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1 INTRODUCTION

The Panama City-Bay County Airport and Industrial District ("the Authority") has retained the services of CHA Consulting, Inc. (previously RW Armstrong) and its team of subconsultants to perform a Master Plan study for the Northwest Florida Beaches International Airport ("ECP" or "the Airport"). The subconsultant team includes Gresham, Smith & Partners; Albersman & Armstrong, Ltd.; MAC Consulting, LLC; and Ecological Resource Consultants, Inc.

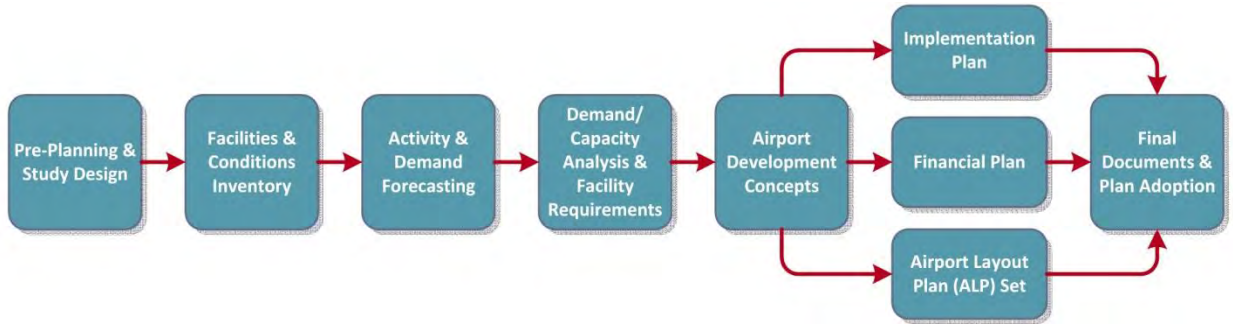
This introductory chapter provides a description of the project and an overview of the Airport. Additional airport information can be found on ECP's website at http://www.iflybeaches.com/, which offers destination and flight information, airport facility and service information, driving directions, as well as ground transportation and parking information.

1.1 PROJECT DESCRIPTION

Airport master planning is a systematic process that evaluates existing facility and market and conditions, identifies anticipated stakeholder needs, and formulates both near- and long-term development strategies. The results of the Master Plan study will provide planning and development guidance necessary for the Authority to address airside and landside facilities and land development considerations for the next 20 years and beyond. This technical document, along with the associated Airport Layout Plan (ALP) set, will serve as a strategic development and marketing tool for the ongoing improvement of airport facilities. The process, methods and resultant products are guided by Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5070-6B, *Airport Master Plans*. Consistent with this guidance, the process followed for preparing the ECP Master Plan is outlined in **Figure 1-1**.

Contents of this Report Include:

Figure 1-1 – Master Planning Process



Source: CHA Consulting, 2012

1.1.1 Purpose and Objectives

The purpose of this Master Plan study is to provide the Authority, FAA, and Florida Department of Transportation (FDOT) with a planning and development framework that allows the Airport to meet the long-term air transportation needs of the Northwest Florida ("panhandle") region. This framework, and these strategic tools, will assist the Authority in maintaining a competitive market advantage and preparing for future challenges and opportunities. Consistent with this purpose, the following objectives were established:

- Identify changing trends in the aviation industry and economy that could affect the long-term sustainability of the Airport.
- Develop reasonable forecasts of passenger and aviation activity that include low- and high-threshold levels and identify significant trigger points to that activity.
- Identify the airside, landside and passenger facilities necessary to accommodate future aviation demand and fulfill the needs of all airport users and stakeholders.
- Identify appropriate and best uses of land within airport property that optimize development and revenue generating potential.
- Develop strategic and flexible development plans for the various usage areas of the airport (i.e. terminal, auto parking, airfield, general aviation) that provide enhanced public amenities, operational efficiency and cost effectiveness.
- Support the development of compatible land uses in the Airport's vicinity in a manner that is sensitive to the surrounding environment.
- Ensure that development plans can be pursued in a safe, secure, and efficient manner and are in compliance with all FAA and Transportation Security Administration (TSA) requirements.
- Ensure that the recommended improvements are financially feasible and maximize eligibility of FAA and FDOT funding programs.
- Actively engage the public throughout the planning process.

1.1.2 Public Involvement Program

Public involvement is an integral part of any significant airport planning study, as it encourages information-sharing and collaboration among the community and airport stakeholders that have a collective interest in the outcome of the study. Stakeholders include the airport sponsor, airlines, airport tenants, pilots and travelers, local businesses and residents, resource agencies such as the FDOT and the FAA, elected and appointed public officials, and the general public. With such a diverse stakeholder group, it is important to use a variety of forums such as committees, public information meetings, and public awareness campaigns, to enhance the program's effectiveness.

For this Master Plan study, a Technical Advisory Committee (TAC) was established, consisting of technical-level representatives of some of the aforementioned stakeholders. The TAC was responsible for providing input and insight on technical issues, and met several times during the course of the program, as part of a coordinated series of meetings at key decision points in the study process. Members of the TAC also reviewed working papers at various milestones

throughout the course of the Master Plan study to ensure that all relevant issues were adequately addressed.

In addition to the TAC, other forms of public involvement utilized during this study included public meetings/workshops, Airport Authority Board briefings, and passenger surveys. Public workshops provided an opportunity to engage the public in meaningful conversation about the Airport and surrounding communities. These meetings were conducted in an "open house" format with interactive information stations staffed by airport personnel and the consultant team. The Airport Authority Board briefings covered topics that were of special concern or interest to the Authority and were used to gain Board concurrence on the study recommendations. Passenger surveys were conducted to help define traveler needs and tendencies and for ongoing use in the Authority's strategic planning. Surveys were conducted in departure holdrooms during the months of July and November 2013 and March 2014 to capture both peak and shoulder season travelers. The results of these surveys are provided in **Appendix A**.

1.2 AIRPORT BACKGROUND

Understanding the background of an airport and the region it serves is essential in making informed decisions pertaining to airport-related improvements. The following discusses ECP in the context of its location, history, and role in the overall aviation system.

1.2.1 Location and Automobile Access

ECP sits on a 4,000 acre site in northwestern Bay County, Florida, approximately 10 nautical miles (nm) north of Panama City Beach, 16 nm northwest of Panama City, 95 nm east of Pensacola, and 90 nm west of Tallahassee.

The Airport is sited on West Bay Parkway, with the section of road adjacent to the passenger terminal building being dubbed the "airport loop road". This loop road encircles most of the on-airport parking and includes the terminal curbside access.

West Bay Parkway is accessed via State Road 388 running east and west between State 79 on the west, and State 77 on the east. State 79 serves passengers to and from Panama City Beach while 77 serves Panama City. State 77 and 79 feed into I-10, approximately 40 miles from the Airport. ECP is accessible via local roads from most northwest Florida destinations, including the 26-mile stretch of beaches in south Walton County (Miramar Beach, Seacape, Sandestin, Dune Allen, Santa Rosa Beach, Blue Mountain, Grayton Beach, WaterColor, Seaside, Seagrove, WaterSound, Seacrest, Rosemary Beach, Alys Beach, and Inlet Beach).

The general location and vicinity of Northwest Florida Beaches International Airport are shown in **Figure 1-2** and **Figure 1-3**.

CHA

NORTHWEST FLORIDA BEACHES INTERNATIONAL AIRPORT

MASTER PLAN STUDY

Figure 1-2
Location Map

NORTHWEST FLORIDA BEACHES INTERNATIONAL AIRPORT

MASTER PLAN STUDY

Figure 1-3
Vicinity Map

1.2.2 History

Northwest Florida Beaches International Airport (ECP) replaced Panama City-Bay County International Airport (PFN) in May 2010. Formerly known as Atkinson Field, PFN was constructed in 1938, and provided service to the Panama City area until its closing in October 2010, five months after ECP's opening on May 23, 2010.

The concept of a new, or replacement, commercial service airport came about in 1996, when the *PFN Airport Master Plan Update* study identified the need to extend both runways and associated Runway Safety Areas to accommodate fleet changes in the industry, including the addition of larger capacity aircraft. An *Environmental Assessment* (EA) was initiated to evaluate the impacts of these projects. Based on the analyses conducted, extension of the runways at PFN would result in significant environmental impacts; therefore, the Authority terminated the EA process in 1998 and initiated an *Airport Feasibility Study*. This study considered other alternatives to address future aviation demand (such as collocation with the nearby Tyndall Air Force Base and relocating the airport to a new site). Additional issues identified with the old PFN airport site included the lack of land for expansion, incompatible surrounding land uses, and airspace conflicts with Tyndall Air Force Base. The recommendation of the *Airport Feasibility Study* was to relocate the airport and an *Airport Site Selection Study* was undertaken (completed in 2000).

ECP TIMELINE OF EVENTS

Early 1900s - Private airfield with grass strip

1932-1938 – Opened public use Panama City-Bay County Airport (PFN)

1943 – Authority formed

70s–90s – Airline growth

1992 – PFN became international airport

1996 – Environmental Assessment precluded expansion; proposed replacement airport

1999 – Airport Feasibility Study

2000 – Airport Site Selection Study

2001 – Airport Layout Alternatives and Basis of Design Studies

2006 – Environment Assessment (for new airport)

2007 – Ground is broken for a new airport (ECP)

2010 – ECP opened, PFN closed

2012 – PFN property sold; ECP Master Plan Study initiated

After the consideration of several potential relocation sites, the Authority selected a 4,000 acre plot of land in northwestern Bay County donated by the St. Joe Company. Following the preparation and review of an *Environmental Impact Statement* (EIS) for the proposed airport, the FAA issued an official *Record of Decision* (ROD) in September of 2006 approving the relocation and development of ECP. Construction of the new Airport broke ground in November 2007.

The new airport became operational on May 23, 2010. It became the first international airport to be built after September 11, 2001. The Airport's FAA

identifier code "ECP" was chosen in reference to the Panama City Beach's sobriquet, the "Emerald Coast Paradise".

1.2.3 Airport Role

In addition to connecting the Northwest Florida region to the global transportation network, the Airport plays a significant role in the nation's air travel system. The FAA's *National Plan of Integrated Airports Systems* (NPIAS) is a program maintained by the FAA to assist the agency in programming federal funds to support required aviation development at airports included in the NPIAS. According to the 2011-2015 NPIAS Report, the United States has approximately 5,179 public airports, of which 64 percent are included in the NPIAS (3,380 airports). Airports included in the NPIAS are considered significant to national air transportation and therefore, are eligible to receive grants under the FAA Airport Improvement Program (AIP). The NPIAS further categorizes the included airports based on types of service provided and quantity of passengers enplaned. Of the airports included in the NPIAS, 503 are considered a primary or non-primary commercial service airport.

ECP was classified as a non-hub primary commercial service airport in both the 2011-2015 and 2013-2017 NPIAS reports. It is anticipated that, based on actual enplanement levels, ECP will likely be considered a small hub in the next NPIAS report. Small hubs are defined as airports that enplane 0.05 percent to 0.25 percent of total U.S. passenger enplanements. Less that 25 percent of the runway capacity at small hub airports is used by airline operations, so these airports can accommodate a great deal of general aviation activity. These airports are typically uncongested and do not have significant air traffic delays. There are approximately 72 small hub airports in the nation that together account for 8 percent of all enplanements[1]. The NPIAS classifications are detailed in **Table 1-1**.

[1] Based on 2008 Enplanement Data, from the 2011-2015 NPIAS Narrative

Table 1-1 – Airport Classification

Airport Classifications		Hub Type: % of Annual Passenger Boardings	Example Airport
Commercial Service: *Publicly owned airports that have at least 2,500 passenger boardings each calendar year and receive scheduled passenger service*	**Primary**: *Have more than 10,000 passenger boardings each year*	**Large Hub**: *1% or more*	Miami
		Medium Hub: *At least .25%, but less than 1%*	Jacksonville
		Small Hub: *At least .05%, but less than .25%*	**ECP*** and Pensacola
		Nonhub Primary: *More than 10,000, but less than .05%*	PFN
	Nonprimary	**Nonprimary Commercial Service**: *At least 2,500, and no more than 10,000*	Naples
Nonprimary (*Except Commercial Service*)		**Reliever**	Clearwater
		General Aviation	Destin

Source: FAA *NPIAS 2011-2015*, FAA Order 5100-38C *AIP Handbook*
* anticipated classification in the 2015-2019 NPIAS

The Airport also plays a role in the Florida Aviation System. The *Florida Aviation System Plan* (FASP) *2025* is FDOT's provision of strategic guidance on planning airport improvements and to help ensure that Florida's system of 131 public airports is developed in a manner that best serves the State of Florida. The plan identifies ECP as one of four commercial service airports in the Northwest Florida Region, providing air transportation to the region's +1.2 million citizens and a variety of industries including tourism, real estate, and agriculture. Under this program, approximately $130 million is appropriated each year from the State Transportation Trust Fund to the State Aviation Program. Florida airports are eligible to secure monies from this reserve and use it for capital improvement projects and other development needs. The FASP addresses the aviation needs for the State of Florida at a system level perspective.

1.3 AIRPORT ORGANIZATION

The Northwest Florida Beaches International Airport is owned and operated by the Panama City-Bay County Airport and Industrial District (the Airport Authority). The Authority's Board of Directors is comprised of seven members – two appointed by the Panama City Commission, two appointed by the Bay County Commission, two appointed by the Panama City Beach Commission, and one appointed by the Walton County Commission. While the Authority Board is responsible for the governance and strategic direction of the Airport, the day-to-day management and operations are conducted by a team of airport employees, managed by the Airport's Executive Director and Deputy Executive Director. The Directors report to the Board monthly, and are responsible for managing the Airport's annual operating budget, strategic planning, and the Airport's Capital Improvement Program (CIP).

1.4 MAJOR AIRPORT TENANTS

The Airport hosts a number of aviation and non-aviation tenants that offer a variety of services to the traveling public and aviation community. The major tenants include the airlines, Fixed-Base Operator (FBO), and rental car companies.

1.4.1 Airlines

Two airlines currently provide scheduled passenger service at the Airport: Southwest Airlines and Delta Air Lines. In mid-2012, these two airlines offered nonstop service to six destinations as depicted in **Figure 1-4**. By mid-2014, direct service to Orlando had ceased.

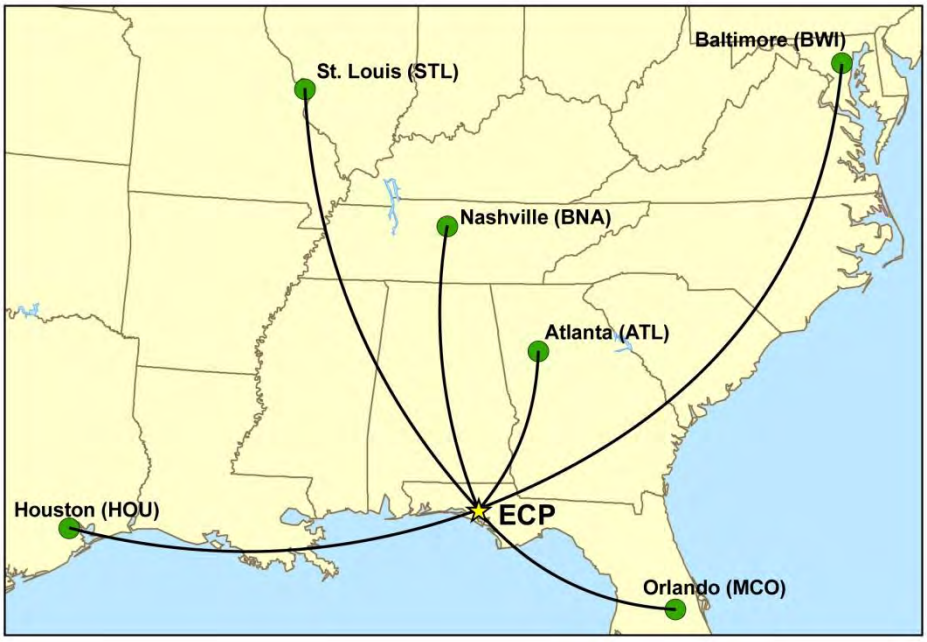
Southwest Airlines

Southwest has been providing service at ECP since the Airport's inception, offering daily nonstop flights to and from Baltimore-Washington International Airport (BWI), Houston's William P. Hobby Airport (HOU), Nashville International Airport (BNA), Orlando International Airport (MCO), and Lambert-St. Louis International Airport (STL) (seasonal). As of mid-2014 the direct Orlando service was no longer offered. It is anticipated that direct Dallas Love Field (DAL) service will begin in 2015. Southwest currently operates Boeing 737 aircraft at ECP.

Delta Air Lines

As of mid-2014, Delta offered daily nonstop flights to Hartsfield-Jackson Atlanta International Airport (ATL) utilizing Bombardier CRJ, Boeing 717, McDonnell Douglas MD-80, and Airbus A319 aircraft.

Figure 1-4 – Air Service Destinations (2012)



Source: CHA Consulting, 2012

1.4.2 Fixed-Base Operator (FBO)

Sheltair Aviation is the single FBO currently operating at ECP. Sheltair offers aircraft fueling, storage (tie-down and hangar), crew cars, cleaning, and maintenance. The FBO maintains 13 full-time employees and operates out of their "executive terminal" located to the west of the Runway 34 threshold. Within this terminal, offered amenities include a flight planning/weather room, pilot's lounge, cafeteria/vending area, conference room, wireless internet, and concierge service. Sheltair currently owns and leases out space in a group hangar with office space, located adjacent the GA apron. Sheltair has long-term plans to build additional hangars as demand warrants. As of early 2014, Southern Airways Express also provides charter flight service from the executive terminal (http://iflysouthern.com/).

1.4.3 Rental Car Companies

As of early 2014, there are seven rental car brands at ECP – Alamo, Avis, Budget, Enterprise, Hertz, National, and Thrifty. Each company has a separate counter in the terminal, dedicated ready/return parking in the main lot, and access to the on-site consolidated rental car maintenance and car wash facility.

2 INVENTORY OF EXISTING FACILITIES

The initial step of the master planning process was to develop an inventory of the existing physical conditions and operational characteristics of the Airport and its surroundings. The information presented in this chapter provides the basis for evaluating the existing and future facility requirements and includes descriptions of the Airport's:

- Airfield
  - Runway System
  - Taxiway System
  - Apron Areas
  - Internal Service Road
  - Aircraft Storage
- Navigational Aids
- Passenger Terminal Building
- Automobile Access and Parking
- Support Facilities
  - Aircraft Fueling
  - Aircraft Rescue and Fire Fighting
  - Air Cargo
  - Airport Storage
  - Rental Car Facilities
- Airspace Environment
- Meteorological Conditions
- Financial Structure

The existing facilities at ECP are presented in **Figure 2-1** and **Figure 2-2**. The Airport Diagram is depicted in **Figure 2-3**.

NORTHWEST FLORIDA BEACHES INTERNATIONAL AIRPORT

MASTER PLAN STUDY

CHA

GRAPHIC SCALE (FEET)

0 750 1500

Photo Date: 2012

Area Graded for Planned Crosswind Runway

FAA Radar Tower

ASOS

WindCone

REILS

Localizer

MALSR

Glide Slope

Glide Slope Critical Area

4-Box PAPI

4-Box PAPI

Localizer Critical Area

RUNWAY 16/34 (10,000' x 150')

TW 'U'

TW 'T'

Wind Cone

TW 'S'

TW 'P'

TW 'M'

TW 'D'

TW 'K'

TW 'J'

Wind Cone w/ Segmented Circle

TW 'O'

TW 'E1'

TW 'E2'

TW 'F'

Terminal Area

General Aviation Area

FBO Area

Public Parking

Johnny Reaver Road

West Bay Parkway

Rental Car Area

SEE DETAIL IN FIGURE 2-2

Johnny Reaver Road

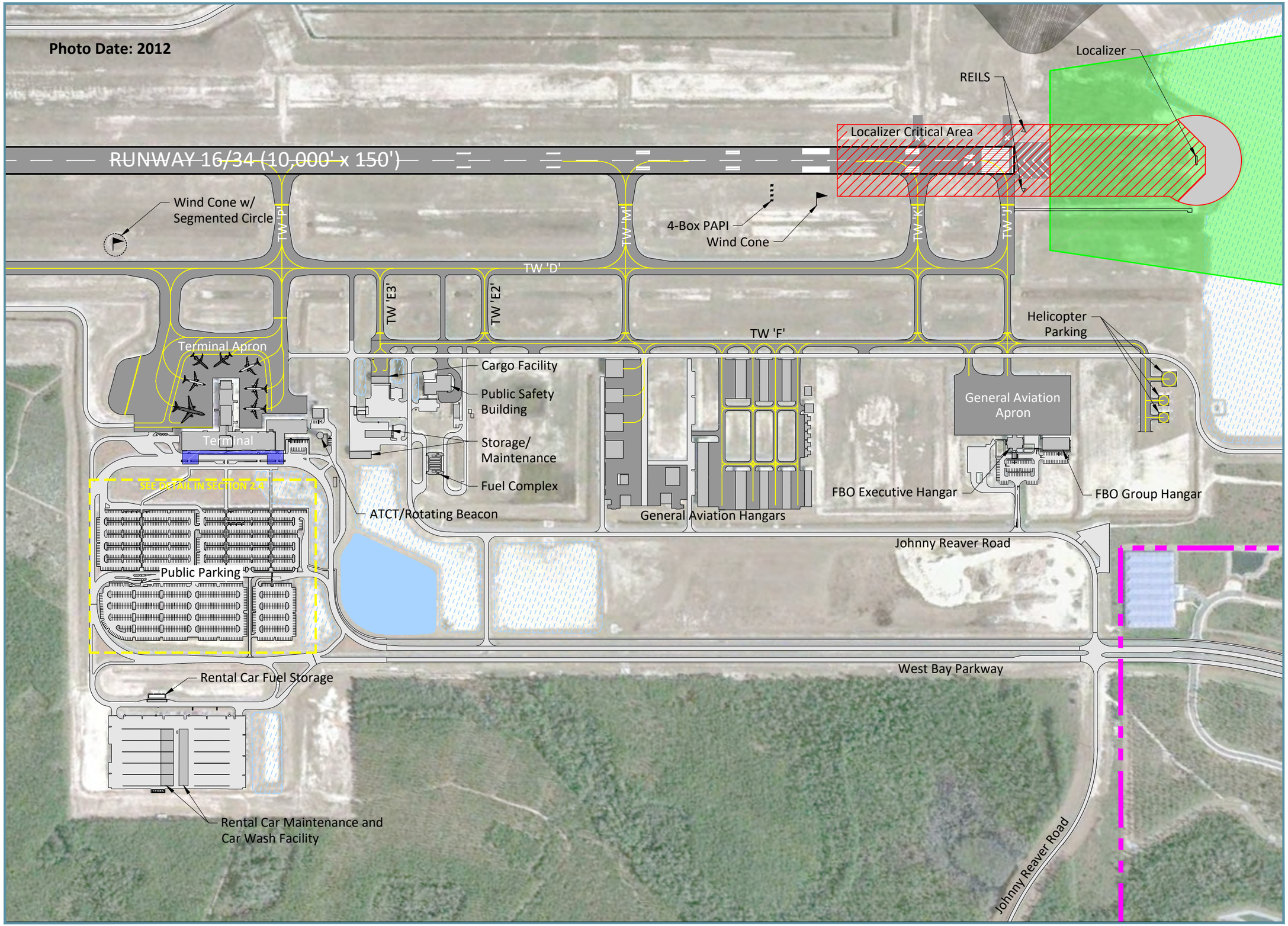
LEGEND

- Airfield Pavement
- Buildings
- Runway Protection Zone (RPZ)
- Stormwater Management Ponds
- Stormwater Management Dry Ponds
- NAVAID Critical Area
- Airport Property Line

ACRONYMS

FBO - Fixed Base Operator
REILS - Runway Edge Indicator Lights
ASOS - Automated Surface Observing System
PAPI - Precision Approach Path Indicator
MALSR - Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights

Figure 2-1
Existing Facilities



NORTHWEST FLORIDA BEACHES INTERNATIONAL AIRPORT

MASTER PLAN STUDY

CHA

GRAPHIC SCALE (FEET)

