement strategy approved was to restrict the time period for maintenance run-ups. The restricted times were based on hours when people were sleeping and/or ambient noise levels were at the lowest. The agreed upon restricted time period was between 6:00 p.m. and 9:00 a.m. on weekdays and 24 hours on weekends. However, if a run-up was conducted on an emergency basis, the FBO would provide Airport management a written statement so that the Airport management could respond to any citizen complaints during the time of the run-up.

The fifth noise abatement strategy approved was to continue the recording of noise complaints. The availability of a dedicated answering machine for noise complaints was recommended. The dedicated answering machine would be used for noise complaints after airport hours.

Approved Land-Use Actions

Whereas the noise abatement strategies were focused on operational and environmental control mechanisms, the land use strategies were focused on zoning regulations. Four of the five recommended strategies were approved by the City Council. The only strategy not approved was the adoption of an airport noise disclosure ordinance that would have alerted home buyers that the parcel of land is in an airport noise zone.

The first land use strategy approved was a revision to the city and county airport zoning codes. Three modifications were proposed:

1. A change in the city and county height restrictions to protect the approach surfaces to the proposed general aviation runway;
2. A reduction in the number of allowable structures to be built alongside the airport property; and
3. A change in the City's Airport Impact District after the airport program was implemented. This change would ensure consistency between the airport noise contours and the Airport Impact District zone boundaries.

The second land use strategy approved was the acquisition of four parcels of land located within the 70 DNL contour line. The report suggested that the acquisition of the property to be conducted through market procedures instead of the government's power of eminent domain. Furthermore, the report suggests that all real estate transactions follow the provisions of Title III of the Uniform Relocation Assistance and Real Property Acquisition Act of 1970 (Subpart 1) and Part 25 of the Regulations of the Office of the Secretary of Transportation (OST).

The third land use strategy approved was the acquisition of avigation easements on all residential properties located within the 70 DNL contour. This action would be consistent with the City's current land use compatibility guidelines that recommend avigation easements for residential properties located inside the 70 DNL.

The fourth land use strategy approved was a revision in the City of Pensacola and Escambia County's Building Code to enforce stricter acoustical requirements on new construction. This would ensure that any future dwellings constructed inside the Airport's noise contours have proper sound insulation.

Summary of 1994 Noise Study Update

A 1994 Noise Study update was commissioned to re-examine the noise contours at PNS since the commercial service aircraft fleet mix had reached 50 percent Stage 3 (i.e., quieter) aircraft. The purpose of the study was to determine the new contour lines based on the new stage mix and to determine if the new 70 DNL contour line encompasses additional residential dwellings. This was accomplished by using the INM to determine the new contour lines and by performing field tests to determine the number of residential dwellings within the 70 DNL contour line.

The result of the study is that there was a decrease in the number of noise-impacted homes within the 65 and 70 DNL. This is attributable to an increase in the percentage of Stage 3 aircraft. No further noise abatement or land use strategies were recommended by the study.

Land-Use Compatibility

To promote land use compatibility, both the City of Pensacola and Escambia County established land development regulations outlining compatibility guidelines and noise zones for areas surrounding civilian and military airfields. These ordinances were established to protect the health, safety and welfare of the public and to protect the operational capability of those airports. These ordinances are based on the FAA noise and airspace land use compatibility guidance and Chapter 333 of the Florida Statutes.

Land development in the vicinity of the Airport is guided by Chapter 12-11 in the City of Pensacola Land Development Regulations. Chapter 12-11, entitled "Airport," provides zoning regulations in the vicinity of publicly owned airports. The purpose of the chapter is to "prevent obstructions which are potentially hazardous to aircraft operations as well as persons or property in the vicinity of the obstruction; for the prevention of incompatible land use within certain aircraft noise zones where aircraft noise may be an annoyance or objectionable to the residents within said zones; to provide for the prevention of these obstructions and incompatible land uses, to the extent legally possible." In Escambia County, Ordinance 11.02.00 provides for the establishment of airport zones and the regulation of land development within those zones.

Three Airport Noise Zones are defined in Section 12-11-3 of the City of Pensacola Land Development Regulations: Noise Zones A, B and C. Airport Noise Zone "A" is the area outside the 65 DNL contour with noise exposure less than 65 DNL. Airport Noise Zone "B" is the area between the 65 DNL contour and the 75 DNL contour line. Airport Noise Zone "C" is the area inside the 75 DNL contour with noise exposure greater than 75 DNL.

The City of Pensacola Zoning Code contains a residential land use guidance chart for residential development within the three Airport Noise Zones. This table is re-created in Table 5.2.

Table 5.2 City of Pensacola Noise Impact District Residential Land-Use Guidance Chart Pensacola Regional Airport - Master Plan Update

Land-Use Guidance (LUG)	Noise Exposure Class	DNL Day-Night Average Sound Level	Pensacola Residential Development Guidelines	Suggested Noise Controls
A	Minimal Exposure	65 and less	Normally Acceptable	Normally no special considerations, suggest noise attenuation materials
B	Moderate Exposure	65 to 75	Provisionally Acceptable	Site specific analysis, avigation easements, sound level reduction measures
C	Significant Exposure	75 and higher	Unacceptable	No additional residential development, containment within airport boundary or compatible non-residential land use

Source: City of Pensacola Planning Department Land Development Regulations; Table 12-11.1
Notes: 1. This chart has been tailored to the specific conditions at PNS
2. See Chapter 12-14 for definition of terms.

Updated aircraft noise contours were developed for PNS following the methodology outlined in the FAA's INM version 5.1a. Figure 5.1 depicts the existing (1997) noise contours and Figure 5.2 depicts the 2005 noise contours. The following assumptions were made in preparing the noise contours:

1. Existing (1997) noise exposure contours:
    - Existing runway configuration (Runways 8-26 and 17-35).
    - Runway utilization percentages - 1994 Preferential Departure Scenario "A".
    - Aviation Activity - 125,169 annual aircraft operations.
    - Air Carrier Fleet Mix – 75 percent Stage 3 aircraft.

