

TECHNICAL REPORT #1

Palm Beach International Airport Inventory

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Prepared for
Palm Beach County Department of Airports

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CH2MHILL

In Association with Ricondo & Associates, Inc.

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SECTION 1

Airfield Facilities

Airfield Facilities

1.1 Runways

Palm Beach International Airport (PBI) has three asphalt-surfaced runways, two of which are 150 feet wide and capable of handling the current commercial aviation traffic. The third runway, which is parallel to the primary air carrier runway is separated by 700 feet, 75 feet wide and is used primarily for GA activity. Pavement conditions described below were obtained from the Draft January 2006 Annual Airports Pavement Evaluation prepared by Applied Pavement Technology, Inc. The current airfield layout is illustrated in **Exhibit 1-1**.

1.1.1 Runway 9L/27R

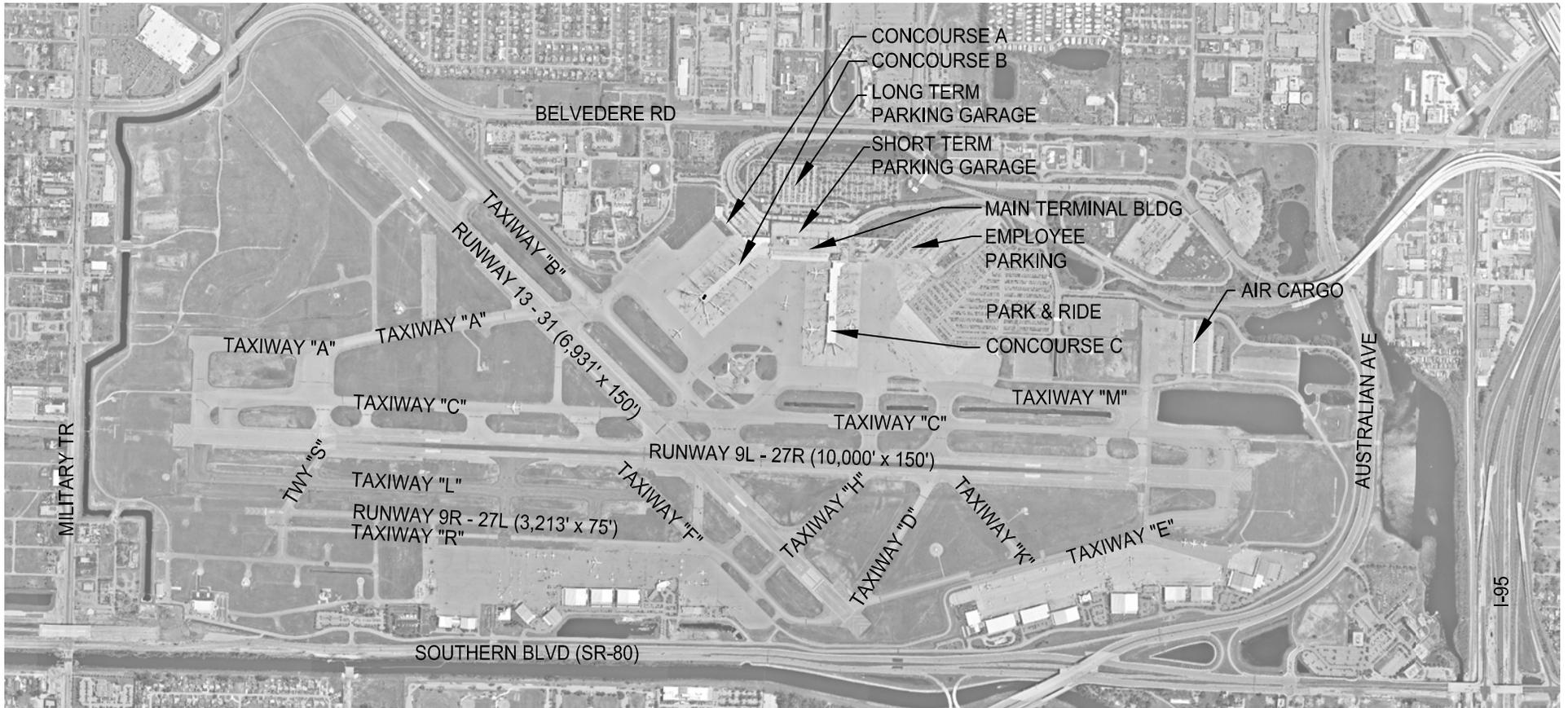
Runway 9L/27R is the primary asphalt-surfaced runway at PBI at 10,000 feet long and 150 feet wide. Runway 9L/27R is capable of supporting single wheel, double wheel, and double tandem aircraft operations of 85,000, 200,000, and 400,000 pounds respectively. Overall, Runway 9L/27R is performing well, with the exception of a few isolated areas of medium-severity to high-severity distresses, in addition to some deterioration at the intersection with Runway 13/31.

1.1.2 Runway 13/31

Runway 13/31 is the crosswind runway used primarily when winds do not favor the use of the primary runway. Runway 13/31 is constructed of asphalt and is 6,931 feet long and 150 feet wide. Runway 13/31 is capable of supporting single wheel, double wheel, double tandem, and dual double tandem aircraft operations of 100,000, 180,000, 325,000, and 400,000 pounds respectively. Runway 13/31 is showing significant signs of deterioration. The center 25 feet of the runway is exhibiting more significant signs of deterioration as compared to the outer portions. Distresses observed in the keel include alligator cracking, block cracking, cracking, and weathering.

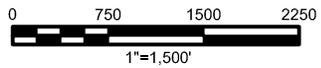
1.1.3 Runway 9R/27L

Runway 9R/27L, southern parallel to Runway 9L/27R, is 3,213 feet long and 75 feet wide and constructed of asphalt. Runway 9R/27L is used primarily for non-jet general aviation aircraft traffic capable of supporting single wheel aircraft operations of 25,000 pounds and is performing relatively well. General distresses observed include cracking, weathering, and swelling, with each distress limited to low-severity levels.



Background Image: Southern Resources and Mapping of Miami, July 2005
 Prepared by: CH2M HILL, Inc., April 2006

Exhibit 1-1



Existing Airport

1.2 Taxiways

1.2.1 Taxiway A

Taxiway A provides access to the end of Runway 9L from the main terminal apron, is an asphalt-surfaced pavement, and is utilized as a bypass taxiway north of Taxiway C. Taxiway A is divided into three distinct pavement areas that have differing conditions and are exhibiting various distresses.

The largest portion of Taxiway A, extending west from Runway 13/31 to Taxiway C, is performing well and exhibits only a small amount of low-severity cracking and weathering. No maintenance activities are required on this portion of Taxiway A.

The remaining two portions of Taxiway A are showing signs of deterioration. The portion of Taxiway A between Runway 13/31 and Taxiway B exhibits medium-severity cracking, various large patches, and isolated areas of low-severity block cracking, swelling, and weathering.

The portion of Taxiway A extending from Taxiway B to the apron is showing significant signs of deterioration. Low-severity block cracking is the predominate distress observed. In addition to approximately 70 percent of the pavement surface exhibiting low-severity block cracking, additional distresses observed include small amounts of depressions, cracking, and swelling.

1.2.2 Taxiway B

Taxiway B, an asphalt-surfaced pavement, extends from Taxiway C northwest and parallel to Runway 13/31. The condition of Taxiway B varies throughout its length, with the portion extending from Taxiway C to Taxiway A performing relatively well and the remaining portion showing signs of deterioration. General distresses observed on the portion of Taxiway B extending from Taxiway A to Runway 13/31 include low-severity and medium-severity cracking, and low-severity patching, swelling, and weathering.

1.2.3 Taxiway B Connectors

Taxiway B1 is an asphalt-surfaced connector that makes up the connecting taxiway system for Taxiway B. Overall, this section is performing well and exhibits only a moderate amount of low-severity cracking and weathering throughout the section.

1.2.4 Taxiway C

Taxiway C is the north parallel asphalt-surfaced taxiway to Runway 9L/27R. Overall, it is performing well with minimal distress observed along its length. For the most part, the shoulders are also performing well with the exception of a few isolated areas of low-severity distress.

1.2.5 Taxiway C Connectors

Seven asphalt-surfaced connecting taxiways are designated as Taxiway C connectors providing access to and from Runway 9L/27R. Taxiway C1 is performing well, with only a

minor amount of surface cracking observed during the inspection. Taxiway C2 is also performing well, exhibiting only a small amount of bleeding, weathering, and low-severity cracking. Taxiway C3 deterioration includes weathering, cracking, alligator cracking, swelling, block cracking, and depressions. The entire surface within approximately 50 feet of the edge of Runway 9L is exhibiting low-severity to medium-severity weathering in addition to areas of depression. In addition, areas of what is believed to be alligator cracking are exhibited in the wheel paths on Taxiway C3. Taxiway C4 is performing relatively well, although signs of deterioration are evident. Taxiway C5 is showing significant signs of deterioration. Approximately 65 percent of the pavement surface is exhibiting low-severity to medium-severity block cracking and the entire surface is weathered. Taxiway C6 is also showing signs of deterioration, but to a lesser extent than Taxiway C5. Much like Taxiway C5, the entire surface of Taxiway C6 is exhibiting low-severity weathering and raveling. The final Taxiway C connector, Taxiway C7, is performing well, with only a minor amount of low-severity paving lane cracking and small areas of low-severity weathering.

1.2.6 Taxiway D

Taxiway D extends from the end of Runway 31 to the main terminal apron, and consists of three distinct asphalt-surfaced pavement areas. The portion of Taxiway D between Runway 13/31 and Runway 9L/27R is performing well, although it is showing some signs of deterioration. Distresses observed include block cracking, cracking, weathering, and swelling. The portion of Taxiway D between Runway 9L/27R and Taxiway C is frequently used for aircraft arriving on Runway 9L. For the most part, this portion of Taxiway D is performing well, with the exception of isolated areas of depressions and slippage cracking. The final portion of Taxiway D connects Taxiway C to the main apron and is performing well, with only a small amount of low-severity cracking and swelling.

1.2.7 Taxiway E

Taxiway E is an asphalt-surfaced pavement, and it serves as the major access route to Runways 13/31 and 9L/27R from the southeast GA apron. The extension to Taxiway E that was constructed at the time of the Runway 9L/27R extension is not exhibiting any signs of deterioration. The portion of Taxiway E connecting to Runway 9L at the original threshold has two distinct conditions. The portion from the hold line to the edge of Runway 9L is performing well, with only a minor amount of low-severity cracking. However, the remaining portion is significantly deteriorated, with 100 percent of the surface exhibiting medium-severity block cracking. A second portion of Taxiway E showing significant signs of deterioration is located directly adjacent to the southeast GA apron. Approximately 70 percent of this area is exhibiting low-severity block cracking, and the remaining 30 percent is medium-severity. The remaining portion of Taxiway E is performing well, with only a moderate amount of low-severity cracking observed.

1.2.8 Taxiway F

Taxiway F is a partial parallel asphalt-surfaced taxiway to Runway 13/31 on its west side. The largest portion of Taxiway F, which extends from the approach end of Runway 31 to Runway 9L/27R, is performing well and exhibits only a moderate amount of low-severity cracking. The second portion of Taxiway F, located between Runway 9L/27R and Taxiway

C, is performing well, although there are a few isolated areas of depressions and a slightly weathered pavement surface. The final portion of Taxiway F, extending from Taxiway C to Runway 13/31, is performing well, with only a small amount of low-severity cracking and weathering.

1.2.9 Taxiway F Connectors

Only one asphalt-surfaced connecting taxiway, Taxiway F1, is designated as a Taxiway F connector. Overall, this facility is deteriorated, with approximately the middle 150 feet showing signs of distress.

1.2.10 Taxiway G

Taxiway G, extending from Taxiway F to Runway 13/31, is an asphalt-surfaced pavement showing significant signs of deterioration. Distresses observed on Taxiway G include cracking, block cracking, swelling, weathering, and depressions. The remaining portion of Taxiway G, from Runway 9L/27R to the terminal apron, is performing well, with a moderate amount of low-severity cracking and weathering.

1.2.11 Taxiway H

The entire asphalt-surfaced length of Taxiway H, extending from Runway 13/31 to the main terminal apron is performing well, with only a small amount of low-severity cracking.

1.2.12 Taxiway K

Taxiway K, an asphalt-surfaced pavement, extends from Taxiway E to Runway 9L/27R. Taxiway K is performing well with only a small amount of surface swells.

1.2.13 Taxiway L and Connectors

Access to the end of Runway 9L on the south is facilitated by the new asphalt-surfaced pavement, Taxiway L, west of Runway 13/31. Taxiway L and its connectors were recently constructed and are not exhibiting any signs of pavement distress.

1.2.14 Taxiway M

Taxiway M parallels Taxiway C on the north side from the western edge of the main terminal apron to Taxiway C6. Taxiway M consists of two areas with distinct differences in asphalt pavement conditions: the portion of Taxiway M adjacent to the terminal apron, which is showing significant signs of deterioration; and the portion of Taxiway M extending from the terminal apron to Taxiway C, which is showing little signs of pavement deterioration.

1.2.15 Taxiway R

Taxiway R is an asphalt-surfaced pavement, and it serves as a southern parallel taxiway to Runway 9R/27L and handles a significant amount of the GA traffic. With the construction of Taxiway L, the amount of traffic handled by Taxiway R has decreased, although it is still frequently used. Taxiway R is showing signs of deterioration. Common distresses observed

on Taxiway R include cracking, block cracking, swelling, depressions, and possible areas of alligator cracking.

1.2.16 Taxiway R Connectors

Four asphalt-surfaced taxiways, Taxiways R1 through R4, are designated as Taxiway R connecting taxiways. Overall, these connectors are in good condition, with only moderate amounts of low-severity cracking observed on Taxiway R1 and R2. In addition, the surface of Taxiway R1 is slightly weathered and some surface cracking is present. Taxiways R3 and R4 show no signs of deterioration.

1.2.17 Taxiway S

Taxiway S connects Runway 9R to Runway 9L, is constructed of asphalt, and is performing well exhibiting only minor amounts of low-severity cracking.

1.2.18 Terminal Apron Connecting Taxiway

One small asphalt-surfaced taxiway connecting the Terminal Apron to Taxiway B, just west of the Airport Rescue and Firefighting (ARFF) Facility, is not given a designation. Distresses include weathering, patching, and cracking.

1.3 Apron Areas

1.3.1 Terminal Apron

The terminal apron consists of three concourses: Concourse A serves commuter aircraft, and Concourses B and C serve larger commercial carriers. The majority of the apron consists of an asphalt pavement surface, although there is concrete pavement surrounding the gates of Concourses B and C and in the hardstand apron area. For the most part, the terminal apron pavement is performing relatively well, although there are significant signs of deterioration in some areas.

Concourse A, the Commuter Apron, differs from the remaining pavement on the terminal apron in that it has a thin surface treatment placed on it. Overall, this area is performing well, with the exception of the deterioration within the surface treatment.

The condition of the second pavement section located between Concourses A and B extending in front of Concourse B (to the southwest) varies. In some areas, the entire pavement surface exhibits low-severity block cracking, while other areas are exhibiting only moderate amounts of low-severity cracking. The areas of what appear to be block cracking are predominantly located in the taxilanes.

The third section on the terminal apron consists of the asphalt pavement located between Concourses B and C. This section is in similar condition to that of the one previously discussed, with approximately 60 percent of the pavement surface exhibiting low-severity block cracking.

The asphalt pavement located to the east of and in front of Concourse C to the south is defined as the fourth asphalt section on the terminal apron. This section is performing well,

with the exception of isolated areas of deterioration leading up to a few of the Concourse C gates.

The fifth and final asphalt surfaced pavement section on the terminal apron is the taxiway leading into Concourse C from Taxiway D. This pavement section is significantly deteriorated with the entire pavement surface exhibiting low-severity to medium-severity block cracking.

The final three terminal apron sections are the two concrete gate areas around Concourses B and C and the concrete hardstand area. The concrete apron section surrounding Concourse B is performing well, with the exception of some deterioration near the expansion joint. Overall, the concrete apron section surrounding the Concourse C is performing well, although isolated areas of distress are present.

1.3.2 Air Cargo Apron

The air cargo apron consists of both asphalt and concrete pavement sections. Overall, both are performing well, with only small amounts of pavement distress.

1.3.3 Southwest General Aviation Apron

The southwest GA apron is constructed of asphalt and is performing well, with the exception of a few localized areas of deterioration.

1.3.4 Southeast General Aviation Apron

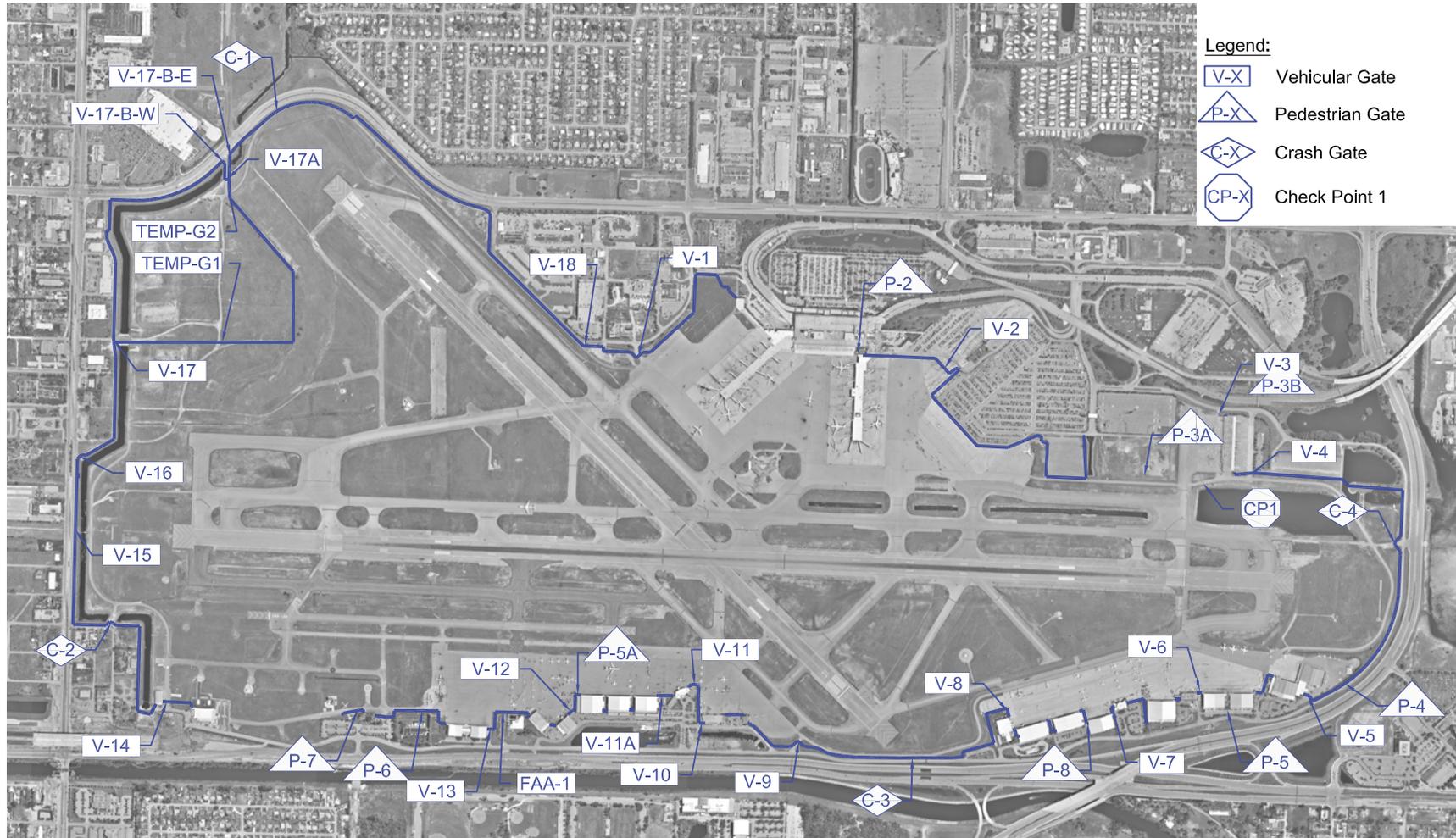
The southeast GA apron consists mostly of concrete pavement, with some areas of asphalt pavement on the eastern portion of the apron. The largest portion of the apron consists of new concrete pavement, while approximately 100 feet adjacent to the building structures is older concrete pavement. The concrete pavement adjacent to the buildings is showing significant signs of deterioration.

1.4 Fences and Security Gates

An eight-foot chain-link fence with barbed wire, as required under FAR Part 139, encloses the airfield. This fence ties into all buildings, effectively separating the airside and landside portions (such as FBO facilities, the passenger terminal, and the air cargo building) of the Airport. The fence prevents unauthorized entry onto airport property by persons, animals, or vehicles. In addition, signs that inform the general public about no entry points are posted on all gates and at regular intervals around the perimeter fencing.

According to the fence as-built drawing, which was last updated in March 2006, 37 airfield access gates are located along the fence. Of these 37 gates, 24 are vehicular gates, 9 are pedestrian gates, and 4 are crash/emergency gates. Emergency gates are located on each side of the airfield. Emergency Gate C-1 is located along the extended centerline of Runway 13/31, approximately 1,000 feet from the Runway 13 end and near the Southern Boulevard/Congress Avenue intersection. Emergency Gate C-2 is located approximately 1,105 feet southwest of the Runway 9R end. The third emergency gate, Gate C-3, is located along the extended centerline of Runway 13/31, approximately 250 feet southeast of the Runway 31 end. The fourth emergency gate, Gate C-4, runs along Australian Avenue and is

located along the extended centerline of Taxiway M, approximately 2,000 feet east of the Runway 27R end. The vehicular and pedestrian access gates are at various locations around the airfield and facilities, as shown in **Exhibit 1-2**.