0 250 500

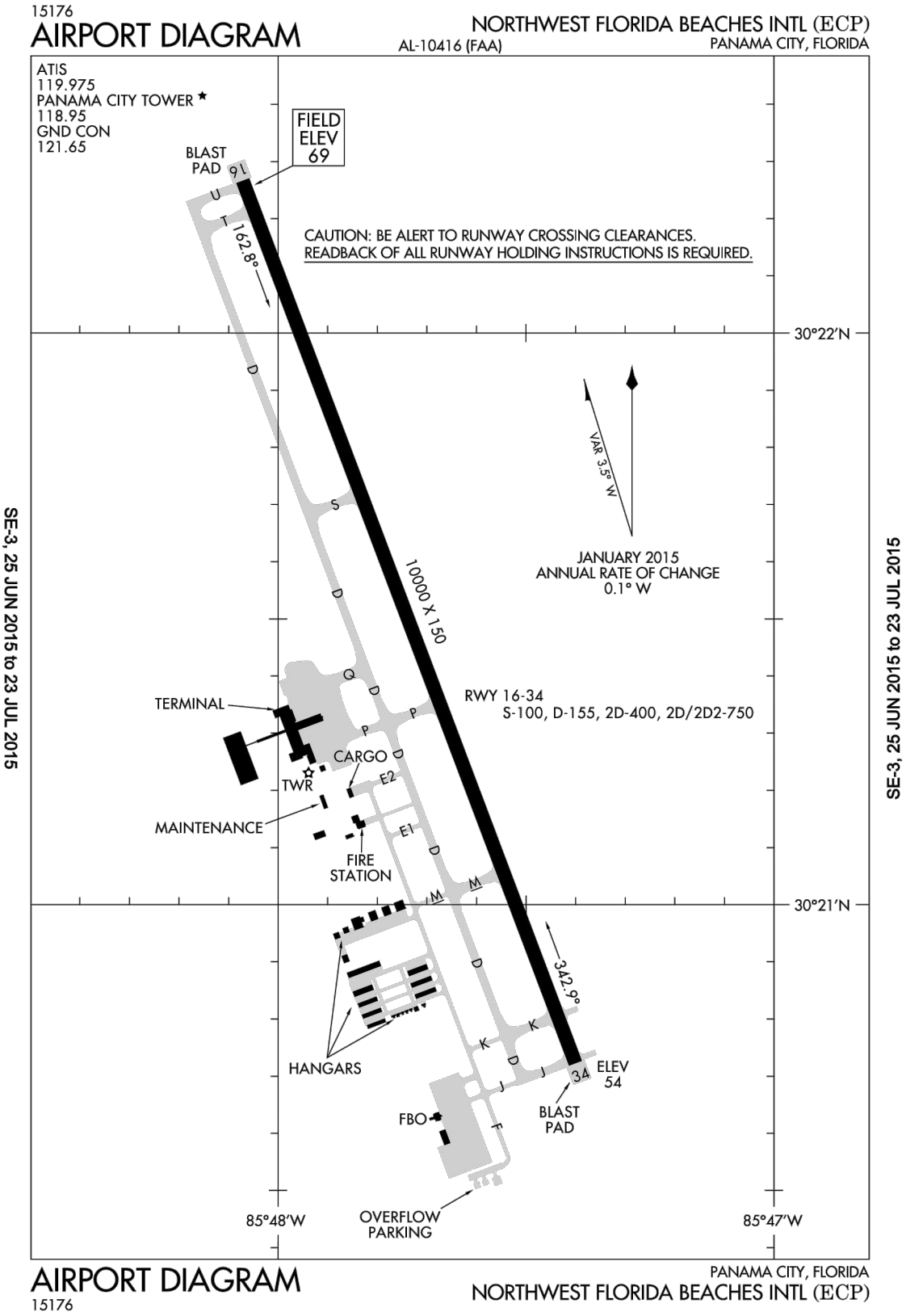
LEGEND

- Airfield Pavement
- Buildings
- Runway Protection Zone (RPZ)
- Stormwater Management Ponds
- Stormwater Management Dry Ponds
- NAVAID Critical Area
- Airport Property Line

ACRONYMS

FBO - Fixed Base Operator
REILS - Runway Edge Indicator Lights
PAPI - Precision Approach Path Indicator

Figure 2-2
Terminal Area Facilities


15176
AIRPORT DIAGRAM
NORTHWEST FLORIDA BEACHES INTL (ECP)
AL-10416 (FAA)
PANAMA CITY, FLORIDA
ATIS
119.975
PANAMA CITY TOWER ★
118.95
GND CON
121.65
FIELD ELEV 69
BLAST PAD
16
34
162.8°
342.9°
CAUTION: BE ALERT TO RUNWAY CROSSING CLEARANCES.
READBACK OF ALL RUNWAY HOLDING INSTRUCTIONS IS REQUIRED.
30°22′N
30°21′N
VAR 3.5° W
JANUARY 2015
ANNUAL RATE OF CHANGE
0.1° W
10000 X 150
RWY 16-34
S-100, D-155, 2D-400, 2D/2D2-750
TERMINAL
CARGO
TWR
MAINTENANCE
FIRE STATION
HANGARS
FBO
OVERFLOW PARKING
ELEV 54
BLAST PAD
85°48′W
85°47′W
SE-3, 25 JUN 2015 to 23 JUL 2015
SE-3, 25 JUN 2015 to 23 JUL 2015
AIRPORT DIAGRAM
15176
PANAMA CITY, FLORIDA
NORTHWEST FLORIDA BEACHES INTL (ECP)

2.1 AIRFIELD

The airfield facilities are the elements of infrastructure that are most closely associated with the movement of aircraft (takeoff, landing, taxiing, parking, etc.). The airfield components at ECP are described in the following subsections and include:

- Airport Design Criteria
- Runway System
- Taxiway System
- Apron Areas
- Internal Service Road
- Pavement Conditions
- Pavement Markings
- Aircraft Storage

2.1.1 Airport Design Criteria

The FAA classifies airports according to the size and approach speed of aircraft that they are designed to accommodate. This system of classification, known as the Airport Reference Code (ARC), is used to relate airport design criteria to the operational and physical characteristics of the operating aircraft. This relationship between ARC and design standards is described in FAA AC 150/5300-13, *Airport Design*.

The characteristics of this system are shown in **Table 2-1**. The ARC classification consists of a letter designating the aircraft Approach Category (determined by approach speed) and a roman numeral designating the Airplane Design Group (ADG) (determined by wingspan or tail height). Generally speaking, the ARC affects runway and taxiway dimensions, separation standards, and other safety restrictions.

Table 2-1 – Airport Reference Code

Approach Category		
Approach Category	**Airspeed (knots)**	**Example Aircraft**
A	<91	Cessna 152, Beech Bonanza A36
B	91 ≤ 121	Saab 340, Gulfstream I
C	121 ≤ 141	MD 80, CRJ
D	141 ≤ 166	Boeing 747, KC-135
E	166+	F-16, A-10

Airplane Design Group			
Design Group	**Tail Height (ft)**	**Wingspan (ft)**	**Example Aircraft**
I	<20	<49	Cessna 172, Cirrus SR-22
II	20-<30	49 ≤ 79	Cessna Citation II, Falcon 900, CRJ
III	30-<45	79 ≤ 118	Boeing 727, Boeing MD 80
IV	45-<60	118 ≤ 171	Boeing 757, MD 11
V	60-<66	171 ≤ 214	Airbus A340, Boeing 777
VI	66-<80	214 ≤ 262	Airbus A380, C-5 Galaxy

Source: FAA AC 150/5300-13 Airport Design

As shown in **Table 2-1**, approach categories A and B include small piston-engine aircraft and corporate jets with approach speeds of less than 121 knots, while categories C, D, and E include larger aircraft with approach speeds of 121 knots or greater (those typically associated with commercial or military use). Similarly, design groups I and II include small piston-engine aircraft and light to midsize corporate jets, as well as single- and twin-engine turboprop aircraft. Design groups III, IV, and V include larger corporate jets and the majority of the commercial jet fleet, as well as numerous military aircraft. Design group VI includes very large jets such as the Airbus A380 and the military C-5 transport aircraft. **Figure 2-4** displays typical aircraft within each ARC.

An airport's ARC signifies the FAA airport design criteria necessary to accommodate the most demanding aircraft types expected to regularly operate at an airport. The most demanding aircraft is commonly referred to as the critical or design aircraft and the FAA's definition of "regularly operate" is a minimum of 500 annual itinerant operations or scheduled commercial service. An itinerant operation is defined as the takeoff or landing of an aircraft going from one airport to another, whereas local operations are those that remain within 20 nautical miles of the originating airport for the entire flight. The 2008 FAA-approved ALP (and 2011 revised ALP) identified the "current" critical aircraft at ECP as the Airbus A-320 (C-III) and the "ultimate" critical aircraft as the Boeing 777-3000 (D-V). Review of 2012 operations data (FAA ETMSC) indicates that the Boeing 737-800 (D-III) and the McDonnell Douglas MD-88 (D-III) are currently the most demanding commercial aircraft that operate regularly at ECP (over 500 annual operations). The existing and future ARC of the airfield will be analyzed in greater detail in **Chapter 4** *Facility Requirements.*

A-I, B-I

- Beech Baron 55
- Beech Bonanza
- Beechjet 400
- **Cessna 152** / 172
- Cirrus SR-22
- Eclipse 500
- Hawker Premier I
- Piper Aztec
- Piper PA-46
- Piper Seneca

A-II, B-II

- King Air 200 / 300
- Beech 1900
- Cessna 208 Caravan
- Cessna 441
- Dassault Falcon 50
- Citation Mustang
- **Citation II**, III, V

C-I, D-I

- Israeli Westwind
- Hawker Siddeley 125
- Learjet 35, 45, 55
- **Piaggio Avanti**
- North American Sabreliner

C-II, D-II

- Bombardier CL-600
- Canadair Regional Jet
- Citation Sovereign
- Citation X
- Embraer Legacy 500
- **Hawker** 800 / **900 XP**
- Gulfstream II, III, IV
- Jetprop Commander 1000

A-III, B-III

- **DHC Dash 8**
- DC-3
- Convair 580
- Fairchild F-27
- ATR 42
- ATP

C-III, D-III

- Airbus A319, A320
- ATR 72
- Boeing Business Jet
- Boeing 727-200
- **Boeing 737-300**
- MD-80, DC-9
- Gulfstream V
- Global Express

C-IV, D-IV

- Airbus A300
- Boeing 707
- **Boeing 757**
- Boeing 767
- DC-8
- DC-10
- Lockheed C-130

C-V, D-V

- Airbus 340
- Boeing 777
- **Boeing 747**
- Boeing 777
- MD-11

NOTE: The aircraft in bold text are represented in the adjacent picture.

2.1.2 Runway System

The existing runway system at ECP consists of one runway oriented in a northwest/southeast direction – Runway 16/34. The runway is constructed of grooved, Portland Cement Concrete (PCC) and is 10,000 feet long and 150 feet wide. The runway has a load bearing capacity of 100,000 pounds (lbs.) for aircraft with single wheel landing gear configurations, 155,000 lbs. for aircraft with dual wheel configurations, 400,000 lbs. for aircraft with dual tandem wheel configurations, and 750,000 lbs. for aircraft with double dual tandem wheel configurations. Runway 16/34 has precision markings that are in good condition. **Table 2-2** highlights the specifications of Runway 16/34. Runway markings, runway lighting, and navigational aids will be discussed in later sections.

A site has been graded for the future development of a planned crosswind runway – intended to serve GA aircraft (general area shown in **Figure 2-1**). The demand and feasibility of this runway (as well as alternative development options) will be evaluated in later chapters of this report.

Table 2-2 – Runway 16/34 Specifications

	Runway 16/34
Length (feet)	10,000
Width (feet)	150
Runway End Elevation (feet above MSL)	**Runway 16:** 68.8 **Runway 34:** 53.7
Pavement Type	Grooved Concrete
Pavement Load Bearing	750,000 lbs. (Double Dual Tandem)
Effective Runway Gradient	0.6%
Runway Markings	Precision

Source: Airport Master Record for ECP, Form 5010-1, FAA, 2011, Airnav.com

2.1.3 Taxiway System

An airport's taxiway system connects the runways to aircraft parking aprons, storage hangars, and other facilities. Runway 16/34 is served by a full-length parallel taxiway – Taxiway D. Access to the runway is provided by seven 90° entrance/exit taxiways – J, K, M, P, S, T, and U. Taxiway P and Taxiway Q provide access to the Terminal Apron. These taxiways are 75 feet wide and can generally accommodate up ARC IV and V aircraft. Taxiway F provides access to the GA hangars and apron, FBO, and Cargo Facility. Access to Taxiway F is provided by Taxiway E2, E3, J, K, and M. Taxiway F, E2, E3, and the western portions of J, K, and M are 35 feet in width and generally designed to accommodate Group-II aircraft. All the taxiways at ECP are constructed from bituminous asphalt concrete and are summarized in **Table 2-3**.

Table 2-3 – Existing Taxiway Specifications

Taxiway	Design Group	Width (ft)	Description
D	III+	75	Full Parallel Taxiway that provides access between Runway and Terminal, Hangars, Aprons, etc.
E2	II	35	Connects Taxiway D to Taxiway F near Fuel Farm and Public Safety Building
E3	II	35	Connects Taxiway D to Taxiway F and Air Cargo Building
F	II	35	Runs parallel to Taxiway D and provides access to GA and Support Facilities
J	II / III+	35 / 75	Serves as entrance taxiway to Runway 34 from Taxiway D, and provides access to Taxiway F and the GA Apron
K	II / III+	35 / 75	Serves as bypass taxiway to Runway 34 end and connects to Taxiways D and F
M	II / III+	35 / 75	Provides access from Runway to Taxiways D and F in area of GA hangars
P	III+	75	Provides access from Runway to Taxiway D and Terminal Apron
Q	III+	105	Provides access from Taxiway D to Terminal Apron
S	III+	75	Provides access from Runway to Taxiway D
T	III+	75	Serves as bypass taxiway to Runway 16 end and connects to Taxiway D
U	III+	75	Serves as entrance taxiway to Runway 16 end from Taxiway D

Source: CHA Consulting, 2012

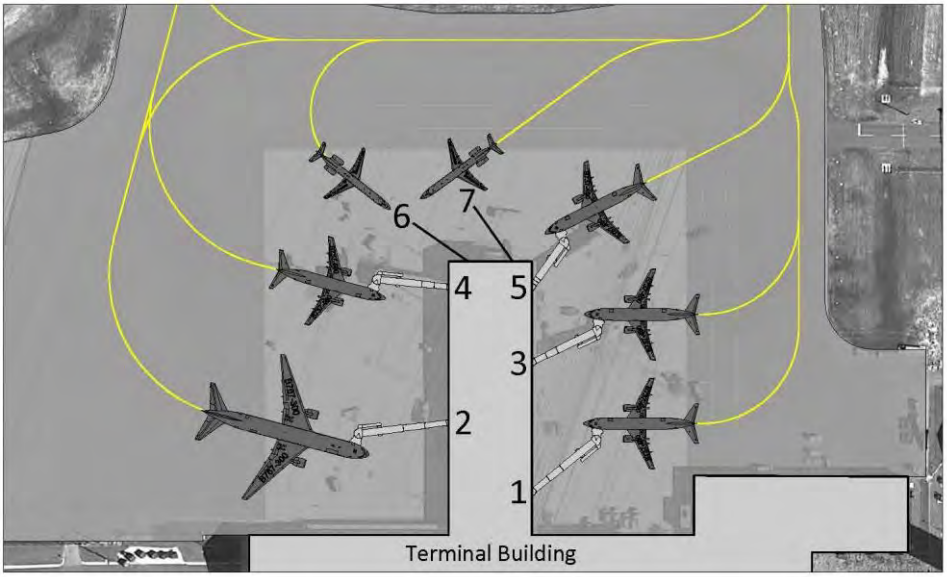
2.1.4 Apron Areas

Aprons, also referred to as “ramps”, provide space for both the short- and long-term parking of aircraft and the loading/unloading of passengers and goods. As depicted in **Figure 2-2** and described below, there are two apron areas at Northwest Florida Beaches International Airport – the Terminal Apron and the GA Apron.

The Terminal Apron is made up of approximately 17,400 square yards (SY) of Portland Cement Concrete (PCC) pavement, which currently offers seven gate positions. Gates 1, 3, 4, and 5 are designed to accommodate aircraft as large as the Boeing 737-800. Gates 6 and 7 are designed to accommodate most regional jets (up to an Embraer ERJ 145). Gate 2 is intended to be the future international gate, and is designed to accommodate up to a Boeing 767-300. A schematic of the gate layout, with the largest aircraft the gate can accommodate is presented in **Figure 2-5**.

The GA Apron is located adjacent to the FBO, at the south end of Taxiway F, near the Runway 34 threshold. This ±24,200 SY asphalt apron is managed by the FBO and has parking positions and tie-downs for Group-I and Group-II aircraft.

Figure 2-5 – Gate Layout



Source: CHA Consulting, 2012

2.1.5 Internal Service Road

A secured service road, located within the Airport Operations Area (AOA) perimeter fence, loops the airfield. Generally speaking, the main purpose of the service road is to provide Aircraft Rescue and Fire Fighting (ARFF) access to the entire airfield, specifically the Runway Protection Zones (RPZs), Runway Safety Areas (RSAs), and other potential accident areas. In the terminal, GA, and support areas of the airfield, the service road is utilized by fuel trucks, security vehicles, and ground-service equipment for regular airport activities. The portion of the service road, which runs parallel to Taxiway F and spans from the terminal apron to the GA area, is approximately 24-feet wide and consists of an asphalt pavement section. This paved section has appropriate markings and signage to facilitate safe operations within active airfield areas. The remainder of the service road (in the undeveloped portions of the airfield) consists of an unpaved roadway section stabilized with aggregate. Paved access drives connect the service road to the Public Safety Building, fuel storage areas, and landside roadways.

2.1.6 Pavement Condition

As previously mentioned, the runway and Terminal Apron are constructed of Portland Cement Concrete (PCC), while the remainder of airfield pavements are constructed of bituminous asphalt concrete (with the exception of the unpaved portions of the internal service road). All the airfield pavements are less than 5 years old and are considered to be in very good to excellent condition.

2.1.7 Pavement Markings

FAA AC 150/5340-1K, *Standards for Airport Markings,* identifies the pavement marking requirements for commercial service, or Federal Aviation Regulation Part 139 certificated airports. Consistent with these requirements, Runway 16/34 has precision instrument runway markings. The latest version of this guidance was published in November 2010 and includes new standards for enhanced taxiway centerline markings, surface-painted hold line markings, and the extension of the runway holding position markings onto the paved shoulders. Upon visual inspection, ECP is compliant with the latest standards.

2.1.8 Aircraft Storage

ECP's various aircraft storage needs are met by a mix of Airport-owned and private buildings. Located south of the terminal area and north of the GA Apron is a campus of 22 hangar buildings. These buildings consist of seven group/corporate hangars (ranging in size from ±3,600 SF to ±12,000 SF), eight T-hangar banks (ranging from 6-units to 10-units each), five individual T-hangars (±1,100 SF each), and one aircraft sun shelter (±2,500 SF). The FBO owns a ±10,000 SF storage and maintenance hangar that is located adjacent to the GA Apron.

2.1.9 Helicopter Parking

Three concrete helicopter parking pads are located at the southern end of Taxiway F, south of the FBO and the GA Apron – one ±6,500 SF helipad and two ±3,100 SF pads. The pads can accommodate the training and military rotor aircraft that frequent the Airport.

2.2 NAVIGATIONAL AIDS (NAVAIDS) AND INSTRUMENT APPROACH PROCEDURES (IAP)

Airport NAVAIDs are any device that provides point-to-point navigational guidance to pilots. This includes electronic or visual air guidance systems (ground-based or airborne), approach lights, airfield lights, signs, and associated supporting equipment. NAVAIDs assist pilots in safely and efficiently locating airports, landing aircraft, and navigating the airfield during all meteorological conditions.

2.2.1 En-Route NAVAIDS

En-Route NAVAIDs assist pilots during navigation between airports. These facilities are usually ground-based and electronically emit signals that are received by aircraft on specific radio frequencies. They are almost always used in some manner by pilots operating on Instrument Flight Rule (IFR) flight plans but can also be used during Visual Flight Rule (VFR) flights for position information. There are no ground-based en-route NAVAIDs located at ECP, however, satellite navigation (GPS) is a widely-used form of en-route navigation, and is available at ECP.

En-route NAVAIDs located near ECP that can be used for guidance to and from the Airport include the Panama City VORTAC (PFN), Handle VORTAC (HLL), Tri-County VOR (FYL), Tri-County NDB (BKK), and Destin NDB (DTS). VOR (or VHF Omnidirectional Range) is a system that transmits a 24-hour, all-weather, static-free radio signal which pilots use to triangulate their position relative to the VOR and establish directions to or from an airport. NDBs (or Non-

Directional Beacon) radiate a signal which provides direction guidance to and from the transmitting antenna.

2.2.2 Instrument Approach Capabilities

Instrument approach procedures assist properly trained flight crews and properly equipped aircraft to operate at the Airport during poor weather conditions. Until recently, instrument approach procedures relied on ground-based electronic NAVAIDS and were classified as either "precision" or "non-precision". Non-precision approaches provided only lateral guidance, whereas precision instrument approaches provided both lateral and vertical guidance. The NAVAIDS supporting traditional precision approaches are collectively called an Instrument Landing System (ILS) and include a Localizer (providing lateral guidance), a Glideslope (providing vertical guidance) and an approach lighting system (providing close-in visual guidance). New advances in Global Positioning System (GPS) based technology have allowed "vertically-guided instrument approach procedures" and ILS-like approach capability without the need for traditional ground-based ILS NAVAID equipment. Based on current FAA classifications[2], the four types of approach categories include:

- Visual (V): Approaches performed under visual flight rules only, when meteorological conditions include a ceiling height of 1,000 feet or greater and visibility of 3 miles or greater.
- Non-Precision Approach (NPA): Instrument approach procedures providing only lateral guidance with a ceiling minimum of 400 feet above the threshold. These can include VHF Omnidirectional Range (VOR), non-directional beacon (NDB), area navigation Lateral Navigation (LNAV), localizer performance (LP), and localizer (LOC).
- Approach Procedure with Vertical Guidance (APV): Instrument approach procedures providing vertical guidance to 250 feet above the threshold and visibility minimums as low as ¾ mile. These can include an ILS, LNAV/Visual Navigation Aids (VNAV), Localizer Performance with Vertical Guidance (LPV) or Area Navigation (RNAV) Required Navigation Performance (RNP).
- Precision Approach (PA): Instrument approach procedures providing vertical guidance to less than 250 feet above the threshold and visibility minimums lower than ¾ mile. These can include an ILS, LPV, and Global Navigation Satellite System (GNSS) Landing System (GLS).

Both ends of Runway 16-34 are capable of visual approaches (supported by lighted wind cones and Precision Approach Path Indicators (PAPI-4)) and precision instrument LPV approaches supported by GPS and WAAS. It should be noted that current 14 CFR Part 77 regulations define "precision instrument runway" as having an ILS or Precision Approach Radar (PAR) and a "non-precision instrument runway" as having only horizontal guidance or area type navigation equipment. LPV is considered an area type navigation (RNAV) and therefore for purposes of

[2] FAA Advisory Circular 150/5300-13A Airport Design, 9/28/12

Part 77, Runway 34 is considered a non-precision runway but for purposes of design standards it is considered a precision runway because the ceiling height supported is less than 250-feet.

Runway 16 additionally provides a Category I (CAT-I) ILS which supports precision approach minimums of 200 foot decision height (i.e. cloud ceiling) and ½-mile visibility (the best minimums possible for a CAT-I approach). The category of an ILS refers to the accuracy of the system. Higher categories are more accurate and provide lower approach minimums. For example Category III systems can provide minimums as low as zero feet ceiling and zero visibility and are typically reserved for only the busiest of commercial airports.

The ILS system at ECP is owned and maintained by the FAA, and requires the use of Distance Measuring Equipment (DME). DME provides pilots with a slant range measurement of distance to the runway in nautical miles and is used as a replacement for marker beacons, therefore no installations outside of the airport property boundary are required. Aircraft must have at least one operating DME unit to begin the approach.

The approaches available to ECP and the established weather minimums are summarized in **Table 2-4**. ECP currently does not have any Standard Terminal Arrival Routes (STARs) or Standard Instrument Departure (SID) procedures.

Table 2-4 – ECP IAPs and Weather Minimums

Runway End	Approach Type	Approach Method	Minimums: *Ceiling (AGL) / Visibility*
Runway 16	Precision	ILS or LPV	200 ft. / ½ mile
	Approach w/ Vertical Guidance	LNAV/VNAV	500 ft. / ⅞ mile
	Non-Precision	LNAV	400 ft. / ½ mile
Runway 34	Precision	LPV	200 ft. / ¾ mile
	Approach w/ Vertical Guidance	LNAV/VNAV	300 ft. / ⅞ mile
	Non-Precision	LNAV	400 ft. / 1 mile

Source: FAA Instrument Approach Procedures Charts (14Nov13-12Dec13)

2.2.3 Approach Lighting

A multitude of approach lighting systems exist to accommodate the varying requirements of airports and needs of aircraft to land safely. The following approach lighting systems exist at ECP:

Medium-Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR): The MALSR, an element of the ILS, is located off the Runway 16 end and assists pilots transitioning from the cockpit instrument landing segment to the runway environment. It provides a lighted approach path along the extended centerline of the runway. Runway alignment indicator lights flash in a sequence as a series of white lights moving toward the runway threshold, emphasizing the runway centerline alignment. Roll indication is emphasized by a single row of white lights located on either side and symmetrically along the column of approach lights.