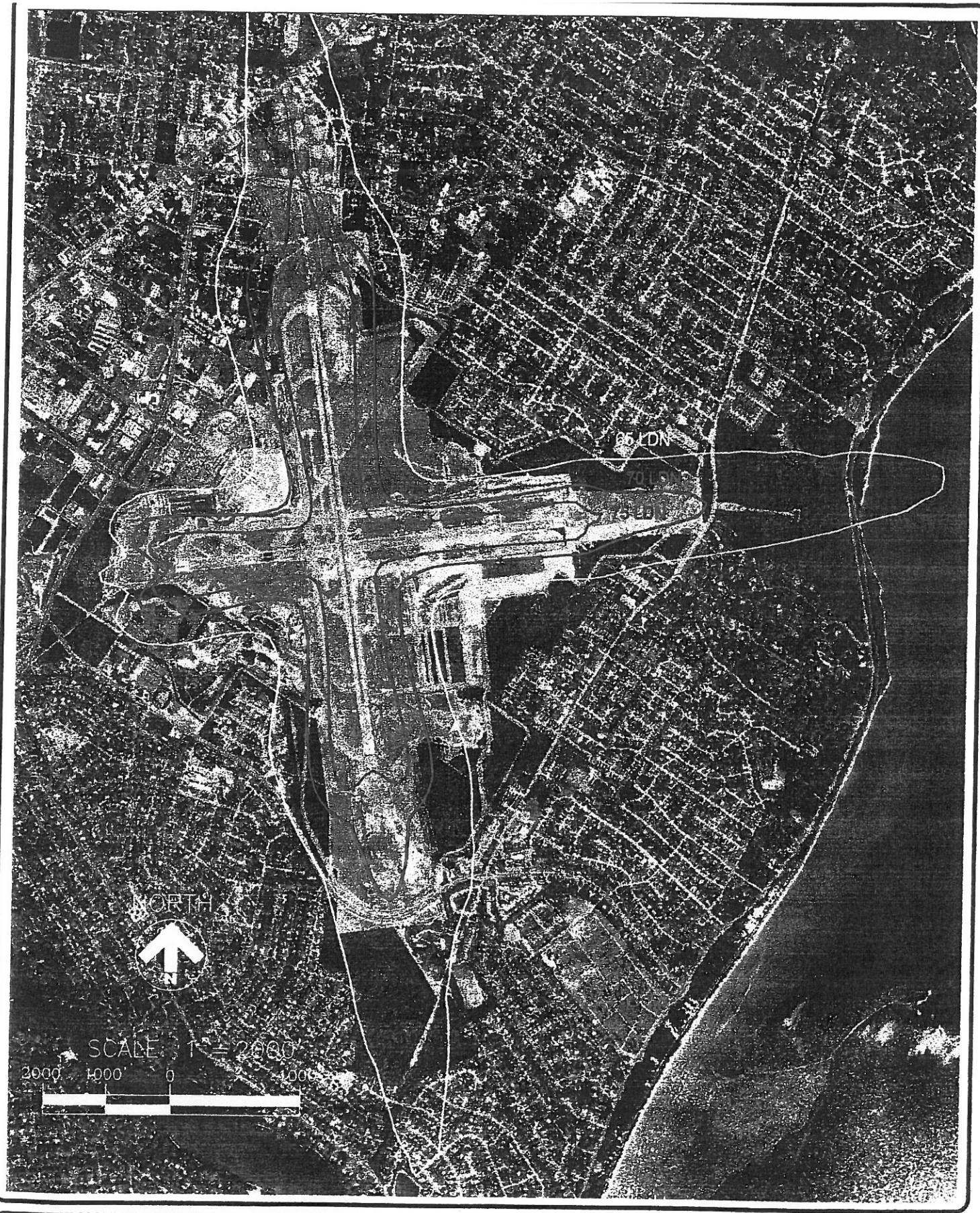

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FIGURE 5.1

1997 Noise Contours

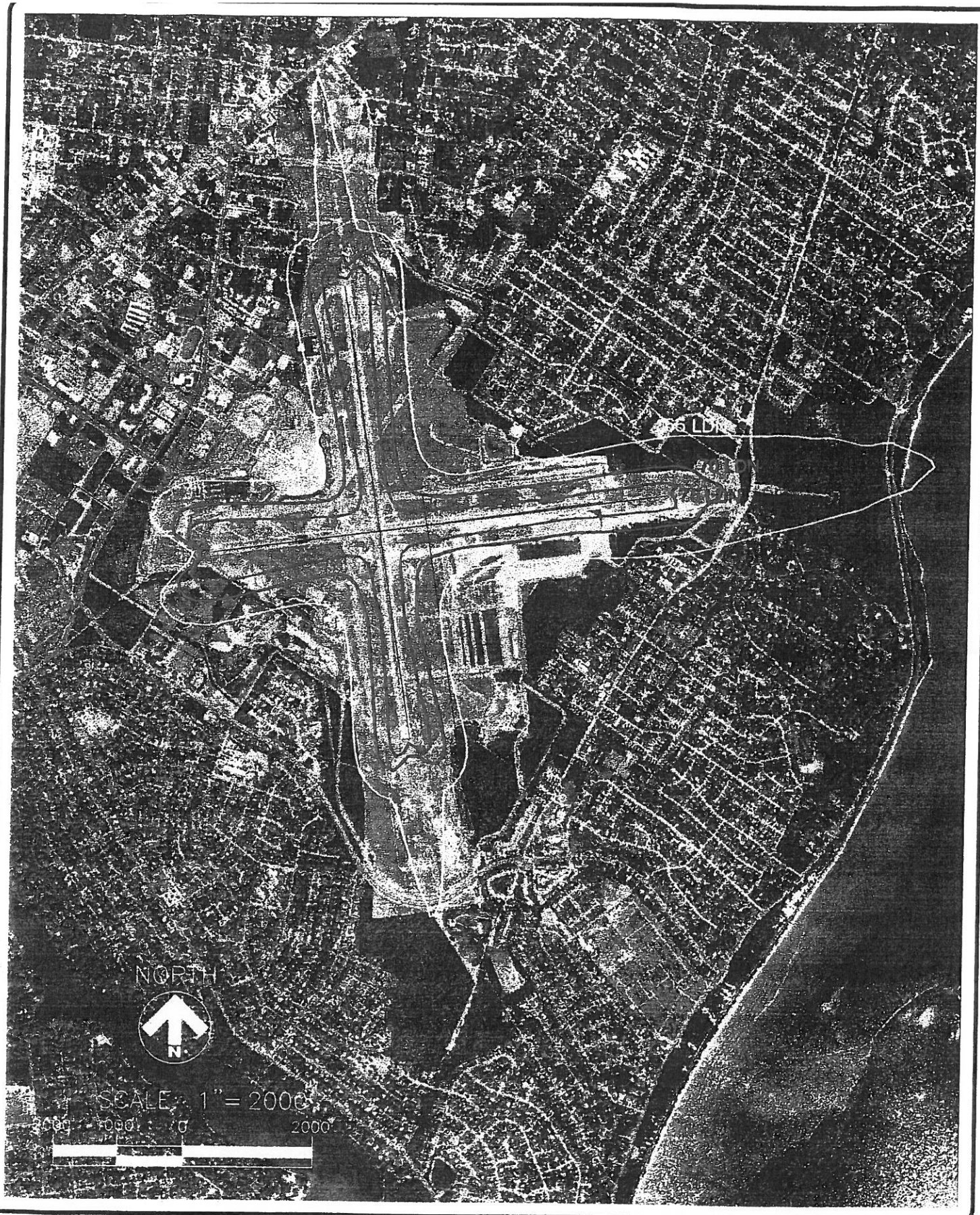

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FIGURE 5.2

2005 Noise Contours

2. Year 2005 noise exposure contours:

- Existing runway configuration with Runway 26 extended 1000 feet to the east.
- Runway utilization percentages - 1994 Preferential Departure Scenario "B"
- Aviation Activity - 143,062 aircraft operations.
- Air Carrier Fleet Mix – 100 percent Stage 3 aircraft

Existing (1997) Noise Contours

Figure 5.1 depicts the existing INM-generated airport noise contours. Table 5.3 summarizes the on-airport and off-airport acreage for the 65 and 70 DNL noise contours produced by the INM. Portions of the Airport's 65, 70 and 75 DNL extend off airport property. The 65 DNL is 1,267 acres in size. A total of 1,081 acres are located on airport property (85%) with 186 acres located off airport property (15%). The total acreage of the 65 DNL decreased 32 percent between 1988 and 1997.

The 70 DNL is 531 acres in size. A total of 509 acres are located on airport property (96%) and 22 acres are located off airport property (4%). The total acreage of the 70 DNL decreased 25 percent between 1988 and 1997.

The 75 DNL is 269 acres in size. A total of 265.3 acres are located on airport property (99%) and 3.7 acres are located off airport property (1%). The total acreage of the 75 DNL decreased 21 percent between 1988 and 1997.

Year 2005 Noise Contours

Figure 5.2 depicts the INM-generated airport noise contours for the Year 2005. Table 5.3 summarizes the on-airport and off-airport acreage for the 65 and 70 DNL noise contours produced by the INM.

Portions of the Airport's 65, 70 and 75 DNL extend off airport property. The 65 DNL is 723 acres in size. A total of 696 acres are located on airport property (96%) with 27 acres located off airport property (4%). The total acreage of the 65 DNL decreased 61 percent between 1988 and 2005. Similarly, the total acreage of the 65 DNL on-airport property decreased 36 percent and the acreage of 65 DNL off-airport property decreased 85 percent between 1997 and 2005.

The 70 DNL is 333 acres in size. A total of 327 acres are located on airport property (98%) and 5 acres are located off airport property (2%). The total acreage of the 70 DNL reduced 53 percent between 1988 and 2005. Similarly, the total acreage of the 70 DNL on-airport property decreased 36 percent and the acreage of 70 DNL off-airport property decreased 76 percent between 1997 and 2005.

The 75 DNL is 172 acres in size. A total of 169 acres are located on airport property (98%) and 3 acres are located off airport property (2%). The total acreage of the 75 DNL reduced 49 percent between 1988 and 2005. Similarly, the total acreage of the 75 DNL on-airport property decreased 36 percent and the acreage of 75 DNL off-airport property decreased 15 percent between 1997 and 2005.

Table 5.3 Total On-Airport and Off-Airport Acreage for the 65 and 70 DNL (By Planning Year and Percentage Change from 1988) Pensacola Regional Airport - Master Plan Update

Planning Year	65 DNL		70 DNL		75 DNL	
	Acreage	Percent Change	Acreage	Percent Change	Acreage	Percent Change
1988						
Acreage	1,856	--	704	--	339	
1994						
Acreage	1,920	+3.5	704	0.0	320	-5.7
1997						
Acreage	1,267	-31.7	531	-24.6	269	-20.7
Acreage On	1,081	--	509	--	265	--
Acreage Off	186	--	22	--	4	--
2005						
Acreage	723	-61.0	333	-52.7	172	-49.3
Acreage On	696	--	327	--	169	--
Acreage Off	27	--	5	--	3	--

Note: Land acreages are rounded.

Sources: *1990 Pensacola Regional Airport FAR Part 150 Study*; *1994 Noise Contour Update Report*; Reynolds, Smith and Hills, 1998

The existing land-use surrounding PNS could be considered incompatible. Some residential zoning is located within the 70 DNL contour line. However, both the City of Pensacola and Escambia County have developed and implemented zoning regulations that will prevent the future construction of residential areas within noise impacted areas.

5.4.2 Compatible Land Use. Compatibility of existing and future land uses in the vicinity of an airport is associated with two measures: 1) the extent of noise impacts related to airport operations and 2) height restrictions outlined in local zoning ordinances for parcels of land in the immediate vicinity of the airport.

FAA Advisory Circular 150/5300-13 establishes a RPZ for all runways at an airport. The RPZ is a trapazoidal shaped area at the end of the runway. Within this area, development is limited to land uses that do not involve "places of public assembly" (e.g., schools, hospitals, churches, residential areas, etc.). Certain land-uses are allowed in the RPZ, such as golf courses (but not clubhouses) and

agricultural operations. The FAA recommends that the airport sponsor (i.e., the City of Pensacola) own all land within the RPZ. Advisory Circular 150/5300-13 outlines the following specific land-uses which are either limited or prohibited within the RPZ:

- Fuel handling and storage facilities.
- Smoke and dust generating activities.
- Misleading lights and those activities which may create glare or attract wildlife.
- Residences or places of public assembly (churches, schools, hospitals, office buildings, shopping centers and other uses with similar concentrations of persons).

It is recommended that the City of Pensacola acquire property not currently owned that is within the boundaries of the RPZ to provide an appropriate level of control within the RPZs. The future property boundary for PNS property will be developed to include the RPZs for all existing and proposed runways.

The FAA has also recently published Advisory Circular 150/5200-23, *Hazardous Wildlife Attractants On or Near Airports*, which provides guidance on locating certain land uses having the potential to attract hazardous wildlife to or in the vicinity of public-use airports. For airports serving turbine-powered aircraft, the FAA recommends against land use practices that attract or sustain populations of hazardous wildlife within 10,000 feet of the airport's movement areas, loading ramps or aircraft parking areas and within five statute miles of approach or departure airspace, where practicable. These land uses include any waste disposal site, wastewater treatment facilities and some wetland mitigation projects. The U.S. Environmental Protection Agency (USEPA) requires any operator proposing a new or expanded waste disposal operation within five statute miles of a runway end is to notify the appropriate FAA Airport District Office (ADO) and airport owner.

Local Land-Use Regulations

The City of Pensacola Zoning Code (Chapter 12-11) and the Escambia County Zoning Code (Section 11.02.00) regulate land use in the vicinity of PNS. The sections within the City of Pensacola and Escambia County's zoning code pertaining to zoning in the vicinity of the Airport are based on the imaginary airspace surface standards outlined in FAR Part 77. Zoning within the vicinity of the Airport includes land lying beneath the approach, transitional, horizontal and conical surfaces as they apply to the Airport. Regulations are also placed on any structure over 200 feet above ground level regardless of location. In addition, both zoning ordinances have provisions to control the placement of:

- Lights or illumination that could be misleading or dangerous to aircraft operating in the vicinity of an airport;

- Any operation that produces smoke, glare or other visual hazards within three statute miles of a usable runway of a designated airport;
- Any operation that produces electronic interference with navigational signals or radio communication between the airport and aircraft; and
- Landfills in the vicinity of the airport.

Figure 5.3 Illustrates the existing land use map for the City of Pensacola. A mixture of developments are located in the vicinity of PNS. A majority of the development is single-family residential; however, areas of higher density residential development and areas of mixed-use development are present in the vicinity of PNS. The predominant zoning to the southeast of the Airport is single-family residential (R-1A; R-1AA; R-1AAA; R-1AAAA and R-1AAAAA). Some parcels of land southeast of the Airport are zoned as multifamily residential (R-2). Other parcels are zoned for residential zero-lot line (RZL) developments, residential/neighborhood commercial (RNC) developments and site-specific development (SSD). Additional zoning in the vicinity of the Airport includes airport restricted zones (ARZ) and airport transitional zones (ATZ). Land zoned ARZ is "owned by the City of Pensacola and is restricted to open space, recreational or commercial and industrial land uses related to airport operations (City of Pensacola Zoning Ordinance)." The Pensacola Zoning Code establishes maximum heights for all zoning districts. Table 5.4 summarizes the height maximums for the zoning districts in the vicinity of the Airport.

The Future Land Use (FLU) Element of the City of Pensacola Comprehensive Plan outlines the anticipated growth in demand for public infrastructure. In the FLU element, a governmental agency, allocates land in a manner that addresses the anticipated demand for certain publicly provided resources (i.e., transportation, housing and education). Therefore, an examination of the future land use surrounding an Airport can identify possible incompatible land-uses and allow the governmental agency to correct the incompatible land use before any built environment is present. Figure 5.4 illustrates the future land use in the vicinity of PNS.

Table 5.4 Height Limitations for Zoning Districts in the Vicinity of Pensacola Regional Airport
Pensacola Regional Airport - Master Plan Update

Zoning Code	Height Limitation
ARZ	
ATZ	Residential: 35 feet Commercial: 45 feet Aviation-related facilities: 45 feet
R-1A	35 feet
R-1AA	35 feet
R-1AAA	35 feet
R-1AAAA	35 feet
R-1AAAAA	35 feet
R-2	45 feet
RZL	35 feet
RNC	10 to 90 feet
SSD	35 feet

Source: City of Pensacola Planning and Engineering Department

As Figure 5.4 illustrates, the area in the vicinity of PNS is planned for mixed-use developments. The majority of future land use is planned for a mixture of residential development. The predominant future land use surrounding the Airport is single-family residential developments. However, some medium-and high-density residential development is planned in the vicinity of the Airport. Other areas are planned for office and airport uses. The City of Pensacola limits height in residential developments to 35 feet, with the exception of the residential/neighborhood commercial developments, which are limited to nine stories in height. Height limitations for zoning districts in the vicinity of the Airport are presented in Table 5.4.

Within Escambia County, small areas of industrial development are planned north of the airport near the intersection of US Highway 90A (Nine Mile Road) and SR 291 (Davis Highway). Further industrial development is planned near the intersection of SR 10A (Scenic Highway) and SR 290 (Olive Road). Commercial development is planned along US Highway 90A and along US 29 (Pensacola Boulevard) and SR 95A (Old Palafox Road) south of Interstate 10. Further commercial development is planned along I-10, I-110 and SR 291 (Davis Highway). The Airport Master Plan is compatible with the future uses projected for PNS, provided that development codes are enforced to ensure that development will meet or exceed noise abatement standards.

5.4.3 Social Impacts. The purpose of a social impact analysis is to determine the effect of airport development on the human environment. The types of social impacts that generally result from airport development include:

- Relocation of residences and/or businesses;
- Disruption of communities;
- Division or disruption of established communities;
- Disruption of orderly, planned development; and
- Alterations in traffic patterns that may permanently or temporarily restrict traditional community access.