Source: Fence As-Built Drawing, March 2006; Palm Beach International Airport Aerial Photo, July 2005
 Prepared by: Ricondo & Associates, Inc., April 2006

Exhibit 1-2



Location of Fence and Gates

Drawing: P:\PBIA\System Wide Airport Master Planning Study - Phase III\Task 2 - Inventory and Data Collection\Exhibits\PIB Inventory Exhibits_ALL.dwg_Layout: 1-1 Location of Fence and Gates_Apr 26, 2006, 4:36pm

1.5 Lighting, Marking, Signage, and Other Navigational Aids

Airfield lighting systems, pavement markings, airfield signage, and navigational aids help pilots identify their location either on the ground or in the air. Pavement markings delineate the standards for operations on paved areas (runways, taxiways, and aprons) of the airfield. Airfield signage assists pilots in identifying their location on the airfield and in reaching their desired location. Navigational aids help pilots identify the location of the airfield during approach and assist during takeoff and landing procedures.

1.5.1 Lighting

The Airport's three runways are lighted to identify the edge of usable pavement and to indicate how much runway length is remaining. The runway lighting systems are categorized by the brightness or intensity of light produced. Runway 9L/27R is equipped with high-intensity runway lights (HIRL) and Runways 13/31 and 9R/27L are equipped with medium-intensity runway lights (MIRL). In addition, Runway 9R/27L is equipped with runway edge lights.

The ends of the runways are also lighted so that pilots are aware of the beginning and the ending of the runway pavement. These lights are equipped with lenses that are half green and half red. The red side faces the runway so that pilots have a visual warning that the pavement is ending, whereas the green side faces away from the pavement to give pilots of arriving aircraft a visual indication of the beginning of the runway threshold. As an additional visual aid, Runways 13, 31, 9R, 27L, and 27R are equipped with runway end identifier lights (REIL), which consist of a pair of synchronized flashing lights on either side of the runway threshold.

Runway 9L is also equipped with a Medium Intensity Approach Lighting System with runway alignment indicator lights (MALSR). This system helps pilots transition from instrument flight to visual flight for landings when approach visibility minimums are reduced due to adverse weather conditions.

All of the taxiways are lighted with Medium Intensity Taxiway Lights (MITL) that are blue in color. Having the lights a different color from those on the runway provides a visual indication of the transition from one type of operating area to another. These lighting systems have been installed with light cans and cable in conduit, and are considered to be in good condition.

The rotating beacon located on top of the passenger terminal building indicates the Airport location at night or in adverse weather conditions. The optical rotating beacon system projects two beams of light, one green and one white, 180 degrees apart. The beacon is continuously operated during nighttime hours and when the airfield is operated under IFR conditions.

1.5.2 Marking

The complexity of the runway pavement markings varies depending on the types of approaches available. Runway pavements are generally marked according to the runway's designation as precision, non-precision, or visual.

Runway 9L/27R is a precision instrument runway, and its pavement markings include runway numbers (i.e., designators), centerlines, runway thresholds, aiming points, and the touchdown zone. Runway designators indicate the magnetic azimuth of the runway centerline. The runway centerlines provide alignment guidance during takeoff and landing. The runway threshold markings consist of twelve longitudinal stripes of uniform dimensions painted symmetrically along the runway centerline. The aiming point markings are located approximately 1,000 feet from the runway ends. These markings serve as a visual aiming point for landing aircraft. Runway touchdown markings identify the touchdown zone for landing operations and are spaced to provide distance information in 500-foot increments. These markings consist of groups of one, two, and three rectangular bars symmetrically arranged in pairs on either side of the runway centerline.

Runway 13/31 is marked as a non-precision runway. Its pavement markings are similar to those on Runway 9L/27R, but do not include touchdown zone markings. In addition, the Runway 13/31 threshold markings consist of only eight longitudinal stripes.

Runway 9R/27L, which only offers visual approaches, is marked with runway numbers, centerline, and runway thresholds. Both Runway 9L/27R and Runway 13/31 also have white side stripe markings delineating runway edges.

All taxiways at PBI have visible taxiway centerline stripes with hold-short lines located at the required locations. These markings ensure that aircraft taxi along designated passageways for proper wingtip clearance and to warn of the areas protected for runway operations.

1.5.3 Signage

Airfields are a complex system of runways, taxiways, taxilanes, and ramp areas. Airfield signage assists pilots in identifying their location on the airfield and in reaching their desired location. Illuminated signs also provide valuable navigation guidance at night and in adverse weather conditions.

PBI is equipped with a total of 727 signs that comply with FAA Advisory Circular (AC) 150/5340-18D, *Standards for Airport Sign Systems*. This advisory circular contains the FAA standards for the siting and installation of signs on airport runways and taxiways. Standardized taxiway and runway designations enhance safety and improve efficiency in the national airspace system (NAS). PBI signs include four different types, as delineated below:

1. Mandatory instruction signs have a red background with white lettering and are used to identify an entrance to a runway or airfield critical area or areas where an aircraft is prohibited from entering. These signs include runway holding position, instrument landing system (ILS) critical area, and no entry. There are 106 mandatory instruction signs installed at PBI.
2. Location signs are used to identify a runway or a taxiway and to assist pilots in determining when they have exited a particular area. These signs generally have either a black background with yellow lettering or a yellow background with black lettering. There are 258 location signs at PBI, including taxiway location signs, runway location signs, and ILS critical area boundary signage.

3. Directional and destination signs. Directional have a yellow background with black lettering and are normally located on the left, prior to an intersecting taxiway. The sign identifies the designation(s) of intersecting taxiway(s) leading away from the intersection on which a pilot would normally be expected to turn or where the pilot would hold short. Similar to the directional signs, destination signs also have a yellow background with black lettering and always include an arrow, showing the direction of the taxi route to specified destinations on the airport. There are 337 directional and destination signs installed on the airfield.
4. Runway distance remaining signs have a black background with white numbering and are normally placed along the left side of the runway alignment. The number on the sign indicates the remaining runway length (in thousands of feet). Both Runways 9L/27R and 13/31 are equipped with distance remaining signs. In total, 26 runway distance remaining signs are installed on the airfield.

1.5.4 Navigational Aids

In addition to the lighting systems and markings previously discussed, runways are generally equipped with other navigational aids to assist pilots in takeoff and landing procedures. Some indicate weather conditions, while others give either visual or instrument course guidance. It should be noted that most of these systems are owned and operated by the FAA.

1.5.4.1 Precision Approach Path Indicators

All six runway ends at PBI are equipped with precision approach path indicator lights (PAPI). PAPIs provide pilots with visual descent guidance information during an approach to a runway. These navigational aids are typically visible from five miles during the day and up to 20 miles or more at night. Each PAPI unit installed at the Airport consists of a grouping of four lights.

1.5.4.2 VORTAC

The Palm Beach Very High Frequency Omnidirectional Range Tactical Air Navigation (VORTAC) facility, identified on aeronautical charts as PBI, is used to provide and support approach capabilities at the Airport. The VOR is also used for terminal and en route navigation purposes. This ground-based electronic navigation aid is located south of the Runway 9/27 alignment, approximately 1,200 feet east of the Runway 31 end, in the triangular area defined by the intersection of Taxiways K, D, and E. This system transmits very high frequency navigation signals to help pilots identify their location relative to the Airport. Pilots, if their aircraft are properly equipped with distance measuring equipment (DME), can also determine their distance to or from the VOR as various radials are flown. The tactical area navigational aid (TACAN) portion of the VORTAC is used by military pilots. This system provides air navigation assistance by indicating bearing and distance to the navigational aid on a different radio frequency. **Table 1-1** summarizes the minimums for the VOR approaches available at PBI.

TABLE 1-1
VOR Approach Minimums
Aircraft Approach Category

Aircraft Category	A		B		C		D	
	MDA (ft)	Visibility Required (miles)	MDA (ft)	Visibility Required (miles)	MDA (ft)	Visibility Required (miles)	MDA (ft)	Visibility Required (miles)
Runway								
Straight Approach								
9L	660	0.5	660	0.5	660	1.25	660	1.5
27R	620	1	620	1	620	1.75	620	2
13	860	1	860	1.25	860	2.5	860	2.75
31	660	1	660	1	660	1.75	660	2
Circle to Land Approach								
9L	660	1	660	1	660	1.75	660	2
27R	620	1	620	1	620	1.75	620	2
13	860	1	860	1.25	860	2.5	860	2.75
31	660	1	660	1	660	1.75	660	2

Notes:

MDA stands for Minimum Descent Altitude (MDA).

MDA is expressed in feet above Mean Sea Level (MSL).

Source: FAA, Southeast U.S. Terminal Procedures, April 2006.

Prepared by: Ricondo & Associates, Inc., April 2006.

1.5.4.3 Nondirectional Radio Beacon

A nondirectional radio beacon (NDB), which also serves as the outer marker for the Runway 9L ILS approach, provides bearing information relative to the beacon, allowing pilots to track their location with respect to PBI, such as when conducting an NDB instrument approach. The PBI NDB is located approximately six miles from the Runway 9L threshold on the extended centerline of the runway. The NDB identifier is RUBIN.

1.5.4.4 Global Positioning Satellite System

The other type of nonprecision instrument approach at PBI uses a global positioning system (GPS), which is a navigation system that consists of a network of satellites known as a constellation. This constellation provides a celestial reference for determining the position of any point on or above the Earth's surface. By analyzing the time delays of signals received from some of these satellites, air-based receivers are able to determine latitude, longitude, and altitude. A GPS nonprecision approach is available to Runways 9L, 13, 27R, and 31 at PBI. **Table 1-2** summarizes the minimums for the area navigation (GPS) approaches available at PBI.

TABLE 1-2
GPS Approach Minimums
Aircraft Approach Category

Aircraft Category	A		B		C		D	
	MDA (ft)	Visibility Required (miles)	MDA (ft)	Visibility Required (miles)	MDA (ft)	Visibility Required (miles)	MDA (ft)	Visibility Required (miles)
Runway								
Straight Approach								
9L	300	0.5	300	0.5	300	0.5	300	0.5
27R	290	1	290	1	290	1	290	1
13	300	1	300	1	300	1	300	1
31	440	1.5	440	1.5	440	1.5	440	1.5
Circle to Land Approach								
9L	520	1.5	520	1.5	640	1.75	680	2
27R	500	1.5	500	1.5	640	1.75	680	2
13	720	1.25	720	1.25	720	2	720	2.25
31	500	1.5	500	1.5	640	1.75	680	2

Notes:

MDA stands for Minimum Descent Altitude (MDA).

MDA is expressed in feet above Mean Sea Level (MSL).

Source: FAA, Southeast U.S. Terminal Procedures, April 2006.

Prepared by: Ricondo & Associates, Inc., April 2006.

1.5.4.5 Instrument Landing Systems

Currently, ILS equipment is installed only for precision approaches to Runways 9L and 27R at PBI. The purpose of an ILS is to provide a method of precision instrument navigation to a point just beyond the approach end of the runway. Since the system provides both course and glide slope information, operations are possible at much lower weather minimums than provided by a nonprecision instrument approach. Precision instrument approaches are runway specific and, therefore, each runway capable of a precision approach must have its own ILS.

Both ends of Runway 9L/27R provide for ILS approaches. The ILS for Runway 9L provides Category I landing minimums with a decision height of 219 feet above the runway touchdown zone elevation (equivalent to 238 feet above mean sea level) and 0.5-statute-mile visibility. The Runway 27R ILS approach provides for a decision height of 218 feet above the runway touchdown zone elevation and a 0.75-statute-mile visibility for aircraft to land on that runway. For both approaches, higher minimums are applied if pilots only use the localizer portion of the ILS equipment or if they conduct a circling approach. The visibility minimums also vary for the non-precision approaches depending on the aircraft's approach category. **Table 1-3** summarizes the minimums associated with the Runway 9L/27R ILS approaches.

TABLE 1-3
Runway 9L/27R ILS Approach Minimums
Aircraft Approach Category

Aircraft Category	A		B		C		D	
	MDA (ft)	Visibility Required (miles)	MDA (ft)	Visibility Required (miles)	MDA (ft)	Visibility Required (miles)	MDA (ft)	Visibility Required (miles)
Runway								
Straight Approach								
9L	219	0.5	219	0.5	219	0.5	219	0.5
27R	218	0.75	218	0.75	218	0.75	218	0.75
Straight Approach only using the localizer portion of the ILS equipment								
9L	520	0.5	520	0.5	520	1	520	1
27R	460	1	460	1	460	1.25	460	1.5
Circle to Land Approach								
9L	520	1	520	1	640	1.75	680	2
27R	500	1	500	1	640	1.75	680	2

Notes:

MDA stands for Minimum Descent Altitude (MDA).

MDA is expressed in feet above Mean Sea Level (MSL).

Source: FAA, Southeast U.S. Terminal Procedures, April 2006.

Prepared by: Ricondo & Associates, Inc., April 2006.

SECTION 2

Terminal Area Facilities

SECTION 2

Terminal Area Facilities

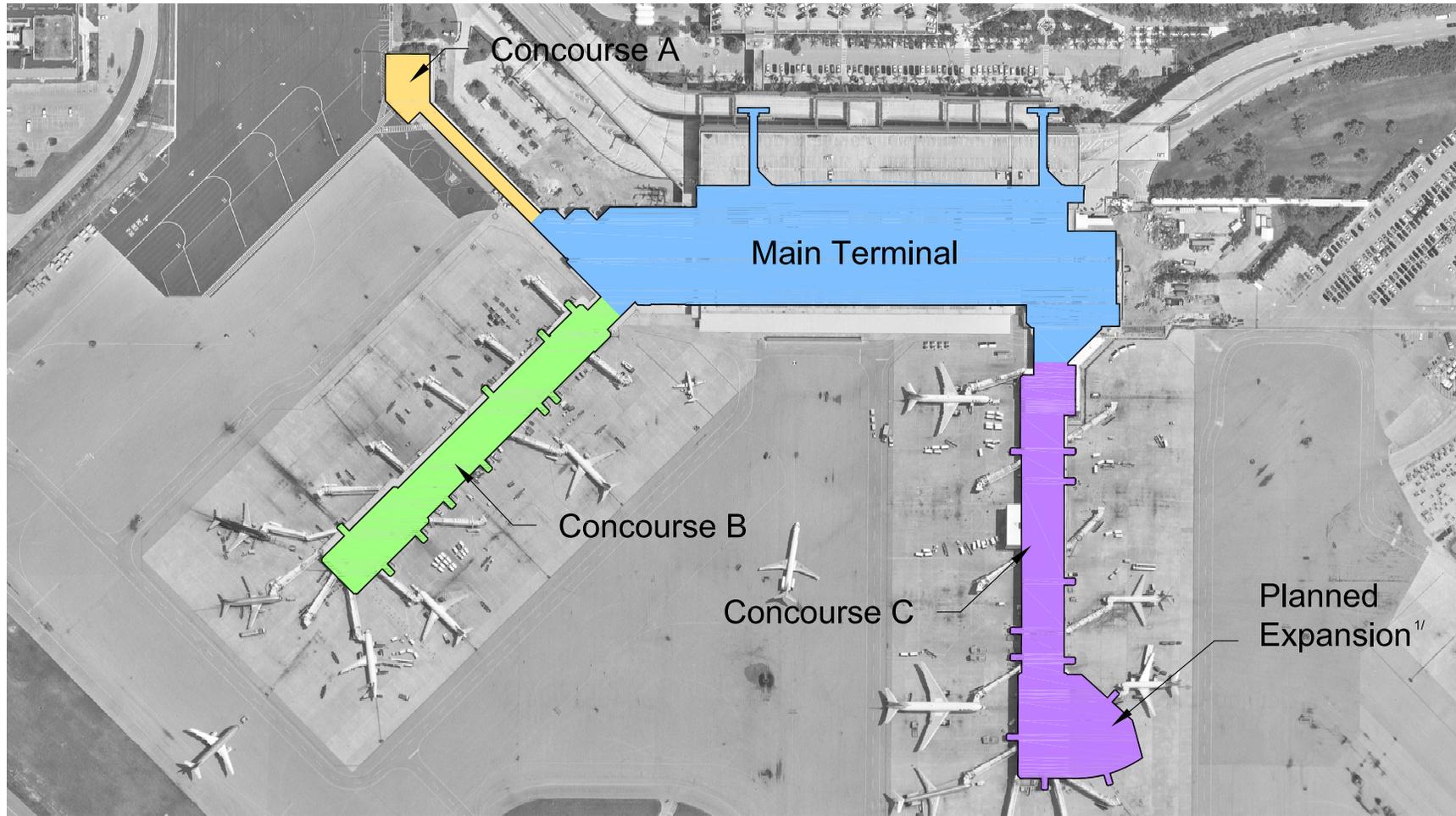
Since the last Master Plan was completed for Palm Beach International Airport in 2001, the Department of Airports (DOA) has completed several terminal enhancement/improvement projects to primarily provide additional passenger-processing capacity and outbound baggage make-up areas. The 2001 Strategic Master Plan Update (2001 Strategic Plan), as well as subsequent studies sponsored by the DOA, served as the baseline for the inventory conducted for this report. Field surveys and interviews with Airport staff were also conducted to document any existing conditions that may differ from those previously documented.

The expansion of Concourse C, with three additional gates, began in 2006. Although construction activities associated with this expansion will not be completed until 2007, the terminal facilities that will exist after the expansion is considered an “existing” condition for the purposes of this Master Plan.

As shown in **Exhibit 2-1**, the terminal facilities consist of a Main Terminal, and three concourses, designated as Concourse A, Concourse B, and Concourse C. Together, these terminal facilities total approximately 725,200 square feet and serve major/national and regional/commuter airlines.

For clarity purposes throughout this section, the following functional categories were identified:

- ➔ Airline Functional Areas – the areas dedicated to airline functions include ticket counters/kiosks/curbfront check-in, airline ticket offices, holdrooms, passenger queuing areas, VIP rooms, baggage claim areas, concourse circulation areas, operations and services offices, and tug drive/inbound baggage areas.
- ➔ Concessions – those public and support areas of the terminal allocated for the sale of merchandise and services. Concessions areas include food and beverage areas, kitchen areas, retail areas, rental car areas, office/storage areas, and other commercial revenue-producing areas.
- ➔ Security/Federal Inspection Services – all areas within the terminal where federal inspection services (FIS) such as inspection by U.S. Customs and Border Patrol or security services, such as the screening of passengers and baggage by the Transportation Security Administration (TSA), are conducted.
- ➔ Public Areas – unenclosed and nonsecure areas of the terminal, as well as concourse circulation.
- ➔ Nonpublic Areas – Airport administration and mechanical/electrical building systems.



Note:

1/ Construction of the planned expansion at Concourse C is anticipated in 2006

Source: Palm Beach County Department of Airports, April 2006

Prepared by: Ricondo & Associates, Inc., April 2006

Exhibit 2-1



Terminal Facilities

Drawing: P:\PBI\A\System Wide Airport Master Planning Study - Phase III\Task 2 - Inventory and Data Collection\Exhibits\PBI Terminal Facilities.dwg_Layout: Layout1_Apr 18, 2006, 4:17pm

The first level, or the arrival level, serves as the primary area for processing deplaning passengers and outbound baggage. In general, this level provides concession support space, airline operations space (i.e., baggage services), DOA offices, mechanical rooms, electrical rooms, electrical substations, outbound/inbound baggage handling systems, security screening equipment for baggage, public information service desks, the Palm Beach County Sheriff's office, rental car facilities, restrooms, and access to public transportation and all other ground transportation modes.