Runway End Identifier Lights (REIL): REILs provide rapid and positive identification of the approach end of a particular runway. The system consists of a pair of synchronized flashing lights positioned laterally on both sides of the runway threshold, and may be omnidirectional or unidirectional. Runway 34 is equipped with REILs.

Precision Approach Path Indicator (PAPI) Lights: A PAPI is a system of lights located near a runway end, which provides pilots with visual descent guidance during an approach to the runway. PAPIs typically have a visual range of approximately four miles, weather permitting, and inform the pilot if they are high, low, or on the correct approach decent path to the runway threshold. Both runway ends are equipped with PAPI-4 (four-light unit) systems.

2.2.4 Airfield Lighting

In addition to the instrument NAVAIDs and approach lighting previously described, the airfield includes the following lighting systems:

Rotating Beacon: The rotating beacon functions as the universal indicator for locating an airport at night; for a civilian airport it has a clear lens and a green lens, 180 degrees apart, and is generally visible 10 miles from the airport. The rotating beacon at ECP is located on top of the Air Traffic Control Tower (ATCT).

Runway Threshold Lighting: Threshold identification lights make use of a two-color lens, red and green. The green half of the lens faces the approaching aircraft and indicates the beginning of the usable runway. The red half faces the airplane on the rollout or takeoff, indicating the end of the usable runway. ECP has runway threshold lighting on the both runway ends.

Runway Edge Lighting: Runway edge lighting is used to outline the edges of a runway during periods of darkness or restricted visibility. These systems are classified according to their intensity or brightness. Runway 16/34 is equipped with High-Intensity Runway Light (HIRL) systems. HIRLs are white, visible through 360 degrees of the azimuth, and can be seen several miles from an airport during good visibility conditions.

Runway Centerline Lights: Runway centerline lights are embedded into the surface of the runway at 50 foot intervals along the runway centerline. These lights are white, with the exception of the last 3,000 feet, which consists of alternating white and red lights for 2,000 feet and red for last 1,000 feet.

Touchdown Zone (TDZ) Lights: Touchdown zone lights consist of rows of white light bars (three in each row) at 100 feet intervals on either side of the centerline over the first 3,000 feet, or to the midpoint of the runway, whichever is less.

Taxiway Edge Lighting: Taxiway lighting delineates the taxiway's edge and provides guidance to pilots during periods of low visibility and at night. The most commonly used type of taxiway lighting is a series of blue fixtures set at 200-foot intervals along the taxiway edges. All of the Airport's taxiways are equipped with Medium-Intensity Taxiway Lighting (MITL) systems.

Apron Lighting: Apron floodlight systems illuminate the Terminal Apron and the General Aviation Apron.

2.2.5 Airfield Signage

Lighted airfield signage currently at ECP airfield consists of all required signage for a Part 139 certificated airport including airfield location signage, mandatory instruction signage, and runway hold position signage.

2.3 PASSENGER TERMINAL BUILDING

The Airport's LEED-designed passenger terminal is based on a linear layout. Passengers enter or exit the facility through one of four ground-level vestibules on the west side of the terminal. Enplaning passengers then move south towards ticketing, or proceed to the centrally-located passenger screening checkpoint. Screened passengers going to gates 1-5 circulate up to and remain on the second-level, while screened passengers going to gates 6 and 7 continue through the concourse and back down to ground-level. Deplaning passengers flow in the opposite direction, from the concourse down through an exit corridor to the ground-level and out towards baggage claim on the north end.

2.3.1 Airline Ticketing Lobby

The ECP ticketing lobby is located on the south end of the terminal's ground-level and serves as the space for enplaning passengers to check-in, obtain boarding passes, and check baggage. Currently there are three separated ticket counters in the lobby. The southernmost and northernmost counters are occupied by Southwest Airlines and Delta Air Lines, respectively, while the center counter is vacant. The Southwest counter can accommodate four ticketing agents and six self-check-in kiosks, while the Delta counter has a capacity of six agents. Delta's self-check-in kiosks are located outside the passenger queue area. The unoccupied counter has positions for eight agents. There is a total of 102 linear feet of existing ticket counters. Both airline ticket counters have a dedicated queue space in front of the counters.

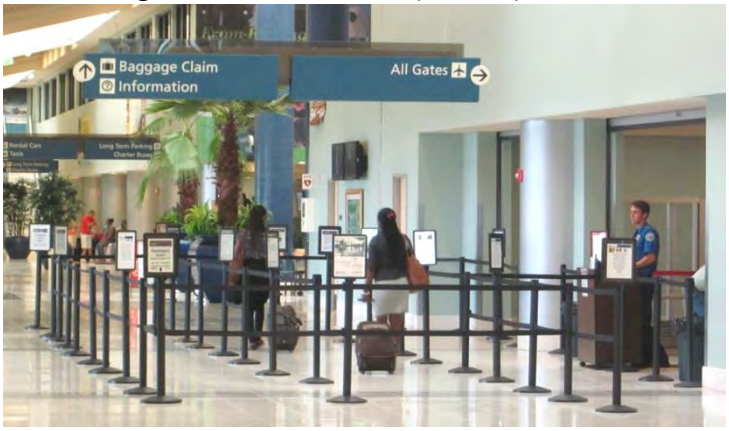
2.3.2 Checked Baggage Screening

All checked baggage must go through the sort-controlled Checked Baggage Inspection System (CBIS). Bags are placed on two conveyors directly behind the ticket counters. The conveyors pass through the wall behind the ticketing counters and are delivered to the baggage screening facility, out of view of the public. The system has two Explosive Detection System (EDS) machines and a dedicated Checked Baggage Resolution Area (CBRA) for secondary screening of suspect baggage. Once bags are cleared, they are delivered to a shared baggage make-up

carousel on the south end of the terminal. Tugs circulate into this room from the apron to pick up the outbound baggage, then circle around the unit and back out to the apron to load outbound aircraft.

2.3.3 Passenger Security

The passenger security screening checkpoint is centrally located in the terminal where all enplaning passengers must pass through before entering the concourse to board their flights. A pre-screening queue is located just outside the checkpoint, where passengers wait to have their travel documents checked before proceeding through the security equipment. ECP currently has one 2-to-1 screening lane module. This module consists of two X-ray machines for screening carry-on items, and one Walk-Through Metal Detector (WTMD). The current screening checkpoint has the capability to expand to an additional 1-to-1 lane configuration with one added X-ray device and one WTMD or passenger millimeter wave scanning device. After passing through security screening, passengers circulate north to approach the connector hall. Once on the secure side in the connector hall, passengers circulate up to the second level concourse for enplaning.



2.3.4 Air Carrier Holdrooms and Gates

ECP currently has seven air carrier gates. Gates 1-5 are second-level, elevated concourse gates with passenger boarding bridges. Southwest Airlines currently utilizes Gate 3 and Delta utilizes Gates 4 and 5. Gates 1 and 2 are currently unassigned. Gate 2 is designed to accommodate future international traffic, with sterile access to a potential Federal Inspection Services (FIS) facility. Gates 6 and 7 are ground-level gates located at the easternmost end of the concourse. An elevator and escalator with an accompanying stairway take enplaning passengers from the second-level down to these gates for ground-boarding operations serving regional flights. Each holdroom contains group seating quantities based on aircraft fleet mix and passenger loads. There is also an individual gate counter along the wall at each gate. **Table 2-5** represents the current holdroom seating and air carrier gate assignments based on current lease agreements.

Table 2-5 – Holdroom Seating and Air Carrier Gate Assignments

Concourse Level Two (Second Level)			
Holdroom/Gate	**Airline**	**Boarding Bridge**	**# of Seats**
1	Unassigned	Yes	72
2	Unassigned	Yes	47
3	Southwest Airlines	Yes	59
4	Delta	Yes	62
5	Delta	Yes	74
Concourse Level One (First Level)			
Holdroom/Gate	**Airline**	**Boarding Bridge**	**# of Seats**
6	Regional	No	16
7	Regional	No	15

Source: ECP 2012

2.3.5 Terminal Concessions and Amenities

Existing concessions throughout the terminal facility provide a varied selection of goods and services for passengers, employees and meeters/greeters. Concessionaires include food and beverage services, magazine, book, and gift shop concessions. The Airport also provides a Military Welcome Center for active and retired military and DOD personnel with free amenities such as a children's play area, computer work stations, and mail services.

Table 2-6 represents the current concessions and amenities within the airport terminal facility, including location.

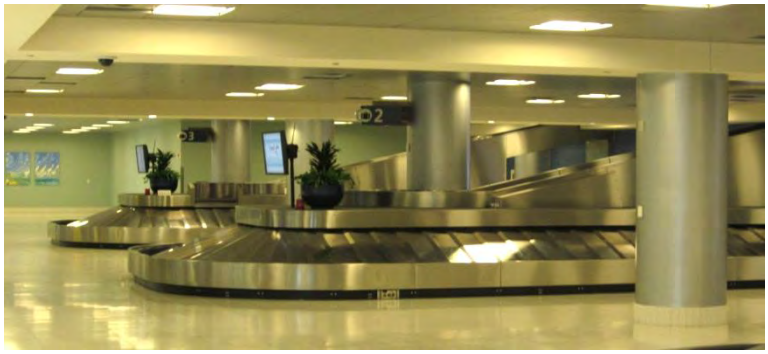
Table 2-6 – Terminal Concessions and Amenities

Pre-Security (Ground Level)		
Concession/Amenity	**Type**	**Location**
Ground Transportation Counter	Transportation	Baggage Claim
Business Center	Amenity	Baggage Claim
Information Center	Amenity	Central Entrance
The Dive-In Bar and Grill	Food & Beverage	Baggage Claim\SSCP
Gifts	News\Gift\Sundry	SSCP
Post-Security (Second Level)		
Concession/Amenity	**Type**	**Location**
Surf's Up Restaurant	Food & Beverage	Gate 1
Surf's Up Bar	Food & Beverage	Gate 2
Gift Shop	News\Gift\Sundry	Gate 3
Laptop Workstations		All Gates

Source: ECP 2012

2.3.6 Baggage Claim

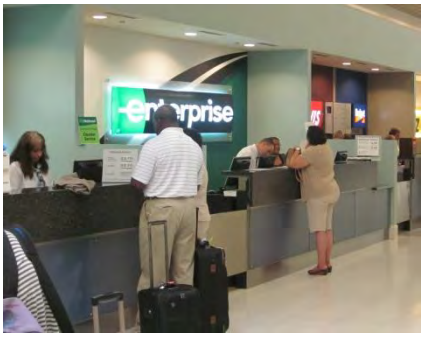
The baggage claim area is located on the north side of the terminal's ground-level and serves as the location for deplaning passengers to retrieve their checked baggage, complete rental car transactions and solicit ground transportation assistance. There are seating areas for meeters/greeters, with a food concession located adjacent to the bag claim area and security checkpoint. There are currently three inbound baggage claim devices, each measuring approximately 105 linear feet. Southwest and Delta utilize one claim device each, sharing the third.



Tugs with inbound baggage circulate to the northeast exterior side of the building. Bags are placed on one of three input conveyors which incline to a point above the interior ceiling before entering the building, delivering the bags to one of three claim units.

2.3.7 Rental Car Counters

Rental car counters are located on the west wall of the baggage claim area. At lengths of 18.4 linear feet each, the five transaction counters span a total of 92 linear feet. Currently seven rental car companies operate in the Airport within the baggage claim area. National and Alamo share the first counter followed by Enterprise, Budget/Avis, Hertz, and Thrifty.



2.3.8 Airport Administrative Offices

Airport administration is located on the second level, above the security checkpoint. This space includes administrative offices, conference rooms, a break room, and restroom facilities. There are two points of access to the administration office space. A stairway and elevator located off the departures lobby provide primary access for staff and visitors while secure airside access is available from the second-level concourse.

2.3.9 Terminal Building Functional Areas

The passenger terminal facility is comprised of many areas, each accommodating multiple stakeholder functions, including concessions, airline gates, TSA offices, and administrative support spaces. **Table 2-7** and **Table 2-8** provide an inventory of the terminal facility, listed by location, primary function, and area. **Figure 2-6** and **Figure 2-7** illustrate the existing terminal facility.

Table 2-7 – Terminal Functional Areas (Ground Level)

Ground Level – Ticketing and Baggage Claim		
Location and Use	**Element Length (LF)**	**Total Area (SF)**
Airline		**24,746**
Ticket Counters	101.66	5,510
Ticket Offices		2,304
Operations Offices		3,576
Outbound Baggage Make-up		3,648
Inbound Baggage Make-up		1,860
Future Outbound Make-up		3,360
Baggage Claim Device 1	105.58	683
Baggage Claim Device 2	105.58	683
Baggage Claim Device 3	105.58	682
International Baggage Claim		2,000
Gates 6 and 7 Holdroom		440
Concessions		**525**
Rental Car / Ground Transportation		**2,001**
Rental Car		2,001
Rental Car Counter	92.3	
Airport Administration		**0**
Utilities / Storage		**2,625**
Mechanical		480
Loading Storage		195
Unassigned Storage		1,950
Security / Regulatory		**13,761**
Passenger Security Screening Checkpoint		4,225
TSA Support Area		2,392
Search Room/Office		144
Baggage Screening		7,000
Federal Inspection Services		**4,485**
FIS Custom Support		3,675
Customs Offices		810
Circulation / Common Use		**6,510**
Restrooms		560
Lobby		4,250
Vestibules		900
Elevators/Escalators		800
Total		**54,653**

Source: ECP 2012

Table 2-8 – Terminal Functional Areas (Second Level)

Second Level – Concourse and Administrative Offices		
Location and Use	**Element Length (LF)**	**Total Area (SF)**
Airline		**9,350**
Gate 1-5 Holdrooms		9,350
Concessions		**1,000**
Airport Administration		**6,082**
Offices\Meeting Rooms		5,650
Offices – Public Safety		432
Federal Inspection Services		**6,139**
Circulation / Common Use		**15,690**
Restrooms		1,350
Security		2,750
Atrium		11,590
Utilities / Storage		**6,096**
Mechanical		1,104
Storage/Electrical Walkway		2,080
Unassigned Storage		2,912
Total		**44,357**
Grand Total (Ground And Second Levels)		**99,010**

Source: ECP 2012

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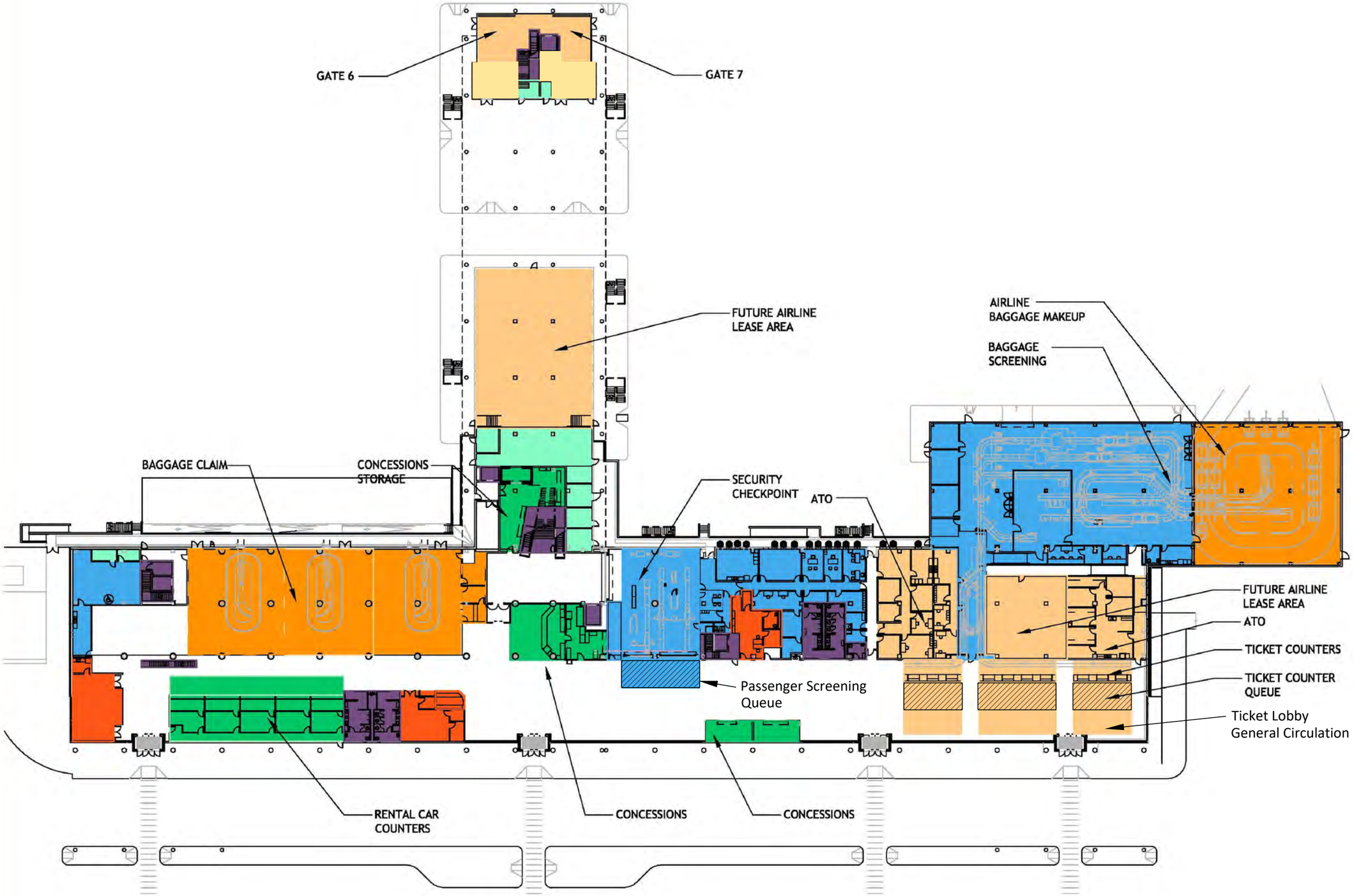

LEGEND

- Airline
- Concessions/Rental Car
- Baggage Services
- Airport Administration
- Building Services
- Agency/Security/ Regulatory
- Public Space/Restrooms/ Vertical Circulation
- Circulation/Common Use
- Queue Area

Figure 2-6
Terminal Building
(Ground Level)

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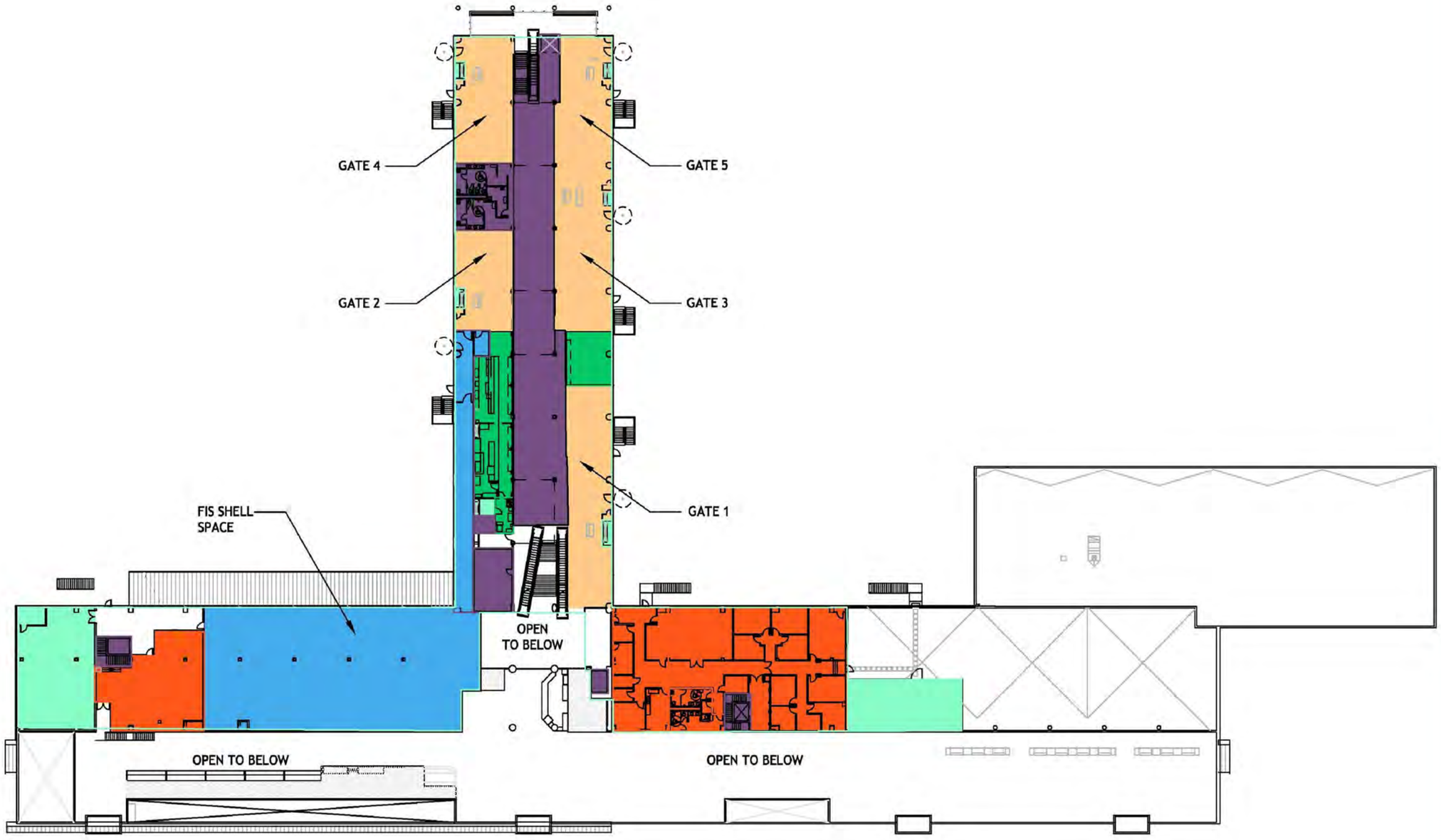


LEGEND

- Airline
- Concessions/Rental Car
- Baggage Services
- Airport Administration
- Building Services
- Agency/Security/ Regulatory
- Public Space/Restrooms/ Vertical Circulation
- Circulation/Common Use

Figure 2-7
Terminal Building
(Second Level)

2.4 AUTOMOBILE ACCESS AND PARKING

Automobile facilities at the Airport include the main access road, the terminal curbside, and public, employee, and rental car parking. These items are discussed in detail in the subsequent sections.

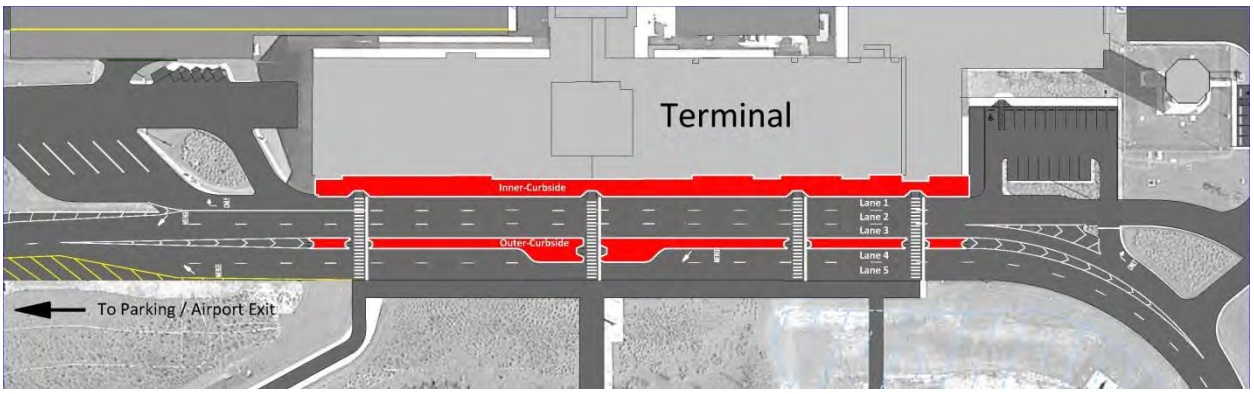
2.4.1 Roadway Access

The Airport is located on West Bay Parkway which is accessed via State Highway 388. West Bay Parkway also serves as the curbside and terminal loop road, that encircles most of the on-airport parking functions. These parking functions include the public lots (short- and long-term), employee lot, and the rental car ready and return lot. There is a two-lane, one-way access road that runs from south to north through the center of the parking campus, dissecting the parking into two sections. The west section contains the employee lot and the larger of the two long-term lots. The east section (nearest the passenger terminal) contains the short-term lot, the rental car ready and return lot and the smaller long-term lot. A cashier plaza is located near the north end of the center access road where all of the public parkers exit. Employees and rental cars exit via a separate one-way road that runs east to west just north of the employee lot. **Figure 2-9** depicts the access/egress routes for vehicles and the on-airport public parking and employee lots at ECP (rental parking is discussed later in this section).