The development projected in the Airport Master Plan would have minor impacts on the population and demographics of Escambia County and on the Pensacola MSA as a whole. These impacts are associated with the possible relocation of homes and the subsequent disruption in the community development patterns. In 1997, approximately 22 acres of land are located within the 70 DNL contour off of airport property. Any residential areas within this acreage could be recommended for future acquisition or relocation. If necessary, any required relocation would be conducted in accordance with local laws and with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970. Alterations in traffic patterns are not expected.

The proposed development of PNS could require the relocation of residences and result in the disruption of communities. As a result, this impact category would need to be further reviewed in a formal environmental analysis.

5.4.4 Induced Socioeconomic Impacts. For major airport development proposals, there is a potential for induced or secondary impacts on surrounding communities. These potential airport development impacts include the following:

- Shifts in population movement and growth;
- Changes in public service demands; and
- Changes in business or economic activities.

The Airport Master Plan of PNS is projected to have a positive economic impact on the City of Pensacola and its surrounding communities. The Urban Land Institute publishes *Development Impact Assessment* for assessing the impact of construction on a community. The handbook examines a variety of impacts including the environmental, economic, fiscal and transportation impacts. The methodology used for the following economic impact is outlined below.

The magnitude of each major construction project was determined. The total construction contract value was determined by applying a construction cost per unit to the total units on a per-project basis.

Employment impacts were determined by applying a 1992 productivity factor to total contract value. This factor was determined to be 12.5 hours of labor per $1,000 of the contract value of construction. The income impacts were then determined by applying the average yearly salaries of personnel in the heavy construction industry in Escambia County to the number of full-time equivalent jobs created by the construction of the projects. Average annual salaries were determined to be $23,000.

The construction of the runway extensions at PNS would generate approximately 108 full-time jobs in the region, producing $2.5 million in income. Expenditures of personal income is estimated to total $2.0 million, with expenditures on materials and supplies totaling $7.3 million (with $1.8 million of materials being purchased locally).

The construction of the general aviation facilities and of the air cargo/commerce park areas would require additional investment and have additional positive long-term effects to the local economy.

Overall airport development will enhance transportation safety and stimulate the economy of the local community and Northwest Florida. For this reason, it is expected that the proposed projects would result in positive long-term socioeconomic impacts.

5.4.5 Air Quality. Section 176(c) of the Clean Air Act (CAA) amendments of 1977, the amendments of 1990, and the General Conformity Rule of 1993, requires federally funded projects to demonstrate that a proposed project will not degrade air quality in non-attainment areas. A non-attainment area is an area that does not meet EPA's established air quality standards. An attainment area is an area where air quality standards are met, but controlled to prevent further deterioration beyond acceptable limits. The USEPA monitors the following six air pollutants:

- Carbon Monoxide (CO)
- Nitrogen Dioxide (NO2)
- Sulfur Dioxide (SO2)
- Ozone (O3)
- Lead (Pb) and
- 10-micron particulate matter (PM_{10})

The USEPA's Aerometric Information Retrieval Service (AIRS) provides information regarding the air quality in a region. AIRS is a computer-based database of information on air quality in the United States and various World Health Organization (WHO) countries. According to AIRS, the Pensacola region is in attainment for all air pollutants monitored by USEPA.

FAA Advisory Circular 150/5370-10A, *Standards for Specifying Construction of Airports* provides guidance in the avoidance of adverse construction impacts. Construction impacts include increased CO emissions and PM_{10}.

A temporary increase in CO emissions could occur due to the presence of construction vehicles on site. Mitigation measures for CO emissions include improving traffic flow or applying traffic demand measures to reduce CO emissions. Individual developers would work with local governmental agencies to determine the need for mitigation and selection of specific mitigation measures.

Temporary increases in PM_{10} emissions could occur as a result of construction activities recommended in the Airport Master Plan. These emissions would cease upon completion of construction projects. Mitigation measures for PM_{10} emissions occurring during construction activities include applying water or another wetting agent to prevent dust production during these activities. Individual developers would be required by local agencies to evaluate the need for mitigation following submission of individual project plans.

If proposed actions involve a new airport location, runway development or other physical airside and/or landside improvements that increase airport capacity, an air quality review needs to be conducted as part of an EA. If PNS develops according to this Master Plan, an EA would need to be completed since the runway extensions and the new general aviation runway would increase Airport capacity.

5.4.6 Water Quality. The Federal Water Pollution Control Act, more widely known as the "Clean Water Act," provides the authority to establish water quality standards, control discharges into surface and subsurface waters, develop wastewater treatment management plans and practices and issue permits for discharges of dredge and fill material. These water quality control requirements are handled at the federal, state, regional and local levels. Drainage at Pensacola Regional Airport consists of sheet flow across areas of medium topographic relief combined with streams and canals of low order (having few or no tributaries). Streams included in the vicinity of PNS include Carpenters Creek to the west and Thompson Creek to the north.

Stormwater at PNS primarily drains into a stormwater retention pond located behind the ATCT. Stormwater from the ends of Runway 8 and Runway 35 drains indirectly into nearby Pensacola Bay.

The ground water sources at PNS include the Floridan aquifer and the sand and gravel aquifer. The water quality of the Floridan aquifer at PNS is considered poor. The potability of water from the Floridan aquifer system in the coastal areas of Escambia County is threatened by the high level of infiltration due

to the sandy nature of the soil in Escambia County. The water quality for the sand and gravel aquifer is high and is the primary source for potable water in the PNS area.

Although proposed airport development will increase the amount of impervious surfaces, the development would not affect water quality of the surface or subsurface waters as long as a detailed stormwater management plan is developed and all permit requirements and local regulations are met. As a result, there is no impact in this category. However, further review in a formal environmental analysis will likely be completed.

5.4.7 Department of Transportation Act, Section 4(f). Section 4(f) of the Department of Transportation (DOT) Act provides that the DOT shall not approve any program or project which requires the use of any of the following categories that have national, state or local significance:

- Publicly owned parks or recreation areas
- Wildlife or waterfowl refuges
- Historic sites

The Florida Department of Agriculture and Consumer Services, Division of Forestry (DOF) does not manage any forests near PNS. The Florida Department of State Division of Historic Resources review of the Florida Site File indicates that there are no historical or archaeological sites in the vicinity of the Airport.

As a result, there are no impacts in this category, and this impact category would be excluded from further review in a formal environmental analysis.

5.4.8 Historic, Architectural, Archaeological and Cultural Resources. Two federal laws apply to this category: 1) The National Historic Preservation Act of 1966 and 2) The Archaeological and Historic Preservation Act of 1974. The National Historic Preservation Act of 1966 requires an initial review to determine whether properties contained within the National Register of Historic Places or properties eligible for inclusion in the register are located in the vicinity of the project site. The Archeological and Historic Preservation Act of 1974 requires a survey, recovery and preservation of significant and pre-historical data that may be destroyed or irreparably lost due to a federal, federally licensed or federally funded project.

A review of the Florida Site File for the area surrounding PNS concluded that no archaeological or historical sites are currently recorded for the project area. As a result, this impact category will be excluded from any further review in a formal environmental analysis.

5.4.9 Biotic Communities (including both Flora and Fauna). Biotic communities are defined as areas where plants (flora) and animals (fauna) share a mutual habitat necessary for sustenance and propagation. The level of anticipated impacts determines the level of biotic assessment needed. Several (marginal) factors are examined to determine the anticipated impacts to biotic communities:

- If there is any taking or impact to public-owned wildlife or waterfowl refuge areas with federal, state, regional or local significance;
- If there is threatened or endangered species in the area of immediate impact; and
- Would the proposed development affect water resources (i.e., wetlands, groundwater, impoundment, diversion, deepening, controlling, modifying, polluting, dredging or filling of any stream or body of water).

The proposed development at PNS could impact public-owned wildlife or waterfowl areas approximately 350 feet east of Taxiway "B" by either removing habitats or fragmenting the remaining habitats. Additionally, these wildlife and waterfowl areas could house endangered and threatened species. The proposed development could also impact wetlands in the vicinity of the Airport. Field surveys would need to be conducted in accordance with applicable federal, state and local regulations after site-specific development plans are formed to determine the extent of impacts to biotic communities.

Potential impacts exist for this impact category. As a result, further review of this impact category should be included in an environmental analysis.

5.4.10 Endangered and Threatened Species. Federally listed threatened and endangered plant and animal species are protected by the Endangered Species Act of 1973 administered by United States Fish and Wildlife Service (USFWS). State-listed animal species are protected by Sections 39-27.002 through 39-27.005 of the Florida Administrative Code (FAC) under the auspices of Florida Game and Fresh Water Fish Commission (FGFWFC). State-listed plant species are protected by Sections 581.185 through 581.187 and 581.201 of the Preservation of Native Flora of Florida Act administrated by the Florida Department of Agriculture. Legal protective status of state and federally listed plant and animal species are derived from Official Lists of Endangered and Potentially Endangered Fauna and Flora of Florida.

The USFWS provided countywide information on threatened and endangered flora and fauna. No site-specific information was available. The information provided was compiled from the Florida Natural Areas Inventory (FNAI) and the FGFWFC and is presented in Table 5.5. The FNAI is a statewide database housing extensive information on the occurrence and quality of rare and endangered species that occur in high-quality natural communities in Florida.

Table 5.5 Federal and State-Listed Species of Concern
Pensacola Regional Airport - Master Plan Update

Species		Status	
Common Name	**Scientific Name**	**USFWS/NMFS**	**FGFWFC/FDA**
Fish			
Gulf sturgeon	*Acipenser oxyrinchus desotoi*	T	SSC
Crystal darter	*Ammocrypta asprella*	CE	T
Harlequin darter	*Etheostoma histrio*		SSC
Saltmarsh topminnow	*Fundulus jenkinsi*		SSC
Bluenose shiner	*Pteronotropis welaka*		SSC
Marine Mammals			
Blue whale	Balaenoptera musculus	E	
Finback whale	Balaenoptera physalus	E	
Humpback whale	Megaptera novaeangliae	E	
Right whale	Eubalaena glacialis	E	
Sei whale	Balaenoptera borealis	E	
Sperm whale	Physeter macroephalus	E	
Reptiles and Amphibians			
American alligator	*Alligator mississippiensis*	T (s/a)	
Flatwoods Salamander	*Ambystoma cingulatum*	C2	Not listed
Loggerhead Sea Turtle	*Caretta caretta*	E	E
Green Sea Turtle	*Chelonia mydas*	E	E
Leatherback Sea Turtle	*Dermochryls coriacea*	E	E
Eastern Indigo Snake	*Drymarchon corais couperi*	T	T
Hawksbill Sea Turtle	*Eretmochelys imbricata*	E	E
Gopher Tortoise	*Gopherus polyphemus*	Not listed	SSC
Pine barrens tree frog	*Hyla andersonii*		SSC
Atlantic ridley	*Lepidochelys kempi*	E	E
Alligator snapping turtle	*Macroclemys temminckii*	CE	SSC
Gulf salt marsh snake	*Nerodia clarkii clarkii*	CE	
Florida Pine Snake	*Pituophis melanoleucus mugitus*	Not listed	SSC
Birds			
Bachman's Sparrow	*Aimophila aestivalis*	C2	Not listed
Southeastern snowy plover	*Charadrius alexandrinus tenuirostris*	CE	T
Piping plover	*Charadrius melodus*	T	T
Stoddard's yellow-throated warbler	*Dendroica dominica stoddardi*	CE	
Little blue heron	*Egretta caerulea*		SSC
Snowy Egret	*Egretta thula*	Not listed	SSC
Tricolored Heron	*Egretta tricolor*	Not listed	SSC
Arctic peregrine falcon	*Falco peregrinus tundrius*	E(s/a)	E
Southeastern American Kestrel	*Falco sparverius paulus*	Not listed	T
American oystercatcher	*Haematopus palliatus*		SSC
Wood Stork	*Mycteria americana*	E	E
Brown pelican	*Pelecanus occidentalis*		SSC
Red-cockaded Woodpecker	*Picoides borealis*	E	T
Least tern	*Sterna antillarum*		T
Mammals			
Santa Rosa beach mouse	*Peromyscus polionotus leucocephalus*	CE	