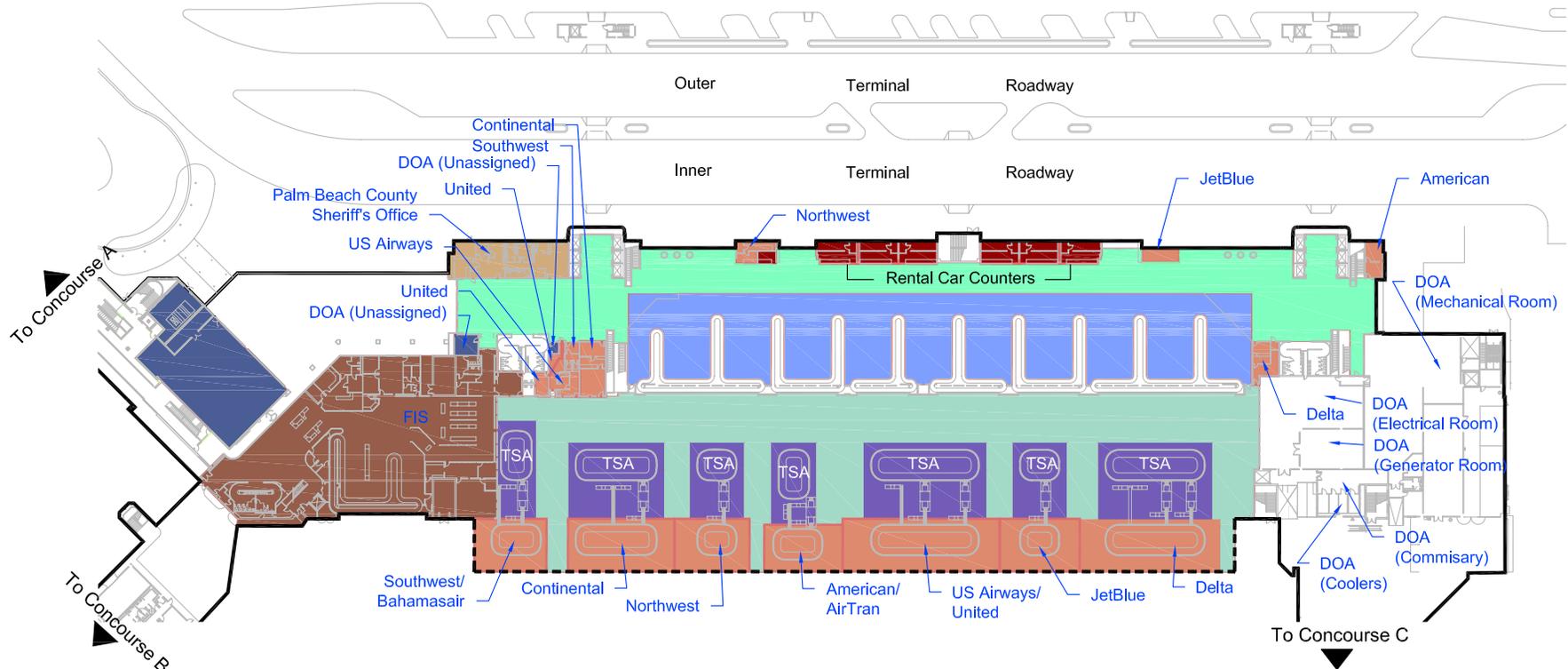
The second level, known as the departure level, serves as the primary area for processing ticketed (enplaning or departing) passengers. The second level also provides concessions space, security facilities, DOA offices, mechanical rooms, electrical rooms, and electrical substations. In addition to the existing lobby area located between the putting green and the Cinnabon concession, the second level also offers new seating areas/waiting lobby as part of the enhancement/improvement of the Main Terminal. These areas are located adjacent to the entrance to Concourses A and B and Concourse C near the newly enhanced security screening checkpoint areas. Holdrooms and boarding facilities are also a major component of the second level of the terminal facilities. Following the expansion of Concourse C, which is currently under way, a total of 32 gates will be provided at the Airport, including 15 gates on Concourse C, 13 gates at Concourse B, and 4 ground-loaded gates (commuter gates) at Concourse A. Concourse C will provide seven wide-body gates (designed for B-767 aircraft or smaller) and eight narrow-body gates (designed for narrow-body aircraft such as the B-737 or A320).

The third level of the terminal facilities only applies to the Main Terminal building. This level is primarily dedicated for the ticketing of passengers (curbside and ticket counter/kiosk check-in) and baggage check-in. This level provides airline office space for Airport administration and support services, outbound baggage handling systems, Airport information desks, and mechanical rooms.

A more detailed description of the terminal facilities (Main Terminal, Concourse A, Concourse B, and Concourse C), organized by level and the functional areas mentioned earlier, is provided below.

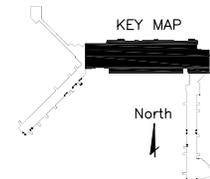
2.1 Main Terminal

Exhibit 2-2 illustrates the current space utilization for the first (arrival) level of the Main Terminal. As shown, this level serves as the primary area for processing deplaning (arriving) passengers. It houses the baggage claim and reconfigured baggage make-up facilities to accommodate both the TSA baggage security screening equipment and the airlines' outbound baggage systems. The first level of the Main Terminal also provides space for the rental car companies. Currently, Alamo, Avis, Budget, Dollar, Enterprise, Hertz, Thrifty, and National operate counters along the north wall of the first level of the Main Terminal. Other tenants include the Palm Beach County Sheriff, whose office is located in the northeast corner of the Main Terminal, and airline baggage service offices.



Legend:

- | | | | |
|---|---|---|-------------------------|
|  | Baggage Claim |  | Tug Drive Circulation |
|  | Circulation |  | Car Rental Counters |
|  | Baggage Make-up, Offices, and Baggage Service Offices |  | DOA (Unassigned) |
|  | Palm Beach County Sheriff's Office |  | Building Outline |
| | |  | Airline Occupant/Tenant |



Source: Palm Beach County Department of Airports, April 2006
 Prepared by: Ricondo & Associates, Inc., April 2006

Exhibit 2-2



Main Terminal Level 1

Drawing: P:\PBIA\System Wide Airport Master Planning Study - Phase III\Task 2 - Inventory and Data Collection\Exhibits\PBI Main Terminal Level 1.dwg_Layout: Layout1_Apr 18, 2006, 3:51pm

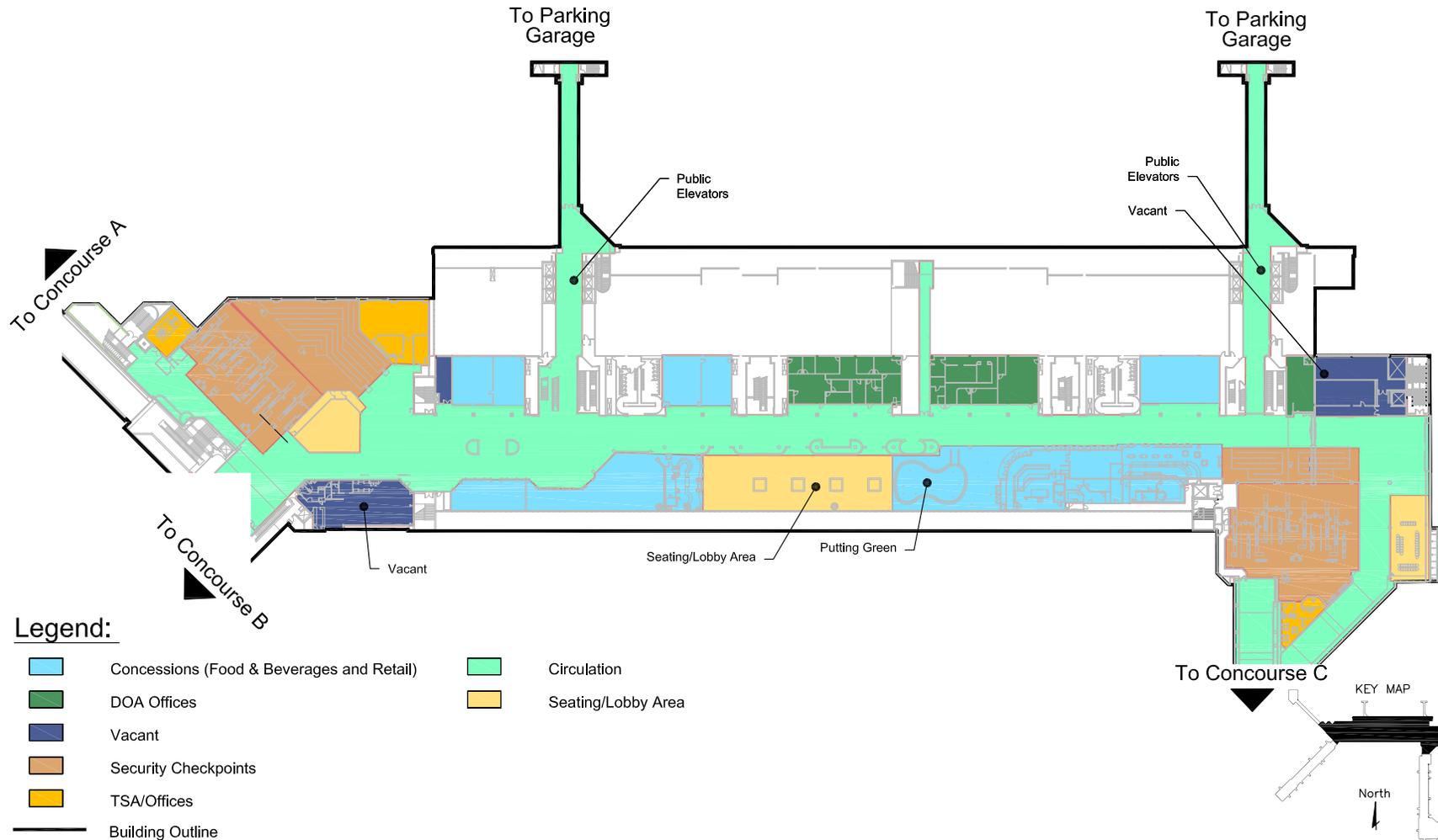
American Airlines' baggage service office is located at the far northeast section of the first level. JetBlue Airways' and Northwest Airlines' baggage service office are located east and west, respectively, of the rental car companies. Additional airline support offices are located across from the Palm Beach County Sheriff's office. The expansion of the Main Terminal building, which provided additional capacity for security screening checkpoints on the second level of the terminal, resulted in additional mechanical rooms and circulation space on the first level of the Main Terminal, as shown in **Exhibit 2-2**. The FIS facilities are also located on the first level of the Main Terminal. The facilities encompass 19,820 square feet and include the U.S. Immigration and Naturalization Service (INS), U.S. Customs and Border Patrol, and the U.S. Public Health Service. Gates on Concourses A and B allow for the sterile transport of international passengers to the FIS facilities. Upon arrival at the FIS area, either through escalators or elevators from the international gates or through the ground level doors off the commuter apron, passengers first claim their baggage from one of the baggage conveyor belts located along the south wall. They then proceed through any of the INS processing lanes for passport/visa inspection, followed by baggage inspection. Cleared passengers then exit the FIS area into the domestic baggage claim area.

The second (departure) level encompasses the newly expanded security screening checkpoints and support areas, new seating/lobby area, and concession facilities, including food and beverage, retail shops, and other services, as illustrated in **Exhibit 2-3**. The second level also provides additional office spaces, which are currently vacant, on the Concourse C side prior to the passenger security screening area. The DOA's operations offices and the Communications Center are centrally located on the second level. Elevators and escalators provide vertical passenger movement to the short-term parking garage and to other levels of the Main Terminal.

As Exhibit 2-3 shows, security screening checkpoints are located at the entrances to Concourses A, B, and Concourse C, each with seven magnetometers and seven x-ray machines. The passenger security screening checkpoint for Concourse B also serves passengers departing on commuter flights from Concourse A. In addition to ticketed passengers, all individuals, badged or unbadged, must clear the checkpoints when entering the concourses.

The second level of the Main Terminal also provides a significant amount of concession space. The mini-mall area is currently occupied by four food and beverage shops, which include California Pizza Kitchen, Sam Snead's Tavern, Rooney's Public House, and Cinnabon. Six retail stores, including El Mercado de Palm Beach, PGA Tour Shop, JL Unlimited, Baby Boomers, and Alador Money Exchange are also located on the second level of the Main Terminal.

Exhibit 2-4A illustrates the third level of the Main Terminal, which serves as the primary area for processing enplaning (departing) passengers. As shown, the third level mainly consists of curbside and ticket counter/kiosk check-in, as well as airline administration and support offices, which are located directly behind the ticket counters. Airlines currently serving PBI include: Air Canada, AirTran Airways, American Airlines, American Eagle, Bahamasair, CanJet Airlines, Chautauqua Airlines, Comair, Continental Airlines, Continental Express, Delta Air Lines, Gulfstream International Airlines, JetBlue Airways,



Legend:

- | | | | |
|---|---|---|--------------------|
|  | Concessions (Food & Beverages and Retail) |  | Circulation |
|  | DOA Offices |  | Seating/Lobby Area |
|  | Vacant | | |
|  | Security Checkpoints | | |
|  | TSA/Offices | | |
|  | Building Outline | | |

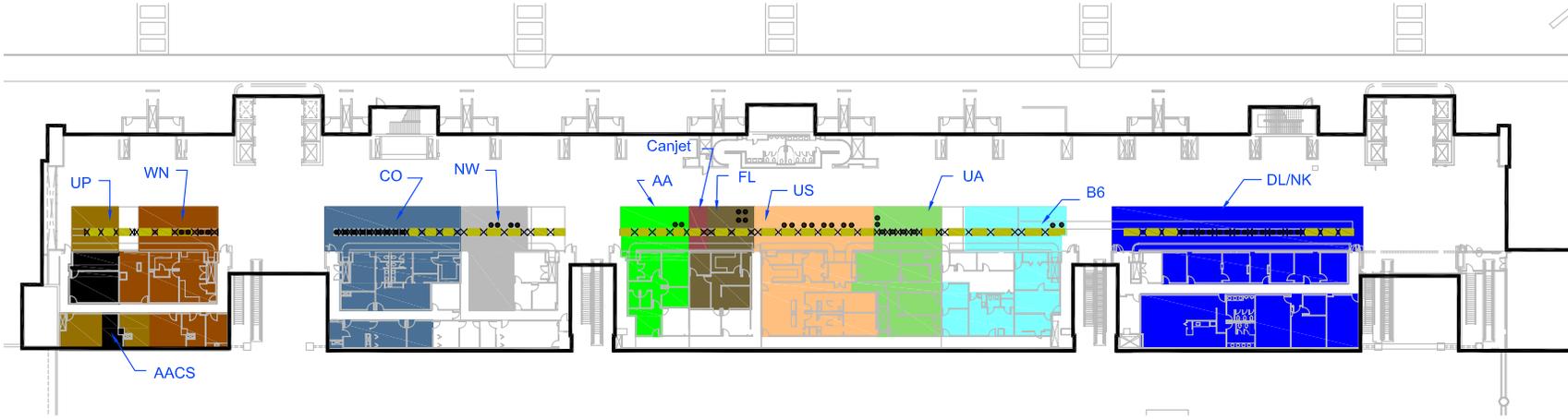
Source: Palm Beach County Department of Airports, April 2006
 Prepared by: Ricondo & Associates, Inc., April 2006

Exhibit 2-3



**Main Terminal
Level 2**

Drawing: P:\PBIA\System Wide Airport Master Planning Study - Phase III\Task 2 - Inventory and Data Collection\Exhibits\PIB Main Terminal Level 2.dwg_Layout: Layout1_Apr 18, 2006, 3:58pm

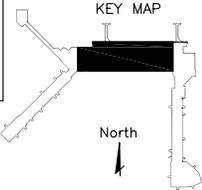


Legend:

- Southwest (WN)
- Continental (CO)
- US Airways (US)
- Northwest (NW)
- Delta/Spirit (DL/NK)
- Canjet
- Air Tran (FL)
- JetBlue (B6)
- American (AA)
- United (UA)
- Bahamasair (UP)
- AACS

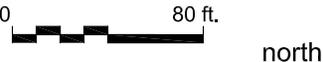
Note:
AACS = Associated Cleaning & Consultant Services

AIRLINE	TICKET COUNTER		TOTAL KIOSKS/ TICKET COUNTER POSITIONS
	POSITIONS	KIOSKS	
Delta	8	14	22
JetBlue	5	2	7
United/Air Canada	2	6	8
US Airways/Mesa	10	8	18
AirTran	2	4	6
American/American Eagle	4	2	6
Spirit	4	0	4
Northwest	2	4	6
Continental/Gulfstream	6	9	15
Southwest	4	4	8
Bahamassair	4	0	4
Vacant	8	0	8



Source: Palm Beach County Department of Airports, April 2006
Prepared by: Ricondo & Associates, Inc., April 2006

Exhibit 2-4A



Main Terminal Level 3

Drawing: P:\PBIA\System Wide Airport Master Planning Study - Phase III\Task 2 - Inventory and Data Collection\Exhibits\PBI Main Terminal Level 3.dwg_Layout: Terminal-ALL 2-4A_Apr 18, 2006, 4:07pm

Northwest Airlines, Southwest Airlines, Spirit Airlines, United Airlines, and US Airways. Increasingly, the airlines are introducing additional kiosks as a means to expedite the check in process and decrease costs by reducing the number of agents required at the ticket counters. As of April 2006, 48 percent of check-in facilities at PBI (excluding curbside check-in) are kiosks, while the remaining 52 percent represent the typical ticket counter check-in. A summary of these facilities is also provided on Exhibit 2-4A. **Exhibits 2-4B** and **2-4C** provide a more detailed layout of these facilities by airline.

Some of the airlines serving the Airport offer curbside check-in for departing passengers. This service is provided by airline-employed or contracted skycap personnel stationed at mobile podiums located at the inner curb. Delta, Southwest, and US Airways also provide curbside check-in from the outer roadway during busy times.

Exhibits 2-5A and **2-5B** show the curbside check-in positions at the terminal curbside. These facilities are located on the third level of the Main Terminal.

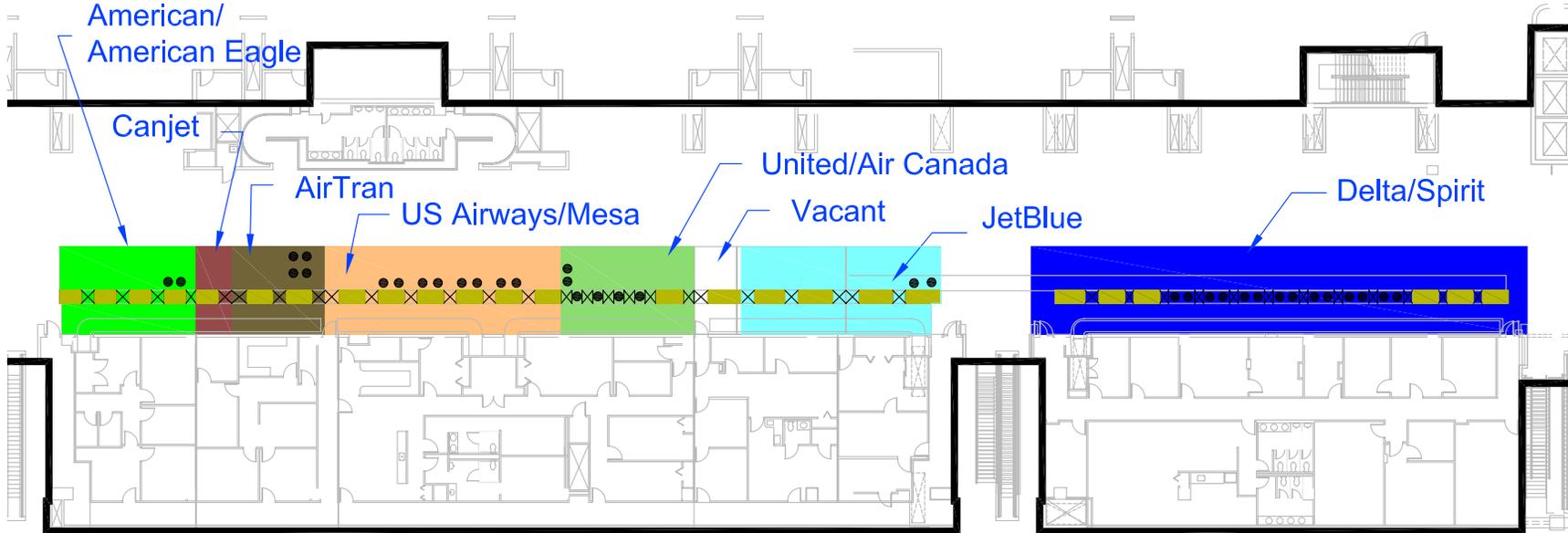
2.2 Concourse A

Concourse A, the commuter concourse, is located at ground level. It has four common-use holdrooms and gates, providing access to the ten aircraft parking positions on the commuter apron. Concourse A is joined to the Main Terminal by a connector, which consists of a domestic and an international corridor. The latter provides sterile access to the FIS facilities. Airlines currently serving Concourse A include Bahamasair, Continental Express, and Gulfstream. **Exhibit 2-6** shows the current space allocation on Concourse A, as well as the corridor linking the concourse to the Main Terminal.

2.3 Concourse B

Concourse B is a two-level linear pier, which runs in a northeast-southwest direction. The first level of the concourse primarily houses airline operation functions (storage rooms, offices, etc.) and various mechanical/electrical rooms. This area is restricted to airline employees and other authorized personnel. The second level of the concourse accommodates the enplaning and deplaning of passengers.

In total, Concourse B has eight narrow body gates (designed for narrow-body aircraft, such as the B-737 or A320) and five wide-body gates (designed for B-767 aircraft or smaller). As of April 2006, the airlines serving Concourse B include Continental, Continental Express, JetBlue, Northwest, Southwest, and US Airways. Gate B2 is the international gate, which is owned and controlled by the DOA. Gates B1 and B12 are currently unassigned. The 13 gates at Concourse B are arranged along a double loaded corridor and were designed to be used with enclosed loading bridges.