2.4.2 Terminal Curbside

The ground level is served by continuous inner- and outer- curbsides that are parallel and adjacent to the terminal frontage and run in a north to south direction. The easternmost Lane 1 at the inner-curbside is utilized for either dropping off departing passengers at the south end of the terminal or picking up arriving passengers at the north end of the terminal. Lanes 2 and 3 are through-lanes. Lane 4 is adjacent to the outer-curbside and serves shuttles while the westernmost Lane 5 is a through-lane. Both the inner- and outer-curbside span a length of 528 linear feet, determined by assuming that the curbsides start and end with the south and north thresholds of the outer canopy.

Figure 2-8 – Terminal Curbside



2.4.3 On-Airport Public Parking

There are a total of 1,347 on-airport public parking spaces within the ring-road at ECP. These spaces encompass an area of approximately 11.6 acres. Approximately 300 of these spaces were covered in late 2013 providing all-weather protection for either short- or long-term parkers. In addition, there is a non-paved parking area located outside of the ring-road just east of the rental car fueling and wash area. This area can accommodate approximately 300 vehicles and is used for overflow parking during peak times such as Thanksgiving and Christmas. When this overflow area is utilized, shuttles are required to transport patrons to and from the passenger terminal. **Table 2-9** summarizes the total public parking supply at the Airport as of December 2013. **Table 2-10** describes the 2013 parking rates at ECP.

Table 2-9 – On-Airport Public Parking

Type	Supply
Covered Lot	298
Short-Term Lot	196
Long-Term Lot	853
Unpaved Overflow	300
Total	**1,647**

Source: Northwest Florida Beaches International Airport, Dec. 2013

Table 2-10 – On-Airport Parking Rates

Time Frame	Rate
0 to 10 minutes	Free
10 to 20 minutes	$1.00
20 to 40 minutes	$2.00
ea. Additional hour	$3.00
Maximum Daily Rates	
Covered Parking	$13.00
Short-Term	$11.00
Long-Term	$9.00

Source: Northwest Florida Beaches International Airport, Dec. 2013

2.4.4 Off-Airport Public Parking

As of late 2013, there are no private off-airport parking lots in operation. A previous "Covered Airport Parking" lot (i.e. the "CAP Lot") was an off-airport public parking operator located just

south of the Airport on West Bay Parkway, north of State Highway 388. It contained 305 covered parking stalls and offered shuttles to/from the Airport every five to seven minutes. Parking rates were $8.95 per day before taxes, $10.42 per day after taxes and airport access fee. Through a mutual agreement with the Authority, this facility was closed in December 2012. It is important to note that this private facility was probably viewed by the public as an airport-owned and operated facility because of its close proximity and high visibility.

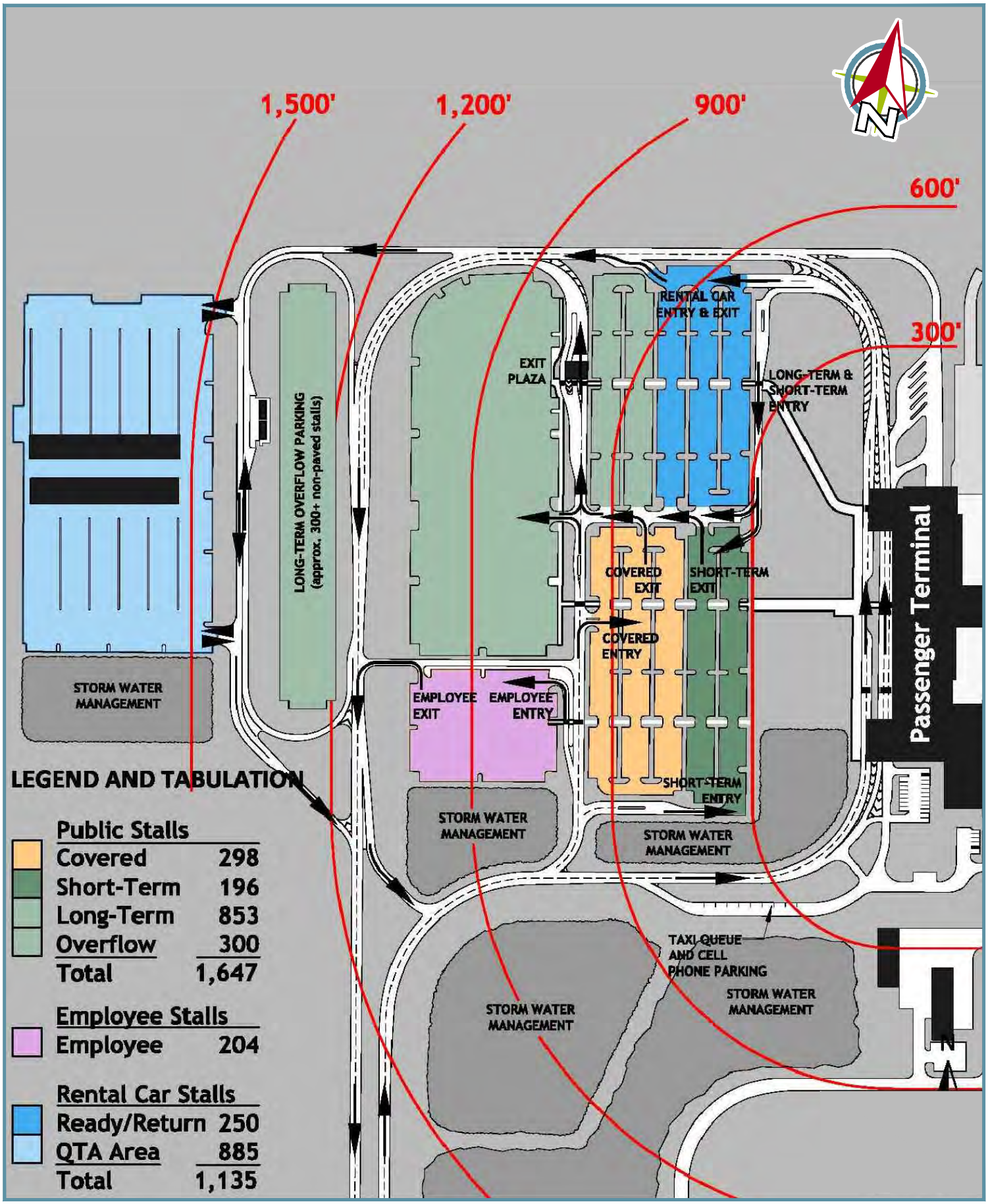
2.4.5 Employee Parking

The employee parking lot is located on the west side of the center access road just south of the larger long-term parking lot. It contains 204 employee parking stalls in 1.7 acres. Access is along the center access road and egress is via the separate road just north of the employee lot that exits onto the airport ring-road to the west.

2.4.6 Rental Car Parking

There are three locations where rental cars are parked at ECP. Upon return from the customer, rental cars are stationed in a 440-stall lot north of the consolidated rental car maintenance and wash facility (CONRAC, discussed in the next section), where they await any necessary maintenance, fueling and cleaning in preparation for new customers. After they are processed and ready for rental, they are parked in either a 445-stall lot south of the CONRAC or in a 250-stall ready-return lot located on the north end of the parking lots, nearest the baggage claim portion of the terminal .

The exiting parking facilities are depicted in **Figure 2-9**.



CHA

NORTHWEST FLORIDA BEACHES INTERNATIONAL AIRPORT

MASTER PLAN STUDY

Figure 2-9
Existing Parking Facilities

2.5 SUPPORT FACILITIES

Support facilities are vital to overall operation of the Airport. The support facilities maintained at ECP include:

2.5.1 Aircraft Fueling

Aviation and non-aviation fuel at ECP is stored in several above-ground fuel tanks. ECP's primary fuel farm complex is located south of the terminal building and west of the Public Safety building. The complex consists of four 50,000-gallon Jet-A storage tanks and four 15,000-gallon 100LL AvGas storage tanks. A secondary fuel storage facility is located to the west of the maintenance and storage buildings. This facility consists of two, approximately 5,000 gallon, automobile gasoline/diesel fuel tanks for maintenance and service vehicles.

While the Airport has ownership of the fueling complexes, operation and maintenance is independently contracted by Skytanking USA Inc., as is the commercial aircraft fueling. Aircraft fuel is distributed through the use of fuel trucks. The FBO provides fueling services to the GA operators through the use of their own fuel trucks.

2.5.2 Public Safety Building / Aircraft Rescue and Fire Fighting (ARFF)

Commercial service airports, having Airport Operating Certificates under 49 Code of Federal Regulations (CFR) Part 139, are required to provide aircraft rescue and firefighting services. Located south of the Passenger Terminal and Cargo Facility, the ±16,575 SF[3] Public Safety Building accommodates the ARFF staff and equipment as well as the airport police. Two sections exist within this two-story facility. The north section is the fire/police shared-use section with office space, operations and lounge rooms, an exercise room, and living quarters. The southern section is a three-bay drive-through vehicle parking structure that accommodates the ARFF vehicles and provides storage space for other ARFF equipment.

The ARFF level of service, or index, is determined by the longest scheduled passenger aircraft with at least five daily departures. The Airport currently operates with an ARFF Index of B corresponding to the Boeing 737-700 aircraft (as well as the B737-300/400/500 models). **Table 2-11** identifies the ARFF Index requirements mandated by the FAA.

[3] Square footage does not account for interior or exterior walls.

Table 2-11 – ARFF Index Requirements

Index	Aircraft Length (Feet)	Vehicles	Extinguishing Agents
A	<90	1	Either 500 pounds of sodium-based dry chemical, Halon 1211, or clean agent; or 450 pounds of potassium-based dry chemical and water with a commensurate quantity of AFFF to total 100 gallons for simultaneous dry chemical and AFFF application
B	90 to <126	1	500 pounds of sodium-based dry chemical, Halon 1211, or clean agent and 1,500 gallons of water and the commensurate quantity of AFFF for foam production
		2	One vehicle carrying the extinguishing agents as specified for Index A; and one vehicle carrying an amount of water and the commensurate quantity of AFFF so the total quantity of water for foam production carried by both vehicles is at least 1,500 gallons
C	126 to <159	2	One vehicle carrying the extinguishing agents as specified for Index B; and one vehicle carrying water and the commensurate quantity of AFFF so the total quantity of water for foam production carried by both vehicles is at least 3,000 gallons
		3	One vehicle carrying the extinguishing agents as specified for Index A; and two vehicles carrying an amount of water and the commensurate quantity of AFFF so the total quantity of water for foam production carried by all three vehicles is at least 3,000 gallons
D	159 to <200	3	One vehicle carrying the extinguishing agents as specified for Index A; and two vehicles carrying an amount of water and the commensurate quantity of AFFF so the total quantity of water for foam production carried by all three vehicles is at least 4,000 gallons

Source: FAA, 2012

2.5.3 Air Cargo

The Airport's ±4,000 SF[4] air cargo facility neighbors the airport maintenance facility and Public Safety Building, south of the terminal. It is comprised of four separate units, each outfitted with roll-up doors for shipping and receiving operations. Air cargo carriers providing service at ECP currently include Flight Express, Key Lime Air, and Martinair.

In addition to these smaller air cargo carriers, Delta Airlines handles belly cargo at ECP. Data obtained from the U.S. Department of Transportation's Research and Innovation Technology Administration indicates that Delta handled over 28,000 pounds of cargo in 2011 (includes both inbound and outbound cargo). Southwest Airlines does not handle any significant belly cargo at ECP at this time, however that could change.

2.5.4 Airport Storage / Maintenance

Located south of the passenger terminal and west of the Public Safety Building are the airport maintenance and equipment storage facilities. The ±4,300 SF maintenance building includes

[4] Square footage does not account for interior or exterior walls.

600 SF of office/administrative space and seven bays – four open and three equipped with roll-up doors. The middle bay is used as an equipment washing station. The adjacent equipment storage facility is approximately 4,000 SF and made up of 5 bays - four open and one with a roll-up door on the north end.

2.5.5 Consolidated Rental Car Service Facility (CONRAC)

The 7.2-acre CONRAC area, located west of the airport ring-road, is where the returned rental cars are shuttled to be maintained, refueled and washed, then either stored or returned to the ready and return car lot to be rented. The ±15,000 SF CONRAC building consists of 10-bays (five for car maintenance and five for car wash) and five administration areas. North of the CONRAC is a canopy that shelters five fuel islands, each equipped with two fuel pumps. This in-ground fueling system is linked to two 15,000-gallon fuel storage tanks, located between the CONRAC and the airport ring-road. There are also 129 parking stalls for employees and other RAC related parking. This facility is utilized by all of the rental car companies operating at ECP.

2.5.6 Airfield Fencing

Approximately 46,000 linear feet of perimeter fence circumscribes the Airport Operational Area (AOA) at ECP, providing complete enclosure of the airfield. The fencing, segmented by 14 access gates, ties into all buildings that require both landside and airside access.

2.6 AIRSPACE ENVIRONMENT

The U.S. National Airspace System (NAS) is an integrated collection of controls, procedures, and policies put in place and regulated by the FAA to ensure safe and efficient air operations. The following sections describe the airspace classifications and aeronautical charts at ECP.

2.6.1 Airspace Classifications

The NAS has been divided into airspace classes to designate the level of Air Traffic Control (ATC) service and operating rules for a given area. Classes A, B, C, D, and E are the “controlled” airspaces and Class G is “uncontrolled”.

Class A airspace is the most restrictive of the airspace classes. It covers the entire nation and is applied to airspace between 18,000 feet above mean sea level (MSL) and 60,000 feet MSL. Within Class A airspace, the aircraft must be operating under instrument flight rules (IFR), which requires the aircraft to have filed a flight plan with the FAA and to operate the aircraft in a certain manner.

Class B airspace surrounds the busiest airports in the nation (either greater than 3.5 million enplanements or operations greater than 300,000 annually, of which 50 percent are air carrier operations). Class B airspace is generally from the surface to 10,000 feet MSL. This airspace is designed to contain arriving and departing commercial air traffic operating under IFR. Any aircraft operating in the Class B airspace must have ATC clearance.

Class C airspace surrounds airports with moderate traffic (greater than 75,000 annual instrument operations, or greater than 250,000 enplanements annually). Class C airspace generally ranges from the surface to 4,000 feet MSL.

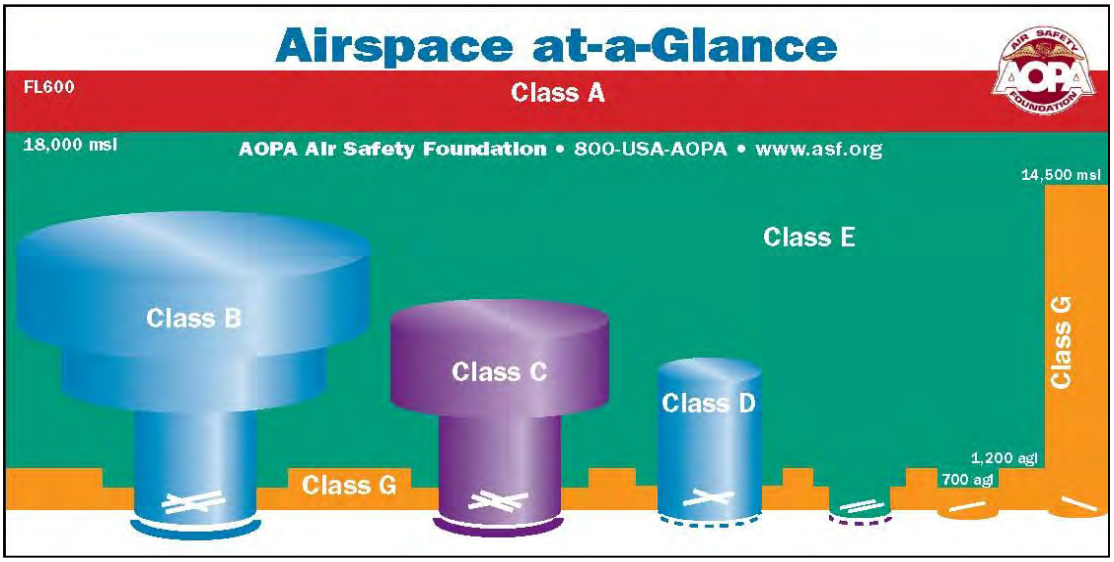
Class D airspace is used for smaller airports that have a control tower and do not meet the criteria established for Class C airspace. It generally ranges from the surface to 2,500 feet MSL. Aircraft operating in Class D airspace must establish two-way radio communication with ATC prior to entering the airspace.

Class E airspace represents all other controlled airspace. This class of airspace ranges from the surface to 18,000 feet above MSL at Class E airports and, when specified, from 700 feet above ground level (AGL) to 18,000 MSL. Airports within this class of airspace do not require a control tower but do have cloud clearance and visibility requirements. Class E airspace can also be considered the "filler" airspace under Class A, above Class G and between Classes B, C, and D and has the same operational requirements there as other Class E environments.

Class G airspace is uncontrolled airspace. It represents a mantle of low lying airspace beginning at the surface up to 700 feet AGL. In very remote areas, it has an upper limit at 14,500 feet MSL.

A graphic of the NAS classifications is presented in **Figure 2-10**.

Figure 2-10 – U.S. Airspace Classifications



Source: AOPA Online, 2012

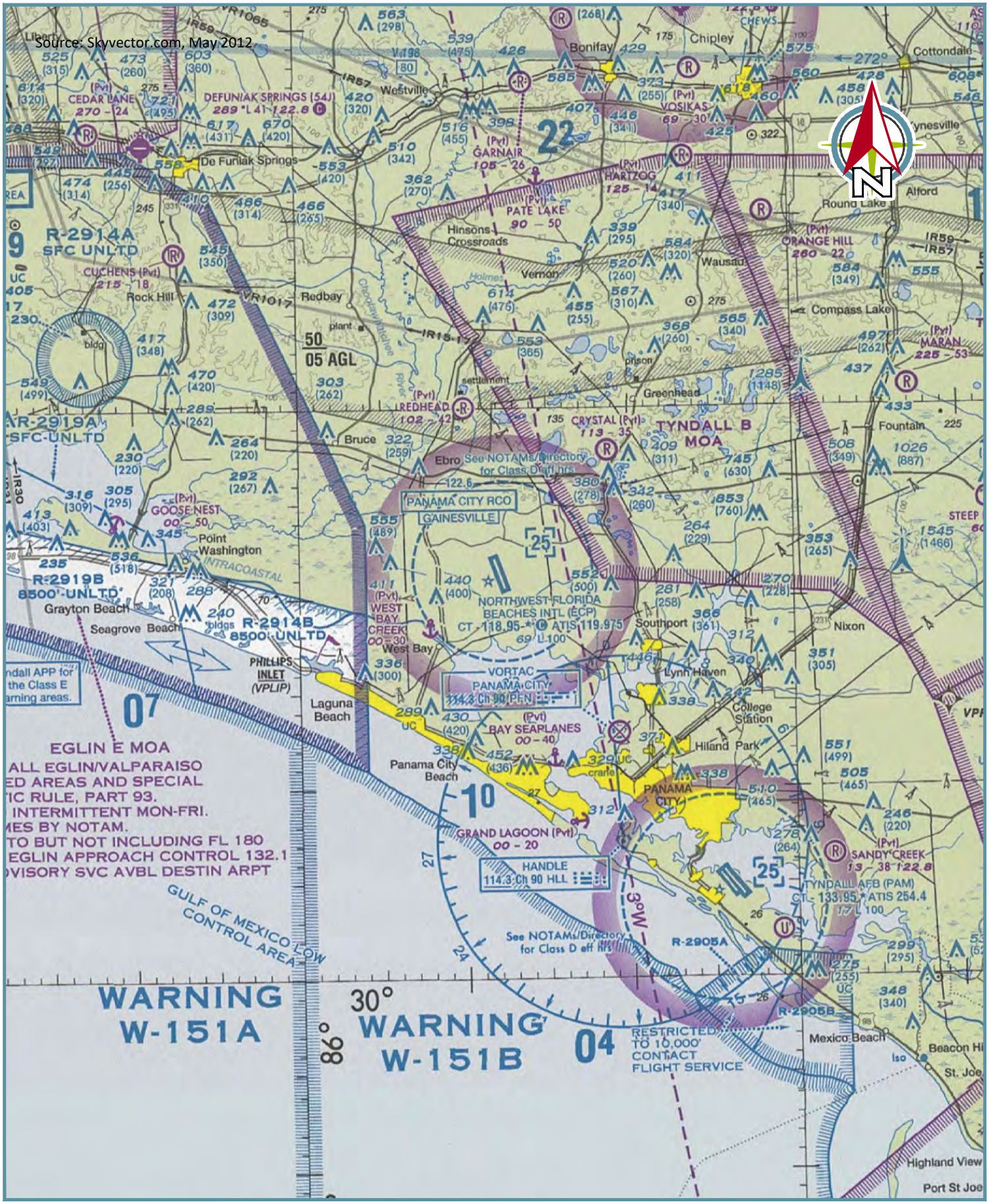
Northwest Florida Beaches International Airport is located in Class D airspace according to the October 2011 New Orleans Sectional Chart. This is depicted on the aeronautical chart in **Figure 2-11** by a dashed blue line surrounding ECP. This Class D airspace extends from the surface to 2,500 feet MSL and has a radius of 4.7 nautical miles. Communication with the ATC facilities at

ECP must be established prior to entering the Class D airspace. ECP ATC is closed from the hours of 10:00 PM to 6:00 AM (local) during which time the Airport operates as Class E airspace. ILS approaches are only available while ECP ATC is in operation.

Furthermore, ECP is located within the Jacksonville Air Route Traffic Control Center (ARTCC) boundary. The Jacksonville ARTCC is one of 22 FAA Centers responsible for controlling en route IFR traffic within the U.S. However, according to EPC ATC, local radar approach and departure control is provided by Tyndall Air Force Base ATC which also handles ECP traffic departing into the Eglin/Valparaiso Terminal Area located northwest of the Airport. **Figure 2-11** depicts the ECP airspace and vicinity.

2.6.2 Aeronautical Charts

The National Aeronautical Charting Office (NACO) of the FAA publishes special aeronautical charts used by pilots to navigate through the National Airspace System. These charts are called "sectional charts" or "sectionals." A sectional chart provides detailed information on airspace classes, ground-based NAVAIDS, radio frequencies, longitude and latitude, navigational waypoints, and navigational routes. It also offers topographical features, such as terrain elevations, and ground features that are important to aviators, such as landmarks that will be identifiable from altitude. Although these charts are used for both Visual Flight Rule (VFR) and Instrument Flight Rule (IFR) navigation, they are a VFR pilot's primary navigation tool. **Figure 2-11** displays a segment of the New Orleans Sectional Chart, centered on ECP.


Source: Skyvector.com, May 2012
N
NORTHWEST FLORIDA BEACHES INTERNATIONAL AIRPORT
MASTER PLAN STUDY
Figure 2-11
Aeronautical Chart

2.7 METEOROLOGICAL CONDITIONS

Meteorological conditions affect operations at an airport in many ways. Winds, precipitation, and temperature conditions influence decisions pertaining to NAVAIDS, runway orientation, and required runway length at an airport. ECP is equipped with an Automated Surface Observation System (ASOS), which is a weather data sensing, processing, and dissemination system designed to support weather forecast activities and aviation operations. Controlled and maintained by the FAA, the ASOS automatically transmits a special report when conditions exceed preselected weather element thresholds through an automated VHF airband radio frequency (119.975 MHz) to pilots operating at or near ECP. These messages are also available via phone by calling 850-235-7857.

2.7.1 Local Climate

According to the data obtained from the National Oceanic and Atmospheric Administration (NOAA) and the National Climatic Data Center (NCDC), the hottest month is July with an average temperature of 83.1 degrees Fahrenheit. The mean maximum daily temp of the hottest month (July) is 90.6 degrees Fahrenheit. Average annual precipitation is 57.4 inches.[5]

2.7.2 Wind Coverage

The ASOS tower collects wind speed and direction data, which can influence airfield development decisions on runway orientation and length at an airfield. Although the ASOS at ECP (Station 73805) has been operating since 2010, the readily available data from this station is considered inadequate to perform a suitable wind coverage analysis. Therefore, climate data from the ASOS at the old airport site (Station 72224 – Panama City-Bay County International Airport – PFN) was collected and utilized for the wind coverage analysis. There were minor differences between the two data sets, but wind coverage calculations proved to be similar.