Table 5.5 Federal and State-Listed Species of Concern - Continued
Pensacola Regional Airport - Master Plan Update

Perdido Key beach mouse	*Peromyscus polionotus trissyllepsis*	E	E
Southeastern big-eared bat	*Plecotus rafinesquii*	CE	
Eastern chipmunk	*Tamias striatus*		SSC
Florida Black Bear	*Ursus americanus floridanus*	Not listed	T
West Indian Manatee	*Trichechus manatus latirostris*	E	E
Invertebrates			
Plants			
Sweet shrub	*Calycanthus floridus*		E
Baltzell's sedge	*Carex baltzelli*	CE	T
Godfrey's golden aster	*Chrysopsis godfreyi*	CE	
Cruise's golden-aster	*Chrysopsis gossypina cruiseana*	CE	E
Spoon-leaved sundew	*Drosera intermedia*		T
Trailing arbutus	*Epigaea repens*		E
Heartleaf	*Hexastylis arifolia*		T
Florida anise	*Illicium floridanum*		T
Mountain laurel	*Kalmia latifolia*		T
Bog-button	*Lachnocaulon digynum*	CE	
Southern red-lily	*Lilium catesbaei*		T
Panhandle lily	*Lilium iridollae*	CE	E
Gulf coast lupine	*Lupinus westianus*	CE	T
Hummingbird flower	*Macranthera flammea*		E
Piedmont water-milfoil	*Myriophyllum laxum*	CE	
Naked-stemmed panic grass	*Panicum nudicaule*	CE	
Chapman's butterwort	*Pinguicula planifolia*	CE	T
Primrose-flower butterwort	*Pinguicula primulifolia*		E
Yellow fringed orchid	*Platanthera ciliaris*		T
Yellow fingeless orchid	*Platanthera integra*	CE	E
Large-leaved jointweed	*Polygonella macrophylla*	CE	T
Florida pondweed	*Potamogeton floridanus*	CE	
Orange azalea	*Rhododendron austrinum*		E
White-top pitcher plant	*Sarracenia leucophylla*	CE	E
Parrot pitcher plant	*Sarracenia psittacina*		T
Decumbant pitcher plant	*Sarracenia purpurea*		T
Red-flowered pitcher plant	*Sarracenia rubra*		T
Silky camellia	*Stewartia malacondendron*		E
Drummond's yellow-eyed grass	*Xyris drummondii*	CE	
Harper's yellow-eyed grass	*Xyris scabrifolia*	CE	T

Key: T – threatened
E – Endangered
SSC – Species of Special Concern
CE – Consideration Encouraged
s/a – Similarity of appearance
FDA - Florida Department of Agriculture
FGFWFC - Florida Game and Fresh Water Fish Commission
USFWS – United States Fish and Wildlife Service
NMFS – National Marine Fisheries Service

Source: USFWS 1994; USDOI National Marine Fisheries Service 1998

According to the FNAI, the orange azalea (*rhododendron austrinum*) and the flatwoods salamander (*ambystoma cingulatum*) are present in the vicinity of the Airport. The FNAI establishes Florida Element Occurrence (FLEO) points for locating the occurrences of endangered or rare plants and animals, good examples of natural habitat or for other ecological systems in Florida. An element occurrence is defined as a specific example of species or natural community at a specific geographical location that has habitat suitable for the survival of the plant or animal. The development of PNS will not disturb the FLEO points identified in the 1997 FNAI database. Both of the FLEO points are located off airport property.

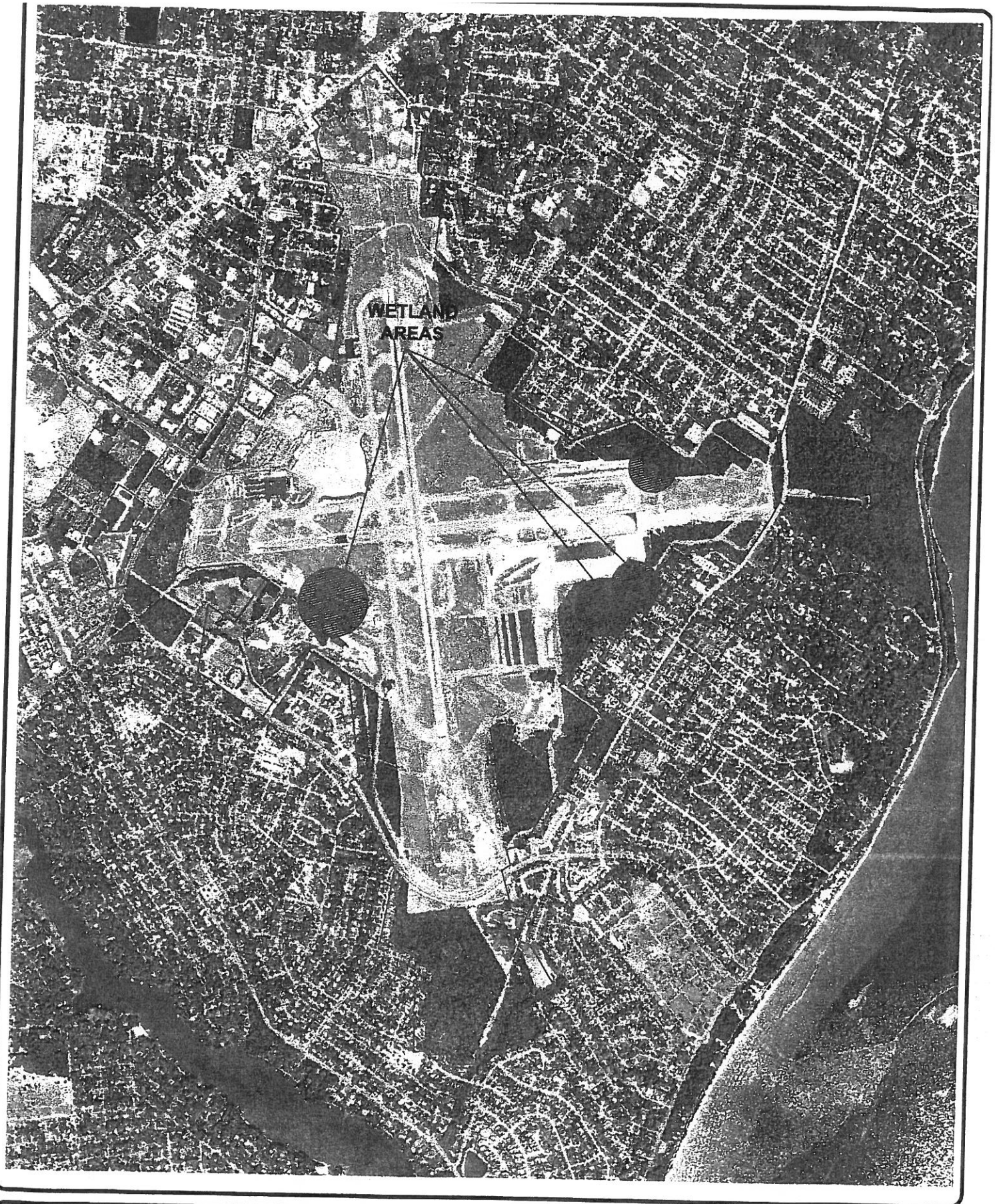
Currently, there is no impact to this category. However, should development impact wetlands in the vicinity of PNS, further review of this impact category should be included in a formal environmental analysis.

5.4.11 Wetlands. FAA Advisory Circular 150/5200-23, *Hazardous Wildlife Attractants On or Near Airports*, recommends against land use practices that attract or sustain populations of hazardous wildlife within 10,000 feet of the Airport's movement areas, loading ramps or aircraft parking areas and within five statute miles of approach or departure airspace, where practicable. These land use practices include recommending new designs for wetland mitigation projects that remove or reduce the impacts from retention ponds on or near airport property.

Wetland areas provide several functions: 1) as a wildlife habitat to a variety of wildlife; 2) as important water quality functions in an agricultural area; and 3) provide flood retention benefits during high runoff events. Wetlands are defined as those areas that are inundated by surface or ground water with a frequency sufficient to support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, natural ponds, estuarine areas, tidal overflows and shallow lakes and ponds with emergent vegetation.

Wetland areas on PNS were identified using the USFWS National Wetland and Inventory (NWI) maps of the area. The wetlands in the vicinity of PNS are depicted in Figure 5.5.

Wetlands are located in the vicinity of PNS. However, only four are located on airport property. All wetlands in the vicinity of PNS are placed in the Palustrine ecological system. The predominant wetland type in the vicinity of PNS is the Pelustrine permanent open water body.



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Jacksonville, Florida

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FIGURE 5.5

Wetland Areas in the Vicinity of
Pensacola Regional Airport

It is expected that the initial land uses proposed in the Airport Master Plan would impact wetlands as identified on NWI maps. In particular, a Palustrine emergent narrow-leaved seasonal wetland (PEM5C) will be impacted by the proposed extension of Runway 8-26 by 1,000 feet and the resulting extension of Taxiway "B."

Field surveys must be conducted in accordance with applicable federal, state and local regulations after site-specific development plans are formed to determine the extent of wetlands. An EA will be required to examine wetland impacts for future runway construction or extension. As specific development plans are proposed near known wetland areas, wetland delineation studies would need to be conducted to determine specific wetland boundaries in relation to proposed developments and to ensure that wetland areas will be avoided and maintained to the extent possible. The cost of design and construction of the runway extensions, the new general aviation runway and other major improvements must include stormwater and wetland mitigation requirements of the Northwest Florida Water Management District (NWFWMD), U.S. Army Corps of Engineers (USACOE), Florida Department of Environmental Protections (FDEP) and FAA. Potential impacts exist for this review category. As a result, further review of this impact category should be included in a formal environmental analysis.

5.4.12 Floodplains. Floodplains are defined as lowland and relatively flat areas adjoining inland and coastal waters (see Figure 5.6). At a minimum, floodplains include areas that are subject to a one percent or greater chance of flooding in any given year (i.e., the area that would be inundated by a 100-year flood).

The area surrounding PNS ranges in elevation from 100 feet above Mean Sea Level (MSL) to 120 feet above MSL. The current airport property is located in Zone X, which encompasses areas determined to be outside of the 500-year floodplain (see Figure 5.6). The runway extensions and the construction of the new general aviation runway will not be in areas deemed to be inside the 100-year floodplain.

PNS is not located in areas within the 100-year floodplain. For this reason, there would be no impacts to floodplains and this impact category would be excluded from further review in a formal environmental analysis.