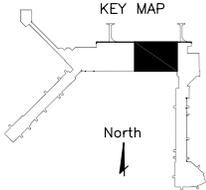


Legend:

- Ticket Counter
- Kiosk Unit
- Baggage Scale

AIRLINE	TICKET COUNTER POSITIONS	KIOSKS	TOTAL KIOSKS/ TICKET COUNTER POSITIONS
American/American Eagle	4 ⁴	2 ²	6
Canjet	2	0	2
AirTran	2 ⁴	4	6
US Airways/Mesa	10	8 ²	18
United/Air Canada	2	6 ¹	8
JetBlue	5 ⁴	2 ²	7
Delta/Delta Express/Comair/Song	8 ³	14 ¹	22
Spirit ⁵	4	0	4
Vacant	2	0	2

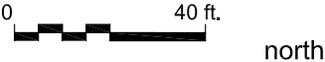
Notes:
¹ Kiosks are positioned in ticket counter locations.
² Kiosks are located in front of ticket counter positions.
³ Includes six regular ticket counter positions including two "Delta Direct" Positions/Bag drop off; also have 1 customer service position
⁴ Two ticket counter positions are dedicated to etickets bag drop-off. These positions are not included in the total number of ticket counter positions
⁵ Spirit uses Delta ticket counters



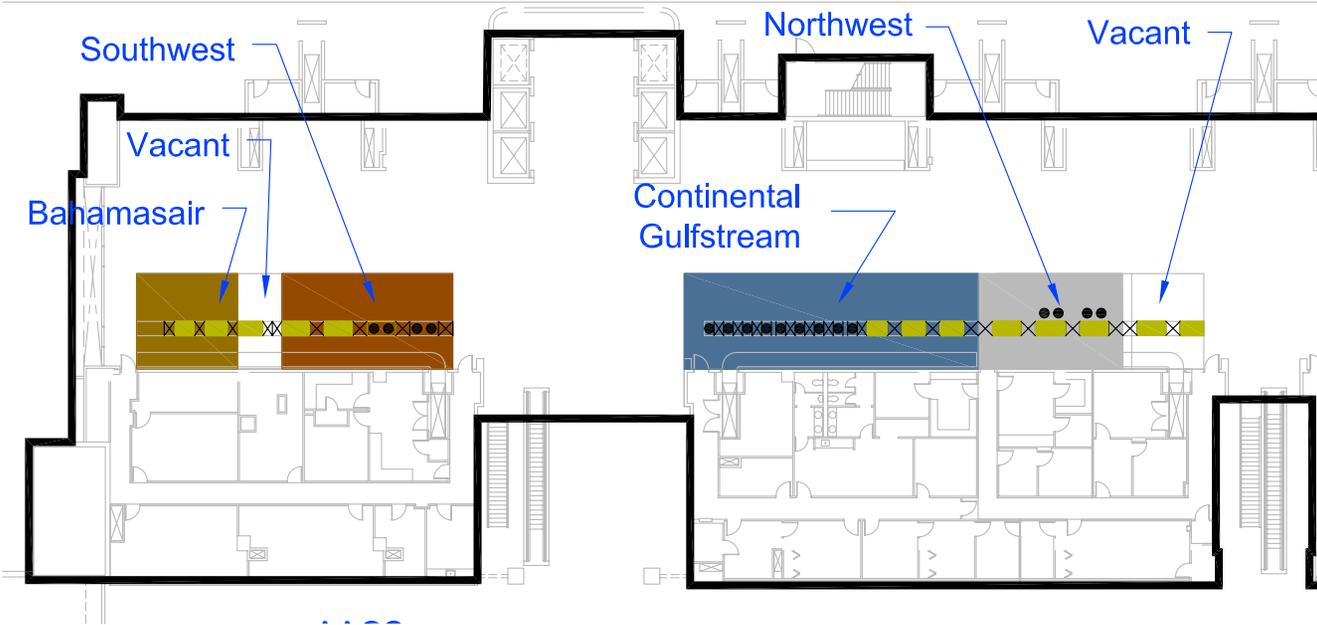
Source: Palm Beach County Department of Airports, April 2006
 Prepared by: Ricondo & Associates, Inc., April 2006

Exhibit 2-4B

**Existing Ticket Counter/Kiosk Configurations
 Main Terminal - (East Side)
 Level 3**



Drawing: P:\PBI\System Wide Airport Master Planning Study - Phase III\Task 2 - Inventory and Data Collection\Exhibits\PBI Main Terminal Level 3.dwg_Layout: Terminal-East_Apr 18, 2006, 4:08pm

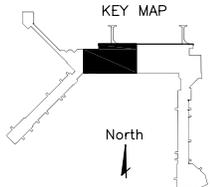


Legend:

- Ticket Counter
- Kiosk Unit
- Baggage Scale

AIRLINE	TICKET COUNTER POSITIONS	KIOSKS	TOTAL KIOSKS/ TICKET COUNTER POSITIONS
Vacant	6	0	6
Southwest	4	4 ^{1/}	8
Continental/Gulfstream	6	9 ^{1/}	15
Northwest	2 ^{3/}	4 ^{2/}	6
Bahamasair	4	0	4

Notes:
^{1/} Kiosks are positioned in ticket counter locations.
^{2/} Kiosks are located in front of ticket counter positions.
^{3/} Four ticket counter positions are dedicated to etickets bag drop-off. These positions are not included in the total number of ticket counter positions



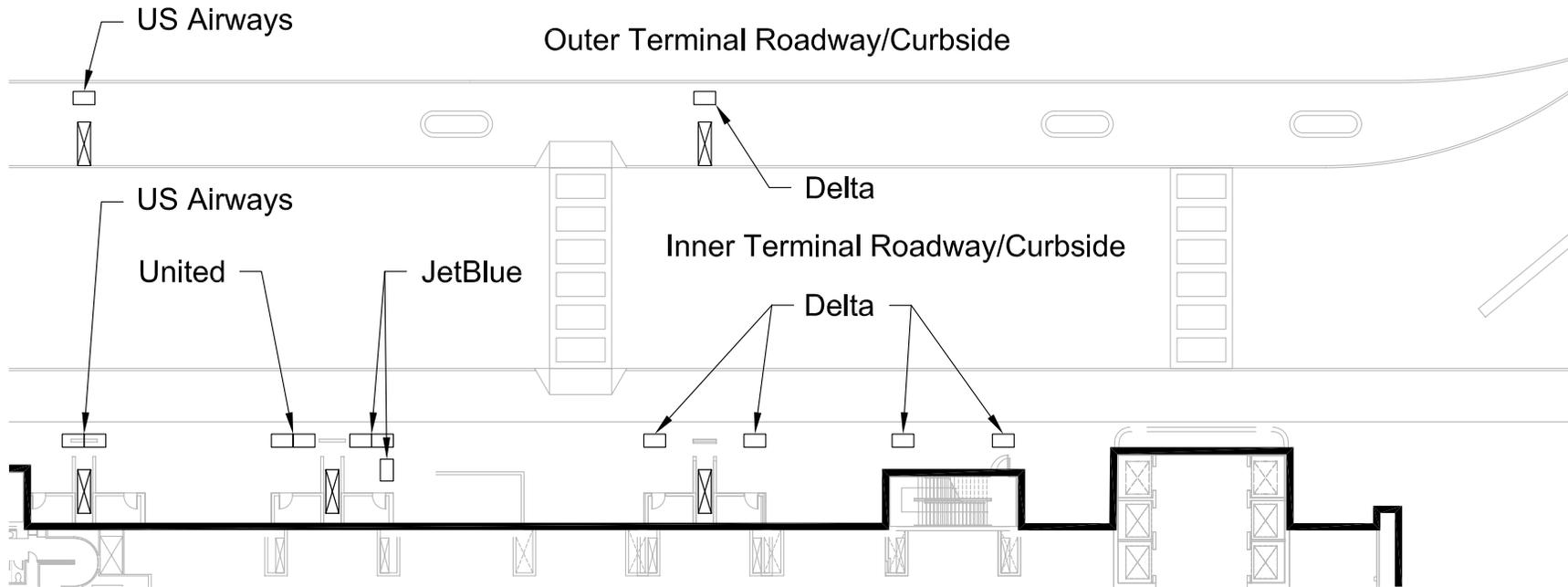
Source: Palm Beach County Department of Airports, April 2006
 Prepared by: Ricondo & Associates, Inc., April 2006

Exhibit 2-4C

**Existing Ticket Counter/Kiosk Configurations
 Main Terminal - (West Side)
 Level 3**



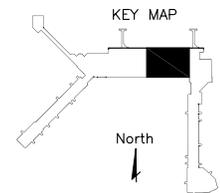
Drawing: P:\PBIA\System Wide Airport Master Planning Study - Phase III\Task 2 - Inventory and Data Collection\Exhibits\PBI Main Terminal Level 3.dwg_Layout: Terminal-West_Apr 18, 2006, 4:08pm



Legend:

-  Curbside Bag Belt
-  Curbside Check-In Positions

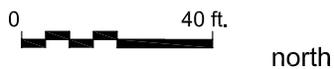
AIRLINE	TICKET COUNTER POSITIONS	BAG BELTS
US Airways/Mesa	3	2
United/Air Canada	3	1
JetBlue	4	1
Delta/Delta Express/Comair/Song	4	2



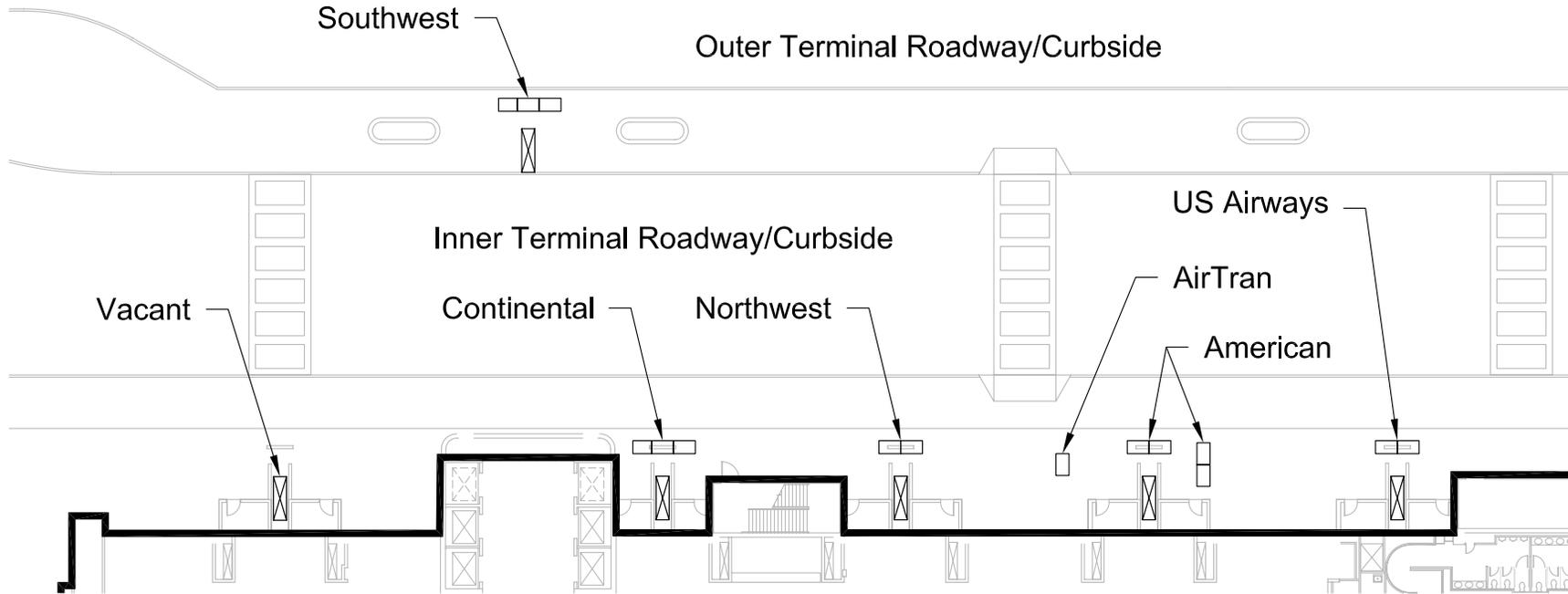
Source: Palm Beach County Department of Airports, April 2006
 Prepared by: Ricondo & Associates, Inc., April 2006

Exhibit 2-5A

**Curbside Check In Facilities
 Main Terminal - (East Side)
 Level 3**



Drawing: P:\PBIA\System Wide Airport Master Planning Study - Phase III\Task 2 - Inventory and Data Collection\Exhibits\PBI Main Terminal Level 3.dwg_Layout: Curbside-East_Apr 18, 2006, 4:09pm

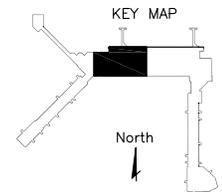


Legend:

- Curbside Bag Belt
- Curbside Check-In Position

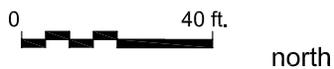
AIRLINE	TICKET COUNTER POSITIONS	BAG BELTS
Vacant	0	1
Southwest	3	1
Continental/Gulfstream	3	1
Northwest	2	1
AirTran	1	N/A ¹
American/American Eagle	2	1
US Airways/Mesa	4	1

Notes:
¹ AirTran sky cabs bring baggage on carts inside terminal.



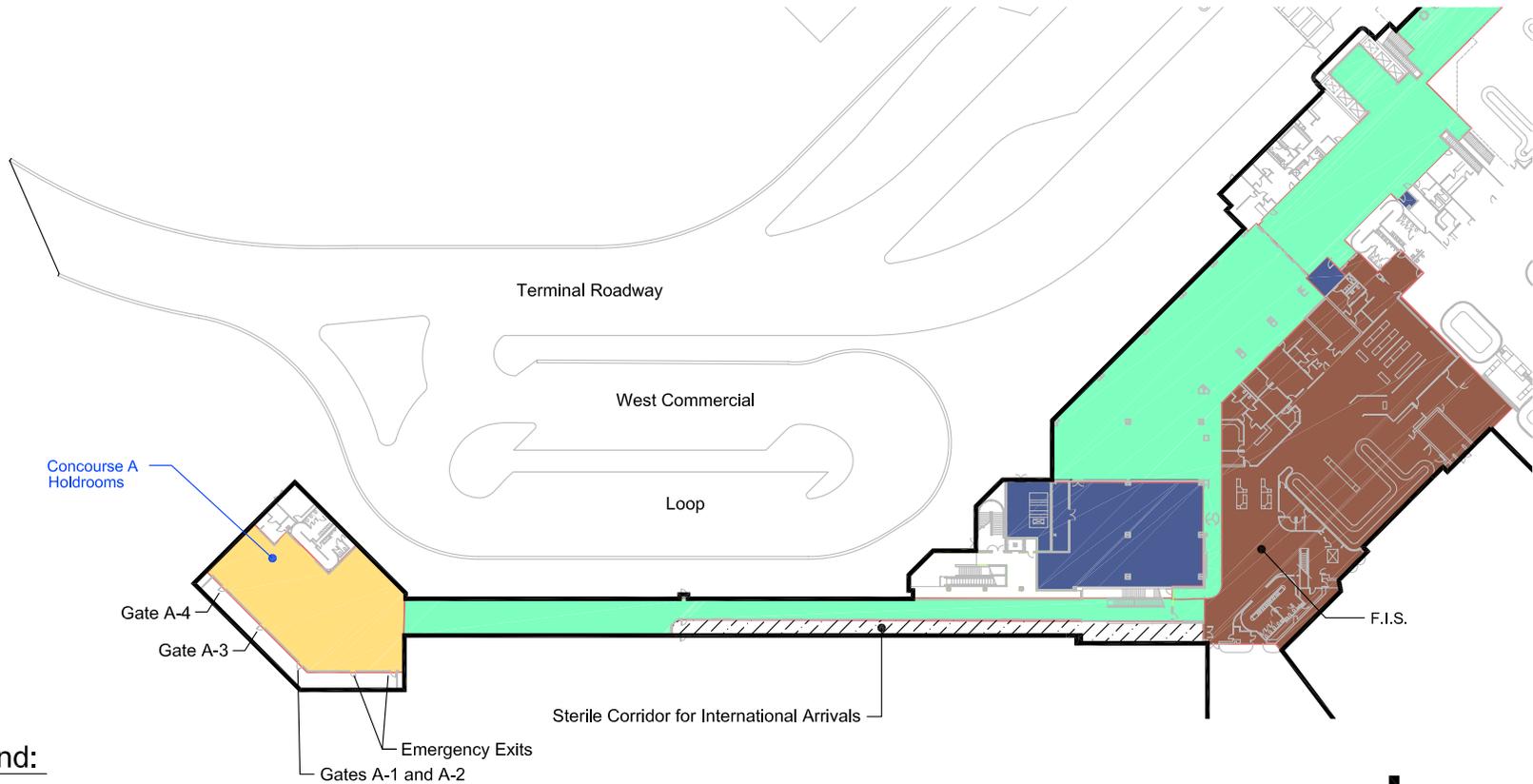
Source: Palm Beach County Department of Airports, April 2006
 Prepared by: Ricondo & Associates, Inc., April 2006

Exhibit 2-5B



**Curbside Check In Facilities
 Main Terminal - (West Side)
 Level 3**

Drawing: P:\PBIA\System Wide Airport Master Planning Study - Phase III\Task 2 - Inventory and Data Collection\Exhibits\PBI Main Terminal Level 3.dwg_Layout: Curbside-West_Apr 18, 2006, 4:10pm

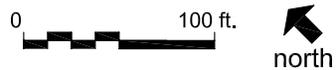


Legend:

- | | | | |
|---|----------------|---|-------------------------|
|  | Holdrooms |  | Building Outline |
|  | Circulation | Gate A-# | Gate Designation |
|  | DOA Unassigned |  | Airline Occupant/Tenant |
|  | FIS |  | Sterile Corridor |

Source: Palm Beach County Department of Airports, April 2006
 Prepared by: Ricondo & Associates, Inc., April 2006

Exhibit 2-6



**Concourse A
Level 1**

Drawing: P:\PBIA\System Wide Airport Master Planning Study - Phase III\Task 2 - Inventory and Data Collection\Exhibits\PB Conc A Level 1.dwg_Layout: Layout1_Apr 18, 2006, 3:55pm

The second level of the concourse has a central circulation corridor serving the airline holdrooms. Food and beverage concessions located at Concourse B include Nick's Tomatoe Pie, Burger King, Starbucks Coffee, Hoffman's Ice Cream & Chocolate, and TCBY Treats. Retail concessions include the Paradies News Stand and West Palm Reading Room. Exhibits 2-7 and 2-8 show the current space allocations for the first and second levels of Concourse B, respectively.

2.4 Concourse C

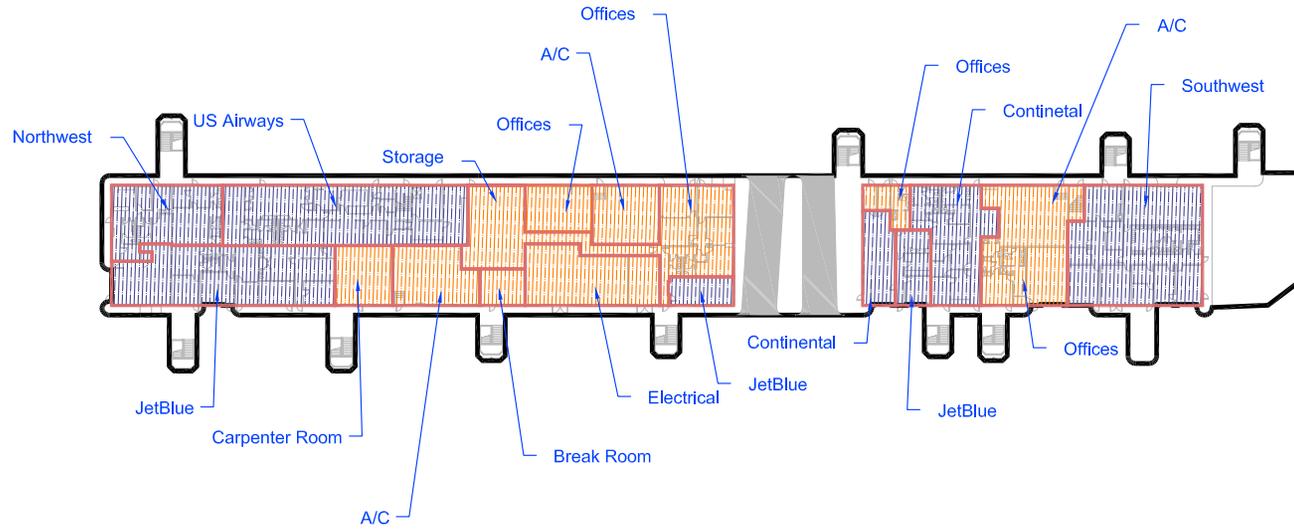
Similar to Concourse B, Concourse C is also designed as a two-level linear pier (with a planned hammerhead expansion). The first level of the concourse is a restricted area dedicated to airline operations, and the second level accommodates enplaning and deplaning passengers. Since the 2001 Strategic Plan was completed, the DOA has sponsored the programming and design of the Concourse C Enhancement Program. This program includes the recategorization of existing gates, as well as the addition of gates. Deficiencies noted in the 2001 Strategic Plan that are being addressed through this expansion include disproportionate balance between aircraft size serving PBI, undersized holdrooms, and inadequate concessions space. Upon completion of this expansion (anticipated in 2007), the primary benefits that are expected to result include increased concession revenues and increased availability of gates during peak travel times.

Currently, Concourse C provides eleven wide-body gates and one narrow-body gate. The expansion will result in a total of fifteen gates, including seven wide-body gates and eight narrow-body gates, as previously noted. In addition to these new gates, the concourse expansion will include additional holdroom space, concessions space, restrooms, and public circulation space. Airlines currently serving Concourse C include Air Canada, AirTran, American, Chautauqua, Comair, Delta, Spirit, and United. Gates C5, C8, C9, and C12 are currently unassigned.

Concessions located on Concourse C include Nick's Tomatoe Pie, Starbucks Coffee, and Miami Subs Grill and Bar, and two Paradies News stands. Exhibits 2-9 and 2-10 illustrate the current space allocation for the first and second levels of Concourse C, respectively.