Ideally, a runway is oriented with the prevailing wind as aircraft landing and takeoff performance is enhanced by flying the aircraft into the wind. It is the recommendation of the FAA that the primary runway at an airport have at least 95 percent wind coverage, which means that 95 percent of the time, the wind at an airport is within certain limits of crosswind components. Wind coverage is calculated using the highest crosswind component that is acceptable for the type of aircraft expected to use the runway system. Larger aircraft have a higher tolerance for crosswind than smaller aircraft, due to their size, weight and operational speed. **Table 2-12** provides the standard crosswind component by aircraft size.

[5] National Climatic Data Center, Panama City Bay County Airport Station, 1981-2010 data, http://www.ncdc.noaa.gov/cdo-web/datatools/normals (accessed 5-20-14)

Table 2-12 – Standard Crosswind Components

Aircraft Category	Maximum Crosswind Component
A-I and B-I	10.5 knots
A-II and B-II	13.0 knots
A-III and B-III, C-I through C-III, D-I through D-III	16.0 knots
A-IV and B-IV, C-IV through C-VI, D-IV through D-VI, E-I through E-VI	20.0 knots

Source: FAA AC/5300-13 *Airport Design*

The FAA considers four weather classifications: all weather, visual flight rule (VFR) conditions, instrument flight rule (IFR) conditions[6], and poor visibility conditions (PVC). According to the data collected by the PFN ASOS, VFR conditions occur approximately 93.4 percent of the time, IFR conditions occur approximately 5.6 percent of the time, and PVC conditions occur 1.0 percent of the time. **Table 2-13** outlines the weather classification criteria and the number of recorded observations at PFN between 2000 and 2009.

Table 2-13 – Recorded Observations by Weather Classification

Weather Class	Criteria	Recorded Observations at ECP (2000-2009)
All Weather	All ceiling and visibility weather conditions	81,269 (100%)
VFR Conditions	Ceiling ≥ 1,000' and visibility ≥ 3 miles	75,928 (93.4%)
IFR Conditions	Ceiling ≥ 200' and < 1,000' *and* Visibility ≥ ½ mile and < 3 miles	4,515 (5.6%)
Poor Visibility Conditions	Ceiling < 200' and/or visibility < ½ mile	811 (1.0%)

Source: NOAA, National Climate Center; Station 72224 (2000- 2009)

The combination of the crosswind and the weather classification allow for the calculation of the wind coverage, which for ECP is presented in **Table 2-14**. It may be noted that the wind coverage for the 10.5 knot category (i.e. A-I and B-I aircraft) does not meet the target 95 percent coverage during all weather, VFR, or IFR conditions, thus indicating the need for a second, or crosswind, runway. This will be further discussed in **Chapter 4**.

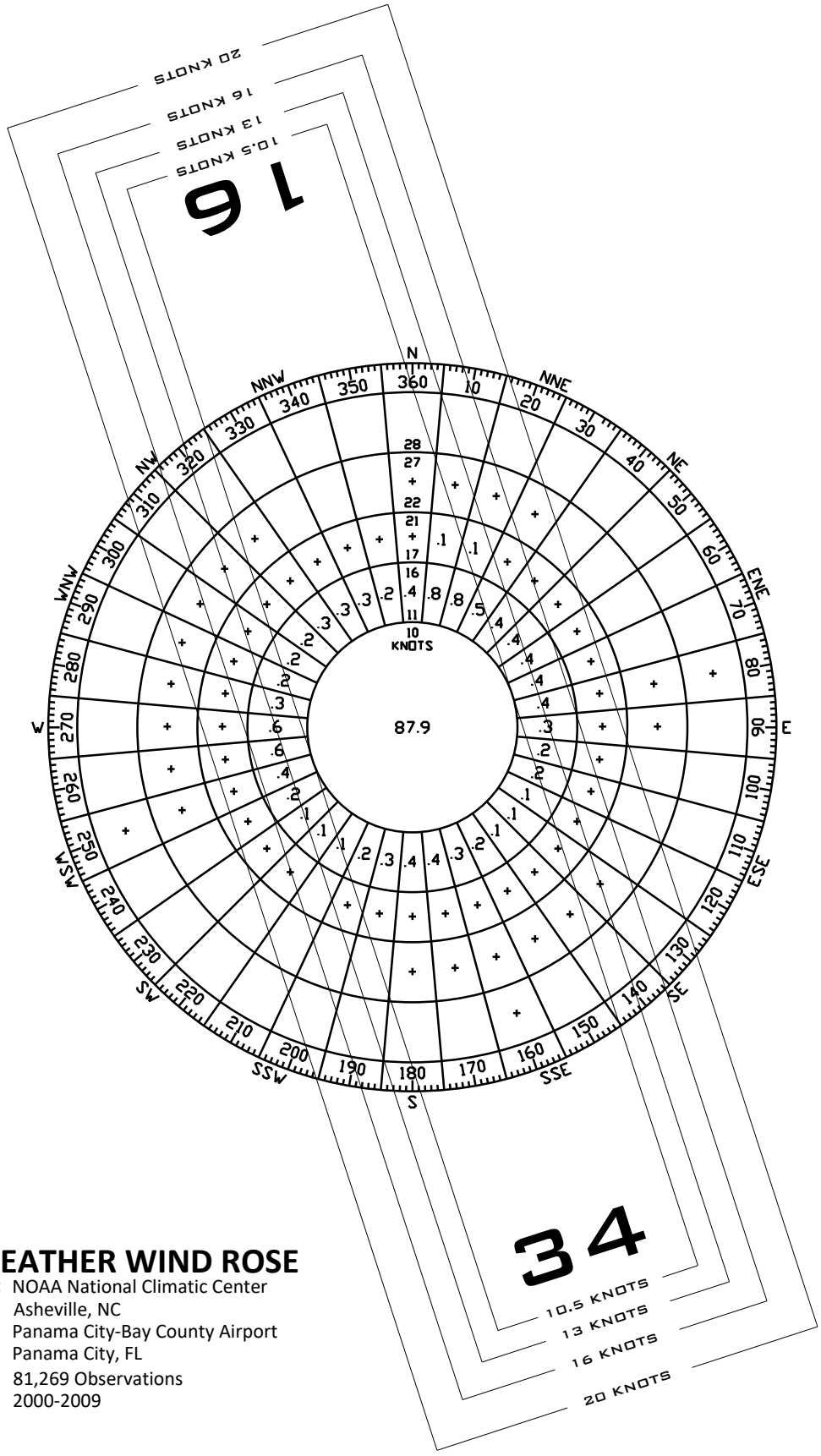
[6] Also termed Visual Meteorological Conditions (VMC) and Instrument Meteorological Conditions (IMC)

Table 2-14 – Runway 16-34 Wind Coverage

Weather Class	10.5 Knots	13 Knots	16 Knots	20 Knots
All Weather	94.58%	97.17%	99.58%	99.94%
Visual Flight Rule (VFR)	94.60%	97.18%	99.59%	99.95%
Instrument Flight Rule (IFR)	93.32%	96.51%	99.31%	99.82%
Poor Visibility Conditions (PVC)	99.58%	99.78%	99.99%	100%

Source: NOAA, National Climate Center, Station 72224, (2000-2009)

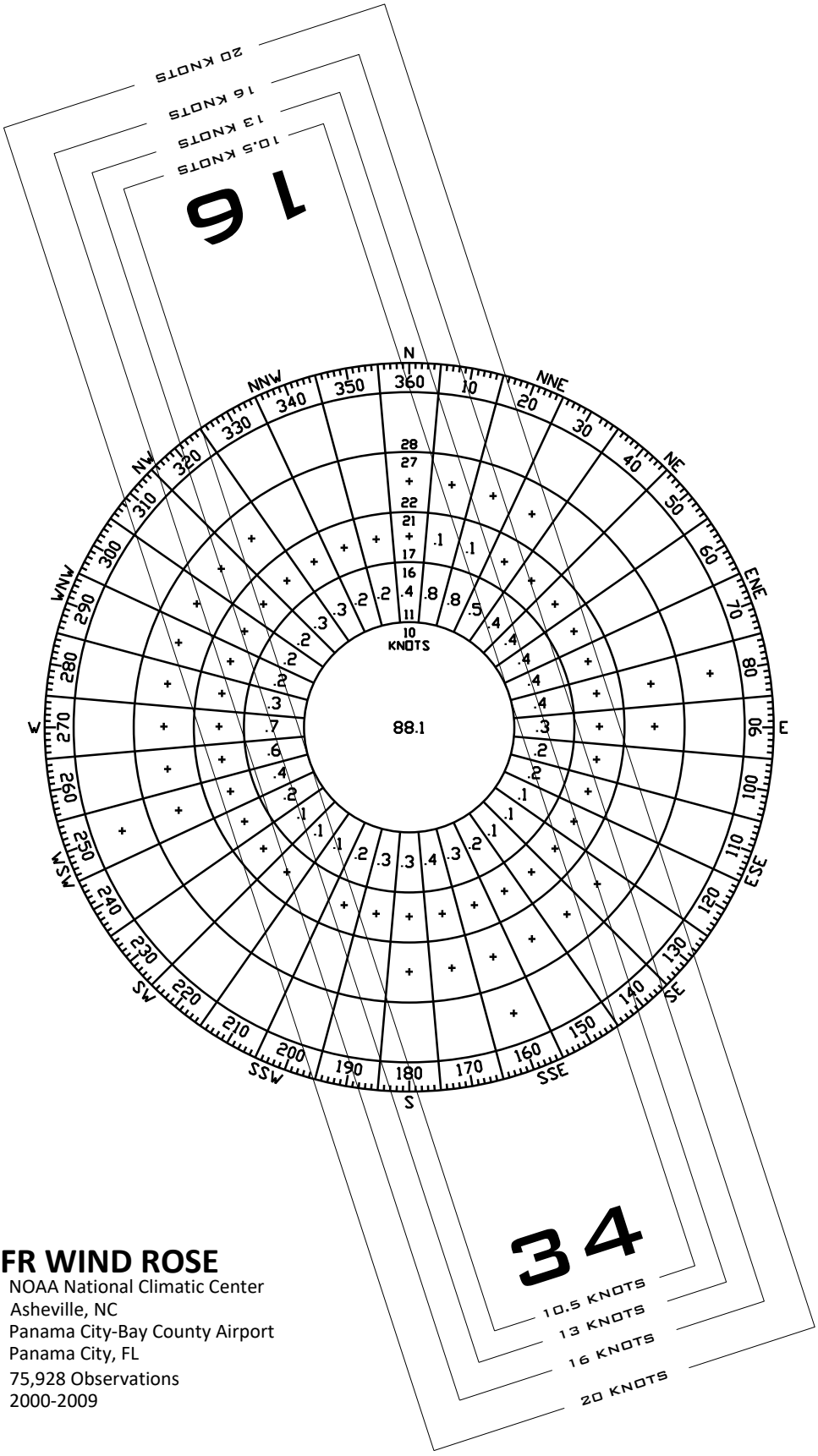
Weather observations are presented in a format that is specifically designed by the FAA to be useful for evaluating weather conditions at an airport. Wind direction is grouped according to a 16-point compass rose (N, NNE, NE, ENE, E, ESE, SE, SSE, S, SSW, SW, WSW, W, WNW, NW, and NNW). Wind speed is tabulated into groups of 0-3, 4-12, 13-15, 16-18, 19-24, 25-31, and 32 knots per hour or greater. This data is typically displayed on a wind rose for each weather classification. The all-weather wind rose for ECP is presented in **Figure 2-12**, VFR wind rose in **Figure 2-13**, and IFR wind rose in **Figure 2-14**.



ALL-WEATHER WIND ROSE

SOURCE: NOAA National Climatic Center
Asheville, NC
Panama City-Bay County Airport
Panama City, FL

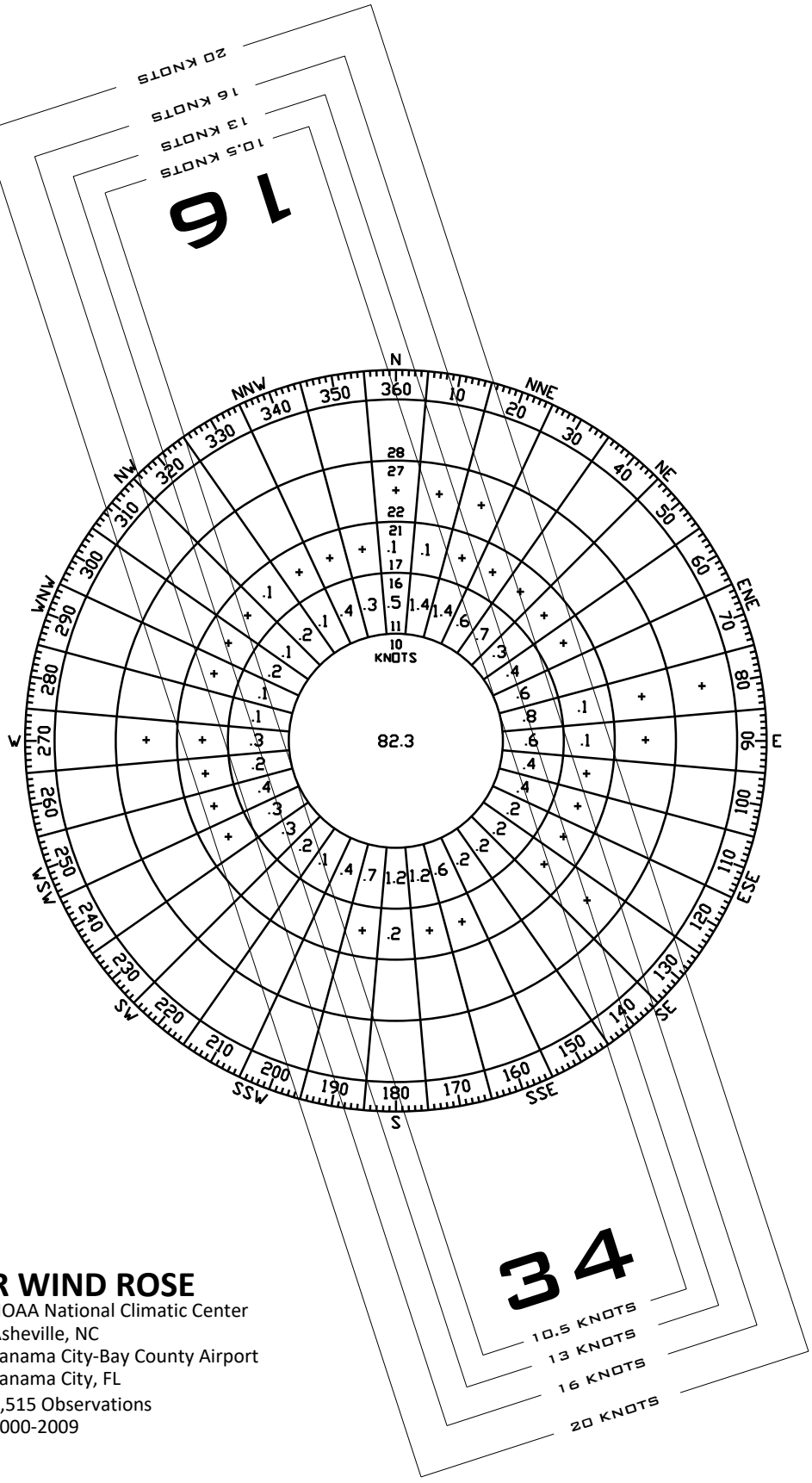
OBSERVATIONS: 81,269 Observations
2000-2009



VFR WIND ROSE

SOURCE: NOAA National Climatic Center
Asheville, NC
Panama City-Bay County Airport
Panama City, FL

OBSERVATIONS: 75,928 Observations
2000-2009



IFR WIND ROSE

SOURCE: NOAA National Climatic Center
Asheville, NC
Panama City-Bay County Airport
Panama City, FL

OBSERVATIONS: 4,515 Observations
2000-2009

2.8 FINANCIAL STRUCTURE

This section presents the financial conditions, provisions, and restrictions under which ECP operates. This information was used in evaluating the financial feasibility of the future development program at ECP. It is important to note that the Authority is an independent special district created by an act of the Legislature of the State of Florida and is not considered a component unit of any other local governmental unit.

ECP's financial statements are reported using an accrual basis of accounting. This means that all assets and liabilities (whether current or noncurrent) are included on the balance sheet. Under this method, revenues are recorded when earned and expenses are recorded at the time liabilities are incurred. As an independent special district, the Authority must adopt a budget each fiscal year. This adopted budget must regulate expenditures of the special district. It is unlawful for the Authority to expend or contract for expenditures in any fiscal year except in pursuance of budgeted appropriations. The annual budget is adopted on a basis consistent with generally accepted accounting principles.

The Authority is accounted for as an enterprise fund. Enterprise funds distinguish operating revenues and expenses from non-operating items. Operating revenues and expenses generally result from providing services and producing and delivering goods in connection with an enterprise fund's principal ongoing operations. The principal operating revenues of the Authority are lease fees and related charges. Operating expenses of the Authority include personal services, contractual and professional services, supplies, repairs and maintenance, utilities, advertising and promotions, other expenses and depreciation on capital assets. All revenues and expenses not meeting this definition are reported as non-operating revenue and expenses. Capital grants are reported as non-operating revenue.

ECP develops its budget and accounts for expenses based on various functional areas of the organization. Those expenses along with revenues are subsequently categorized into Cost Centers. Cost Centers include those areas or functional activities of the Airport used for the purposes of accounting for Revenues, Operating Expenses, Debt Service, and required fund deposits. ECP's Airport-Airline Use and Lease Agreement (Airline Agreement) defines the cost center structure, as well as the basis for allocation of indirect costs to the direct cost centers.

3 FORECASTS OF AVIATION DEMAND

Projecting future aviation activity is a vital step in the airport master planning process. The facility needs and recommendations, both airside and landside, that flow from this Master Plan Study will, in one form or another, be directly influenced by the projected activity levels presented in this chapter.

3.1 FORECASTING PROCESS

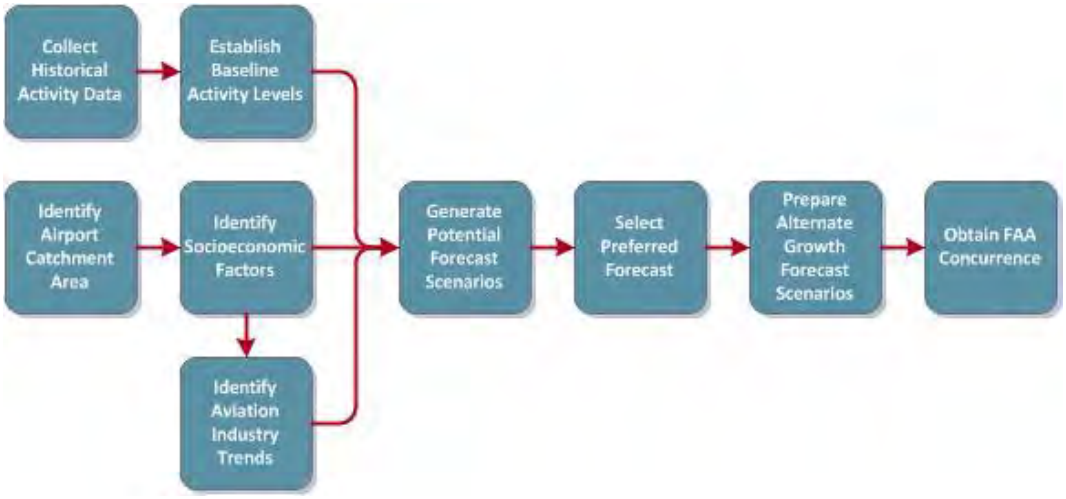
In order to prepare reasonable aviation activity forecasts, the process began with developing an understanding of current and historic airport operations as well as industry trends and socio-economic conditions within the Airport's catchment area (i.e., market area). Using FAA-approved methodologies, these variables were then factored into multiple forecasts of potential aviation activity. Each individual forecast was compared to actual and anticipated market conditions and its relative resemblance to the FAA Terminal Area Forecast (TAF) for ECP. From this effort, the scenario that represented the most likely level of future activity was selected as the "preferred" forecast. This scenario served as the baseline for conducting subsequent demand/capacity analyses and identification of future facility requirements.

To account for commercial activity levels that may differ from that projected in the preferred forecast, due to factors such as accelerated airline growth and route expansion or unforeseen fluctuations in the economy, alternate forecast scenarios were also prepared. These scenarios identify a range of potential activity levels that facility development programs must have the flexibility to accommodate.

Because this forecasting effort drives the Airport's development program for public aviation facilities, and the FAA and Florida Department of Transportation (FDOT) provide significant funding support for those facilities, the FAA must concur on the forecast recommendations prior to finalizing the resultant facility recommendations. The generalized forecasting process is presented in and the aviation activity elements addressed in this chapter include:

- Air Carrier Activity:
  - Enplaned Passengers
  - Operations
  - Fleet Mix
  - Load Factors
- Air Cargo Activity
  - Operations
  - Tonnage
- General Aviation Activity
  - Based Aircraft
  - Operations
- Military Aviation Activity
  - Operations
- Peak Activity
  - Enplaned Passengers
  - Operations

Figure 3-1 – Forecasting Process



3.2 BASELINE FORECAST DATA

To prepare aviation activity projections for this Master Plan, it was first necessary to identify the forecast baseline on which future activity levels would be developed. Data provided by the 2013 FAA TAF for ECP, the Airport Authority, and Air Traffic Control for calendar year 2011, and the most current data statistics for 2012, will serve as the baseline for the 20-year forecast horizon (i.e., 2012 through 2032). Data collected includes aircraft operations by activity type (passenger carrier, air cargo, general aviation [GA], and military), passenger enplanements, fleet mix, load factors, and based aircraft counts. Additionally, the following sources were used to verify and provide additional clarity to the 2011 and 2012 baseline data.

- Official Airline Guide (OAG)
- Airports Council International – North America (ACI-NA)
- ECP Carrier Schedules
- FAA Form 5010-1, (*Airport Master Record*)

The TAF for ECP serves as the forecast of future aviation activity against which all subsequent forecasts presented in this chapter were compared. The TAF is prepared by the FAA and includes historical and forecast data for passenger enplanements, airport operations, and based aircraft, and as such serves as the benchmark against which the FAA compares all airport activity forecasts. **Table 3-1** provides a summary of the 2013 ECP TAF, which was the most recent version available at the time the forecasting effort was performed. It is important to note that the historical figures (2010-2011) represent actual reported activity in the FAA system and 2012 data is an FAA projection as year-end totals had not been finalized at the TAF's publication.

Table 3-1 – ECP Terminal Area Forecast

		Itinerant					Local				
Year	Enplanements	Air Carrier Ops.	Air Taxi & Commuter Ops.	GA Ops.	Military Ops.	Total	GA Ops.	Military Ops.	Total	Total Ops.	Based Aircraft
2010*	248,663	2,772	10,073	23,786	4,810	41,441	16,657	3,961	20,618	62,059	0
2011	417,174	7,302	9,281	20,090	3,518	40,191	12,588	4,622	17,210	57,401	72
Projected:											
2012	429,943	8,264	6,786	19,888	5,283	40,221	11,706	6,009	17,715	57,936	72
2013	440,212	8,474	6,786	20,195	5,283	40,738	13,590	6,009	19,599	60,337	72
2014	450,808	8,691	6,786	20,211	5,283	40,971	13,658	6,009	19,667	60,638	72
2015	461,744	8,912	6,786	20,227	5,283	41,208	13,726	6,009	19,735	60,943	72
2016	473,029	9,139	6,786	20,243	5,283	41,451	13,795	6,009	19,804	61,255	72
2017	484,677	9,371	6,786	20,259	5,283	41,699	13,864	6,009	19,873	61,572	72
2018	496,697	9,610	6,786	20,275	5,283	41,954	13,933	6,009	19,942	61,896	72
2019	509,101	9,855	6,786	20,291	5,283	42,215	14,003	6,009	20,012	62,227	72
2020	521,903	10,105	6,786	20,307	5,283	42,481	14,073	6,009	20,082	62,563	72
2021	535,114	10,362	6,786	20,323	5,283	42,754	14,143	6,009	20,152	62,906	72
2022	548,748	10,626	6,786	20,339	5,283	43,034	14,213	6,009	20,222	63,256	72
2023	562,819	10,896	6,786	20,355	5,283	43,320	14,285	6,009	20,294	63,614	72
2024	577,338	11,173	6,786	20,371	5,283	43,613	14,357	6,009	20,366	63,979	72
2025	592,322	11,457	6,786	20,387	5,283	43,913	14,429	6,009	20,438	64,351	72
2026	607,786	11,748	6,786	20,403	5,283	44,220	14,502	6,009	20,511	64,731	72
2027	623,745	12,045	6,786	20,419	5,283	44,533	14,575	6,009	20,584	65,117	72
2028	640,215	12,349	6,786	20,435	5,283	44,853	14,648	6,009	20,657	65,510	72
2029	657,211	12,662	6,786	20,451	5,283	45,182	14,721	6,009	20,730	65,912	72
2030	674,752	12,983	6,786	20,467	5,283	45,519	14,795	6,009	20,804	66,323	72
2031	692,855	13,314	6,786	20,483	5,283	45,866	14,869	6,009	20,878	66,744	72
2032	711,536	13,652	6,786	20,499	5,283	46,220	14,943	6,009	20,952	67,172	72
2012-2032 AAGR	**2.6%**	**2.5%**	**0%**	**0.2%**	**0%**	**0.7%**	**1.2%**	**0%**	**0.8%**	**0.7%**	**0%**

Source: 2013 FAA Terminal Area Forecast

* Reported year-end totals for ECP (May-December) (*Does not include PFN activity)*

3.2.1 Baseline Enplanements

An enplanement is defined as a revenue-paying passenger boarding an aircraft at a given airport. Enplanements are the primary measure of a commercial airport's passenger activity and are a key driver of terminal building and parking facility requirements. Enplanement levels are also a key metric used by airport management for revenue and financial planning purposes.