5.4.13 Coastal Zone Management Program. The Coastal Zone Management Program Act of 1977 requires federal agencies to review activities with regard to direct effects to coastal zones. Any activities which directly effect the state coastline are subject to a determination of consistency with Florida's Coastal Zone Management Program. Activities which are likely to require consistency determinations include:

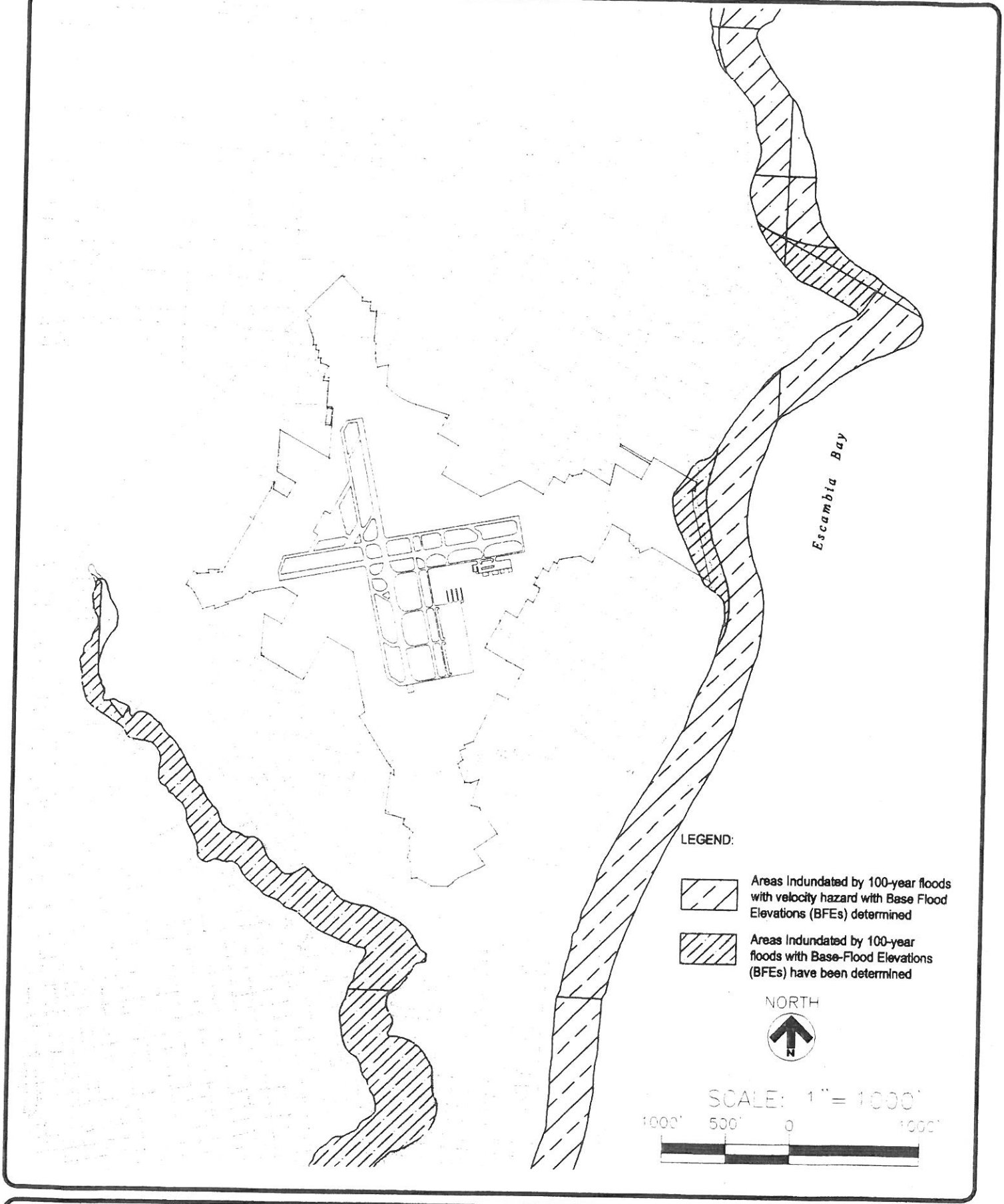

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FIGURE 5.6

100-Year Floodplains in the Vicinity of
Pensacola Regional Airport

- Any project subject to state or federal dredge and fill permitting review;
- Any point or non-point source discharge to surface waters, and;
- Major industrial expansion or development projects.

Review of consistency with the Coastal Zone Management Program is coordinated through the Florida Intergovernmental Coordination and Review Process. PNS would not need intergovernmental coordination and review since it does not require any state or federal dredge and fill permitting review, is not a point or non-point source discharge and is not considered a major industrial expansion.

Currently, there are no impacts to this category. However, if it is determined that the extension of Runway 8-26 does impact wetlands, a state and federal dredge, and fill permit will be required and further review of this category in a formal EA will be required.

5.4.14 Coastal Barriers. The Coastal Barriers Resource Act of 1982, PL 97-348 (CBRA) prohibits, with some exception, federal financial assistance for the development within the Coastal Barrier Resources System. CBRA maps were reviewed to determine potential impacts to coastal barriers due to the proposed Airport development. This system includes undeveloped coastal barriers along the Gulf Coast.

PNS is not located in areas designated for coastal barrier review. Therefore, there would be no impacts to coastal barriers, and this impact category would be excluded from further review in a formal EA.

5.4.15 Wild and Scenic Rivers. The Wild and Scenic Rivers Act protects rivers that are described as free-flowing and possessing "outstandingly remarkable scenic, recreational, geological, fish and wildlife, historic, cultural, and other similar values."

No rivers, as defined above, appear to be located within the vicinity of the Airport. Therefore, there would be no impacts to wild and scenic rivers, and this impact category would be excluded from further review in a formal EA.

5.4.16 Prime and Unique Farmland. Prime and unique farmland is considered to be available land that is best suited for producing food, feed, forage and other types of crops. In addition, prime and unique farmland has the soil quality and moisture supply needed to produce and sustain high yields of crops when treated and managed according to modern farming methods.

PNS is located in an urbanized area that does not sustain agricultural operations. Existing and future land uses in the vicinity of the airport are residential, commercial and industrial in nature. Therefore, there would be no impacts to prime and unique farmland and this impact category would be excluded from further review in a formal EA.

5.4.17 Energy Supply and Natural Resources. In terms of airport development, there are typically two areas of concern with regard to energy supply and natural resources:

- Stationary sources (i.e., terminal building, other facilities, airfield lighting).
- Mobile sources (i.e., aircraft and automobiles).

Development of airport facilities, including the development of the new general aviation runway and extensions to Runways 8-26 and 17-35, would be the primary sources of increased stationary energy consumption. Runway, taxiway and approach lighting are the primary airside energy sources. The construction and operation of the new air cargo facilities, new runway, new air cargo/commerce park and the approach lighting system (ALS) for Runways 35 and 26 would be assessed later.

Mobile energy consumption is primarily from the consumption of aircraft fuel. Because the operation forecasts indicate an increase in activity from the current operations, an increase in consumption of fuel should be expected.

PNS will not have a significant adverse impact on local or regional carbon fuel production. Therefore, there would be no impacts to energy supply and natural resources, and this impact category would be excluded from further review in a formal EA.

5.4.18 Light Emissions. Airport lighting systems are generally located in the airfield, apron, terminal, parking lots and access roadways. FAA Order 5050.4A states that the airport sponsor shall consider the extent to which any lighting associated with an airport action will create an annoyance among people in the vicinity of an installation. Several factors are considered to determine if an annoyance may exist:

- Site location of lights or lighting systems.
- Purpose of the light system, either pole or ground mounted, beam angle, intensity, color, flashing frequency and other pertinent characteristics.
- Possible measures, including shielding or angular adjustments, available to lessen any annoyances.

Light emissions which may create an annoyance to residents in the vicinity of the airport must be taken into account. Possible lighting projects to occur at the Airport include the following:

- The construction of the runway extensions and the associated runway lighting;
- The relocation of the ALS, SSALR, REILS or VASIS;
- The construction of the new general aviation runway and associated runway lighting and visual aids; and
- The construction of the new air cargo/commerce park facility.

Currently, the existing land-use surrounding the Airport is primarily residential with some of the Airport's existing light emissions minimally impacting residential neighborhoods. The impacts from the installation of future airfield lighting equipment would be minimized through design, shielding and property acquisition.

Due to shielding and property acquisition, the relocated or new approach lighting systems and additional airfield lighting at PNS would not generate any adverse impacts. Therefore, there would be no impacts to surrounding property owners, and this impact category would be excluded from further review in a formal EA.

5.4.19 Solid Waste Impact. Solid waste is typically affected by commercial, industrial and terminal development rather than airfield development. Projects which relate only to airfield development (runways, taxiways, etc.) do not normally result in any direct impact to solid waste collection, control, or disposal other than that associated with the construction itself. The impact of the construction of new facilities at PNS will result in a minimal increase in solid waste.

Landfills near airports are considered to be a potential impact due to a landfill's tendency to attract birds, possibly creating strike hazards with approaching and departing aircraft. FAA Order 5200.5A, *Waste Disposal On or Near Airports*, provides guidance regarding the location of sanitary landfills on or near airports. Landfills located within the distance outlined in 5200.5A are considered as incompatible land uses. One active landfill is located within 10,000 feet of a runway used by turbine-powered aircraft at PNS. The landfill is registered with the FDEP as a tire landfill and is located at the corner of College Boulevard and Tippin Avenue. This landfill is currently not permitted since the level of activity at the landfill is below the thresholds established by FDEP for permitting landfills.

The proposed projects at PNS will not generate impacts to solid waste in Escambia County. Additionally, the landfill located within 10,000 feet of an active runway used by turbine-powered aircraft is not

considered a bird attractor. Therefore, there would be no solid waste impacts and this impact category would be excluded from further review in a formal environmental analysis.

5.4.20 Construction Impacts. Potential construction impacts include the following items:

- **Noise**--Heavy construction equipment will generate noise. However, it is expected that this noise will occur only during the daylight hours. During construction of new facilities, it is expected that temporary noise impacts could occur near the existing residential areas. However, the impact will not be permanent in nature.
- **Dust**--Potential impacts of dust during construction include reduced visibility, unsightly coatings on buildings and discomfort for dust-sensitive individuals. Methods for dust control can be implemented to minimize dust generation and transport. Dust generation and transport is expected to be a temporary impact.
- **Air Emissions**--Air emission impacts from construction activity would occur. Construction activity would produce emissions from vehicular, equipment and other construction activity associated with the projects. A temporary increase in emissions would occur due to the presence of constantly running internal combustion engines. While these activities would produce a temporary increase of emissions, they are typical of large construction projects and would not pose any lasting negative impacts.
- **Erosion**--Some erosion and subsequent sedimentation in the vicinity of the proposed projects may occur. Erosion control measures required by the FAA, FDEP, NWFWMD and other agencies would be incorporated into project design plans and specifications. The potential amount of erosion is determined by the volume of work, the duration of the operations and the time of exposure. FAA Advisory Circular 150/5370-10A, *Standards for Specifying Construction of Airports* provides guidance in the avoidance of adverse construction impacts.

Potential impacts are associated with this impact category. The impacts of noise, dust and erosion would be quantified in a detailed EA for a runway extension or other major projects. Air emission would be quantified if the area is classified as non-attainment for any of the six pollution categories monitored by the EPA.

5.4.21 Other Considerations. No other environmental impacts or other considerations are presented in this environmental overview.

5.5 ENVIRONMENTAL OVERVIEW—SUMMARY

Future airport development may require further study and/or coordination in a formal environmental study during preliminary design development. No environmental impacts are anticipated in the following categories:

- DOT Section 4(f) Lands
- Historic, Archaeological and Cultural Resources
- Floodplains
- Coastal Barriers
- Wild and Scenic Rivers
- Prime and Unique Farmland
- Energy Supply and Natural Resources
- Light Emissions
- Solid Waste Impacts
- Other Considerations

Potential environmental impacts are anticipated in the following categories:

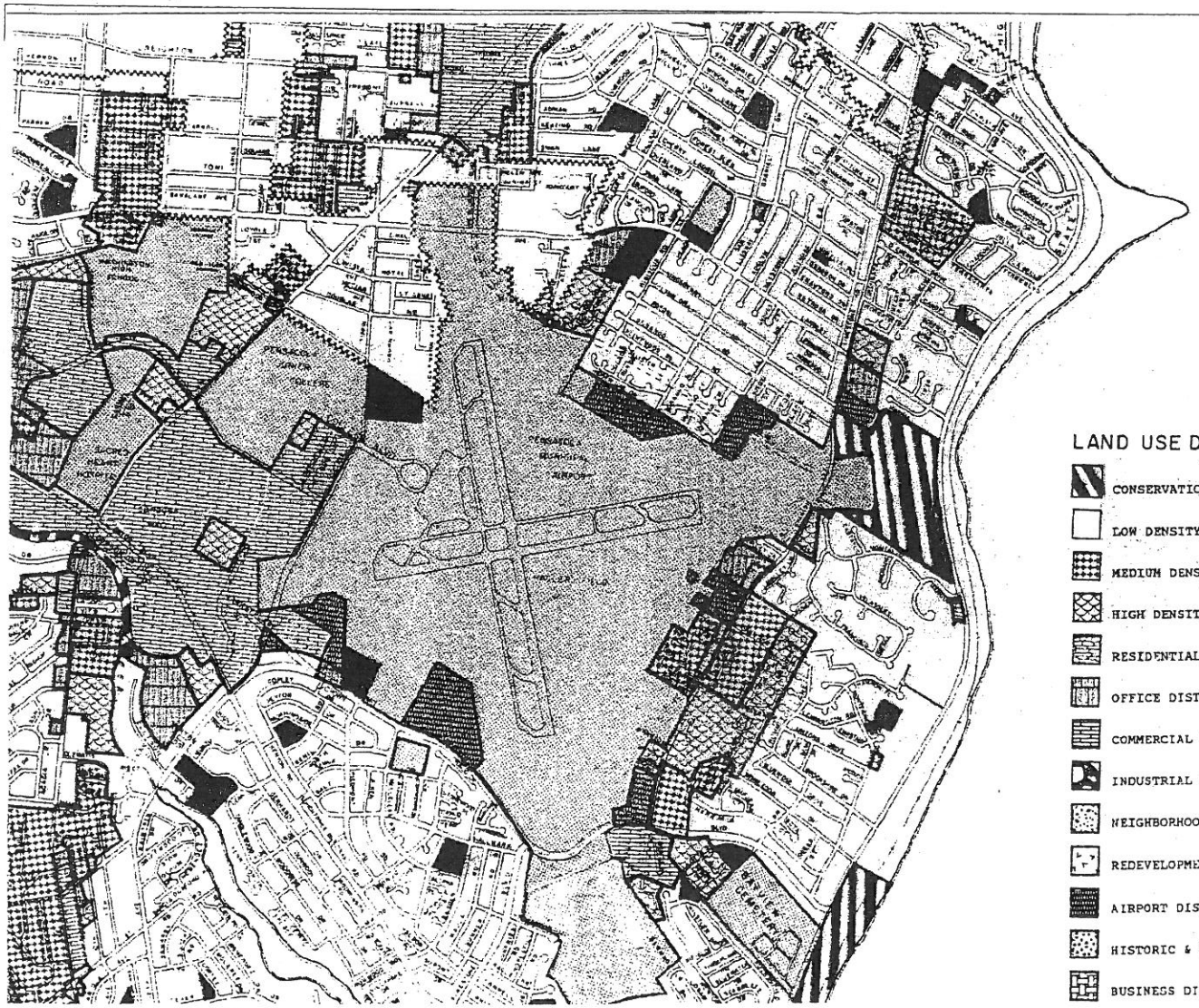
- Compatible Land Use
- Social Impacts
- Induced Social Impacts
- Air Quality
- Water Quality
- Endangered and Threatened Species
- Coastal Zone Management Program

Likely environmental impacts are anticipated in the following categories:

- Noise
- Biotic communities
- Wetlands
- Construction

Current FAA environmental requirements would require an EA for the development of the new north-south general aviation runway (Runway 17L-35R), extension to Runways 8-26 and 17-35, and construction of the air cargo/commerce park.

Landside projects include the overall improvement of existing facilities or development of new landside facilities for general aviation and commercial interests. Generally, landside projects are categorically excluded from FAA environmental review. However, additional environmental studies including a Florida Development of Regional Impact (DRI), USACOE and NWFWMD environmental studies may be required to comply with other federal, state, regional and local environmental and permitting requirements.



LAND USE DISTRICTS

- CONSERVATION DISTRICT
- LOW DENSITY RESIDENTIAL DISTRICT
- MEDIUM DENSITY RESIDENTIAL DISTRICT
- HIGH DENSITY RESIDENTIAL DISTRICT
- RESIDENTIAL/NEIGHBORHOOD COMMERCIAL DISTRICT
- OFFICE DISTRICT
- COMMERCIAL DISTRICT
- INDUSTRIAL DISTRICT
- NEIGHBORHOOD DISTRICT
- REDEVELOPMENT DISTRICT
- AIRPORT DISTRICT
- HISTORIC & PRESERVATION DISTRICT
- BUSINESS DISTRICT

Source: City of Pensacola

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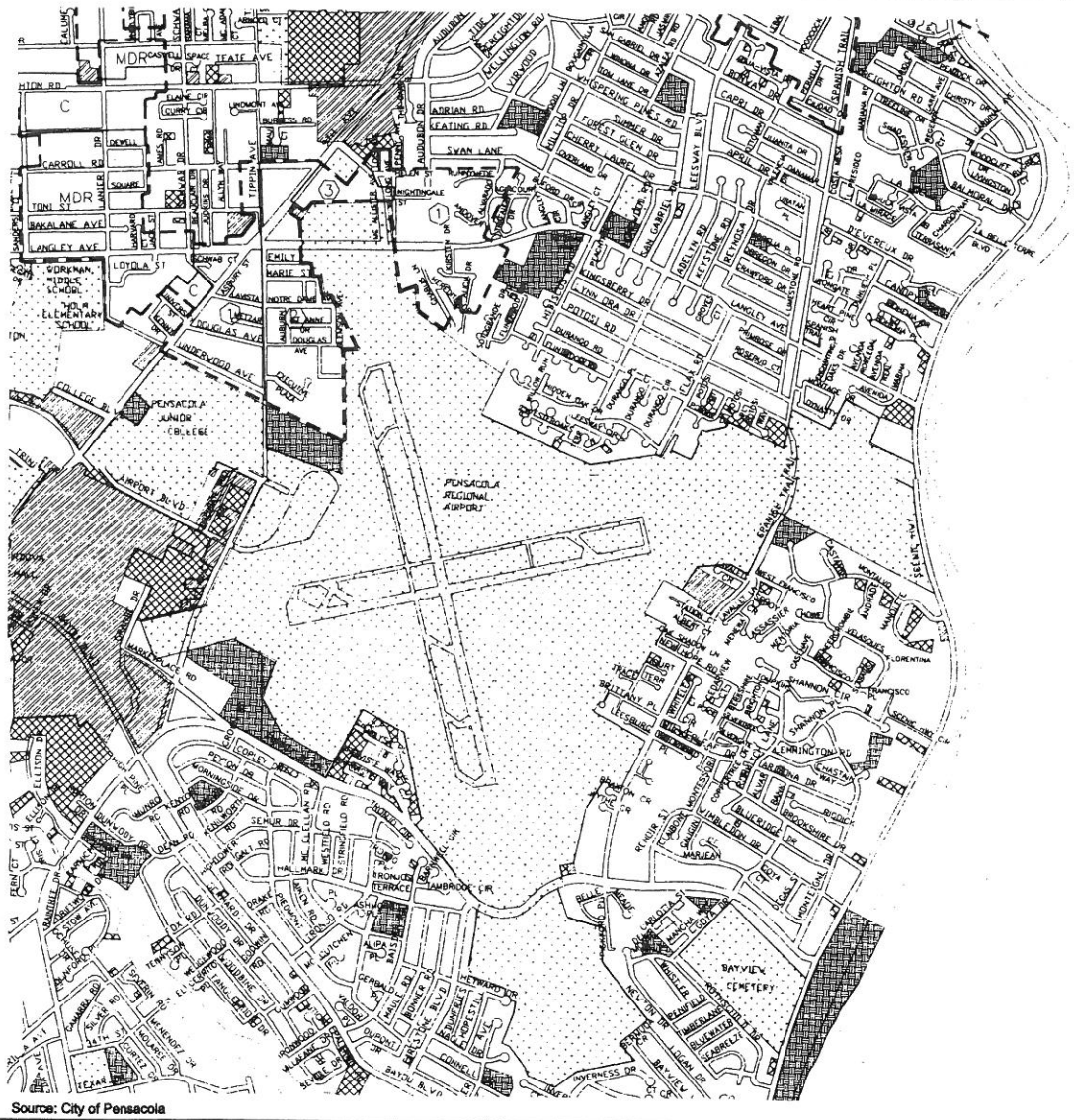
Architectural, Engineering, Planning
and Environmental Services
Jacksonville, Florida

Pensacola Regional Airport
Master Plan Update

FIGURE 5.4

Future Land-Use Surrounding
Pensacola Regional Airport



Source: City of Pensacola

RS·H
Reynolds, Smith and Hills Inc.
Architectural, Engineering, Planning
and Environmental Services
Jacksonville, Florida

Pensacola Regional Airport
Master Plan Update

FIGURE 5.3

Existing Land-Use Surrounding Pensacola Regional Airport

PENSACOLA REGIONAL AIRPORT
AIRPORT MASTER PLAN UPDATE

SECTION 6
AIRPORT PLANS

6.1 INTRODUCTION

Airport plans graphically illustrate the development of an airport over a 20-year development program. This section describes the Airport Layout Plan (ALP) for Pensacola Regional Airport (PNS) from 1999 to 2020. A complete set of ALPs is required by the Federal Aviation Administration (FAA) and the Florida Department of Transportation (FDOT) for consideration of future funding, as programming of FAA and FDOT funds are based on development projects depicted on the ALP. However, projects depicted on other plan sheets are also reviewed for programming of funds by the FAA and FDOT. The plans have been developed in accordance with the following:

- FAA Advisory Circular 150/5070-6A: Airport Layout Plans
- FAA Advisory Circular 150/5300-13: Airport Design
- 3-Dimensional Airspace Analysis Program (3DAAP)
- Airport Layout Plan Checklist – Orlando Airport Districts Office (revised 9/95)
- Florida Department of Transportation Guidebook for Airport Master Planning

The complete ALP set consists of the following drawings:

1. Cover Sheet
2. Airport Layout Plan
3. Facilities Layout Plan
4. Terminal Area Plan
5. General Aviation Building Area Plan
6. Air Cargo Area Plan
7. FAR Part 77 Airspace Surfaces
8. Inner Portion of Approach Surface Plan – Runway 17R
9. Inner Portion of Approach Surface Plan – Runway 35L
10. Inner Portion of Approach Surface Plan – Runway 8
11. Inner Portion of Approach Surface Plan – Runway 26
12. Inner Portion of Approach Surface Plan – Runway 17L-35R
13. Existing On-Airport Land Use Plan
14. Future Off-Airport Land Use Plan and 2005 Noise Contours

15. Airport Property Map

16. Airport Property Map (Airport Deed)

The ALP drawings are produced on 42-inch by 30-inch sheets and submitted by the City of Pensacola to FDOT and FAA for review and approval. Reduced reproductions of the ALP are included in this report for illustration purposes. All ALP drawings were created using AutoCAD 14.

6.1.1 Airport Layout Plan Checklist and Airport Layout Plan Summary. The ALP Checklist – Orlando Airports District Office (Revised 9/95) contains a list of issues to be addressed in the ALP narrative report. This section addresses these issues as they pertain to this ALP.

- For ALP revisions, provide a summary of the changes:

  Response: New terminal building concourse, new air cargo area, new aviation-related industrial park, extension on both ends of Runway 17R-35L, ILS/DGPS on Runway 26, reduced runway separation for future Runway 17L-35R and revised critical design aircraft to B757.

- List of existing and proposed waivers to FAA airport design standards:

  Response: There are no known existing or proposed waivers.

- Justification for all proposed waivers:

  Response: There are no known existing or proposed waivers

- Brief discussion of any of the following potential problems identified by the Master Plan or ALP:

  1. Any structures located on the ALP which have the potential to:

     – Adversely affect flight or movement of aircraft.

     Response: Trees, transmission towers and various NAVAIDS, as shown on sheets 8 through 13, are located within aircraft operations area. An obstruction study and treatment plan is planned in the future.

- Cause electro-magnetic interference at air navigation aids.
  Response: None known at this time.

- Derogate the line-of-sight feasibility from a control tower.
  Response: None known at this time.

2. Any development which could be a potential noise problem.
   Response: None known at this time.

3. Proximity of urban congestion or any other potential problem related to safety of persons and property on the ground.
   Response: None known at this time.

4. Circulation of the ALP compromising the airport owner's position in land acquisition.
   Response: None known at this time.

- List all anticipated new NAVAIDS:
  Response: ILS/DGPS on Runway Ends 17R, 35L, 8 and 26.

- Brief discussion of any proposed staged construction:
  Response: 1) New air cargo area, 2) new air carrier terminal building concourse, 3) aviation-related industrial park, 4) general aviation area.

- List changes to non-aviation use property:
  Response: The ALP shows a proposed acquisition of land adjacent to the airport for use as an aviation-related industrial park. This area encompasses approximately 65 acres.