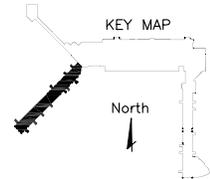
2.5 Terminal Area Facility Summary

Table 2-1 provides a summary of the allocation of space by functional area within the terminal complex. Since the 2001 Strategic Plan was completed, the PBI terminal area has increased by approximately 30 percent as a result of the additional space for passenger and baggage security screening, as well as three additional gates at Concourse C.



Legend:

-  Baggage Services and Airline/Tenant Offices
-  DOA Offices/Mechanical Rooms/Unassigned
-  Tug Drives
-  Building Outline
-  Airline/DOA Occupant/Tenant



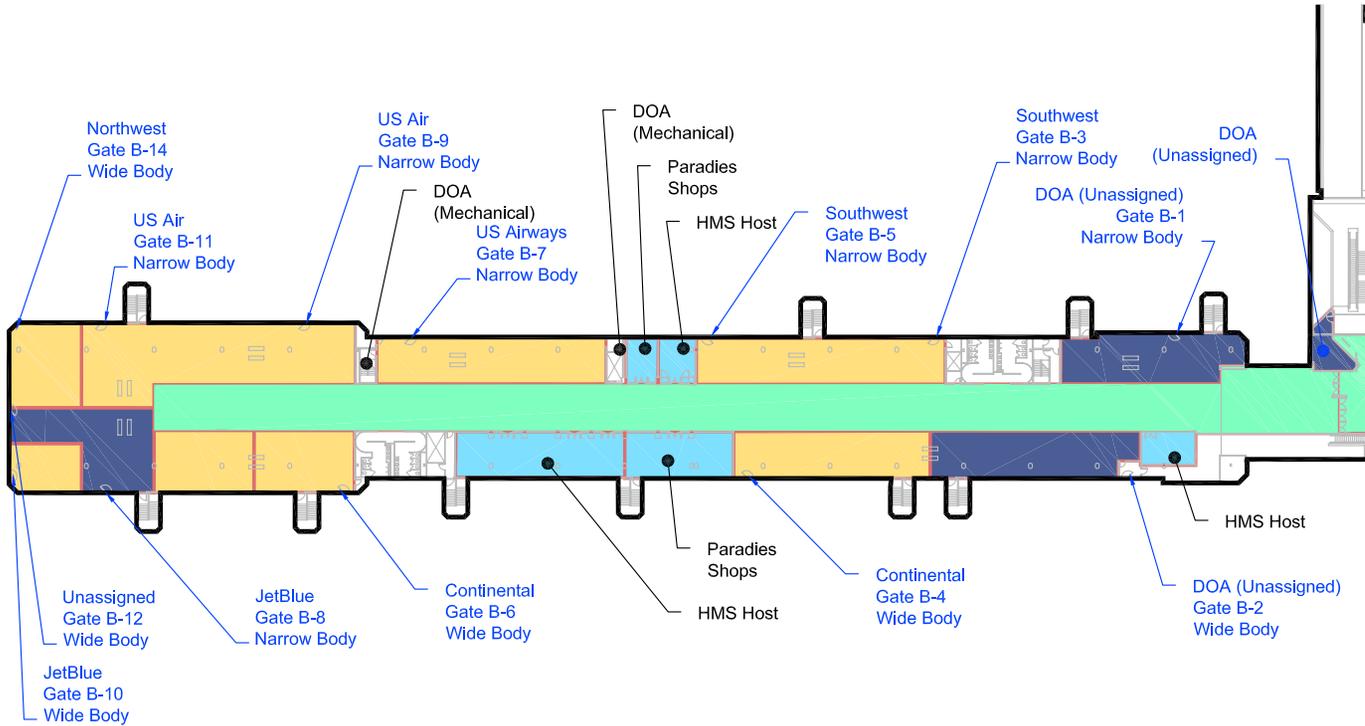
Source: Palm Beach County Department of Airports, April 2006
 Prepared by: Ricondo & Associates, Inc., April 2006

Exhibit 2-7



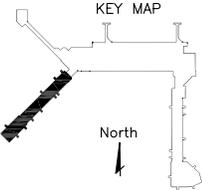
**Concourse B
Level 1**

Drawing: P:\PBIA\System Wide Airport Master Planning Study - Phase III\Task 2 - Inventory and Data Collection\Exhibits\PIB Conc B Level 1.dwg_Layout: Layout1_Apr 18, 2006, 3:56pm



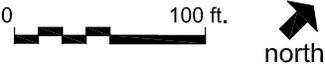
LEGEND:

- Concessions
- Holdrooms
- DOA Unassigned Gate / Holdroom
- Circulation Corridor
- Holdroom Boundaries
- Building Outline
- Gate B-# Gate Designation
- Airline Occupant / Tenant



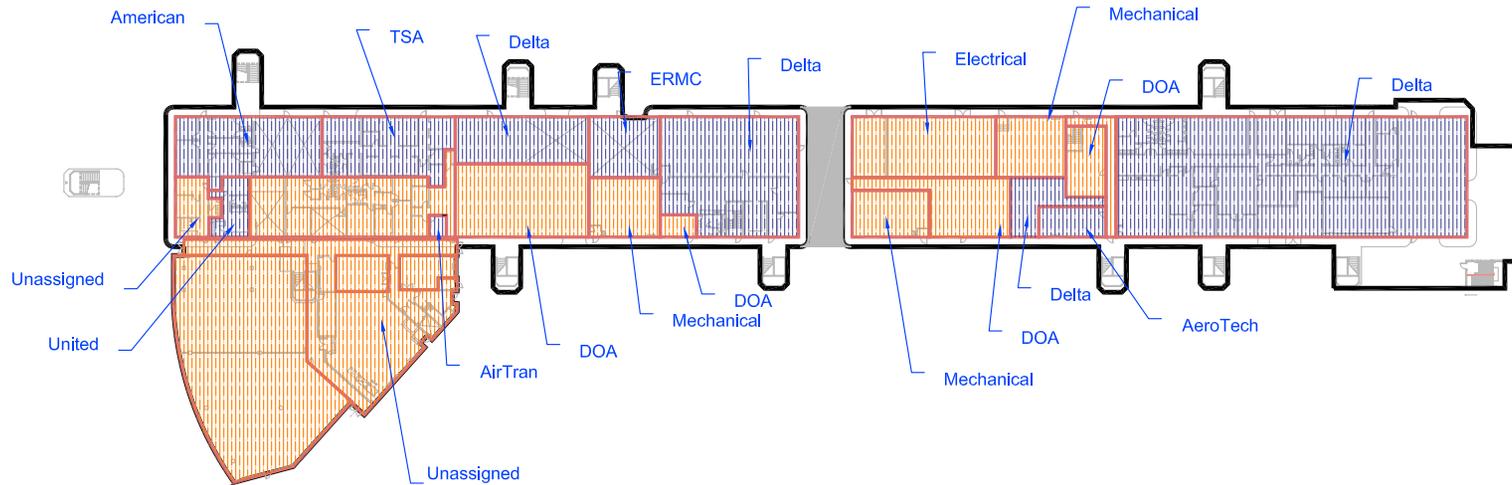
Source: Palm Beach County Department of Airports, April 2006
 Prepared by: Ricondo & Associates, Inc., April 2006

Exhibit 2-8



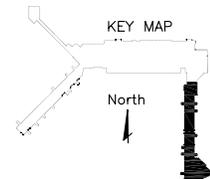
**Concourse B
Level 2**

Drawing: P:\PBIA\System Wide Airport Master Planning Study - Phase III\Task 2 - Inventory and Data Collection\Exhibits\IPI Conc B Level 2.dwg_Layout: Layout1_Apr 18, 2006, 3:59pm



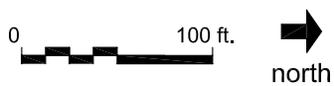
Legend:

-  Baggage Services and Airline/Tenant Offices
-  DOA Offices/Mechanical Rooms/Unassigned
-  Tug Drives
-  Building Outline
-  Airline/DOA Occupant/Tenant



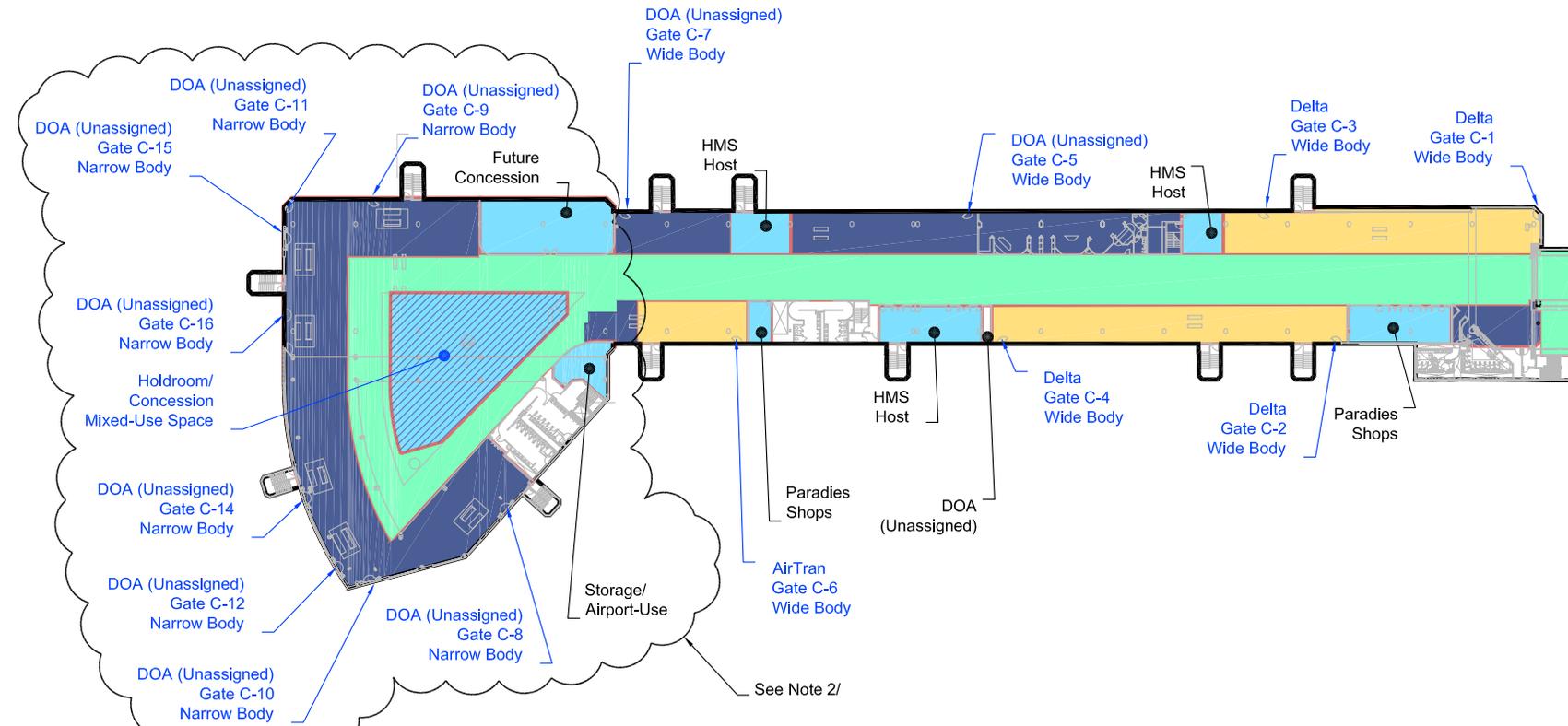
Source: Palm Beach County Department of Airports, April 2006
 Prepared by: Ricondo & Associates, Inc., April 2006

Exhibit 2-9



**Concourse C
Level 1**

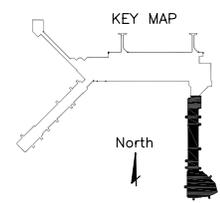
Drawing: P:\PBIA\System Wide Airport Master Planning Study - Phase III\Task 2 - Inventory and Data Collection\Exhibits\PBI Conc C Level 1.dwg_Layout: Layout1_Apr 18, 2006, 3:57pm



LEGEND:

- | | | | |
|---|--------------------------------------|---|---------------------|
|  | Concessions |  | Holdroom Boundaries |
|  | Holdrooms |  | Building Outline |
|  | Holdroom/Concessions Mixed-Use Space |  | Gate Designation |
|  | DOA Unassigned Gate / Holdroom |  | Occupant / Tenant |
|  | Circulation Corridor | | |

Notes: 1/ Assumes the planned expansion of concourse C as existing condition. Concourse C is anticipated to be operational by late 2007.
 2/ As of April 2006, the Airline gate assignments have not yet been finalized.



Source: Palm Beach County Department of Airports, April 2006
 Prepared by: Ricondo & Associates, Inc., April 2006

Exhibit 2-10



**Concourse C^{1/}
 Level 2**

Drawing: P:\PBA\System Wide Airport Master Planning Study - Phase III\Task 2 - Inventory and Data Collection\Exhibits\PBI Conc C Level 2_REV2.dwg_Layout_Layout1_Jan 31, 2007, 2:18pm

TABLE 2-1
Summary of Terminal Area

Terminal Space	Area (square feet)
Airline Functions	
Ticket Counter	11,240
Airlines Ticket Counter Office (ATO)	22,377
Holdrooms	65,958
Concourse Circulation	54,214
Baggage Claim Area	22,607
Outbound Baggage (Airlines)	18,480
Outbound Baggage Screening (TSA)	20,715
Baggage Service Offices	2,900
VIP Rooms	6,364
Airline Operations Office	58,463
Tug Drive/Inbound Baggage	28,353
Subtotal	311,671
Concessions	
Food/Beverage/Retail/Gift	32,301
Rental Car	2,424
Subtotal	34,725
Federal Inspection Services	
FIS	19,540
Subtotal	19,540
Security/TSA	
Security Checkpoint Area	13,644
Security Checkpoint Queuing Area	7,711
Security Checkpoint/TSA Support Area	3,775
Subtotal	25,130

TABLE 2-1
Summary of Terminal Area

Terminal Space	Area (square feet)
Public Areas	
Seating/Lobby	9,692
Non-Secure Circulation	111,797
Subtotal	121,489
Other Areas	
Mechanical/Electrical/Building Systems/Stairs/Escalators/Restrooms/Unenclosed Areas	180,563
Sheriff's Office	2,173
DOA Office Space/Storage	29,943
Subtotal	212,679
TOTAL	725,234

Source:

Department of Airport (DOA) Properties Department, Palm Beach International Airport, April 2006.
Prepared by: Ricondo & Associates, Inc. April 2006.

2.6 Remain Overnight Positions (RON)

The current capital improvement program (CIP) for PBI includes the addition of supplemental RONs, intended to expand Apron A to the west to add RON positions on both sides of the terminal.

SECTION 3

Aviation Tenant Facilities

Aviation Tenant Facilities

3.1 General Aviation Facilities

General aviation (GA) refers to those facilities and operations of all aviation users other than scheduled commercial airlines and the military. GA activities include recreational and flight training; for hire charter flights, including those used for aerial observation, news reporting, traffic observation, environmental surveys, wildlife counts, police patrol, emergency medical evacuation, pipeline patrol, crop dusting, and business air travel. Typical GA facilities include conventional hangars, t-hangars, and aircraft tiedown spaces.

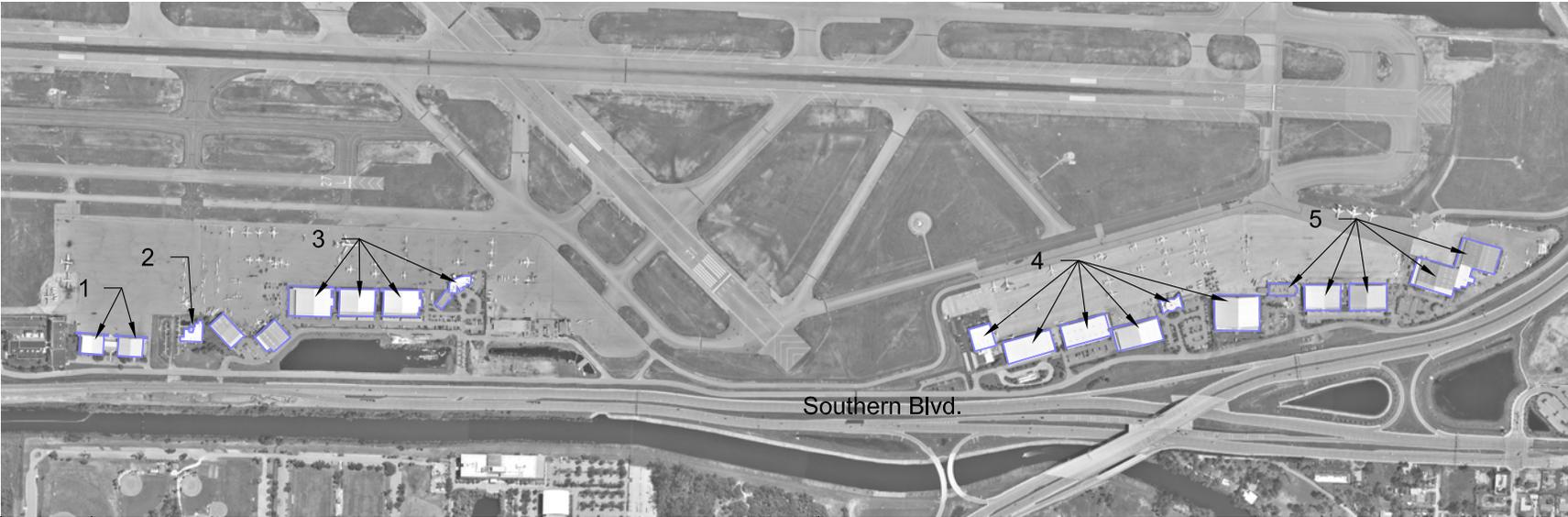
While GA activity has always been a major part of PBI operations, the type of GA aircraft that currently operate on the airfield has changed. Today, the GA aircraft fleet operating at PBI includes a majority of turboprop and business/corporate jet aircraft that range from small Cessna Citation jets weighing less than 12,500 pounds to Boeing Business Jets with a maximum takeoff weight of 171,000 pounds. As of March 2006, 116 GA aircraft were based at PBI, of which 18 were single-engine aircraft, 23 were multiengine aircraft, 57 were jet aircraft, and 18 were helicopters.

As depicted in **Exhibit 3-1**, general aviation facilities are located on the south side of the Airport, south of Runway 9L/27R and due north of Southern Boulevard. The GA areas, including the apron, hangar facilities, executive terminal, automobile parking, fuel farms, and access road, encompass approximately 105 acres.

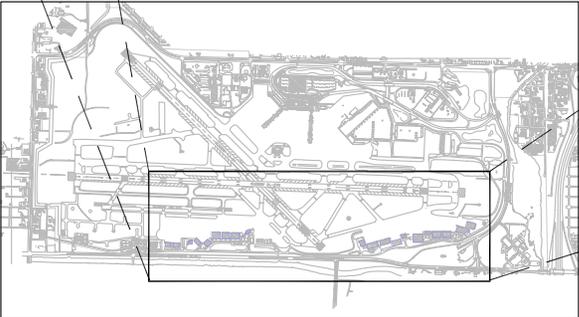
For purposes of this report, the GA ramps and hangars are discussed separately. The inventory of GA facilities provides the foundation for subsequent analyses, including the airfield demand/capacity analysis and the determination of facility requirements, which will be presented in subsequent sections.

3.1.1 GA Ramp

Two GA ramps are located at PBI. One ramp is located south of Runway 9R/27L and west of Runway 13/31. This ramp encompasses approximately 157,000 square yards and is used for aircraft parking and movement. The fixed base operators (FBOs) that manage the ramp and lease the tiedown positions include Galaxy Aviation and Signature Flight Support. Galaxy Aviation leases approximately 55 percent of the ramp area, while Signature Flight Support leases about 45 percent. Taxiways F, L, and R provide the primary access to this GA ramp. Taxiway F runs parallel to Runway 13/31 and is 75 feet wide. Taxiway L, which is 50 feet wide, runs south of and parallel to Runway 9L/27R and connects directly to Taxiway F. Taxiway R is the full-length parallel taxiway to Runway 9R/27L and is 35 feet wide. The second GA ramp is located in the southeast quadrant of the airfield, east of Runway 13/31 and south of Runway 9L/27R. This ramp, which encompasses approximately 119,000 square yards, is leased to Signature Flight Support and Jet Aviation. This ramp is accessible via Taxiway E, which runs along the northern edge of the GA ramp,



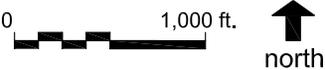
Key Map



Building No.:	Identifier:
1	Signature Flight Support
2	FAA ATCT
3	Galaxy Aviation
4	Signature Flight Support
5	Jet Aviation

Source: Palm Beach International Airport, Airport Layout Plan, Dec. 1996; Palm Beach International Airport Aerial Photo, July 2005
 Prepared by: Ricondo & Associates, Inc., April 2006

Exhibit 3-1



**General Aviation Facilities
 Location Map**

Drawing: P:\PBI\System Wide Airport Master Planning Study - Phase III\Task 2 - Inventory and Data Collection\Exhibits\PBI Inventory Exhibits_ALL.dwg_Layout: 3-1 GA Facilities_Apr 19, 2006, 5:43pm

connecting the Runway 31 and Runway 27R ends.

The GA ramps are fully occupied on a daily basis and limited area is available for parking additional aircraft. The ramp areas accommodate a large number of aircraft, ranging from turboprop aircraft, such as the Beech King Air 200, to Boeing Business Jets. These ramps are generally at capacity and limited space is available for aircraft movement on the ramps.