As reported by the Authority, **Table 3-2** presents the historic monthly enplanements at ECP from the Airport's inception on May 23, 2010 through end of the year 2012. Average growth from 2010 to 2011 (June-December) was 2.8 percent, and from 2011 to 2012 was 1.4 percent. Over this period, enplanement trends have also shown positive growth over previous monthly

data, with the exception of the last quarter of 2012 which experienced an unanticipated decline in enplanements. This decline can be attributed largely to fluctuating service schedules as the airlines adapt to the seasonality of the regional traffic, particularly in light of the recent Southwest-Air Tran merger.

Table 3-2 – Historic ECP Enplanements by Month

Month	2010	2011	2012
January	-	26,962	25,160
February	-	26,712	27,098
March	-	38,796	40,396
April	-	36,780	39,747
May	-	42,286	43,089
June	41,508	41,030	47,227
July	42,209	43,507	46,881
August	37,082	39,651	41,544
September	33,417	36,322	36,399
October	37,180	39,233	37,080
November	33,161	33,482	30,232
December	29,952	28,320	24,390
Total	**254,509**	**433,081**	**439,243**

Source: PCBCAID, 2012

3.2.2 Baseline Operations

Table 3-3 details the ECP-reported 2011 baseline operations data that will serve as the foundation for the all of the operations forecasts. In comparison, the TAF projection of total operations for 2011 was 57,401, which is only slightly more than actually recorded at the Airport. The experienced operations data is presented by category in order to correspond with the individual forecasts that were developed for each activity type.

Table 3-3 – 2011 Baseline Operations

Aircraft Category	Operations	Percent of Total
Passenger Carrier	7,272	12.9%
Air Taxi	8,482	15.0%
General Aviation	32,203	57.1%
Military	8,446	15.0%
Total	**56,403**	**100%**

Source: PCBCAID, 2012.

3.2.3 Baseline Based Aircraft

The number of based aircraft at an airport is a key indicator of GA activity. By developing a based aircraft forecast, the anticipated growth of GA activities and associated facility needs (i.e., hangars, apron space, FBO services, fueling), as well as associated revenue streams, can be

more accurately projected. **Table 3-4** provides the breakdown of 2011 ECP based aircraft by category.

Table 3-4 – 2011 Based Aircraft

Aircraft Category	Aircraft Count	Percent of Total
Single-Engine Piston	86	78%
Multi-Engine Piston	15	14%
Jet	9	8%
Rotorcraft	0	-
Military	0	-
Total	**110**	**100%**

Source: FAA Form 5010-1 Airport Master Record, PCBCAID, 2012

3.2.4 Applied Forecast Factors

Several variable factors were used to derive the forecast growth rates applied to baseline activity levels. As with the baseline operations data, the forecast factors were collected from multiple sources and adjusted as necessary to reflect specific Airport, market, and industry conditions. The primary sources of the growth factors used in this forecast include:

- Boeing Current Market Outlook 2011-2030
- Boeing World Air Cargo Forecast 2010-2011
- FAA Aerospace Forecast, Fiscal Years 2012-2032
- Florida Aviation System Plan (FASP)
- 2013 FAA Terminal Area Forecast (TAF)
- Woods & Poole Economics, Inc.

The following provides a brief overview of each source and how the information was applied to the aviation activity forecasts:

- The national level TAF prepared by the FAA, is a cumulative total of all U.S. airport activity and provides the anticipated national growth in enplanements, operations, and GA aircraft. These projections account for national economic conditions and trends within the aviation industry as a whole. From these national forecasts, airport specific projections are derived that reflect regional market and socioeconomic conditions and anticipated demand. In this relatively top-down approach, specific airport development and marketing actions do not influence FAA projections. The TAF for ECP was used as reference in determining aircraft activity by operator type and as the benchmark against which the Master Plan forecasts were compared.
- The *FAA Aerospace Forecast, Fiscal Years (FY) 2012-2032* provides an overview of aviation industry trends and expected growth for the commercial passenger carrier, cargo carrier, and GA activity segments. National growth rates in enplanements, operations, fleet growth and fleet mix are provided over a 20-year forecast horizon. For this Master Plan, the FAA Aerospace Forecasts were be used as the basis for

determining the anticipated growth of the ECP GA fleet and its composition by aircraft type (i.e., GA fleet mix).

- The *Boeing Current Market Outlook 2011-2030* provides insight into future commercial carrier fleet growth and anticipated fleet mix of both domestic and foreign airlines. These insights were used in developing and confirming the validity of future ECP commercial carrier fleet mix assumptions.
- The biennial *Boeing World Air Cargo Forecast 2010-2011* provides anticipated growth factors in the domestic air cargo market, as well as growth factors for international trade lanes (e.g., U.S.-Asia Pacific traffic). These factors were used to gauge potential air cargo growth at the Airport.
- The latest Florida Aviation System Plan (FASP) was published in 2005 and provides a basis for aviation planning in the State of Florida at a statewide level as well as local levels. The FASP is used to provide guidance for the continued growth of the state's system of airports, both commercial and GA, to ensure that it will meet the future needs and demands of the aviation infrastructure. Additionally, the FASP is also used as a measurement and planning tool to establish the groundwork for the development of aviation within the State of Florida. The FASP provides forecasts of enplanements and operations for all commercial service airports in the state, high growth areas within the state, statewide goals and objectives, and financial needs and constraints directly associated with the aviation market. The information contained in the FASP was used to identify and compare activity levels and anticipated growth for the various commercial service airports in the northwest Florida region.
- Woods & Poole Economics, Inc. specializes in developing long-term economic and demographic projections for counties, Metropolitan Statistical Areas (MSA), states, and the United States. Historic and projected socioeconomic data, obtained from Woods & Poole, was used to verify and modify, as necessary, the FAA forecast factors based on local conditions within the ECP catchment area.

3.3 SOCIOECONOMIC TRENDS AFFECTING AVIATION DEMAND

Activity levels at commercial service airports are typically influenced by national and regional trends associated with location, tourism, airport prominence, and air service options. Airports that offer enhanced facilities and services, multiple airline and destination options, and competitive airfares have a propensity to attract higher levels of airline and passenger activity. This is particularly relevant to the development and marketing efforts of ECP as there are three other commercial service airports within the northwest Florida region vying for passenger traffic (refer to **Figure 3-2**).

The passenger survey results discussed in **Section 1.1.2** indicate that approximately 71 percent of the travelers through ECP are visitors to the Panama City area. And of those, approximately 72 percent are visiting for leisure purposes. Considering the local beaches, recreational and vacation amenities, as well as an active visitors and convention bureau, it is obvious that tourism is a key component of the northwest Florida economy and a driving force of passenger demand at ECP.

With approximately 29 percent of the ECP passengers being considered local residents, the socioeconomic characteristics, such as population, income, and employment, within the airport's catchment, or market, area, also has a significant impact on the activity levels and growth prospects of the Airport. In general, the greater the catchment area population, the greater the demand for air travel within the area. Local per capita income is also a strong driver of aviation demand as it also reflects a community's level of discretionary income and ability to afford air travel. Lastly, employment levels within the catchment area provide an indication of the overall economic strength and are often directly associated with per capita income.

With these being the primary determinants of anticipated passenger and aircraft activity demand at ECP, a clear understanding of local demographic and economic trends is important for developing accurate aviation activity forecasts. As a basis for defining the economic health and growth potential of ECP's catchment area, an analysis of the counties located within the Airport's catchment area, the Panama City MSA, the State of Florida, and the United States was conducted. To accomplish this task, socioeconomic data for each area, as well as local data on tourism tax revenue, is presented in the following sections.

3.3.1 Airport Catchment Area

The general market or catchment area for ECP encompasses an approximate two hour drive time from the airport (±60 nautical miles) and reflects the origins of the resident travelers identified in the passenger surveys. The 12 Florida counties and two Alabama counties comprising the catchment area are depicted (in green) in **Figure 3-2** and include:

- Bay County
- Calhoun County
- Franklin County
- Gadsden County
- Gulf County
- Holmes County
- Jackson County
- Liberty County
- Okaloosa County
- Santa Rosa County
- Walton County
- Washington County
- Houston County
- Geneva County

For planning purposes, this catchment area will serve as the baseline for the socioeconomic analyses. It should be noted that Bay County is recognized as the Panama City Metropolitan Statistical Area ("Panama City MSA").

Figure 3-2 – ECP Catchment Area

Source: CHA Consulting, 2012
Notes: ECP=Northwest Beaches International Airport, TLH=Tallahassee Regional Airport, VPS=Northwest Florida Regional Airport, PNS=Pensacola International Airport

3.3.2 Population

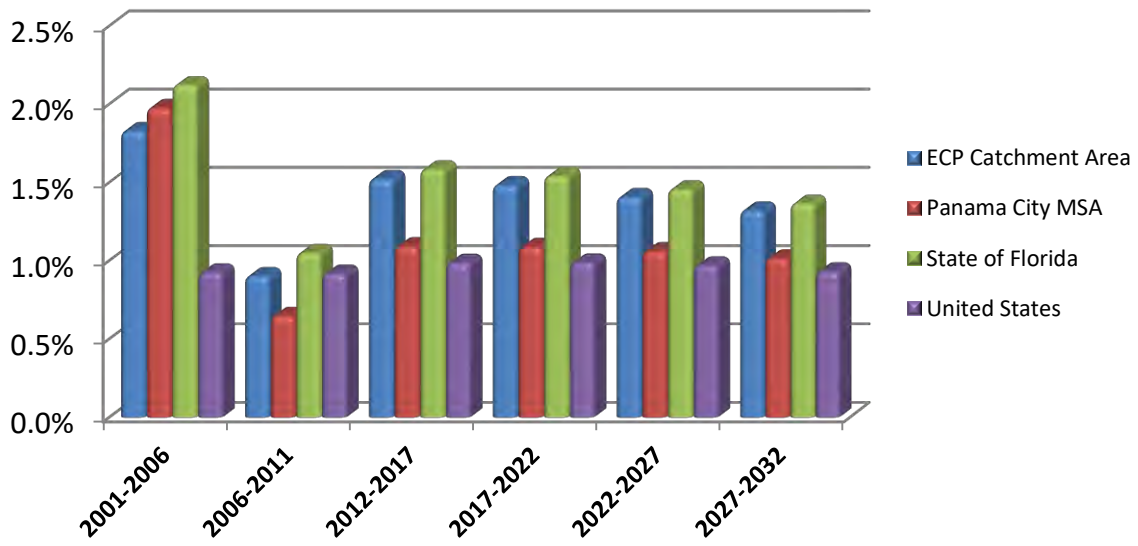
The historic and projected populations and corresponding average annual growth rates (AAGR) for the ECP catchment area, the Panama City MSA, the State of Florida, and the United States for years 2001 through 2011 (historic) and 2012 through 2032 (projected) are shown in **Table 3-5**. These trends indicate that historic ECP catchment area population growth is greater than that of the United States and only slightly less than the State. For years 2012 through 2032, the projected population growth of the Panama City MSA and ECP catchment area is anticipated to be above that of the United States. Being on-par with the anticipated growth in the state of Florida, the steady population growth in the ECP market (i.e. catchment area), as well as in the Panama City MSA, should be considered a significant indicator of continued airport demand. **Figure 3-3** illustrates the historic and projected growth rates of the respective population groups.

Table 3-5 – Population Growth (Historic and Projected)

Year	Panama City MSA (000)	AAGR	ECP Catchment Area (000)	AAGR	State of Florida (000)	AAGR	United States (000)	AAGR
2001	150	-	778	-	16,357	-	284,969	-
2006	166	2.0%	851	1.8%	18,167	2.1%	298,380	0.9%
2011	171	0.6%	890	0.9%	19,139	1.0%	312,308	0.9%
AAGR 2001-2011		**1.3%**		**1.4%**		**1.6%**		**0.9%**
2012	173	1.1%	904	1.5%	19,442	1.6%	315,388	1.0%
2017	183	1.1%	973	1.5%	20,985	1.5%	331,274	1.0%
2022	192	1.1%	1,043	1.4%	22,557	1.5%	347,639	1.0%
2027	202	1.0%	1,114	1.3%	24,138	1.4%	364,127	0.9%
2032	212	1.0%	1,184	1.2%	25,704	1.3%	380,414	0.9%
AAGR 2012-2032		**1.0%**		**1.4%**		**1.4%**		**0.9%**

Source: Woods & Pool Economics, Inc., CHA Consulting, 2012
AAGR – average annual growth rate

Figure 3-3 – Population Growth (Historic and Projected)



Source: Woods & Pool Economics, Inc., CHA Consulting, 2012

3.3.3 Per Capita Income

The historic and projected per capita income for the ECP catchment area, the Panama City MSA, the State of Florida, and the United States are shown in **Table 3-6** and depicted in **Figure 3-4**. While the average per capita income lags behind that of Florida and the Unites States, the

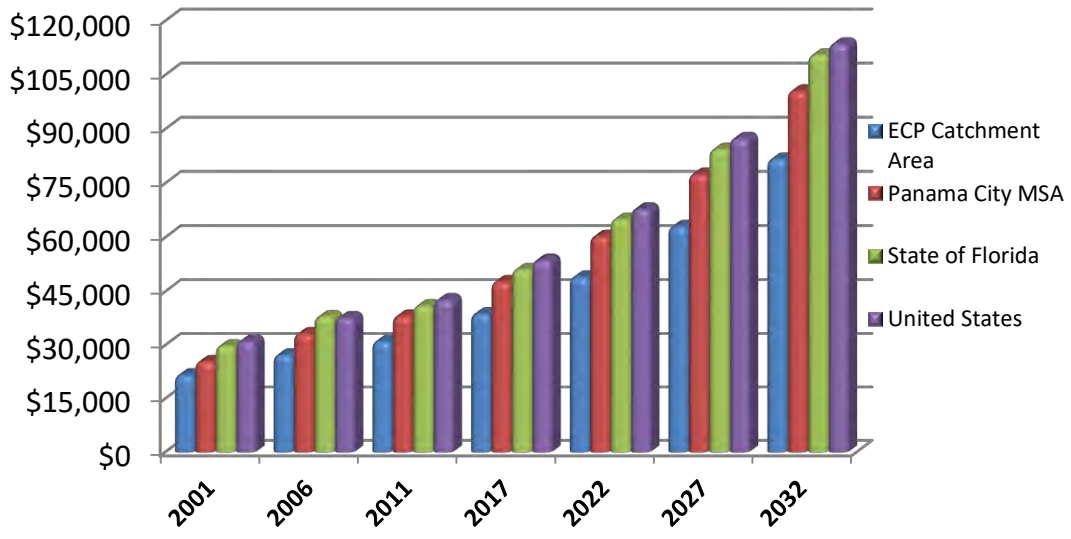
historic growth rate in the catchment area, and in particular the MSA, has exceeded both the state and nation. The projected local income growth rates are anticipated to be more on par with the state and nation moving forward through the planning horizon. These projections suggest that the State of Florida, the catchment area, and Bay County are anticipated to maintain financial growth throughout the planning period.

Table 3-6 – Per Capita Income Trend (Historic and Projected)

Year	Panama City MSA ($)	AAGR	ECP Catchment Area ($)	AAGR	State of Florida ($)	AAGR	United States ($)	AAGR
2001	25,409	-	21,669	-	29,804	-	31,157	-
2006	33,239	5.5%	27,270	4.7%	37,996	5.0%	37,726	3.9%
2011	38,167	2.8%	31,120	2.7%	41,022	1.5%	42,702	2.5%
AAGR 2001-2011		**4.2%**		**3.7%**		**3.2%**		**3.2%**
2012	39,225	2.8%	31,895	2.5%	41,903	2.1%	43,881	2.8%
2017	47,724	4.0%	38,838	4.0%	51,078	4.0%	53,634	4.1%
2022	60,271	4.8%	49,010	4.8%	64,997	4.9%	67,854	4.8%
2027	77,521	5.2%	62,989	5.1%	84,358	5.4%	87,412	5.2%
2032	100,575	5.3%	81,672	5.3%	110,533	5.6%	113,590	5.4%
AAGR 2012-2032		**4.8%**		**4.8%**		**5.0%**		**4.9%**

Source: Woods & Pool Economics, Inc., CHA Consulting, 2012
AAGR – average annual growth rate

Figure 3-4 – Per Capita Income Trend (Historic and Projected)



Source: Woods & Pool Economics, Inc., CHA Consulting, 2012

3.3.4 Total Employment

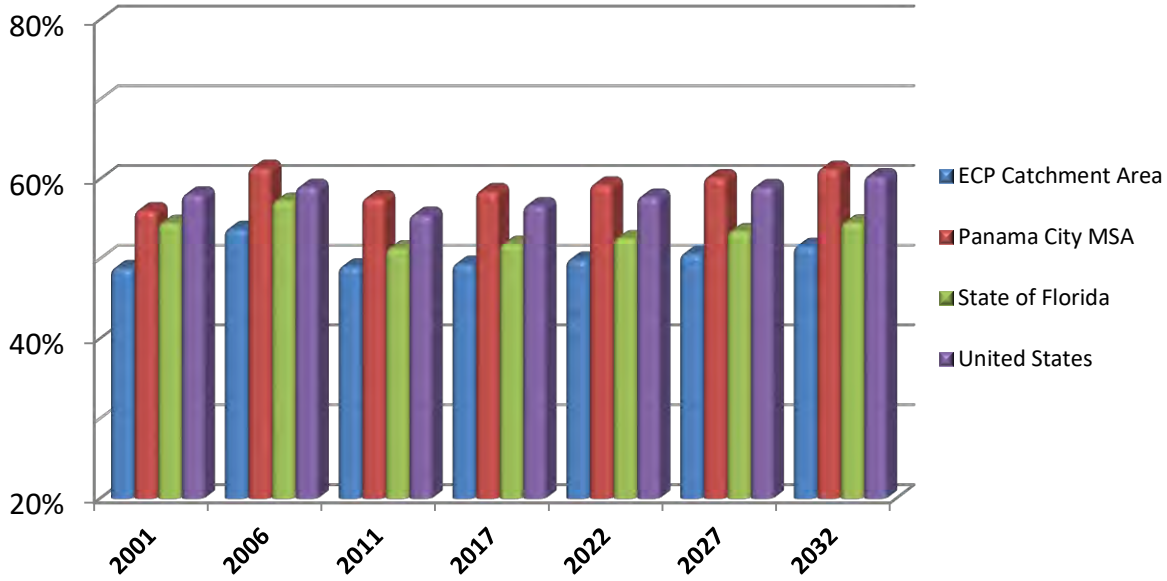
The historic and projected number of persons employed and percent of population group employed (i.e., persons employed divided by total population) for each study area for years 2001 to 2011 (historic) and 2012 through 2032 (projected) is shown in **Table 3-7**. From 2001 through 2011, the ECP catchment area and Panama City MSA show an increase in employment growth, while the State of Florida and the United States experienced a decrease in employment levels with the State of Florida witnessing the greatest decrease of (-0.6 percent). Conversely, projected employment levels are anticipated to increase throughout the planning period with the ECP catchment area experiencing an AAGR of 0.3 percent; a growth rate equivalent to that projected for the State of Florida and only 0.1 percent behind that projected for the United States. These projections suggest that the ECP market and the State of Florida will maintain a competitive and relatively active workforce throughout the planning period. **Figure 3-5** illustrates the historic and projected percent of each population group that is employed.

Table 3-7 – Percent of Population Employed (Historic and Projected)

Year	Panama City MSA (000)	Percent Employed	ECP Catchment Area (000)	Percent Employed	State of Florida (000)	Percent Employed	United States (000)	Percent Employed
2001	84	56.1%	380	48.8%	8,917	54.5%	165,510	58.1%
2006	102	61.4%	458	53.8%	10,407	57.3%	176,125	59.0%
2011	99	57.6%	437	49.0%	9,826	51.3%	173,401	55.5%
AAGR 2001-2011		**0.3%**		**0.0%**		**-0.6%**		**-0.4%**
2012	100	57.7%	443	49.0%	9,984	51.45	175,736	55.7%
2017	107	58.5%	480	49.4%	10,888	51.9%	187,900	56.7%
2022	114	59.3%	521	49.9%	11,860	52.6%	200,905	57.8%
2027	122	60.2%	564	50.7%	12,904	53.5%	214,809	59.0%
2032	130	61.3%	611	51.6%	14,025	54.6%	229,676	60.4%
AAGR 2012-2032		**0.3%**		**0.3%**		**0.3%**		**0.4%**

Source: Woods & Pool Economics, Inc., CHA Consulting, 2012
Note: 2011 Woods & Poole Economics data is an estimated value
AAGR – average annual growth rate

Figure 3-5 – Percent of Population Employed (Historic and Projected)



Source: Woods & Pool Economics, Inc., CHA Consulting, 2012

3.3.5 Historic Tourism Summary

It is widely acknowledged, and noted throughout this Master Plan, that tourism is a significant contributor to the economy of northwest Florida. This is particularly true in Bay and Walton counties, the Panama City area and the beachside communities along Highway 98 and State Road 30A. Historic tourism trends, combined with the ECP survey results indicating 72 percent of the visiting passengers are arriving for leisure purposes, are both indicators of the demand for affordable, convenient and efficient transportation facilities at ECP. By providing adequate facilities and services, the Northwest Florida Beaches International Airport is also a catalyst for growing tourism in the region.

According to the Panama City Beach Convention and Visitors Bureau, rental tax is collected from rental properties, businesses, and hotels (e.g., rental cars, hotel and condo rentals, and privately owned vacation rentals). Rental tax collections are considered to be a measurable variable of tourism activity in Panama City and its surrounding beaches. **Table 3-8** shows the historical rental tax collections in the Panama City MSA, including Panama City Beach and Mexico Beach areas, from October of 2007 through September, 2011.

Table 3-8 – Historical Tourism Rental Tax Collections (Tourism Tax)

	FY 2007 ($)	FY 2008 ($)	FY 2009 ($)	FY 2010 ($)	FY 2011 ($)	AAGR (%)
October	234,657	275,648	294,466	269,888	312,767	5.9
November	152,119	156,803	129,673	170,156	170,686	2.3
December	135,089	134,216	135,186	136,578	148,649	1.9
January	176,655	188,324	195,818	191,075	184,000	0.8
February	244,157	266,703	320,373	265,674	289,907	3.5
March	699,029	813,080	769,891	923,473	889,499	4.9
April	563,079	476,718	545,910	595,401	729,992	5.3
May	629,293	556,799	599,268	645,530	676,404	1.5
June	1,119,168	1,223,300	1,167,623	1,130,562	1,370,224	4.1
July	1,389,711	1,345,541	1,381,718	1,180,218	1,780,148	5.1
August	532,048	554,579	568,558	484,762	651,925	4.1
September	397,001	467,387	477,419	477,181	556,897	7.0
Total ($)	**6,272,006**	**6,459,097**	**6,585,905**	**6,470,498**	**7,761,100**	**4.4**

Source: Panama City Beach Convention and Visitors Bureau, CHA Consulting, 2012

As shown in the table, with the exception of a slight decline FY 2010, tourism dollars have steadily increased since 2007, a 4.4 percent AAGR. The FY 2010 decline can be attributed to both the general economic downturn in 2009 and the 2010 oil spill in the Gulf of Mexico. The significant increase in tourism tax dollars from FY 2010 to FY 2011, nearly 20 percent, can be attributed, at least to some extent, to the opening of ECP and the additional air service provided. Indications would suggest that the Northwest Florida Beaches International Airport has a direct and positive impact on the local economy and surrounding areas and signs are that this trend will continue throughout the planning horizon.

3.3.6 Socioeconomic Conditions Summary

Although northwest Florida and the greater Panama City area was not immune to the recent economic downturn as numbers show, ECP is located in a steadily growing, economically stable market area with a strong tourism outlook. Key indicators of future airport use, such as local population and per capita income growth outpacing that of the nation, local employment levels greater than that of the state and nation, and a growing tourism trend, all indicate increasing levels of activity for the future of ECP.