- Any comments resulting from the completion of this ALP checklist (such as why certain items were not provided, etc.):
  Response: No comments at this time.

- FAA/FDOT Review Comments:
  Response: None at this time.

6.2 COVER SHEET – SHEET 1 OF 16

The cover sheet of the ALP provides basic airport data that is not found elsewhere on the ALP. The cover sheet includes project name, FAA and FDOT grant numbers and sponsor name. The cover sheet also displays a location map and vicinity map. The location map indicates major roads and other features in the vicinity of the airport while the location map shows the location of major cities in Florida, including Pensacola.

6.3 AIRPORT LAYOUT PLAN – SHEET 2 OF 16

The ALP is the graphic representation of existing and ultimate airport facilities. The ALP is the key document which reflects changes in physical features on the airport and in the vicinity of the airport which may affect navigable airspace or the ability of the airport to operate. The ALP includes dimensional information in order for recommended development to be in accordance with FAA planning and design recommendations outlined in FAA Advisory Circular **150/5300-13 Airport Design** and **150/5070-6A Airport Master Plans**. The ALP was developed using the **3-Dimensional Airspace Analysis Program (3DAAP)** and the **Florida Department of Transportation's Guidebook for Airport Master Planning**.

Development shown on the ALP corresponds to the airport's Capital Improvement Plan (CIP) for the 20-year period, with emphasis on the first six-year period. The following sheets present a description of other specific airport areas consistent with the ALP.

6.4 FACILITIES LAYOUT – SHEET 3 OF 16

This sheet shows all the proposed facility development at the airport, in addition to the existing facilities at the airport. However, this sheet presents the facilities in a simplified format, for easier understanding by the viewer.

6.5 TERMINAL AREA PLAN – SHEET 4 OF 16

This plan sheet shows proposed air carrier terminal area development in greater detail. Major projects on this sheet include planning for a new terminal building concourse, associated aircraft parking area, relocation of the FAA TRACON building and addition to the automobile parking garage.

6.6 GENERAL AVIATION BUILDING AREA PLAN – SHEET 5 OF 16

This plan sheet shows proposed general aviation area development in greater detail. Major projects on this sheet include taxiway development to the new general-aviation runway, additional corporate hangars and T-hangars and additional aircraft parking area.

6.7 AIR CARGO AREA PLAN – SHEET 6 OF 16

This plan sheet shows proposed air cargo area development in greater detail. Major projects on this sheet include acquisition of land adjacent to the existing air cargo area and Runway 17, new air cargo buildings, access road improvements and air cargo aircraft parking.

6.8 FAR PART 77 AIRSPACE SURFACES – SHEET 7 OF 16

The purpose of this plan is to depict the FAR Part 77 "imaginary surfaces" that surround the airport. The imaginary surfaces surrounding an airport are outlined in Federal Aviation Regulation (FAR) Part 77 and consist of the following surfaces:

- Primary Surface
- Approach Surface
- Transitional Surface
- Horizontal Surface
- Conical Surface

The drawing is based on the ultimate northwest/southeast runway (17R-35L), ultimate southwest/northeast runway (8-26) and a future parallel northwest/southwest general aviation runway (17L-35R). The drawing identifies obstructions penetrating the Part 77 surfaces.

Obstructions (and the recommended obstruction treatment) in the vicinity of PNS were taken from National Oceanic and Atmospheric Administration (NOAA) for Obstruction Chart 318 (OC-318). Form OC-318 indicates that obstructions in the vicinity of PNS include trees, transmission lines, poles, antennas and signs. Additional details regarding the location of each obstruction is presented on sheets 7 to 12.

6.9 INNER PORTION OF APPROACH SURFACE PLAN – RUNWAY 17R – SHEET 8 OF 16

This plan sheet shows a plan and profile view of Runway 17R at PNS. A plan view is an "overhead view" of the end of Runway 17R and the approach surface for the runway. The profile view is a horizontal view of the end of Runway 17R and the approach surface for the runway. Additionally, the plan and profile sheet identifies obstructions to the Part 77 imaginary surfaces, as well as recommended actions for each obstruction.

6.10 INNER PORTION OF APPROACH SURFACE PLAN – RUNWAY 35L – SHEET 9 OF 16

This plan sheet shows a plan and profile view of Runway 35L at PNS. A plan view is an "overhead view" of the end of Runway 35L and the approach surface for the runway. The profile view is a horizontal view of the end of Runway 35L and the approach surface for the runway. Additionally, the plan and profile sheet identifies obstructions to the Part 77 imaginary surfaces, as well as recommended actions for each obstruction.

6.11 INNER PORTION OF APPROACH SURFACE PLAN – RUNWAY 8 – SHEET 10 OF 16

This plan sheet shows a plan and profile view of Runway 8 at PNS. A plan view is an "overhead view" of the end of Runway 8 and the approach surface for the runway. The profile view is a horizontal view of the end of Runway 8 and the approach surface for the runway. Additionally, the plan and profile sheet identifies obstructions to the Part 77 imaginary surfaces, as well as recommended actions for each obstruction.

6.12 INNER PORTION OF APPROACH SURFACE PLAN – RUNWAY 26 – SHEET 11 OF 16

This plan sheet shows a plan and profile view of Runway 26 at PNS. A plan view is an "overhead view" of the end of Runway 26 and the approach surface for the runway. The profile view is a horizontal view of the end of Runway 26 and the approach surface for the runway. Additionally, the plan and profile sheet identifies obstructions to the Part 77 imaginary surfaces, as well as recommended actions for each obstruction.

6.13 INNER PORTION OF APPROACH SURFACE PLAN – RUNWAY 17L-35R – SHEET 12 OF 16

This plan sheet shows a plan and profile view of Runway 17L-35R at PNS. A plan view is an "overhead view" of the ends of Runway 17L-35R and the approach surfaces for the runway. The profile view is a horizontal view of the ends of Runway 17L-35R and the approach surfaces for the runway. Additionally, the plan and profile sheet identifies obstructions to the Part 77 imaginary surfaces, as well as recommended actions for each obstruction.

6.14 EXISTING ON-AIRPORT LAND USE PLAN – SHEET 13 OF 16

The On-Airport Land Use Plan depicts proposed development areas on the airport property. This plan was developed to achieve optimum utilization of the land within existing airport boundaries. Planning for land use on the airport is based on two basic objectives: 1) maximization of airport property for air transportation and 2) compatibility between the airport and its environs.

6.15 FUTURE OFF-AIRPORT LAND USE PLAN AND 2005 NOISE CONTOURS – SHEET 14 OF 16

This plan depicts the future surrounding land uses in the vicinity of the airport. The land use classifications shown on the plan were developed from digital data provided by the City of Pensacola

Planning and Zoning Department. As shown, the area surrounding the airport consists primarily of residential development. Some commercial, industrial and retail development is also located in the vicinity of the airport.

The FAA has established guidelines for land use compatibility related to airport-generated noise impacts. In most cases, noise-sensitive off-airport land uses are considered incompatible with noise impacts of 65 DNL and higher. However, the responsibility for determining the acceptable and permissible land uses remains with the local government authorities.

The City of Pensacola and Escambia County have established zoning ordinances restricting land use and development density in the vicinity of the airport. Additionally, the City has purchased land and avigation easements, completed a FAR Part 150 Noise Compatibility Study and Noise Abatement Plan and implemented noise abatement procedures to ensure that surrounding development remains compatible with the operation of the airport.

6.16 AIRPORT PROPERTY MAP – SHEETS 15 AND 16 OF 16

The purpose of the Airport Property Map is to identify all airport properties currently owned in fee-simple title or controlled by easements. This plan is also referred to as an "Exhibit A, Property Map," a required attachment to FAA application forms requested on federal grants for airport-related improvement projects. This plan must be updated when the airport changes any property boundary, acquires new property or acquires new easements.

6.17 SUMMARY

Airport plans were presented to the Technical Advisory Committee and Citizen's Advisory Committee for discussion and review. The drawings that follow represent the direction established by the committees, airport staff and the City of Pensacola.

PENSACOLA REGIONAL AIRPORT

PENSACOLA, FLORIDA

AIRPORT LAYOUT PLAN SET

FAA AIP NUMBER: 3-12-0063-2497
FDOT WPI NUMBER: 3821477
RS&H PROJECT NUMBER: 201-8240-000

LOCATION MAP
N.T.S.

VICINITY MAP
N.T.S.

CITY OF PENSACOLA

JOHN FOGG, MAYOR
THOMAS J. BONFIELD, CITY MANAGER
AL COBY, ASST. CITY MANAGER
ROBERT PAYNE, ASST. CITY MANAGER

CITY COUNCIL MEMBERS:
OWEN W. EUBANKS, DOUGLAS C. HALFORD, RITA E. JONES,
JOHN W. NOBLES, JOHN A. PANYKO, JD. SMITH,
MICHAEL C. WIGGINS, MARIE K. YOUNG

PENSACOLA REGIONAL AIRPORT

FRANK MILLER, A.A.E., AIRPORT DIRECTOR
DEBORAH POWELL, ASST. AIRPORT DIRECTOR FOR FINANCE
DANIEL FLYNN, ASST. AIRPORT DIRECTOR FOR OPERATIONS

RS&H
Architectural, Engineering, Planning
and Environmental Services

Reynolds, Smith and Hills, Inc.
4651 Salisbury Road
Jacksonville, Florida 32256

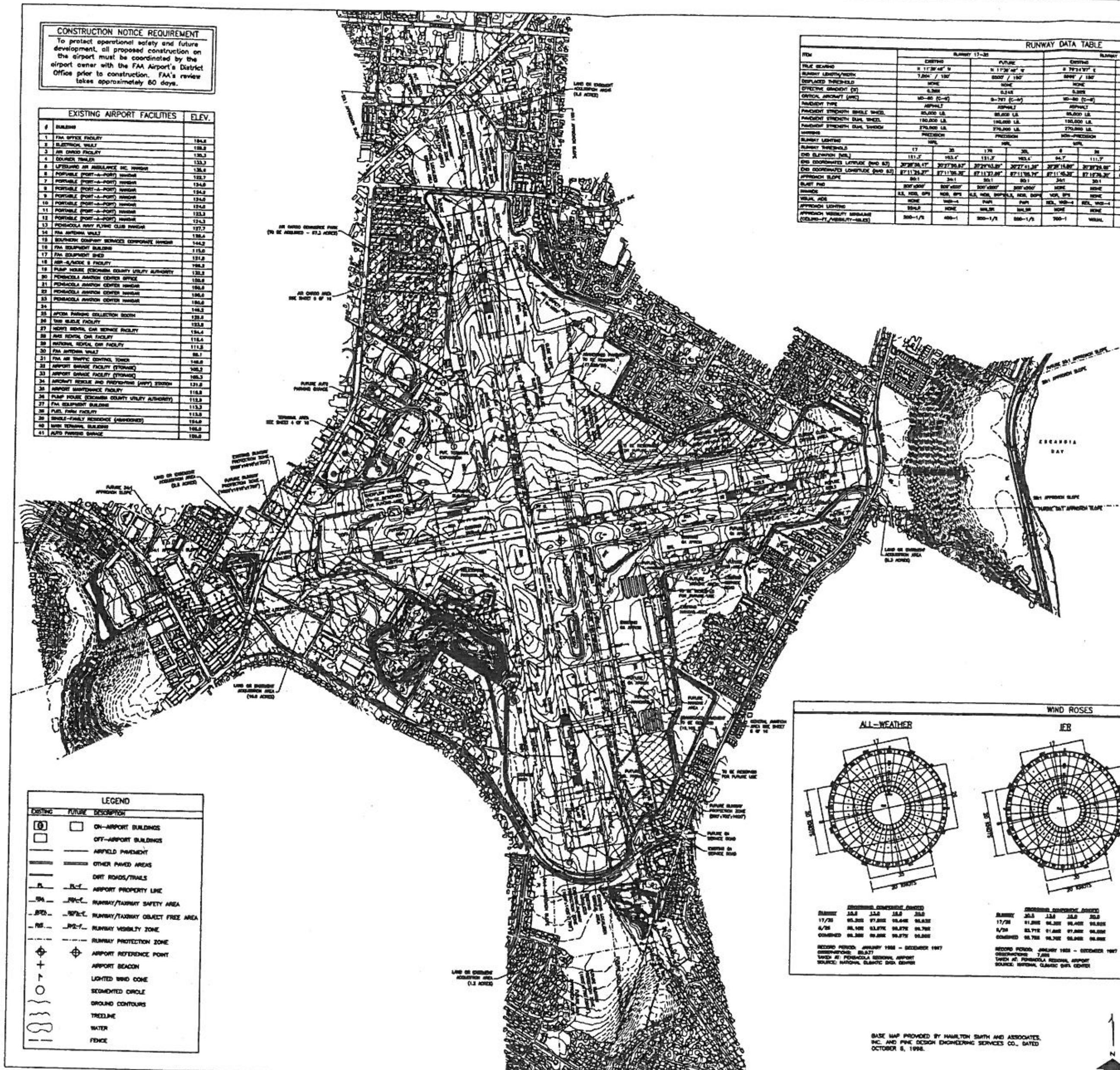
APRIL 1999

INDEX OF DRAWINGS

CONSTRUCTION NOTICE REQUIREMENT

To protect operational safety and future development, all proposed construction on the airport must be coordinated by the airport owner with the FAA Airport's District Office prior to construction. FAA's review takes approximately 60 days.