3.1.2 Hangars

The majority of GA hangars at PBI consist of conventional or corporate type hangars. While these facilities are managed by the three main FBOs located on the airfield, some hangars are subleased to private individuals and/or companies. **Table 3-1** provides a listing of all existing GA hangars on the airfield by FBO.

Galaxy Aviation maintains and operates five large clearspan hangars along the GA ramp located west of Runway 13/31. As shown in Table 3-1, these hangars vary in size but overall they provide 134,151 square feet of space for aircraft storage and maintenance.

With the exception of two hangars, Signature Flight Support facilities occupy the western section of the GA ramp located east of Runway 13/31. In total, Signature Flight Support operates seven clearspan hangars providing approximately 210,005 square feet of space for aircraft storage and maintenance. The two hangars that are not located on the eastern GA ramp are located in the southwest corner of the GA ramp west of Runway 13/31.

Jet Aviation manages four clearspan hangars, occupying approximately 149,500 square feet of space for aircraft storage. Jet Aviation facilities are located in the southeast corner of the airfield, adjacent to the GA ramp east of Runway 13/31.

3.2 FBO Facilities

The three main FBOs at PBI, including Galaxy Aviation, Jet Aviation, and Signature Flight Support, are located on the south side of the airport, south of the Runway 9/27 alignment. The Airport FBOs, Galaxy Aviation, Jet Aviation, and Signature Flight Support provide a number of services to Airport tenants and users, including fuel sales, hangar and tiedown leasing, aircraft support services, oxygen supply, aircraft maintenance, and ground transportation. More broadly, the FBOs handle all pilot and passenger requests that facilitate their stay at the Airport. These FBOs also house more than 50 aviation subtenants that complement their line of business by providing various aviation-related activities, such as charter services and aircraft sales.

The three FBOs are accessible via Perimeter Road, a two-lane road that surrounds the eastern and southern portion of the airfield. Perimeter Road intersects Australian Avenue and Southern Boulevard at several points along its path. The main intersection that connects Perimeter Road and Southern Boulevard is just south of the “391st Bomb Group” restaurant. Perimeter Road is also accessible via Australian Avenue, southeast of the aircraft rescue and fire fighting (ARFF) training area, and along the extended centerline of Taxiway M.

Table 3-1
Hangar Facilities

FBO	Building Number	Facility Use	Square Footage
Galaxy Aviation	1625A	Aircraft Storage	32,500
	1625B	Aircraft Storage	32,500
	1625C	Aircraft Storage	32,500
	1628	Aircraft Storage	18,484
	1629	Aircraft Storage	18,167
		Total:	134,151
Signature Flight Support	1500-A	Aircraft Storage	33,378
	1500-C	Aircraft Storage and Maintenance	19,838
	1500-D	Aircraft Storage	34,415
	1500-E	Aircraft Storage	34,130
	1517	Aircraft Storage	50,000
	1631	Aircraft Storage and Maintenance	16,715
	1632	Aircraft Storage	14,990
		Total:	210,005
Jet Aviation	1509	Aircraft Storage and Maintenance	40,500
	1512	Aircraft Storage	39,500
	1514	Aircraft Storage	39,500
	1516	Aircraft Storage and Maintenance	30,000
			Total:
		Grand Total:	493,656

Source: Department of Airport (DOA) Properties Department, Palm Beach International Airport, April 2006.

Prepared by: Ricondo & Associates, Inc. April 2006.

3.2.1 Jet Aviation

As indicated in the previous section, Jet Aviation is located in the southeast corner of the airfield, south and east of the Taxiway J extended centerline. Jet Aviation's FBO terminal is in excellent condition and encompasses approximately 13,780 square feet. The FBO terminal includes a large pilots' lounge, a reception area, a flight planning room, administrative offices, a conference room, meeting areas, and other pilot and passenger amenities.

The FBO operates five fuel trucks (consisting of three 5,000-gallon Jet-A trucks, one 6,000-gallon Jet-A truck, and one 1,000-gallon AvGas (100LL) truck) and a small number of ground support equipment (GSE), including ground power units, power carts, a tow tractor, air conditioner units, luggage carts, and air start units.

3.2.2 Signature Flight Support

The majority of Signature Flight Support facilities are located in the southwest corner of the GA ramp east of the Runway 13/31 centerline. These facilities include five clearspan hangars, a fuel farm, and an executive terminal. In addition, Signature Flight Support operates two clearspan hangars located in the northwest corner of the GA ramp west of Runway 13/31 alignment. Signature Flight Support employs 46 people and leases space to 26 subtenants.

The two-story terminal building encompasses approximately 6,233 square feet. The first floor provides a small pilots' lounge, various pilot and passenger amenities, and a reception area. The second floor provides several conference rooms and offices. Although this facility was damaged by Hurricane Wilma in 2005, it was recently restored and is in good condition.

Signature Flight Support's parking lot includes 170 automobile parking spaces, most of which are located in close proximity to the building. The lack of parking spaces has led the FBO to use some of the grassy areas located along Perimeter Road for automobile parking. To increase its automobile parking capacity, the FBO is planning on the construction of a new parking lot across Perimeter Road and south of its facilities. The proposed parking lot is scheduled for completion by the end of 2006. Signature Flight Support operates five ground power units, five tugs, and several water carts and lavatory carts. At the time of the inventory in March 2006, 31 aircraft were based on the Signature Flight Support ramp.

3.2.3 Galaxy Aviation

Galaxy Aviation facilities are located west of both Runway 13/31 and the General Aviation Federal Inspection Facilities (FIS), and south of Taxiway R. Galaxy Aviation facilities include an executive terminal and five clearspan hangars.

Amenities within the Galaxy Aviation's executive terminal include a pilots' lounge, crew snooze room, flight planning room, and conference and meeting facilities. This terminal, which encompasses approximately 14,500 square feet, is in good condition. The parking lot adjacent to the executive terminal provides a total of 30 vehicle parking spaces.

3.3 Air Cargo and Air Freight Facilities

The air cargo facilities are located in the northeast quadrant of the Airport. These facilities include Building 1475, also referred to as the Air Cargo Building, and Building 1300, the Air Freight Building. The Airport Layout Plan and aerial photographs were reviewed and a field check of the cargo areas was conducted to define the existing cargo operation and inventory the cargo areas. In addition, interviews were conducted with representatives from United Parcel Service (UPS) and the U.S. Postal Service (USPS).

3.3.1 Air Cargo Facilities

3.3.1.1 Air Cargo Building

Building 1475, shown in **Exhibit 3-2**, has 40,000 square feet of floor space and is situated between the alignment of North Perimeter Road and Taxiway M, approximately 1,000 feet north of the Runway 27L/R ends. UPS and the USPS occupy about half of the total building floor space. Of the 13 individual tenant bays in Building 1475, eight are used by the Department of Airports, Maintenance Division to meet its equipment, materials, and supplies storage needs. Space allocations within Building 1475 are delineated in **Table 3-2**.

TABLE 3-2
Cargo Space Utilization by Tenant – Building 1475

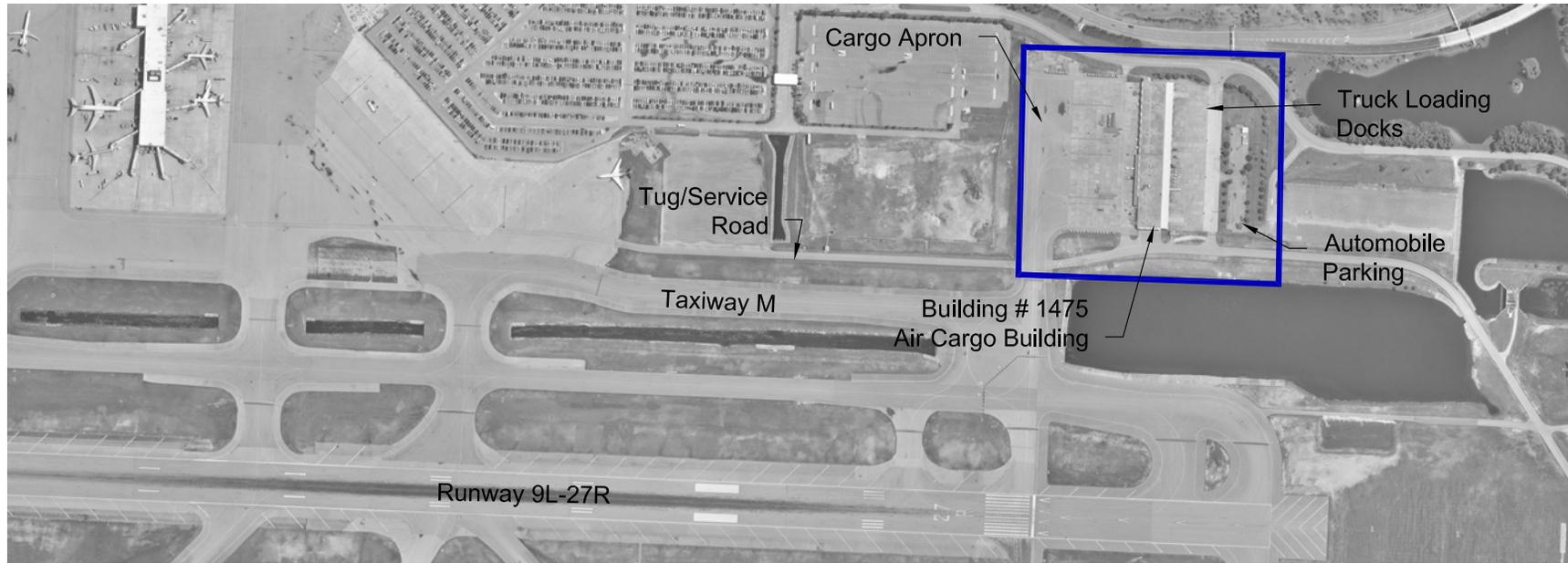
Tenant	Square Footage	Use
United Parcel Service	6,000	Dedicated Cargo
U.S. Postal Service	14,000	Mail
Department of Airports Maintenance Division	20,000	Material/Equipment Storage

Source:
Palm Beach County Department of Airports, April 2006.
Prepared by: Ricondo & Associates, Inc, April 2006.

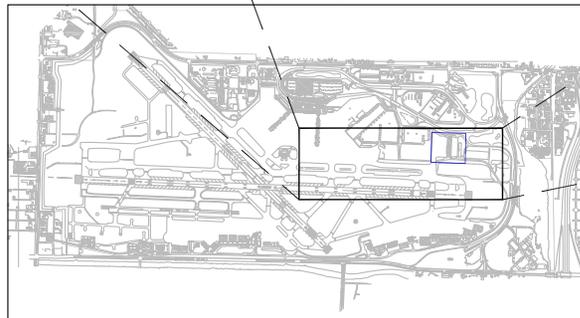
Building 1475 serves as part of the USPS mail processing facilities at PBI, which occupy approximately 14,000 square feet of Building 1475. The USPS handles mail, priority mail, and express packages. USPS building floor space is divided into two sections. The first section houses outgoing mail while the second section is used for processing incoming mail. A small area is also devoted to office space. The scheduled airlines that transport mail, priority mail, and express packages for the USPS include American, Continental, Delta, JetBlue, Southwest, and United. During an interview with USPS representatives, it was stated that the existing facility provides sufficient space to meet their current operational needs.

UPS, which leases approximately 6,000 square feet of Building 1475 floor space, is situated in the southern section of the building. UPS handles cargo from an average of four inbound daily flights. All UPS outbound flights are destined for Philadelphia, Columbia, or Louisville. While the number and type of aircraft used by UPS fluctuate with the amount of cargo to be carried into and out of PBI, UPS generally operates A300s and B-757s.

The building location, just east of the terminal complex, provides easy access to the terminal, reducing GSE travel and cycle times. Further, the proximity of Building 1475 to the terminal complex allows for airlines (or a third party contractor) to access the terminal without crossing active taxiways or runways. In addition, since the September 11, 2001 terrorist attacks, the movement of goods and individuals into and out of secure areas has increased focus on security considerations during the planning process. Thus, Building 1475 particularly benefits from its proximity to the terminal area and secure side access.



Key Map



Source: Palm Beach International Airport, Airport Layout Plan, Dec. 1996; Palm Beach International Airport Aerial Photo, July 2005
Prepared by: Ricondo & Associates, Inc., April 2006

Exhibit 3-2



Air Cargo Building Location

Drawing: P:\PBA\System Wide Airport Master Planning Study - Phase III\Task 2 - Inventory and Data Collection\Exhibits\PBI Inventory Exhibits_ALL.dwg_Layout: 3-2 Air Cargo_Apr 19, 2006, 6:03pm

3.3.1.2 Truck Loading Docks

Building 1475 has 13 truck docks and approximately 500 linear feet of loading dock frontage available for cargo operations on both sides of the building. The truck loading and unloading positions on the landside, or public side, of the building allow trucks to back up to an elevated dock that provides direct access from the rear of the truck into the cargo building via a large overhead door. The height of the dock is constructed to provide a level interface between the bed of the truck trailer and the floor of the cargo building. These truck docks are 50 feet long by about 12 feet wide. Building 1475 also has two ramps that access the building on its eastern side via overhead doors located between loading docks 1 and 2, and 12 and 13. Overall, the loading dock area and the adjacent truck maneuvering area encompass approximately 85,000 square feet.

3.3.1.3 Automobile Parking

A parking lot situated east of Building 1475 provides approximately 20 automobile parking spaces. This parking lot, which encompasses approximately 22,300 square feet, is located approximately 190 feet west of Building 1475 to minimize its potential for interfering with the maneuvering of tractor-trailers into and out of the cargo docks. The location of the automobile parking lot is highlighted in **Exhibit 3-2**.

3.3.1.4 Cargo Apron Area

The cargo ramp area located west of Building 1475 encompasses approximately 12,850 square yards (excluding the taxilane and associated object free area) and provides parking positions for up to three Boeing 757s.

The taxilane connecting the cargo ramp to the rest of the airfield is 75 feet wide, meeting the standards associated with Airplane Design Group IV. The tug road that connects the cargo ramp to the passenger terminal ramp runs north of Taxiway M and is 24 feet wide, providing adequate width for the movement of vehicles in both directions.

3.3.1.5 Landside Access

Building 1475 is accessible via Perimeter Road, a two-way road that surrounds the eastern and southern sides of the Airport. Perimeter Road connects to the Airport access road on the west and to Australian Avenue on the east.

Perimeter Road is adequately sized for automobile and truck traffic, however, there are no dedicated right and left turn lanes to separate traffic entering and exiting the cargo area from through traffic. Increased traffic on North Perimeter Road could significantly affect the movement of trucks into and out of the cargo area. Similarly, increased cargo activity could significantly slow the movement of vehicles along North Perimeter Road.

3.3.2 Air Freight Facility

Building 1300, the Air Freight Building, consists of approximately 36,400 square feet of leasable floor space. Use of the building is split between the processing of belly cargo of the various airlines and the freight forwarders, including Continental Airlines, Delta Air Lines, US Airways, Centerport, Lund & Pullara, Jetstream, Waner Aviation Inc., WFS-PTS LLC, and the storage needs of the DOA Maintenance and Terminal Services divisions. Building

1300 has no airside access and no aircraft parking positions directly adjacent to the building. All cargo is transferred from parked aircraft to the building via trucks and tugs. **Table 3-3** shows the space and tenant allocations within the Air Freight Building.

TABLE 3-3
Cargo Space Utilization by Tenant – Building 1300

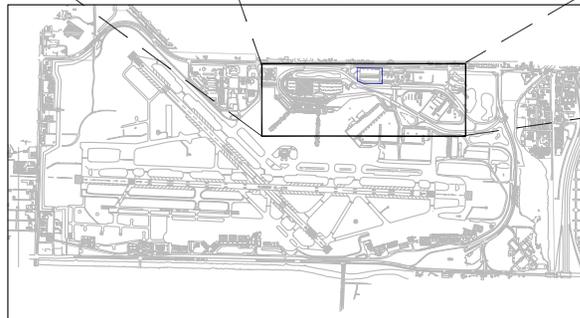
Tenant	Unit	Cargo Space (Sq. ft.)	Dock Space (Sq. ft.)	Total Space (Sq. ft.)
Centerport	1301	4,870	1,019	5,889
Waner Aviation, Inc.	1302	943	203	1,146
Centerport	1303	1,895	400	2,295
US Airways	1304	1,901	401	2,302
Lund & Pullara	1305	1,417	301	1,718
Continental Airlines (Jetstream)	1306	1,901	401	2,302
U.S. Customs	1307	933	201	1,134
Jetstream	1308	1,586	357	1,943
WFS-PTS LLC	1309	1,485	344	1,829
Airport Terminal Services	1310-A	1,740	400	2,140
DOA	1310-B	4,572	913	5,485
Delta Air Lines	1311	6,794	1,416	8,210
Total:		30,037	6,356	36,393

Source:
Palm Beach County Department of Airports, April 2006.
Prepared by: Ricondo & Associates, Inc, April 2006.

Building 1300 has 17 truck docks and approximately 500 linear feet of loading dock frontage available for cargo operations on both sides of the building. The truck/tug loading and maneuvering area around Building 1300 encompasses approximately 113,300 square feet of space.



Key Map



Source: Palm Beach International Airport, Airport Layout Plan, Dec. 1996; Palm Beach International Airport Aerial Photo, July 2005
Prepared by: Ricondo & Associates, Inc., April 2006

Exhibit 3-3



Air Freight Building Location

Drawing: P:\PBA\System Wide Airport Master Planning Study - Phase III\Task 2 - Inventory and Data Collection\Exhibits\PBI Inventory Exhibits_ALL.dwg_Layout: 3-3 Air Freight_Apr 19, 2006, 6:04pm

SECTION 4

Airport Support Facilities

Airport Support Facilities

4.1 Airport Maintenance Facilities

The Palm Beach County Department of Airports, Maintenance Division consists of the Terminal Maintenance Division and the Airside/Landside Site Maintenance Division. As of April 2006, the Maintenance Division employs 75 staff and operates 158 vehicles.

For purposes of this report, the characteristics of the existing maintenance facilities at PBI are discussed in two sections: (1) those facilities occupied by the Terminal Maintenance Division and (2) those facilities associated with the Airside/Landside Site Maintenance Division. The inventory of these facilities provides the foundation for subsequent analyses, including the determination of facility requirements to be presented in subsequent sections of this Master Plan.

4.1.1 Terminal Maintenance Division Facilities

The Terminal Maintenance Division is responsible for the preventive and corrective maintenance of a majority of PBI facilities, including the passenger terminal complex, the ARFF station, the Air Cargo Building and the Air Freight Building, automobile parking areas, and the toll plazas used to collect parking fees. The Terminal Maintenance Division is owned by the Department of Airports and is responsible for the maintenance of facilities located at North Palm Beach County General Aviation Airport (F45), Palm Beach County Park Airport (LNA), and Palm Beach County Glades Airport (PHK).

As of March 2006, a majority of the Terminal Maintenance Division facilities were located on the lower level of Concourse B. This level houses several administration offices, storage rooms, break rooms, locker rooms, a dispatch room, and an assembly area, as well as electrical, mason/plasterer, mechanic, welding, locksmith, carpentry, plumbing, paint, and sign shops. These facilities are used to capacity, and very limited space is available for expansion. Representatives of the Terminal Maintenance Division have indicated the need for larger shops, additional storage and office spaces, a plan room, and other miscellaneous improvements, including a higher ceiling for the carpentry shop.

A private contractor, which handles the maintenance of all passenger boarding bridges and associated equipment, including power and preconditioned air units, also occupies two small bays and two offices on the lower level of Concourse C. The contractor also stores equipment and supplies in several areas located outside of and surrounding the passenger terminal.

In addition to the areas within the terminal, the Terminal Maintenance Division occupies two bays at the Air Cargo Building (Building 1475) for the storage of supplies. This division also shares an additional five bays of Building 1475 with the Airside/Landside Site Maintenance Division for the storage of equipment and materials, such as airfield signs, conveyor belts, ticket counters, and generators. These bays are also used as a storage area for contractors working at the Airport. Finally, the Terminal Maintenance Division occupies

four bays of the Air Freight Building (Building 1300) for the storage of miscellaneous small supplies.

As listed in **Table 4-1**, the current Terminal Maintenance Division maintenance vehicle inventory includes a majority of pickup and utility trucks. Currently, there is no designated area for parking these maintenance vehicles. These vehicles are staged at various locations around and underneath the passenger terminal. Employees of the Terminal Maintenance Division park their vehicles in the employee parking lot east of the passenger terminal and across from Building 1300. This parking lot provides a total of approximately 60 automobile parking spaces.