3.4 FORECAST OF COMMERCIAL CARRIER ACTIVITY

To determine the facility sizing requirements necessary to adequately accommodate the current and future activity demand, a forecast of annual enplaned passengers and annual commercial aircraft operations was developed. The most basic indicator of activity demand for a commercial service airport is the number of annual enplaned passengers. It is the number of forecast enplanements that will drive passenger terminal sizing requirements, and to a lesser

extent, commercial carrier operations and fleet mix. Commercial aircraft operations will influence the requirements for passenger terminal and airside infrastructure.

Several FAA-approved forecast methodologies and statistical analyses are presented in order to provide a base range of potential passenger activity levels. From these forecasts, a "preferred forecast" was developed that represents the most likely projection of future activity based on existing data and current trends. This preferred forecast then served as the baseline on which alternative air service scenarios were developed. These alternate scenarios examine the expected increases in Southwest Airlines' activity due to their recent merger with AirTran, expansion opportunities to current or new destinations, an assumed increase in charter and international activity, and the ongoing transitions in fleet mix between narrowbody and regional jet activity.

3.4.1 Adjusted Commercial Carrier TAF

There are two types of commercial service aircraft operations addressed in the TAF; "Air Carrier" operations and "Air Taxi and Commuter" operations. However, for the purposes of the commercial carrier forecasts presented within this document, the two categories are combined into a single category labeled "Total Commercial Operations."

It is important to note that the "Air Taxi and Commuter" category includes both scheduled air carrier operations and GA charter operations with 50-seats or less. This category includes air carrier operations using 50-seat RJs (i.e., Delta Connection flights). Therefore, before the two categories could be combined, the approximate percentage split of air carrier and GA operations was necessary to calculate the total number of commercial service operations. Based on information from Authority staff and published commercial flight schedules, a 50/50 split was used as the planning factor to determine the percentage of air carrier operations. **Table 3-9** shows the ECP TAF with the adjusted "Commuter Carrier" operations. As shown in the table, the category includes 50 percent of the "Air Taxi and Commuter" operations listed within the ECP TAF.

Table 3-9 – ECP TAF with Adjusted Air Carrier Operations

Year	TAF Enplanements	Air Carrier Operations	Commuter Carrier Operations	Total Commercial Operations
2012	429,943	8,264	3,393	**11,657**
2013	440,212	8,474	3,393	**11,867**
2014	450,808	8,691	3,393	**12,084**
2015	461,744	8,912	3,393	**12,305**
2016	473,029	9,139	3,393	**12,532**
2017	484,677	9,371	3,393	**12,764**
2018	496,697	9,610	3,393	**13,003**
2019	509,101	9,855	3,393	**13,248**
2020	521,903	10,105	3,393	**13,498**
2021	535,114	10,362	3,393	**13,755**
2022	548,748	10,626	3,393	**14,019**
2023	562,819	10,896	3,393	**14,289**
2024	577,338	11,173	3,393	**14,566**
2025	592,322	11,457	3,393	**14,850**
2026	607,786	11,748	3,393	**15,141**
2027	623,745	12,045	3,393	**15,438**
2028	640,215	12,349	3,393	**15,742**
2029	657,211	12,662	3,393	**16,055**
2030	674,752	12,983	3,393	**16,376**
2031	692,855	13,314	3,393	**16,707**
2032	711,536	13,652	3,393	**17,045**
2012-2032 AAGR	**2.6%**	**2.5%**	**0.0%**	**1.9%**

Source: FAA ECP TAF, PCBCAID, CHA Consulting, 2012

3.4.2 Potential Enplanement Forecasts

To identify an appropriate base level projection of future passenger activity, the following enplanement forecasts for ECP were developed, evaluated for reasonableness, and compared to the FAA TAF. The results of these analyses are presented in **Table 3-10**.

Historic Trend: A historic trend forecast is a simple time-series model that relies on extrapolating historic enplanements and operations growth, specific to the Airport, into the future. Examining the historic growth rates and projecting them forward provides a picture of growth should the market area and the state of the commercial passenger airline industry reflect past trends through the forecast period. For the Historic Trend forecast scenario, the historic data was derived from Authority records and projected forward through the forecast horizon.

Static National Market Share: This methodology uses the aggregate, national level forecast of commercial activity identified in the FAA's 2013 TAF to derive forecasts for the Airport based on market share. This forecast assumes that ECP will maintain its current level, or static market share, of commercial enplanements (0.06%) and operations (0.09%) relative to national activity projections throughout the planning period.

Static Regional Market Share: While similar to the Static National Market Share methodology, this forecast uses regional activity projections derived from the 2005 FASP as the basis for determining marketing share. This forecast assumes that ECP will maintain its current 2012 level of commercial enplanements (23.4%) relative to regional market activity projections throughout the planning period.

Adjusted Regional Market Share: Building upon the Static Regional Market Share scenario, this forecast assumes that ECP would continue to increase its share of the Florida Panhandle market. Using regional activity projections derived from the 2005 FASP, ECP would gain approximately one percent of the regional market, incrementally, every five years throughout the forecast period. This methodology results in a market share increase from 23.4 percent to 27 percent by 2032.

Domestic High-Growth: This forecast incorporates factors from the Adjusted Regional Market Share scenario and reflects potential expansion of air service into new and existing markets in both the eastern and mid-western United States. The expanded service acknowledges tourism growth in the Panama City area and would be expected to increase activity levels beyond those accounted for in the Static Regional Market Share scenario.

International High-Growth: Building from the Domestic High-Growth scenario, this forecast assumes that ECP has the potential to gain passenger traffic and operations through the Caribbean, Mexican, Latin American and Canadian markets. With consideration of the recent Southwest-AirTran merger, it is anticipated that ECP passengers would have expanded access to the markets, possibly from increased route options through William P. Hobby / Houston (HOU) Airport.

Regression Analysis Forecasts: A regression-based forecast examines aviation and passenger activity through the prism of current and historic activity levels, and seeks to find a relationship between the activity levels and the socioeconomic conditions prevalent during that time period. Causal relationships between population, employment, income, and tourism were examined to determine if there is a statistically valid relationship that may assist in projecting future activity.

Though the socioeconomic indicators (i.e., population, per capita income, total employment, and tourism) have grown at rates that are consistent or higher than those at the state and national levels, the two-year time frame of which ECP has been open, provides limited data on which to build a valid regression analysis. Due to the limited timespan of available data,

correlations between multiple variables within the regression models were not able to be factored. Therefore, the socioeconomic regression analyses were not considered to be statistically reliable to serve as the preferred forecast scenario.

Table 3-10 – Potential Enplanement Forecasts

Year	2013 TAF	Historic Trend	Static National Market Share	Static Regional Market Share	Adjusted Regional Market Share	Domestic High-Growth	International High-Growth
2011	417,174	433,081	433,081	433,081	433,081	433,081	433,081
2012	429,943	439,183	439,183	439,183	439,183	439,183	439,183
2013	440,212	448,300	451,300	454,300	464,900	479,300	464,900
2014	450,808	457,600	466,900	469,900	482,900	499,500	483,400
2015	461,744	467,100	482,600	486,100	501,700	520,600	502,600
2016	473,029	476,800	497,700	502,800	521,200	542,200	522,500
2017	484,677	486,700	509,800	520,200	541,400	564,700	543,300
2018	496,697	496,800	522,200	538,200	564,800	588,000	567,200
2019	509,101	507,100	535,000	556,800	589,100	612,000	592,200
2020	521,903	517,600	548,100	576,100	614,500	636,800	618,300
2021	535,114	528,400	561,600	596,000	641,000	662,400	645,500
2022	548,748	539,400	575,300	616,700	668,600	689,000	673,900
2023	562,819	550,600	589,400	638,200	697,400	716,500	703,500
2024	577,338	562,000	603,900	660,400	727,400	744,800	734,500
2025	592,322	573,700	618,800	683,400	758,600	774,100	766,700
2026	607,786	585,600	634,100	707,200	791,200	804,300	800,400
2027	623,745	597,800	649,800	731,900	825,200	835,600	835,600
2028	640,215	610,200	666,000	757,500	860,600	867,900	872,200
2029	657,211	622,900	682,700	784,000	897,500	901,200	910,500
2030	674,752	636,900	699,800	811,400	936,000	935,600	950,400
2031	692,855	649,100	717,500	839,900	976,100	971,300	992,100
2032	711,536	662,600	735,600	869,400	1,017,900	1,008,100	1,035,600
2012-2032 AAGR	**2.6%**	**2.1%**	**2.6%**	**3.5%**	**4.3%**	**4.2%**	**4.4%**
2012-2032 Growth	**66%**	**51%**	**67%**	**98%**	**132%**	**130%**	**136%**

Source: FAA ECP TAF, PCBCAID, Woods & Poole Economics, CHA Consulting, 2012

3.4.3 Preferred Commercial Air Carrier Forecast

With the opening of ECP in May 2010, the new facilities have been able to satisfy the latent passenger demand that was not accommodated at the Panama City-Bay County Airport (PFN). This is evidenced by the steady increase in enplanements since the Airport's opening (refer to **Table 3-5**). It is also evidenced by ECP's gain in enplanement market share as compared to the three other commercial service airports in the region. These factors, combined with the solid socioeconomic and increasing tourism conditions, indicate that ECP continues to gain a stronger

aviation presence within the national and State of Florida aviation transportation systems. While all of the potential enplanement forecasts described in **Section 3.4.2** were developed using logical methodologies, the Static Regional Market Share forecast is considered to be a statistically reliable reflection of the activity trends being experienced in the northwest Florida region. For that reasons, the Static Regional Market Share scenario has been identified as the preferred forecast methodology for this master planning effort. This methodology and development of the corresponding commercial aircraft operations forecast, are described in the following paragraphs.

Conversely, the Static National Market Share forecast, which reflects actual 2012 enplanements and the same growth rates projected in the 2013 FAA TAF, is considered a reasonably conservative; lower range of potential commercial activity should unforeseen market conditions cause passenger demand to be less than projected.

Preferred Enplanement Forecast

The preferred enplanement forecast (i.e. the Static Regional Market Share scenario) was developed upon the following factors:

- 2012 forecast base year reflects ECP's 2012 reported year-end total of 439,183 enplanements. This represents a 3.4 percent increase from 2011.
- Total regional market enplanements for the 20-year forecast period, were projected by applying the airport specific growth rates identified in the FASP to the reported 2012 enplanement figures for the three other regional airports. These include average annual growth rates for 2.8% for Northwest Florida Regional Airport (VPS), 2.8% for Tallahassee Regional Airport (TLH), and 4.2% for Pensacola International Airport (PNS).
- According to historical data, ECP's market share has grown from 22 percent in 2010 to 23.4 percent through 2012. For planning purposes, it was assumed that ECP would reasonably remain at a constant percent of the regional market share throughout the forecast period. This methodology results in 869,400 enplanements by 2032.

Preferred Operations Forecast

According to historic, reported activity data from the four Panhandle airports, ECP commercial operations have averaged a 22.2 percent market share over the past two years. FASP provided commercial operations growth rates were used to project total regional operations over the 20-year forecast period. For purposes of this forecast, it was assumed that ECP will maintain a static 22 percent share of the regional market resulting in approximately 18,800 commercial operations by the end of the forecast period.

A predominate industry trend acknowledged in this methodology is the airline fleet mix restructuring from smaller 50-seat regional jets to larger 70-seat regional jets and narrow body aircraft. Additionally, according to Southwest Airlines and Delta Air Lines, there is a contractual agreement to lease Southwest Airlines newly acquired Boeing 717's, received in the merger with AirTran, to Delta Air Lines. The move will happen over a period of three years starting in the second half of 2013. With the Southwest/AirTran merger and the lease of all 88 Boeing 717 aircraft to Delta Air Lines, it is important to note that many of the 50-seat aircraft operations

that were previously operated at ECP will likely be replaced with the larger B717 series operations.

As the larger aircraft begin to control Delta operations, it was anticipated that the number of operations needed to accommodate passengers will begin to become more efficient, and remain at a higher level of average passengers per departure. It was assumed that this will create a slower growth in commercial operations over the course of the forecast horizon. Based on fleet mix transitions from smaller RJs to larger narrowbody jets, it was assumed that commercial operations at ECP will capture more of the regional market share at a lower rate than that of the enplanements. This results in a higher average level of passengers per departures at the Airport.

Preferred Commercial Air Carrier Forecast Summary

At this time, the static regional market share methodology is considered the most appropriate means of projecting commercial passenger and aircraft activity at ECP. This forecast incorporates the most recent historical data, Florida specific regional projections, and current local activity and industry trends. **Table 3-11** provides the preferred forecast of commercial air carrier activity which anticipates increases in both enplanements and operations over the forecast period.

Table 3-12 compares the preferred commercial activity forecast with the ECP TAF. By the end of the forecast period, projected enplanements are expected to be 22.2 percent above what is predicted in the TAF, while air carrier operations are projected to be 10.3 percent above what is predicted in the TAF. It is assumed that the difference between the TAF predicted enplanements and the preferred forecast is largely due to ECP being a new airport and the lack of historical data available at the time the TAF was prepared. For example, the Panama City-Bay County International Airport (PFN) never reached the 200,000 enplanement threshold between the 2006 and 2010 time period, whereas ECP experienced 433,081 enplanements during its first full year of operation (2011). This indicates an uncalculated latent passenger demand that was previously unaccounted for. Furthermore, the 2013 TAF indicates a 2011 enplanement number of 417,174, which is over 20,000 enplanements lower than the actual 2011 ECP enplanement figure.

Additionally, by expanding access to destinations that were not readily available in the past, Southwest Airlines has stimulated a previously untapped market and potentially expanded the customer base. This is expected to result in an increase in tourism, contribute to the above-average local socioeconomic growth, and assist in the anticipated airline service expansion.

Table 3-11 – Preferred Commercial Air Carrier Forecast

Year	Passenger Enplanements	Annual Growth	Commercial Operations	Annual Growth
2011	433,081	-	11,513	-
2012	439,183	1.4%	11,600	0.8%
2013	454,300	3.4%	12,000	3.4%
2014	469,900	7.0%	12,300	2.5%
2015	486,100	3.4%	12,600	2.4%
2016	502,800	7.0%	12,900	2.4%
2017	520,200	3.5%	13,200	2.3%
2018	538,200	7.0%	13,500	2.3%
2019	556,800	3.5%	13,800	2.2%
2020	576,100	7.0%	14,200	2.9%
2021	596,000	3.5%	14,500	2.1%
2022	616,700	7.0%	14,800	2.1%
2023	638,200	3.5%	15,200	2.7%
2024	660,400	7.1%	15,500	2.0%
2025	683,400	3.5%	15,900	2.6%
2026	707,200	7.1%	16,300	2.5%
2027	731,900	3.5%	16,700	2.5%
2028	757,500	7.1%	17,100	2.4%
2029	784,000	3.5%	17,500	2.3%
2030	811,400	7.1%	17,900	2.3%
2031	839,900	3.5%	18,300	2.2%
2032	869,400	7.1%	18,800	2.7%

Source: CHA Consulting, 2012

Table 3-12 – Preferred Forecast vs. TAF

Year	Enplanements			Operations		
	2013 TAF	Preferred Forecast	Forecast Vs. TAF	TAF	Preferred Forecast	Forecast Vs. TAF
2012	429,943	439,183	2.1%	11,657	11,600	-0.5%
2017	484,677	520,200	7.3%	12,764	13,200	3.4%
2022	548,748	616,700	12.4%	14,019	14,800	5.6%
2027	623,745	731,900	17.3%	15,438	16,700	8.2%
2032	711,536	869,400	22.2%	17,045	18,800	10.3%
2012-2032 AAGR	**2.6%**	**3.5%**		**1.9%**	**2.4%**	
2012-2032 Growth	**65.5%**	**98.0%**		**46.2%**	**62.1%**	

Source: CHA Consulting, 2012

3.4.4 Alternate Commercial Air Carrier Forecast Scenarios

The preferred commercial activity forecast is believed to reflect the regional trends most likely to influence activity growth at ECP. However, considering ECPs growth in regional market share since its opening in May 2010, it is also reasonable to believe that this forecast could ultimately prove to be conservative. While the preferred forecast does project growth in both enplanements and operations, it does not account for significant airline service expansions, new route structures, or new airlines that would have the potential to increase activity levels beyond those projected. To provide planning flexibility within this this Master Plan, three alternate high-growth forecast scenarios were generated to establish an upper range of potential commercial activity over the course of the planning period. These forecasts include the Adjusted Market Share, Domestic High-Growth, and International High-Growth scenarios. These forecast scenarios apply specific air service assumptions to the preferred forecast, with the expectation that ECP could capture an even larger share of the regional Florida Panhandle market.

Adjusted Regional Market Share Forecast Scenario

The Adjusted Regional Market Share enplanement model is considered a statistically reliable and reasonable high range representation of potential commercial passenger activity at the Airport. This scenario is an assumption that ECP will capture a percentage of the regional consumer base from surrounding airports (e.g., VPS, TLH, PNS), resulting in an increase in passenger market share and load factor per operation. This assumption is reinforced by above-average growth in socioeconomic factors (e.g., population) throughout the forecast period suggesting a continuous growing need for air travel service within the ECP market area.

As with the Static Regional Market Share model, total regional market enplanements for the 20-year forecast period were projected by applying the airport specific growth rates identified in the FASP to the reported 2012 enplanement figures for the three other regional airports. It was then assumed that ECP would gain approximately one percent of the regional market share, incrementally, every five years throughout the forecast period. This methodology results in 1,017,900 enplanements or a 27 percent market share by 2032.

Based on fleet mix transitions from smaller RJs to larger narrowbody jets, it was assumed that ECP will capture an increasing share of commercial operations within the region, but at a lower rate than that of the enplanements. For the purposes of this forecast, it was assumed that ECP will incrementally increase its commercial operations market share from roughly 22 percent in 2012 to 24 percent in 2032. This results in approximately 20,200 commercial operations by the end of the forecast period.

The results of the Adjusted Regional Market Share scenario are presented in **Table 3-13** and **Table 3-14** compares this scenario to the preferred forecast. By the end of the forecast period, projected enplanements would be 17.1 percent higher than what is predicted in the preferred forecast, while operations would be 7.4 percent higher.

Table 3-13 – Adjusted Regional Market Share Forecast Scenario

Year	Passenger Enplanements	Annual Growth	Commercial Operations	Annual Growth
2011	433,081	-	11,513	-
2012	439,183	1.4%	11,600	0.5%
2013	464,900	5.9%	11,900	2.6%
2014	482,900	3.9%	12,200	2.5%
2015	501,700	3.9%	12,600	3.3%
2016	521,200	3.9%	12,900	2.4%
2017	541,400	3.9%	13,300	3.1%
2018	564,800	4.3%	13,900	2.3%
2019	589,100	4.3%	14,000	2.9%
2020	614,500	4.3%	14,400	2.9%
2021	641,000	4.3%	14,800	2.8%
2022	668,600	4.3%	15,200	2.7%
2023	697,400	4.3%	15,700	3.3%
2024	727,400	4.3%	16,100	2.5%
2025	758,600	4.3%	16,600	3.1%
2026	791,200	4.3%	17,000	2.4%
2027	825,200	4.3%	17,600	3.5%
2028	860,600	4.3%	18,100	2.8%
2029	897,500	4.3%	18,600	2.8%
2030	936,000	4.3%	19,100	2.7%
2031	976,100	4.3%	19,600	2.6%
2032	1,017,900	4.3%	20,200	3.1%

Source: CHA Consulting, 2012

Table 3-14 – Adjusted Regional Market Share Scenario vs. Preferred Forecast

	Enplanements			Operations		
Year	Preferred	Adjusted Regional Market Share	Forecast Vs. Preferred	Preferred	Adjusted Regional Market Share	Forecast Vs. Preferred
2012	448,000	439,183	-	11,600	11,600	-
2017	530,600	541,400	4.1%	13,200	13,300	0.8%
2022	629,000	668,600	8.4%	14,800	15,200	2.7%
2027	746,400	825,200	12.7%	16,700	17,600	5.4%
2032	886,600	1,017,900	17.1%	18,800	20,200	7.4%
2012-2032 AAGR	**3.5%**	**4.3%**		**2.4%**	**2.8%**	
2012-2032 Growth	**98%**	**132%**		**62%**	**74%**	

Source: FAA Terminal Area Forecast, CHA Consulting 2012

Domestic High-Growth Forecast Scenario

This scenario is the outcome of a multiple air service expansions into new and existing markets in both the eastern and mid-western United States. The expanded service would be in response to tourism growth in the Panama City region as identified in **Table 3-8** and the understanding that ECP is predominately a destination airport. According to Southwest Airlines schedules of passenger service, there was a possibility of expansion to Reagan National Airport (DCA) in 2013 (*as of mid-2014 this has not occurred*). Other considerations for new markets and expansion routes include but are not limited to the following:

Potential Expansion Routes

Baltimore-Washington International Airport (BWI), Hobby/Houston Airport (HOU), and Lambert-St. Louis International Airport (STL)

Potential New Destinations

Dallas/Fort Worth International Airport (DFW), Dallas Love Field Airport (DAL), Chicago Midway International Airport (MDW), Charlotte/Douglas International Airport (CLT), Chicago O'Hare International Airport (ORD), George Bush Intercontinental Airport (IAH), Washington Dulles International Airport (IAD), and Detroit Metro Airport (DTW)

This expanded service would result in gains of passenger traffic, airline operations, and the average number of passengers per departures at the Airport. It was assumed that these increases in passenger activity would result in approximately 10 additional daily flight operations during the 20-year forecast period. The expanded service assumptions accounted for in this growth scenario for each five-year planning increment are as follows:

5-year

- Service to one or two new hubs resulting in 3-4 added flight operations per day
- One new airline will be introduced into the ECP market

10-year

- Service expansion to one or two additional hubs resulting in 3-4 added flight operations per day
- Possibility of an additional low-cost carrier introduced to the ECP market

15-year

- Expanded charter services resulting in 2-3 added commercial flight operations per day
- Expansion into new markets begins to slow resulting in steady lower annual growth, however continues to grow incrementally

20-year

- Incremental growth is expected with no additional air service operations added

The additional air service operations were applied to the Static Regional Market Share operations forecast which results in an additional 1,800 operations by the end of the forecast

period. **Table 3-15** depicts the growth in passenger enplanements and operations as a result of the air service assumptions.

Table 3-16 compares the Domestic High-Growth forecast with the preferred forecast. By the end of the forecast period, projected enplanements are expected to be 16.0 percent above what is predicted in the preferred forecast, while operations are projected to be only 9.6 percent above what is predicted in the preferred forecast.

Table 3-15 – Domestic High-Growth Forecast Scenario

Year	Passenger Enplanements	Annual Growth	Commercial Operations	Annual Growth
2011	433,081	-	11,513	-
2012	439,183	1.4%	11,600	0.8%
2013	479,300	9.1%	12,400	6.9%
2014	499,500	4.2%	12,800	3.2%
2015	520,600	4.2%	13,200	3.1%
2016	542,200	4.1%	13,600	3.0%
2017	564,700	4.1%	13,900	2.2%
2018	588,000	4.1%	14,300	2.9%
2019	612,000	4.1%	14,700	2.8%
2020	636,800	4.1%	15,100	2.7%
2021	662,400	4.0%	15,500	2.6%
2022	689,000	4.0%	15,900	2.6%
2023	716,500	4.0%	16,400	3.1%
2024	744,800	3.9%	16,700	1.8%
2025	774,100	3.9%	17,200	3.0%
2026	804,300	3.9%	17,700	2.9%
2027	835,600	3.9%	18,200	2.8%
2028	867,900	3.9%	18,600	2.2%
2029	901,200	3.8%	19,100	2.7%
2030	935,600	3.8%	19,600	2.6%
2031	971,300	3.8%	20,100	2.6%
2032	1,008,100	3.8%	20,600	2.5%

Source: CHA Consulting, 2012

Table 3-16 – Domestic High-Growth Scenario vs. Preferred Forecast

Year	Passenger Enplanements			Commercial Operations		
	Preferred	Domestic High-Growth	Forecast Vs. Preferred	Preferred	Domestic High-Growth	Forecast Vs. Preferred
2012	439,183	439,183	-	11,600	11,600	-
2017	520,200	564,700	8.6%	13,200	13,900	5.3%
2022	616,700	689,000	11.7%	14,800	15,900	7.4%
2027	731,900	835,600	14.2%	16,700	18,200	9.0%
2032	869,400	1,008,100	16.0%	18,800	20,600	9.6%
2012-2032 AAGR	**3.5%**	**4.2%**		**2.4%**	**2.9%**	
2012-2032 Growth	**98%**	**130%**		**62%**	**78%**	

Source: CHA Consulting, 2012

International High-Growth Forecast Scenario

This scenario assumes that ECP has the potential to gain passenger traffic and operations through international markets. It includes factors from the Adjusted Regional Market Share and the Domestic High-Growth air service assumptions described previously, and includes expanded service into the Caribbean, Mexican, Latin American and Canadian markets.