EXISTING AIRPORT FACILITIES		ELEV.
#	BUILDING	
1	FAA OFFICE FACILITY	104.6
2	ELECTRICAL VAULT	128.2
3	AIR CARGO FACILITY	130.3
4	COURIER TRAILER	133.3
5	LIFEGUARD AIR AMBULANCE INC. HANGAR	135.6
6	PORTABLE (PORT-A-PORT) HANGAR	122.7
7	PORTABLE (PORT-A-PORT) HANGAR	124.0
8	PORTABLE (PORT-A-PORT) HANGAR	124.2
9	PORTABLE (PORT-A-PORT) HANGAR	124.0
10	PORTABLE (PORT-A-PORT) HANGAR	124.0
11	PORTABLE (PORT-A-PORT) HANGAR	123.3
12	PORTABLE (PORT-A-PORT) HANGAR	124.3
13	PENSACOLA NAVY FLYING CLUB HANGAR	127.7
14	FAA ANTENNA VAULT	128.4
15	SOUTHERN COMPANY SERVICES CORPORATE HANGAR	144.2
16	FAA EQUIPMENT BUILDING	115.0
17	FAA EQUIPMENT SHED	121.8
18	ASR-9/MODE S FACILITY	[illegible]
19	PUMP HOUSE (ESCAMBIA COUNTY UTILITY AUTHORITY)	132.2
20	PENSACOLA AVIATION CENTER OFFICE	100.6
21	PENSACOLA AVIATION CENTER HANGAR	100.6
22	PENSACOLA AVIATION CENTER HANGAR	100.6
23	PENSACOLA AVIATION CENTER HANGAR	100.6
24		148.3
25	APCOA PARKING COLLECTION BOOTH	128.6
26	TAXI QUEUE FACILITY	123.8
27	HERTZ RENTAL CAR SERVICE FACILITY	124.4
28	AVIS RENTAL CAR FACILITY	115.4
29	NATIONAL RENTAL CAR FACILITY	111.3
30	FAA ANTENNA VAULT	88.1
31	FAA AIR TRAFFIC CONTROL TOWER	140.0
32	AIRPORT GARAGE FACILITY (STORAGE)	105.2
33	AIRPORT GARAGE FACILITY (STORAGE)	105.3
34	AIRCRAFT RESCUE AND FIREFIGHTING (ARFF) STATION	131.0
35	AIRPORT MAINTENANCE FACILITY	116.8
36	PUMP HOUSE (ESCAMBIA COUNTY UTILITY AUTHORITY)	112.9
37	FAA EQUIPMENT BUILDING	113.3
38	FUEL FARM FACILITY	113.8
39	SINGLE-FAMILY RESIDENCE (ABANDONED)	124.0
40	MAIN TERMINAL BUILDING	108.0
41	AUTO PARKING GARAGE	108.0



RUNWAY DATA TABLE

ITEM	RUNWAY 17-35 EXISTING		RUNWAY 17-35 FUTURE		RUNWAY 8-26 EXISTING		RUNWAY 8-26 FUTURE		RUNWAY 17L-35R EXISTING		RUNWAY 17L-35R FUTURE	
TRUE BEARING	N 11°39'48" W		N 11°39'48" W		N 79°24'07" E		N 79°24'07" E				N 11°39'48" W	
RUNWAY LENGTH/WIDTH	7,004' / 150'		8500' / 150'		5999' / 150'		7,000' / 150'				3,740' / 75'	
DISPLACED THRESHOLD	NONE		NONE		NONE		NONE				NONE	
EFFECTIVE GRADIENT (%)	[illegible]		0.24%		[illegible]		0.31%				0.08%	
CRITICAL AIRCRAFT (ARC)	MD-80 (C-III)		B-757 (C-IV)		MD-80 (C-III)		B-757 (C-IV)				BEECH KING AIR (B-II)	
PAVEMENT TYPE	ASPHALT		ASPHALT		ASPHALT		ASPHALT				ASPHALT	
PAVEMENT STRENGTH SINGLE WHEEL	85,000 LB.		85,000 LB.		85,000 LB.		85,000 LB.				30,000 LB.	
PAVEMENT STRENGTH DUAL WHEEL	180,000 LB.		180,000 LB.		180,000 LB.		180,000 LB.				60,000 LB.	
PAVEMENT STRENGTH DUAL TANDEM	270,000 LB.		270,000 LB.		270,000 LB.		270,000 LB.				N/A	
MARKING	PRECISION		PRECISION		NON-PRECISION		PRECISION				VISUAL	
RUNWAY LIGHTING	HIRL		HIRL		HIRL		HIRL				MIRL	
RUNWAY THRESHOLD	17	35	17R	35L	8	26	8	26	17L	35R	17L	35R
END ELEVATION (MSL)	121.3'	103.4'	121.3'	103.4'	94.7'	111.7'	94.7'	111.7'			98'	104'
END COORDINATES LATITUDE (NAD 83)	30°28'38.47"	30°27'30.63"	30°29'03.20"	30°27'41.30"	30°28'10.80"	30°28'29.00"	30°28'10.80"	30°28'31.13"			30°28'28.38"	30°27'52.49"
END COORDINATES LONGITUDE (NAD 83)	87°11'26.27"	87°11'08.38"	87°11'37.89"	87°11'08.79"	87°11'45.30"	87°10'36.20"	87°11'45.30"	87°10'27.13"			87°11'19.18"	87°11'09.59"
APPROACH SLOPE	50:1	34:1	50:1	50:1	34:1	20:1	34:1	50:1			20:1	20:1
BLAST PAD	200'x200'	200'x200'	200'x200'	200'x200'	NONE	NONE	200'x200'	200'x200'			NONE	NONE
NAVAIDS	ILS, NDB, GPS	NDB, GPS	ILS, NDB, DGPS	ILS, NDB, DGPS	VOR, GPS	NONE	VOR, DGPS	ILS, DGPS			NONE	NONE
VISUAL AIDS	NONE	VASI-4	PAPI	PAPI	REIL, VASI-4	REIL, VASI-4	REIL, PAPI	REIL, PAPI			PAPI	PAPI
APPROACH LIGHTING	SSALR	NONE	MALSR	MALSR	NONE	NONE	SSALR	MALSR			NONE	NONE
APPROACH VISIBILITY MINIMUMS (CEILING-FT./VISIBILITY-MILES)	200-1/2	400-1	200-1/2	200-1/2	700-1	VISUAL	700-1	200-1/2			VISUAL	VISUAL

AIRPORT DATA TABLE

ITEM	EXISTING	FUTURE
AIRPORT ROLE	COMMERCIAL	SAME
AIRPORT REFERENCE CODE (ARC)	C-III	C-IV
ESTABLISHED AIRPORT ELEVATION	121' MSL	SAME
AIRPORT REFERENCE POINT Latitude	30°28'23.03"	30°28'20.81"
Longitude	87°11'14.81"	87°11'16.71"
AIRPORT ACREAGE (ESTIMATED)	1,474	1,540
TEMP. MEAN MAX. HOTTEST MONTH	90°F, JULY	SAME
VISUAL AIDS	[illegible]	[illegible]

RSA AND ROFA DATA TABLE

RUNWAY	RSA WIDTH	RSA LENGTH BEYOND R/W END
RUNWAY 17-35	500'	1,000'
RUNWAY 8-26	500'	1,000'
RUNWAY 17L-35R	150'	300'
RUNWAY	ROFA WIDTH	ROFA LENGTH BEYOND R/W END
RUNWAY 17-35	800'	1,000'
RUNWAY 8-26	800'	1,000'
RUNWAY 17L-35R	500'	300'

MODIFICATIONS TO FAA DESIGN STANDARDS

DATE OF FAA LETTER	DESCRIPTION

AIRPORT LAYOUT PLAN APPROVAL TABLE

AIRPORT SPONSOR

THIS AIRPORT DRAWING IS APPROVED BY:

(SIGNATURE): ______________________ DATE: __________

NAME: ______________________

TITLE: ______________________

WIND ROSES

ALL-WEATHER

IFR

VFR

ALL-WEATHER: RECORD PERIOD: JANUARY 1988 - DECEMBER 1997; TAKEN AT: PENSACOLA REGIONAL AIRPORT; SOURCE: NATIONAL CLIMATIC DATA CENTER

IFR: RECORD PERIOD: JANUARY 1988 - DECEMBER 1997; OBSERVATIONS: 7,[illegible]; TAKEN AT: PENSACOLA REGIONAL AIRPORT; SOURCE: NATIONAL CLIMATIC DATA CENTER

VFR: RECORD PERIOD: JANUARY 1988 - DECEMBER 1997; OBSERVATIONS: 71,[illegible]; TAKEN AT: PENSACOLA REGIONAL AIRPORT; SOURCE: NATIONAL CLIMATIC DATA CENTER

LEGEND

EXISTING	FUTURE	DESCRIPTION
		ON-AIRPORT BUILDINGS
		OFF-AIRPORT BUILDINGS
		AIRFIELD PAVEMENT
		OTHER PAVED AREAS
		DIRT ROADS/TRAILS
PL	PL-F	AIRPORT PROPERTY LINE
RSA	RSA-F	RUNWAY/TAXIWAY SAFETY AREA
OFA	OFA-F	RUNWAY/TAXIWAY OBJECT FREE AREA
RVZ	RVZ-F	RUNWAY VISIBILITY ZONE
		RUNWAY PROTECTION ZONE
		AIRPORT REFERENCE POINT
		AIRPORT BEACON
		LIGHTED WIND CONE
		SEGMENTED CIRCLE
		GROUND CONTOURS
		TREELINE
		WATER
		FENCE

BASE MAP PROVIDED BY HAMILTON SMITH AND ASSOCIATES, INC. AND PINE DESIGN ENGINEERING SERVICES CO., DATED OCTOBER 6, 1998.

MAG. DECLINATION
0° 15' W 1998
US DEPARTMENT OF COMMERCE
NOAA/NOS
NEW ORLEANS SECTIONAL
AERONAUTICAL CHART

SCALE: 1" = 600'

RS&H
Architectural, Engineering, Planning and Environmental Services
Reynolds, Smith and Hills, Inc.
4651 Salisbury Road
Jacksonville, Florida 32256
904-296-2000 FAX 904-279-2401

THE CITY OF PENSACOLA FLORIDA

PENSACOLA REGIONAL AIRPORT

AIRPORT MASTER PLAN UPDATE

CONSULTANTS

REVISIONS

NO.	DESCRIPTION	BY	DATE

DATE ISSUED: APRIL 1999
REVIEWED BY: BPR
DRAWN BY: EMT
DESIGNED BY: BPR

AIP PROJECT NUMBER
RS&H 201-8240-000

SHEET TITLE

AIRPORT LAYOUT PLAN

SHEET NUMBER

2 OF 16