TABLE 4-1
Terminal Maintenance Division - Vehicle Inventory Summary

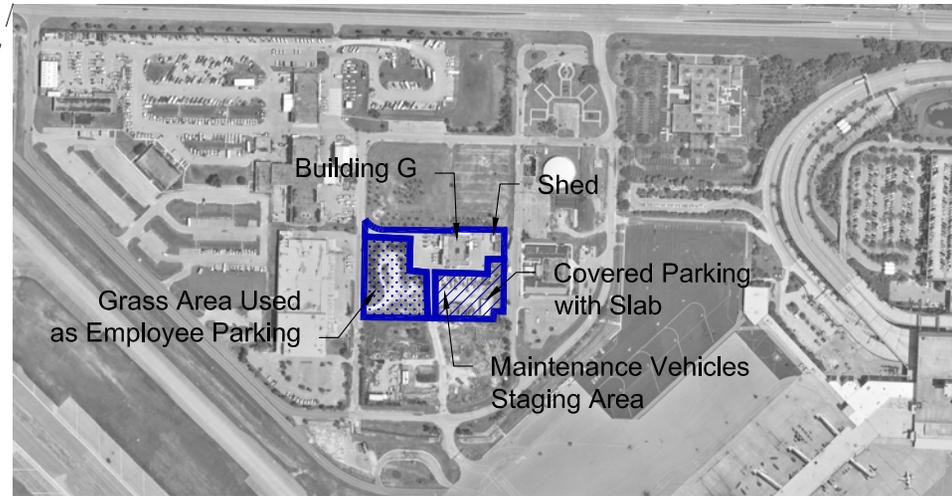
Vehicle Type	Fleet Size
Chevy Blazer	3
GMC, Chevy, Dodge, and Ford Trucks	13
Platform Truck	1
Vans	4
Utility Truck	5
Scissor Lift	2
Forklift	1
Skyjack Lift	1
Total:	30

Source:
DOA Terminal Maintenance Division, March 2006.
Prepared by: Ricondo & Associates, April 2006.

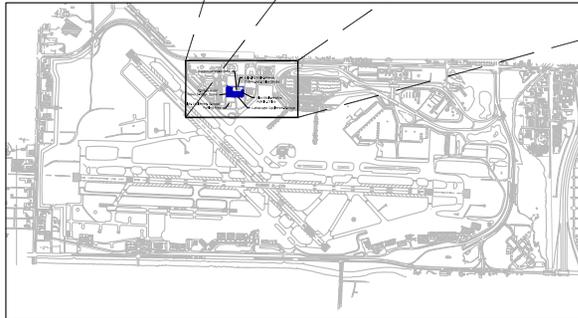
4.1.2 Airside/Landside Site Maintenance Division Facilities

The Airside/Landside Site Maintenance Division is responsible for the maintenance of all paved and grassy areas (including landscaping) at PBI, F45, PHK, and LNA. The division is staffed by 40 persons and its base of operations is Building G at PBI. As indicated in **Exhibit 4-1**, Building G is located directly west of Building 846, the DOA's management offices. This building, which encompasses approximately 9,200 square feet, is in poor condition. The roof, which was severely damaged by Hurricane Wilma in 2005, is scheduled for replacement in the near future. This facility, which includes five vehicle bays, is used primarily as a materials and supply warehouse. As indicated above, the Airside/Landside Site Maintenance Division also uses Building 1475 to store materials and supplies.

The division operates a total of 128 vehicles that range from light mowers to heavy bucket trucks. These vehicles are listed in **Table 4-2**. Currently, the majority of the Airside/Landside Site Maintenance Division vehicles are staged in the 30,000-square-foot area adjacent to and south of Building G. The employee parking lot is located west of Building G, in a grassy area that provides approximately 35,000 square feet of space.



Key Map



Source: Palm Beach International Airport Aerial Photo, July 2005
Prepared by: Ricondo & Associates, Inc., April 2006

Exhibit 4-1



Material and Supply Warehouse Location

Drawing: P:\PBIA\System Wide Airport Master Planning Study - Phase III\Task 2 - Inventory and Data Collection\Exhibits\IPI Inventory Exhibits_ALL.dwg_Layout: 4-1 Existing Warehouse_Apr 19, 2006, 3:03pm

TABLE 4-2
DOA Airside/Landside Site Maintenance Division - Vehicle Inventory Summary

Vehicle Type	Fleet Size
Pickup Truck	23
Utility Truck	22
Sport Utility Vehicle	21
Trash Truck	2
Freightliner	1
Liftgate Truck	1
Bucket Truck	2
Dump Truck	2
Mini Pumper	1
Water Truck	1
Scissor Lift Truck	1
Welder	1
Refueling Truck	1
Jackhammer	1
Tractor	14
Sod Cutter	1
Forklift	2
Chipper	1
Rotary Cutter	5
Slope Mower	2
Riding Mower	6
Scrubber	1
Hydraulic Mower	2
Z Turn Mower	8
Bush Hog Mower	1
Bushwhacker	1
Self-Propelled Mower	3
Commercial Mower	1
Total:	128

Source:
DOA Terminal Maintenance Division, March 2006.
Prepared by: Ricondo & Associates, April 2006.

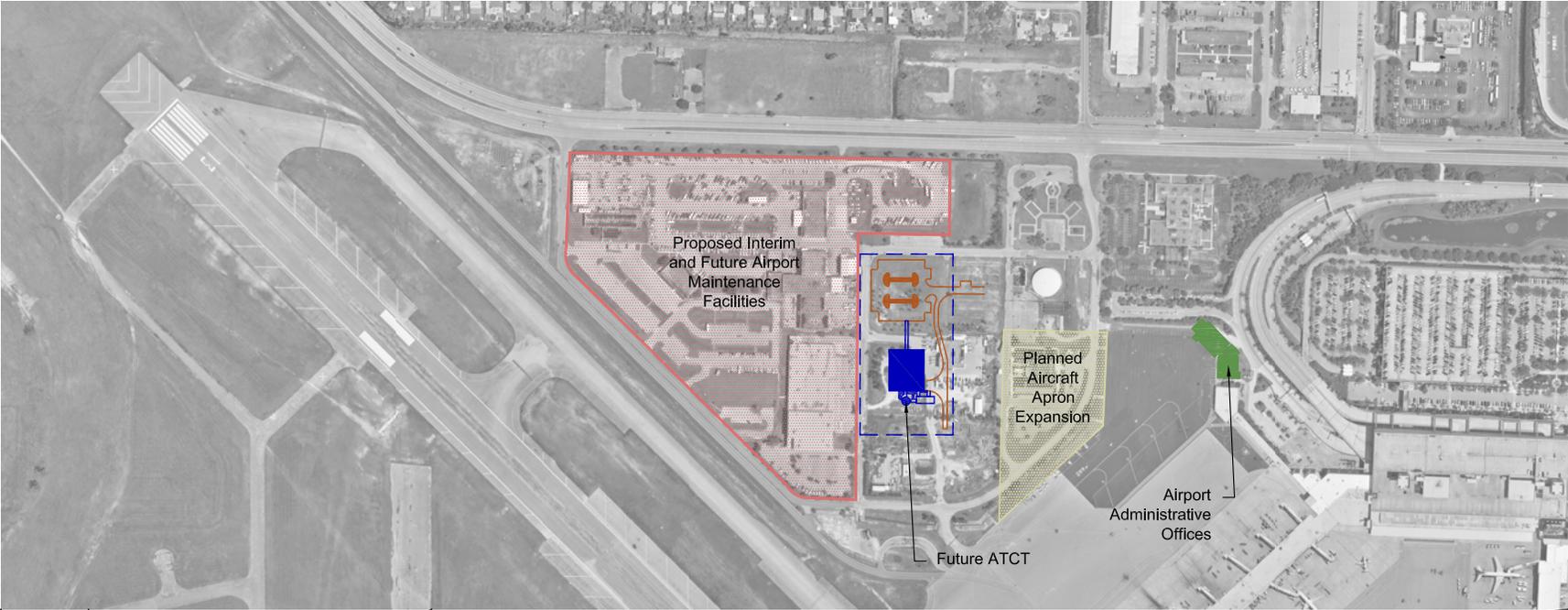
4.1.3 Maintenance Compound – Previous Plans

As indicated above, PBI maintenance facilities are located at various sites around the Airport with no location configured or sized to adequately serve the Airport's collective maintenance needs within one consolidated site. This results in decreases in efficiency and adds to the cost of providing Airport maintenance services.

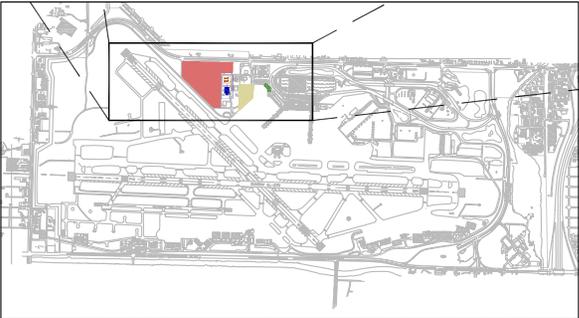
In addition, representatives of the Airside/Landside Site Maintenance Division have expressed the need for a maintenance facility that would allow for the storage and potential staging of vehicles and equipment under cover and in a protected facility. Because maintenance vehicles are currently subject to weather extremes, the anticipated lifespan of the equipment is noticeably reduced. The lack of an enclosed facility results in added maintenance for the continual safe and reliable operation of the Airport vehicles.

The Department of Airports (DOA) has been planning for a new maintenance compound where all existing facilities would be relocated to one site. In 1997, the DOA commissioned a planning study to inventory the existing and projected airport maintenance facility needs, and identify space requirements for new (consolidated) maintenance facilities. A site selection analysis was also included in this study. The site selected for the new maintenance compound is directly west of the DOA Administrative Offices (Building 846), and adjacent to Building G, as depicted on **Exhibit 4-2**. This planning effort resulted in the development of a conceptual plan that would provide a total of 2,960 square feet of office space, 19,570 square feet of workshop areas, 17,705 square feet of covered storage and warehouse space, and 35,510 square feet of outdoor storage space. **Table 4-3** provides a detailed breakdown of the functional space that the new maintenance facility would provide based on the 1997 Maintenance Compound Project Book (i.e., the end-product of the planning study described above). The demand-capacity section of this Master Plan Update provides an update to these space requirements based on information and feedback collected as part of this Inventory effort.

Since the completion 1997 Maintenance Compound Project Book, the DOA developed in interim plan for serving the existing and future airport maintenance facility needs. The interim plan proposed the utilization and restoration of Buildings C, D and E, and possibly Buildings A and B, which are located to the west of Building G for the initial integration of the DOA maintenance functions. The interim plan would help accomplish the same consolidation objective set forth in the 1997 planning study while relying on the utilization of existing facilities in lieu of developing new facilities.



Key Map



Legend:

- FAA Facility Limits
- FAA Tower and Associated Facilities
- Planned Aircraft Apron Expansion
- Airport Administrative Offices
- Proposed Interim and Future Airport Maintenance Facilities
- Road/Parking

Source: New Maintenance Compound Project Book, Ricondo & Associates, Inc., 1997; Palm Beach International Airport Aerial Photo, July 2005
 Prepared by: Ricondo & Associates, Inc., April 2006

Exhibit 4-2



Existing and Planned FAA and Airport Administration Facilities

Drawing: P:\PBIA\System Wide Airport Master Planning Study -Phase III\Task 2 - Inventory and Data Collection\Exhibits\PBI Inventory Exhibits_ALL_REV2.dwg_Layout: 4-2 New Maint Site_Feb 01, 2007, 10:58am

TABLE 4-3
Proposed Maintenance Compound – Functional Space Breakdown

Area	Recommended Square Footage
Administrative Office Space:	
Office Space	1,205
Conference Room	300
Break Room/Restrooms	530
Records/Mail Room	450
Circulation	475
Subtotal:	2,960
Workshop Areas:	
Supervisor's Offices	750
Carpenter Shop	1,500
Plumbers Shop	600
Graphics/Signage Shop	450
General Maintenance/Mechanic Shop	600
Paint shop	300
Electrical/Electronic Shop	1,950
Machine Shop	360
Key Shop	240
Field Support Crew Chiefs Shop	360
Equipment Coordinator Shop	120
Records/Storage Room	470
Equipment Storage/Landscape	6,000
Equipment Storage/Road and Ground	1,500
Restrooms with Showers and Locks	1,320
Multi-functional Room	1,000
Future Staff	300
Circulation	1,750
Subtotal:	19,570
Covered Storage and Warehouse Space:	
Front Offices	200
Truck Dock Bays	400
Storage Area/Heavy Storage Racks	12,000
Chemical and Fertilizer Storage	1,500
Tool Issue	2,000
Issue Window	400
Restrooms and Circulation	885
Storage	320
Subtotal:	17,705
Outdoor Storage Space:	
General Parking	29,750
Covered Parking	3,000
Materials Stockpiling Bays	1,800
Circulation	960
Subtotal:	35,510
Grand Total:	75,745

Source:
New Maintenance Compound Project Book, August 1997.
Prepared by: Ricondo & Associates, April 2006.

4.2 Aircraft Rescue and Fire Fighting Facilities

The PBI ARFF provides fire fighting and rescue services for aircraft and other equipment, and for all buildings located on airport property. These buildings include the Main Terminal and concourses, cargo buildings, parking areas, and the fuel farm. The Department responds to an average of two or three calls per shift, mainly for medical intervention, and receives an average of five emergency calls requiring added personal and vehicle deployment per month.

The 16,800 square-foot aircraft rescue and fire fighting (ARFF) station is centrally located on the airfield, approximately 970 feet northeast of the Runway 9L/27R and Runway 13/31 intersection, and south of Concourse B, as shown in **Exhibit 4-3**. As the facility does not have landside access, each employee vehicle, as well as visitors, must be escorted to the ARFF station.

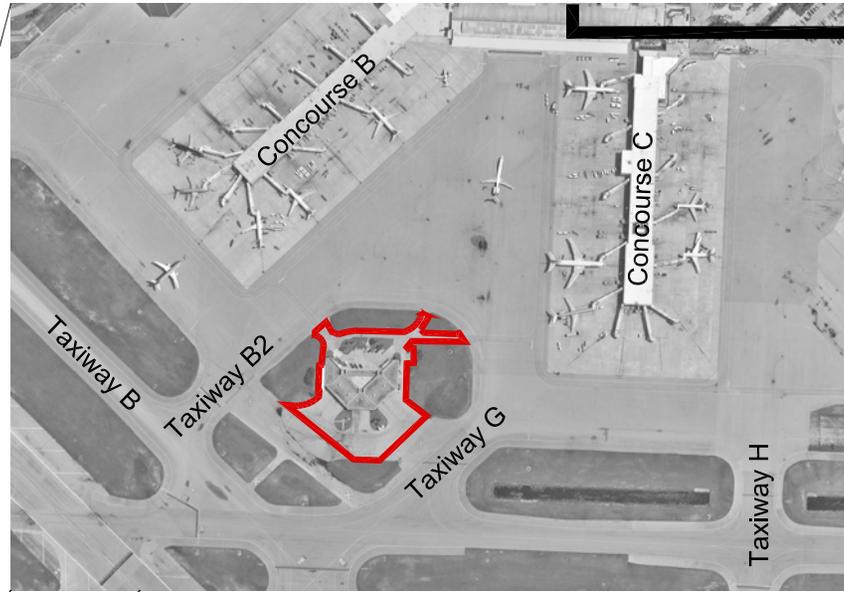
The single level ARFF station consists of space to accommodate dry chemical storage, living, sleeping, administrative, training, and support activities, along with nine vehicle bays used to store and maintain ARFF vehicles and equipment. Of the nine vehicle bays, one is reserved for light vehicle maintenance. One of the ARFF station vehicle bays is a drive through facility. Thus, each time an emergency vehicle has to back up in a bay to park, one person has to stand behind the truck to guide it.

The station is capable of housing 11 firefighters per shift, but typically only eight are present at the station per shift. In total, the ARFF station is staffed by 36 employees, including the fire chief, the captain, and a secretary.

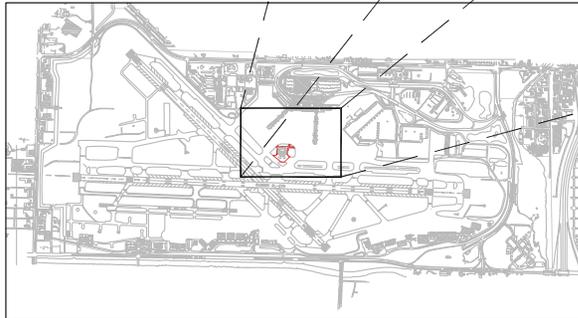
The crew quarters and living facilities, which include a kitchen, dining room, and day and exercise rooms, are located in the west wing of the ARFF station, and the administrative area is located in the east wing. Approximately 2,800 pounds of dry chemical are stored in the southern section of the facility. The two foam tanks, located 50 feet from the southeast corner of the station, have a total capacity of 4,000 gallons. These tanks are not protected from the weather.

In front of the building, the employee parking lot includes 19 automobile parking spaces. As these parking spaces are also used for the staging of administrative vehicles, the number of parking spaces is very limited, primarily during shift changes when the number of firefighters present at the station doubles. Thus, employee vehicles are frequently parked on the grass areas adjacent to the ARFF station.

The ARFF Index is determined by a combination of the length of passenger airline aircraft serving an airport and the average daily number of departures of these aircraft. The ARFF Index for PBI is Level D. Per FAR Part 139, the following is a brief summary of Index Level D requirements.



Key Map



Source: Palm Beach International Airport Aerial Photo, July 2005
Prepared by: Ricondo & Associates, Inc., April 2006

Exhibit 4-3



Aircraft Rescue and Firefighting Facilities

Drawing: P:\PBIA\System Wide Airport Master Planning Study - Phase III\Task 2 - Inventory and Data Collection\Exhibits\PBI Inventory Exhibits_ALL.dwg_Layout: 4-3 ARFF_Apr 19, 2006, 3:04pm

- ➔ One vehicle with the capability of carrying at least 500 pounds of sodium-based dry chemical or halon 1211; or with the capability of carrying at least 450 pounds of potassium-based dry chemical and water with a commensurate quantity of aqueous film forming foam (AFFF) to total 100-gallons for simultaneous application.
- ➔ Two vehicles with the capability of carrying an amount of water and the commensurate quantity of AFFF so that the total quantity of water for foam production carried by all three vehicles is at least 4,000 gallons.

The ARFF vehicles and equipment are owned by Palm Beach County and are in good condition. A listing of these vehicles is provided in **Table 4-4**. In total, the ARFF station provides four emergency vehicles with the capability of carrying 10,000 gallons of water, 2,050 pounds of dry chemical, and 1,300 gallons of AFFF. Vehicle “Dragon 1” is scheduled for replacement in the first quarter of 2007. The new vehicle is expected to be an Emergency One fire truck with a 30-foot articulating nozzle. Additionally, the fire chief indicated the possibility of adding an air stairs truck, used to evacuate persons aboard an aircraft, within the next two years.

For training purposes, the PBI ARFF uses a 10,250-foot squared yard area that includes a 55-foot long aircraft mockup surrounded by a small berm. This area is located along the eastern edge of the Airport property, approximately 2,000 feet northeast of the Runway 27R end, and along the extended centerline of Taxiway M. As this facility does not meet FAA requirements for the design of an aircraft fire fighting training facility, each firefighter receives annual training at the Jacksonville Fire Training Academy operated by the Florida Community College. The existing training facility is used for small training exercises only, such as aircraft engine fire suppression and passenger extraction.

TABLE 4-4
ARFF Equipment

Vehicle	Vehicle Type	Water Available (gallons)	Foam Available (gallons)	Chemical Available (lbs)
Dragon 1	Emergency One Titan V	2,500	300	600
Dragon 2	Emergency One Titan	1,500	200	500
Dragon 4	Emergency One	3,000	400	500
Dragon 5	Emergency One	3,000	400	450
Rescue 81	1996 Aero/Freightliners Advanced Life Support	-	-	-
Support 81	1999 Freightliner FL70	-	-	-
Tactical Command 81	2003 LDV Command Bus	-	-	-
Battalion 8	2000 Ford Expedition	-	-	-
District 8	Ford Expedition	-	-	-
AL-1	2002 Ford Mini Pumper	300	40	-
Escort 1	2004 GMC 2500	-	-	-
Escort 2	2000 Ford Expedition	-	-	-
Spill Response Trailer		-	5 gallon cans	-
Self-Contained Lighting Trailer		-	-	-

Source:
Airport Certification Manual, Palm Beach International Airport, Page 319-1, 319-2, April 29, 2005
Prepared by: Ricondo and Associates, Inc., April 2006.

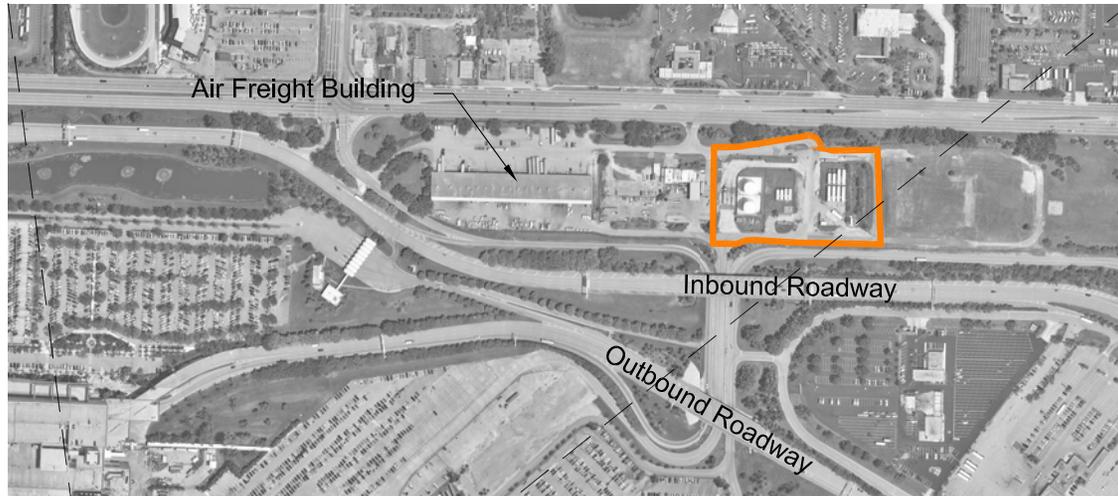
4.3 Fueling Facilities

4.3.1 Commercial Airlines Fuel Farm

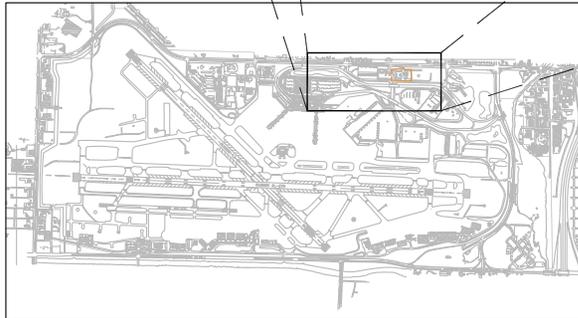
The fuel storage facilities dedicated to the needs of the commercial airlines operating at PBI is located in the northeast quadrant of the Airport, approximately 450 feet east of the Air Freight Building, between Belvedere Road and the inbound lane of the Airport entrance roadway. The location of the fuel farm is highlighted in **Exhibit 4-4**.

The fuel farm site encompasses approximately 13,000 square yards, which includes the storage tanks along with fueling islands used to fill fuel tankers that are used to fuel aircraft. As of March 2006, Aircraft Service International Group (ASIG) was responsible for the operation and maintenance of the fuel farm and provided fuel distribution for all commercial airlines at PBI, as well as to the air cargo operators at the Airport.

The fuel farm consists of 14 above-ground storage tanks used exclusively for Jet-A aircraft fuel. The fuel farm includes two 350,000-gallon, six 30,000-gallon, and six 20,000-gallon tanks, providing an overall fuel storage capacity of 1,000,000 gallons (23,810 barrels).



Key Map



Source: Palm Beach International Airport Aerial Photo, July 2005
Prepared by: Ricondo & Associates, Inc., April 2006

Exhibit 4-4



Central Fuel Farm Location

Drawing: P:\PBIA\System Wide Airport Master Planning Study - Phase III\Task 2 - Inventory and Data Collection\Exhibits\PBI Inventory Exhibits_ALL.dwg_Layout: 4-4 FUEL Central_Apr 19, 2006, 3:05pm

The Environmental Protection Agency (EPA) requires all fuel trucks to be parked in secondary containment area when not in use. Consequently, all ASIG fuel trucks are parked within the confines of the fuel farm site during the night.

4.3.2 General Aviation Fuel Farms

The fuel storage facilities that serve general aviation are divided among the three FBOs, including Galaxy Aviation, Jet Aviation, and Signature Flight Support. Galaxy Aviation's fuel farm is located between its corporate hangars and the retention pond north of and adjacent to Perimeter Road. The fuel farm is located within an area of approximately 3,500 square feet and consists of three above-ground tanks that provide a total capacity of 120,000 gallons for the storage of Jet-A fuel. Access from Perimeter Road to the fuel farm is provided by a two-lane road that allows for easy access to the fuel loading and receiving islands.

Jet Aviation's fuel farm is located in the southeast corner of the airfield, approximately 200 feet east of corporate hangar number 1516. The fuel farm includes one 12,000-gallon tank for AvGas storage and two 30,000-gallon above-ground tanks for Jet-A fuel storage. Jet Aviation operates five fuel trucks, including one 1,000-gallon AvGas truck, one 6,000-gallon Jet-A truck, and three 5,000-gallon Jet-A trucks.

Signature Flight Support's fuel farm is located at the southwest corner of apron "B", approximately 925 feet southwest of the Signature Flight Support terminal. The fuel farm consists of one 100,000-gallon above-ground tank used for the storage of Jet-A fuel and one 20,000-gallon aboveground tank used for the storage of AvGas. Signature Flight Support operates six fuel trucks, including one 600-gallon AvGas truck and five 5,000-gallon Jet-A trucks. **Exhibit 4-5** shows the location of the general aviation fueling facilities at PBI.

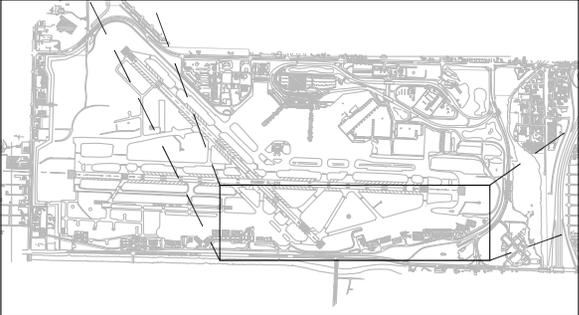
4.4 Airport Traffic Control Tower

The Airport Traffic Control Tower (ATCT) is located in the southwest quadrant of the airfield between the Galaxy Aviation and Signature Flight Support corporate hangars, as shown in **Exhibit 4-6**. ATCT personnel not only oversee aircraft flying within the controlled airspace near PBI, but also vehicles and aircraft operating on the ground within the defined movement area. Its main functions are to authorize landings and takeoffs at PBI, to control aircraft transitioning through PBI's airspace, and to control ground traffic at PBI, including Airport ground vehicles.

PBI's ATCT also houses a Terminal Radar Approach Control (TRACON) station. This facility is used to guide aircraft within a 40-mile radius of the Airport on their final approaches to PBI, Stuart Airport, Witham Field, Boca Raton Executive Airport, and North Palm Beach County General Aviation Airport, as well as overflight, and en route air traffic in PBI's airspace.

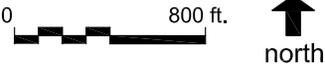


Key Map



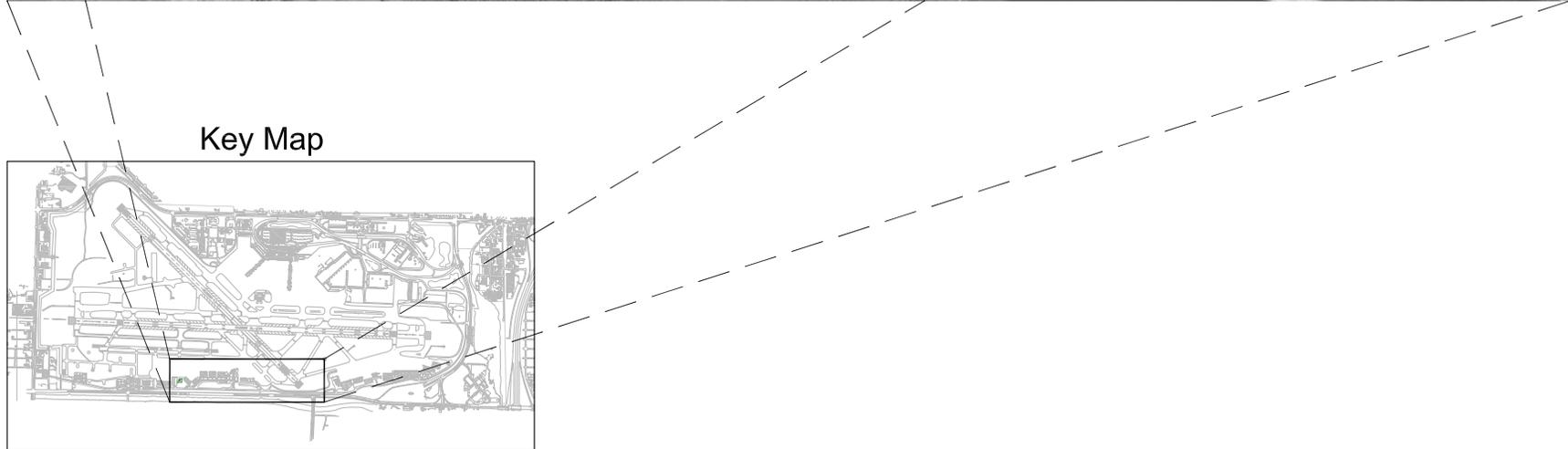
Source: Palm Beach International Airport Aerial Photo, July 2005
Prepared by: Ricondo & Associates, Inc., April 2006

Exhibit 4-5



Fixed Based Operator Fuel Farm Locations

Drawing: P:\PBIA\System Wide Airport Master Planning Study - Phase III\Task 2 - Inventory and Data Collection\Exhibits\PBI Inventory Exhibits_ALL.dwg_Layout: 4-5 FUEL GA_Apr 19, 2006, 3:06pm



Source: Palm Beach International Airport Aerial Photo, July 2005
Prepared by: Ricondo & Associates, Inc., April 2006

Exhibit 4-6



Air Traffic Control Tower Location

Drawing: P:\PBA\System Wide Airport Master Planning Study - Phase III\Task 2 - Inventory and Data Collection\Exhibits\PBI Inventory Exhibits_ALL.dwg_Layout: 4-6 ATCT_Apr 19, 2006, 3:07pm

Palm Beach County
System Wide Master Plan Study

April 2006

The ATCT is approximately 105 feet tall and in good condition, but line-of-sight issues exist. A portion of Taxiway F, from south of Taxiway G to the end of Runway 31, is not visible from the ATCT cab because buildings and parked aircraft are located on the adjacent apron areas.

The ATCT is accessible directly off Perimeter Road, which runs along the south side of the GA/FBO facilities located south of the Runway 9/27 alignment. While Perimeter Road has several points of entry, the closest to the ATCT is approximately 1,500 feet west of the ATCT and is accessible directly off Southern Boulevard. The ATCT employee parking lot, located adjacent to and east of the ATCT, provides a total of 58 automobile parking spaces.

A new ATCT is planned for construction in 2010. Site selection is complete, and the new ATCT will be located in the northwest quadrant of the airfield, in the vicinity of Building 846. The new ATCT will be 210 feet high, eliminating all existing line-of-sight issues. Design is under way at this time.

SECTION 5

Airport Access and Parking Facilities

SECTION 5

Airport Access and Parking Facilities

5.1 Airport Access

This section will be delivered in conjunction with the traffic studies being completed as part of this work effort.

5.2 Airport Parking

PBI operates a total of eight parking facilities. These facilities include a long term garage, two long term surface lots, a short term garage, a premium surface lot, park and ride lots (includes four sections), an employee lot, and a flight crew lot. **Table 5-1** provides a summary of the capacity for each parking facility. **Exhibit 5-1** illustrates the location of these facilities. It also shows the planned long term garage to be completed in 2008.

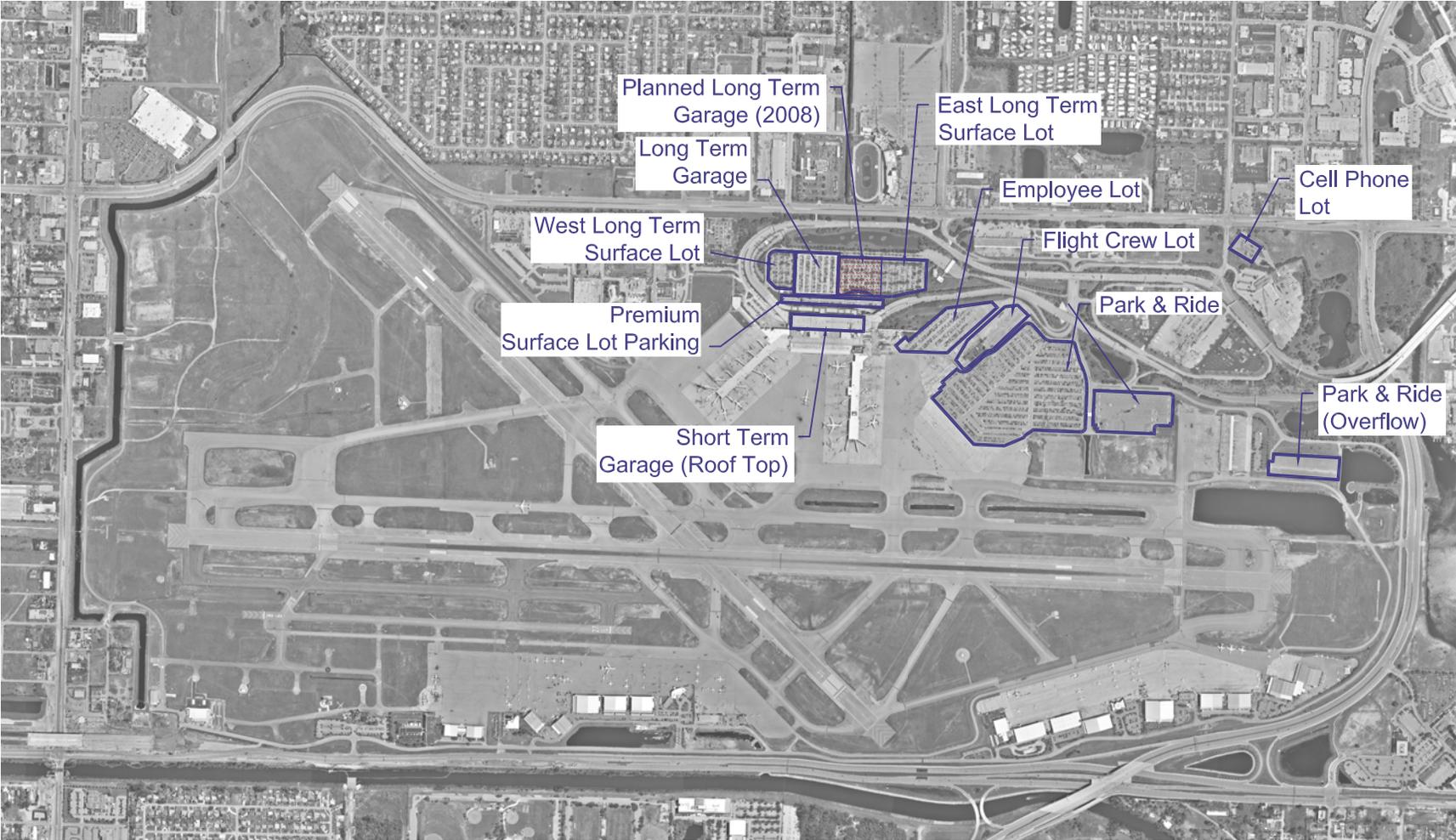
TABLE 5-1
Automobile Parking Spaces

Parking Facility	Employee	Public		
		Short Term	Long Term	Overflow/Park and Ride
Long Term Garage	---	---	1,768	---
East Long Term Surface Lot	---	---	719	---
West Long Term Surface Lot	---	---	199	---
Short Term Garage	---	1,073	---	---
Premium Surface Lot Parking	---	152	---	---
Park and Ride Lots:				
Section A	---	---	---	740
Section B	---	---	---	1,970
Section C	---	---	---	945
Overflow Lot	---	---	---	382
Employee Lot	615	---	---	---
Flight Crew Lot	300	---	---	---
Total	915	1,225	2,686	4,037
Total Parking Facility Capacity: 8,783				

Source:
Palm Beach County Department of Airports, April 2006
Prepared by: Ricondo & Associates, Inc., April 2006

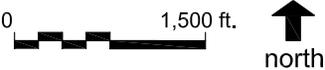
Construction of a new 3,600 space long-term parking garage east of the existing long-term garage, on the area presently accommodating surface parking spaces, is currently underway..

The Airport charges \$1.00 per half hour at the short-term, long-term, and premium lots. The maximum rate per 24 hours is \$12.00 at the Short-term lot, \$10.00 at the Long-term lot, and \$30.00 at the Premium Lot.



Source: Palm Beach County Department of Airports, April 2006; Palm Beach International Airport Aerial Photo, July 2005
Prepared by: Ricondo & Associates, Inc., April 2006

Exhibit 5-1



Existing Parking Facilities

Drawing: P:\PBIA\System Wide Airport Master Planning Study - Phase III\Task 2 - Inventory and Data Collection\Exhibits\PBI Inventory Exhibits_ALL.dwg_Layout: 5-1 Existing Parking Facilities_Apr 19, 2006, 3:09pm

SECTION 6

Meteorological Conditions

Meteorological Conditions

6.1 Historic Weather Conditions

Meteorological conditions for this analysis are based on weather observations taken in the West Palm Beach area during the period 1996-2005. This data, obtained from the National Climatic Data Center (NCDC), consists of 84,031 hourly observations separated by visual meteorological conditions (VMC), instrument meteorological conditions (IMC), and “all weather” conditions as further described below. The hourly observations record data for ceiling heights, visibility, wind velocity, and wind direction, which was used to prepare wind roses for PBI.

Meteorological conditions have a direct impact on the operational characteristics of the Airport. The conditions determine directions in which aircraft operate, the frequency of use of each operating configuration, and the instrumentation required in assisting pilots in landing and departing.

6.1.1 Ceiling and Visibility Conditions

Airfield and airspace capacity is impacted by the flight rules that aircraft operate under, which is governed by the ceiling and visibility conditions at the airport, due to differing spacing requirements.

Aircraft operate under two distinct categories of operational flight rules: visual flight rules (VFR) and instrument flight rules (IFR), which directly impact air traffic control procedures. These flight rules are closely related to the two categories of weather conditions: VMC (fair to good weather), and IMC (poor weather conditions with typically poor visibility). VMC is defined as conditions in which the ceiling is at or above 1,000 feet above ground level (AGL) and the visibility is at or above three statute miles. IMC exists whenever the ceiling drops below 1,000 feet AGL and/or the visibility is below three statute miles. In the West Palm Beach area, VMC occurs approximately 99 percent of the time, and IMC occurs approximately one percent of the time.

Aircraft may operate under VFR during VMC. In these conditions, the pilot is primarily responsible for seeing other aircraft and maintaining safe separation; navigation is typically performed by reference to geographic and other visual references. As a result, aircraft separation requirements are reduced, increasing airspace and airfield capacity as compared to IFR.

During IMC, aircraft operate under IFR. Air Traffic Control (ATC) is primarily responsible for aircraft separation and exercises positive control over aircraft during these conditions. In order to operate under IFR conditions, pilots must be certified instrument rated and meet proficiency requirements, and aircraft must meet certain minimum equipment requirements. Navigation is typically performed by the use of radio navigational aids and vectors from ATC, in addition to the use of ATC-assigned routes and altitudes. As a result

of the more stringent requirements due to limited visibility between aircraft, separation is increased during IMC which therefore reduces airspace and airfield capacity.

6.1.2 Runway Wind Coverage

Aircraft arrival and departure runways are determined by wind direction, as aircraft generally takeoff and land into the wind. Due to limitations by aircraft type with regards to maximum allowable crosswind² for takeoff and landing, strong crosswinds may result in pilots having to divert to another airport if there is not a crosswind runway available.

In order to quantify crosswind, pilots and airport planners calculate crosswind components based on wind direction and speed. Each aircraft type is certified to operate within a maximum crosswind component; larger, heavier aircraft are more resistant to wind and are generally able to operate with higher crosswinds, while smaller, lighter aircraft are more subject to wind and are therefore more restricted.

The FAA recommends that airports provide at least 95 percent wind coverage for planning purposes under the limitations as defined below. If a single runway does not provide at least 95 percent wind coverage for the airport reference code (ARC), a crosswind runway should be considered. The ARC for PBI is D-IV.

- ARC A-I and B-I: 10.5-knot maximum crosswind component
- ARC A-II and B-II: 13-knot maximum crosswind component
- ARC A-III, B-III, and C-I through D-III: 16-knot maximum crosswind component
- ARC A-IV through D-VI: 20-knot maximum crosswind component

Table 6.1 summarizes wind coverage for PBI, with crosswind components of 10.5 knots, 13 knots, 16 knots, and 20 knots. **Exhibits 6-1** through **6-3** graphically show coverage during good weather (VMC) conditions, poor weather (IMC) conditions, and all-weather conditions in the form of wind roses.

The main runway (Runway 9/27) provides more than the 95 percent coverage recommended by FAA for the 20-knot crosswind component for all conditions.

² Crosswind is the velocity of wind at a right angle to the runway, calculated from the wind speed and heading in relation to the runway.

TABLE 6.1

PBI WIND COVERAGE: VMC, IMC, and All-Weather

	True North Heading	VMC Ceiling \geq 1000' and Visibility \geq 3 miles				IMC Ceiling < 1000' and Visibility < 3 miles				All-Weather All Weather Observations Recorded in the Period			
		10.5 KTS	13 KTS	16 KTS	20 KTS	10.5 KTS	13 KTS	16 KTS	20 KTS	10.5 KTS	13 KTS	16 KTS	20 KTS
Runway 9	93	62.5%	65.6%	67.4%	67.8%	31.2%	33.7%	35.6%	36.3%	62.2%	65.2%	67.0%	67.4%
Runway 27	273	40.6%	41.8%	42.7%	42.9%	61.7%	64.8%	67.1%	68.1%	40.9%	42.1%	43.0%	43.2%
Runway 9-27 Combined	-	92.5%	96.7%	99.4%	99.9%	84.7%	90.2%	94.3%	96.1%	92.4%	96.7%	99.3%	99.9%
Runway 13	135	61.4%	65.3%	68.0%	68.6%	33.3%	35.3%	37.5%	38.7%	61.1%	64.9%	67.6%	68.2%
Runway 31	315	39.2%	40.5%	41.7%	42.0%	61.7%	63.9%	65.9%	66.6%	39.5%	40.8%	42.0%	42.3%
Runway 13-31 Combined	-	89.9%	95.1%	98.9%	99.8%	86.7%	90.9%	95.0%	97.0%	89.9%	95.0%	98.9%	99.8%
All Runways Combined	-	97.3%	99.0%	99.8%	100.0%	92.7%	95.5%	97.3%	98.3%	97.2%	99.0%	99.8%	100.0%

Source: CH2M HILL analysis based on National Climatic Data Center (NCDC) weather observations between 1996 and 2005 for the West Palm Beach Station #72203.