With the recent Southwest-AirTran merger, it is expected that Southwest will pick up AirTran's flight operations to Mexico and the Caribbean. According to multiple sources, Southwest is planning to expand operations at William P. Hobby / Houston (HOU) by constructing five new gates and an additional customs facility to accommodate international flights out of HOU. This expansion will mean flights to Latin America and Mexico from Hobby by 2015, which is expected to affect ECP in terms of passenger traffic gains and increased operations.

Potential expansions in the Caribbean and Mexican destinations as well as the Latin American regions include but are not limited to: Cabo San Lucas; Mexico City; Cancun; Aruba; Nassau; Panama City, Panama; San Jose, Costa Rica; and Guatemala City, Guatemala. Along with the southern international destinations, Panama City also gets "snow-bird" traffic from Canadian markets. With the expected tourism growth at ECP, it was assumed that additional flight operations and passenger traffic from Canadian destinations will begin to increase as low cost carriers begin to expand.

The results of these international air service assumptions are identified in **Table 3-17**. A comparison of the International High-Growth forecast scenario and the preferred forecast is shown in **Table 3-18**. By the end of the forecast period, projected enplanements and operations would be 19.1 percent and 19.7 percent above what is predicted in the preferred forecast, respectively.

Table 3-17 – International High-Growth Forecast Scenario

Year	Passenger Enplanements	Annual Growth	Commercial Operations	Annual Growth
2011	433,081	-	11,513	-
2012	439,183	1.4%	11,600	0.8%
2013	464,900	5.8%	12,200	5.2%
2014	483,400	5.7%	12,700	4.1%
2015	502,600	5.6%	13,100	3.1%
2016	522,500	5.4%	13,600	3.8%
2017	543,300	5.4%	14,100	3.7%
2018	567,200	5.2%	14,600	3.5%
2019	592,200	5.1%	15,100	3.4%
2020	618,300	5.1%	15,700	4.0%
2021	645,500	5.0%	16,100	2.5%
2022	673,900	4.9%	16,600	3.1%
2023	703,500	4.8%	17,200	3.6%
2024	734,500	4.7%	17,700	2.9%
2025	766,700	4.7%	18,300	3.4%
2026	800,400	4.6%	18,900	3.3%
2027	835,600	4.5%	19,400	2.6%
2028	872,200	4.5%	20,000	3.1%
2029	910,500	4.4%	20,600	3.0%
2030	950,400	4.4%	21,200	2.9%
2031	992,100	4.3%	21,800	2.8%
2032	1,035,600	4.3%	22,500	3.2%

Source: CHA Consulting, 2012

Table 3-18 – International High-Growth Scenario vs. Preferred Forecast

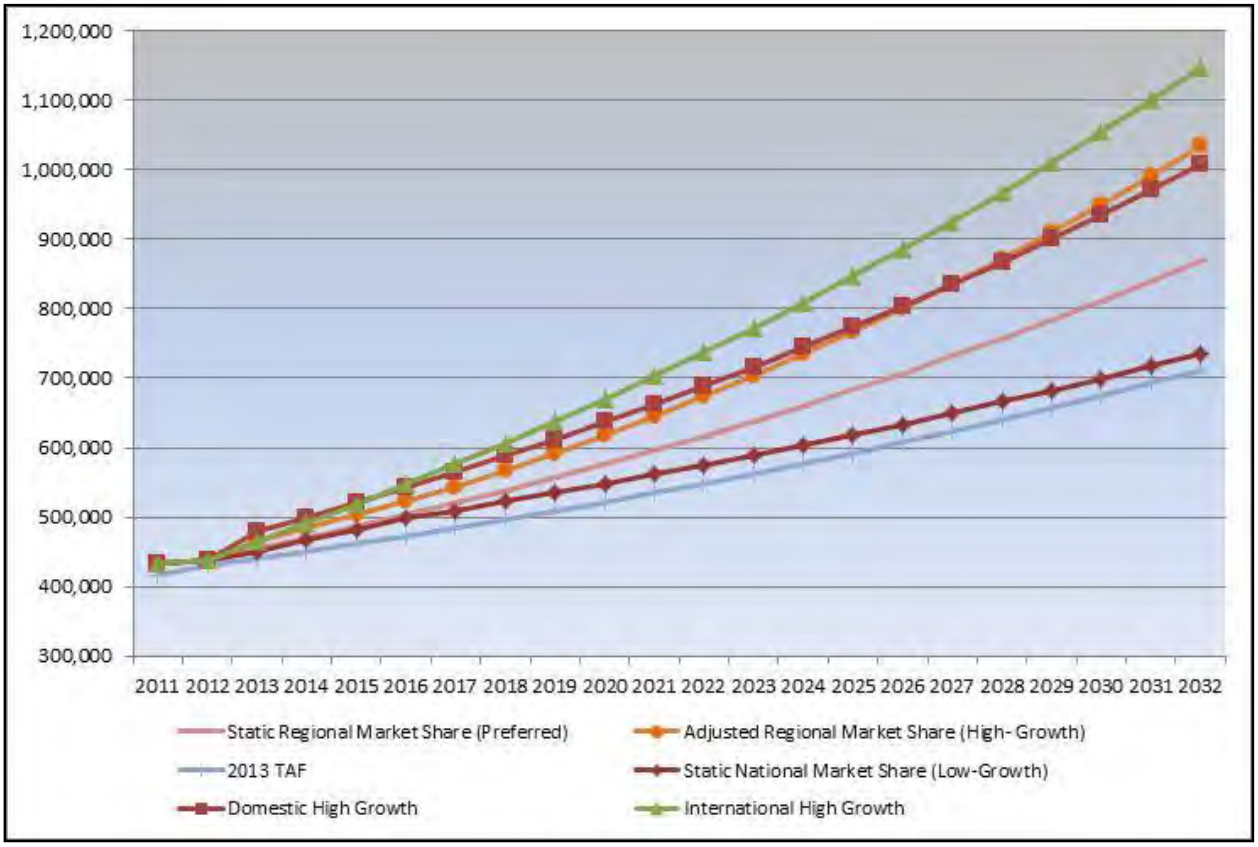
Year	Enplanements			Operations		
	Preferred	International High-Growth	Forecast Vs. Preferred	Preferred	International High-Growth	Forecast Vs. Preferred
2012	439,183	439,183	-	11,600	11,600	-
2017	520,200	543,300	4.4%	13,200	14,100	6.8%
2022	616,700	673,900	9.3%	14,800	16,600	12.2%
2027	731,900	835,600	14.2%	16,700	19,400	16.2%
2032	869,400	1,035,600	19.1%	18,800	22,500	19.7%
2012-2032 AAGR	**3.5%**	**4.45%**		**2.4%**	**3.4%**	
2012-2032 Growth	**98%**	**136%**		**62%**	**94%**	

Source: CHA Consulting, 2012

Comparison of Alternative Air Carrier Forecast Scenarios

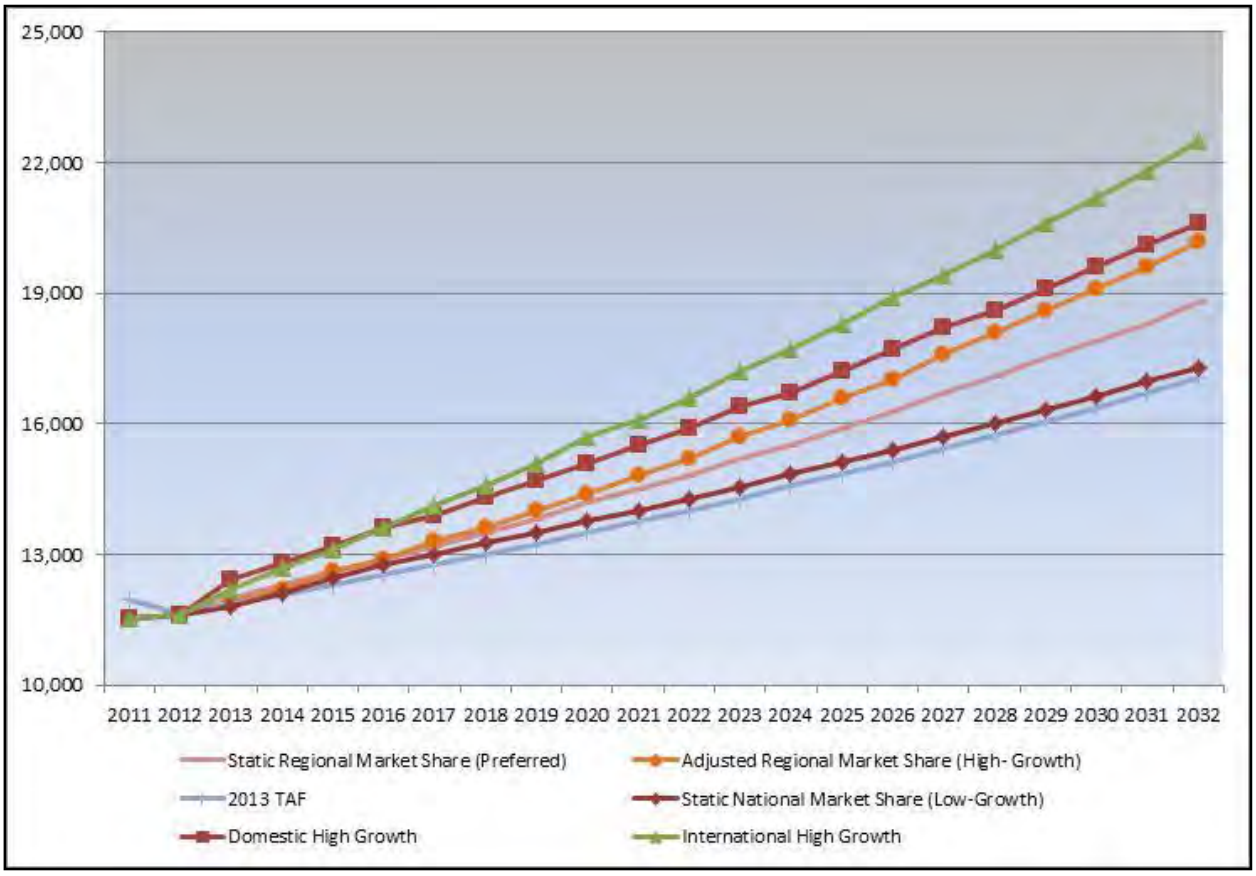
The range of preferred and alternative high- and low-growth enplanement forecast scenarios is presented in **Figure 3-6**. The corresponding range of commercial air carrier operations is presented in **Figure 3-7**. The 2013 TAF projected activity levels for ECP are also depicted.

Figure 3-6 – Alternative Enplanement Forecast Comparison



Source: ECP FAA TAF, CHA Consulting, 2012

Figure 3-7 – Alternative Commercial Operations Forecast Comparison



Source: ECP FAA TAF, CHA Consulting, 2012

3.5 COMMERCIAL AIRCRAFT FLEET MIX

The commercial aircraft fleet mix projections are a function of the scheduled commercial passenger carriers that operate (or are expected to operate) at the Airport during the forecast period. Each carrier's anticipated future fleet mix (i.e., aircraft acquisitions and retirements) and forecast enplanement levels influence a carrier's aircraft type and level of operations. This data is then coupled with the forecast commercial air carrier operations to determine the number of annual departures by aircraft type. The following sections provide the commercial carrier fleet mix projections.

3.5.1 Commercial Air Carrier Fleet Mix

The first step in determining ECP's future commercial carrier fleet mix was to identify the overall market trends that will drive future airline fleets, as well as aircraft fleet mix decisions specific to each airline operating at the Airport. It is important to reiterate that overall passenger enplanements have increased and are forecast to maintain a positive growth throughout the planning period. With the increase in the number of short to medium haul, low-

cost air carriers, and the replacement of older larger aircraft, such as early versions of the Boeing B737 and Airbus A320, the demand for smaller single-aisle aircraft has grown within the past decade trending the industry toward aircraft with fewer seats.[7] In general, this has translated to higher passenger load factor per flight.

However, according to the *2011 Boeing Current Market Outlook*, domestic air carriers have begun trending away from regional jet aircraft and retiring smaller 50-seat aircraft at an accelerated rate. These 50-seat aircraft are being replaced with larger 70- and 90-plus seat regional jets as well as larger narrowbody aircraft; however, replacements will not keep pace with retirements. Boeing predicts that the 2030 fleet of regional jets will consist of 760 aircraft, down from 1,780 in 2010. Single-aisle mainline aircraft will continue to comprise the majority of the domestic fleet and will increase market share from 56 percent of the fleet in 2009 to 73 percent in 2030.

As with the predicted national fleet shift toward newer, larger, and more efficient aircraft, ECP specific fleet mix characteristics and trends were identified and applied directly to the preferred passenger carrier forecasts through 2032. In order to provide a detailed picture of future ECP operations, the following assumptions are based upon airline-specific fleet plans and aircraft orders, as well as overall industry trends:

- Southwest Airlines Boeing B737-300 aircraft will be gradually phased out of service and replaced with Boeing B737-700 and B737-800 aircraft. For forecasting purposes, it was assumed that this transition will occur at a rate of 10 percent of the B737-300 fleet per year.[8]
- Delta Air Lines McDonnell-Douglas DC9 aircraft (acquired in the Northwest merger) will be gradually phased out of service and replaced with Canadair CRJ700 and CRJ900 aircraft, as well as the newly acquired Boeing B717s.[9] For forecasting purposes, it was assumed that this transition will occur at a rate of 15 percent of the DC9 fleet per year.
- Delta Air Lines regional jet aircraft with a passenger capacity of 50 seats or under (Canadair CRJ100/200) will be gradually phased out of service and replaced with larger 70-seat plus regional jet aircraft (CRJ700/900) and larger narrowbody B717s.[4]

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[7] Boeing, *Long-Term Market Outlook 2012-2031.*

[8] Boeing, *Boeing to Lead Southwest Airlines 737 Flight Deck Modernization*, December 22, 2008; Boeing.com, *Orders through September 2010.*

[9] Delta Museum.Org, *Douglas DC-9 Factsheet;* World Airline News*, Delta Retires the last DC9-30 from Scheduled Service,* September 9, 2010; Airbus.com, *Summary of Orders and Deliveries.*

[4] Delta Air Lines*, Delta Air Lines Inc. 10-K Annual Report,* February 2, 2012; Delta.com, *Annual Reports*.

[5] Southwest, *Southwest Airlines, Delta Air Lines, and Boeing Capital Reach Agreement to Lease or Sublease AirTran Boeing 717Fleet*, July 9,2012; Southwest.com, *New Releases.*

- Southwest Airlines will be leasing the 88 newly acquired B717s to Delta Air Lines. This process is expected to begin in mid-2013 at a rate of three aircraft per month. It is expected that the move will be completed within three years[5].
- A "cascading" effect will occur with 70-seat regional jets. As 50-seat regional jet operations transition to 70-seat aircraft, likewise a percentage of 70-seat regional jet operations will transition to larger 70-plus seat and 90-seat regional jets, and smaller narrowbody aircraft.

Consistent with what the Boeing Market Outlook is projecting, Delta Air Lines has begun to phase out smaller 50-seat RJs and replace those operations with larger RJs and narrowbody aircraft. According to Official Airline Guide (OAG) data, Delta only flew the McDonnell Douglas MD-88 series and the Airbus A320 during peak periods for the airline. With the transition to larger aircraft, and the tentative lease agreement with Southwest Airlines to acquire B717s, it is assumed that there will no longer be a need for the larger MD-88, and will not increase A320 operations, thus replacing those operations with the B717s.

Using OAG 2012 calendar year data for the baseline year, the commercial air carrier fleet mix forecast for ECP takes into account the assumptions listed above, and the projected annual departures for the Airport as identified in the preferred forecast. A departure is considered a single operation, while an arrival is another. Simply put, departures equal one-half of total operations.

It is important to note that in 2012, regional jet operations account for roughly 34 percent of commercial operations, remaining relatively static by raising to just over 35 percent during the forecast period. Of the 34 percent of those operations in 2012, 21 percent were 50-seat regional jet aircraft. As mentioned previously those 50-seat operations will transition into larger CRJ700/900 operations, thus accounting for the "cascading effect" as well as CRJ700/900 operations currently in service.

Table 3-19 details the forecast commercial air carrier fleet mix in terms of annual departures by aircraft and type (narrowbody, large RJ, and small RJ), respectively. **Table 3-20** shows the same data presented in the previous table, but organized by percentages by aircraft and type to better illustrate the anticipated shift to larger aircraft. Note that this shift will also have a direct impact on capacity, as fewer flights are necessary to yield the same capacity.

Table 3-19 – Commercial Air Carrier Fleet Mix: Annual Departures by Aircraft

Aircraft Type	# of Seats	2012	2017	2022	2027	2032
Narrowbody		**3,822**	**4,081**	**4,547**	**5,259**	**6,036**
Airbus Industrie A320 Series*	142	16	18	20	23	26
Boeing 717	106	0	476	808	1,040	1,286
Boeing 737 Series	145**	3,033	3,361	3,719	4,196	4,724
McDonnell Douglas MD88	149	452	226	0	0	0
McDonnell Douglas MD90	163	46	0	0	0	0
McDonnell Douglas DC9	120	275	0	0	0	0
Large Regional Jet (Over 50 Seats)		**748**	**1,596**	**2,238**	**2,783**	**3,364**
Bombardier CRJ-700	65	263	672	978	1,232	1,502
Bombardier CRJ-900	76	485	924	1,261	1,551	1,862
Small Regional Jet (50-seat)		**1,230**	**923**	**615**	**308**	**0**
Bombardier CRJ 100/200	50	1,230	923	615	308	0
Total Departures:		**5,800**	**6,600**	**7,400**	**8,350**	**9,400**

Source: PCBCAID, OAG Data 2012, CHA Consulting, 2012
Notes: *Airbus A320 Series includes A319 as well as A318 operations
**Average seat configuration of B737 Series operating at ECP

Table 3-20 – Commercial Air Carrier Fleet Mix: Percent of Annual Departures by Aircraft

Aircraft Type	# of Seats	2012	2017	2022	2027	2032
Narrowbody		**65.9%**	**61.8%**	**61.4%**	**63.0%**	**64.2%**
Airbus Industrie A320 Series*	142	0.3%	0.3%	0.3%	0.3%	0.3%
Boeing 717	106	-	7.2%	10.9%	12.5%	13.7%
Boeing 737 Series	145**	52.3%	50.9%	50.3%	50.3%	50.3%
McDonnell Douglas MD90	163	7.8%	3.4%	0	0	0
McDonnell Douglas MD88	149	0.8%	0	0	0	0
McDonnell Douglas DC9	120	4.7%	0	0	0	0
Large Regional Jet (Over 50 Seats)		**12.9%**	**24.2%**	**30.2%**	**33.3%**	**35.8%**
Bombardier CRJ-700	65	4.5%	10.2%	13.2%	14.8%	16.0%
Bombardier CRJ-900	76	8.4%	14.0%	17.0%	18.6%	19.8%
Small Regional Jet (50-seat)		**21.2%**	**14.0%**	**8.3%**	**3.7%**	**0**
Bombardier CRJ 100/200	50	21.2%	14.0%	8.3%	3.7%	0
Total Departures:		**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Source: PCBCAID, OAG Data 2012, CHA Consulting, 2012.
Notes: *Airbus A320 Series includes A319 as well as A318 operations
**Average seat configuration of B737 Series operating at ECP

As expected, the greatest increases in share of departures will come from narrowbody and large RJ aircraft as the small RJ fleet is gradually phased-out and their operations "cascade"

toward larger aircraft. By the end of the forecast period, it is anticipated that that large RJs will have claimed approximately 36 percent of commercial carrier departures, whereas larger narrowbody aircraft will have accounted for over 64 percent.

3.5.2 Commercial Air Carrier Capacity

Commercial air carrier capacity is calculated by multiplying the total number of annual departures of a given aircraft type by the number of available seats on those aircraft. **Table 3-21** presents the available seats by aircraft of the projected annual fleet mix of ECP's forecast commercial air carrier activity.

Table 3-21 – Commercial Air Carrier Capacity: Available Seats by Aircraft

Aircraft Type	# of Seats	2012	2017	2022	2027	2032
Narrowbody		**541,322**	**574,076**	**627,713**	**721,953**	**824,969**
Airbus Industrie A320 Series*	142	2,272	2,585	2,899	3,271	3,682
Boeing 717	106	0	50,411	85,621	110,267	136,364
Boeing 737 Series	145**	431,227	487,405	539,194	608,415	684,922
McDonnell Douglas MD90	163	67,348	33,674	0	0	0
McDonnell Douglas MD88	149	7,475	0	0	0	0
McDonnell Douglas DC9	120	33,000	0	0	0	0
Large Regional Jet (Over 50 Seats)		**53,955**	**113,928**	**159,355**	**197,977**	**239,142**
Bombardier CRJ-700	65	17,095	43,670	63,538	80,068	97,637
Bombardier CRJ-900	76	36,860	70,259	95,817	117,908	141,505
Small Regional Jet (50-seat)		61,500	46,125	30,750	15,375	0
Bombardier CRJ 100/200	50	61,500	46,125	30,750	15,375	0
Total Departure Seats:		**656,777**	**734,129**	**817,819**	**935,305**	**1,064,110**

Source: PCBCAID, OAG Data 2012, CHA Consulting, 2012.
Notes: *Airbus A320 Series includes A319 as well as A318 operations
**Average seat configuration of B737 Series operating at ECP

Table 3-22 presents the available seats by type in percentage terms to highlight the share of ECP capacity that narrowbody and large RJ aircraft are anticipated to accommodate by the end of the forecast period. By 2032 these two aircraft types are forecast to account for all of the available departure seats.

Table 3-22 – Commercial Air Carrier Capacity: Percent of Seats by Type

Aircraft Type	2012	2017	2022	2027	2032
Narrowbody	82.4%	78.20%	76.8%	77.2%	77.5%
Large RJ (Over 50 seats)	8.2%	15.52%	19.5%	21.2%	22.5%
Small RJ (50 seats)	9.4%	6.28%	3.8%	1.6%	-
Total Departure Percent:	**100%**	**100%**	**100%**	**100%**	**100%**

Source: PCBCAID, OAG Data 2012, CHA Consulting 2012.

3.5.3 Commercial Air Carrier Load Factors

The projected level of air carrier capacity (available seats), based on operations and fleet mix forecasts, are combined with passenger enplanement projections to determine future Average Seats per Departure and Average Boarding Load Factor. **Table 3-23** depicts the average seats available per departure based upon the projected fleet mix, available seats, and forecast enplanements. Despite a continual incremental increase in average seats per departure due to increasing aircraft size, the forecast average boarding load factor is still projected to increase significantly by the end of the forecast period.

Table 3-23 – Commercial Air Carrier Load Factor

Aircraft Type	2012	2017	2022	2027	2032
Average Seats per Departure	113	111	111	112	113
Annual Enplanements	439,183	520,200	616,700	731,900	869,400
Annual Available Seats	656,777	734,129	817,819	935,305	1,064,110
Average Boarding Load Factor	**67%**	**71%**	**75%**	**78%**	**82%**

Source: PCBCAID, OAG Data 2012, CHA Consulting 2012.

3.6 FORECAST OF GENERAL AVIATION AND MILITARY ACTIVITY

General aviation (GA) includes all segments of the aviation industry except commercial air carriers/regional/commuter service, scheduled cargo, and military operations. General aviation represents the largest percentage of civil aircraft in the U.S. and accounts for the majority of operations handled by towered and non-towered airports. Its activities include flight training, sightseeing, aerial photography, law enforcement, and medical flights, as well as business, corporate, and personal travel via air taxi charter operations. General aviation aircraft encompass a broad range of types, from single-engine piston aircraft to large corporate jets, as well as helicopters, gliders, and amateur-built aircraft.

Military aircraft and operations are simply defined as those owned and operated by the nation's military forces. Military aircraft are often included in the based aircraft and operations projections, but are not forecast in the same manner as general aviation activity since their number, location, and activity levels are not a function of anticipated market and economic conditions, but are rather a function of military decisions, national security priorities, and budget pressures that cannot be predicted over the course of the forecast period. Typically, military based aircraft and military operations, for forecasting purposes, remain static at baseline year levels through the forecast period.

General aviation and military operations are further categorized as either itinerant or local operations. Local operations are those performed by aircraft that remain in the local traffic pattern or within a 20-mile radius of the tower. Local operations are commonly associated with training activity and flight instruction, and include touch and go operations. Itinerant operations are arrivals or departures other than local operations, performed by either based or transient aircraft that do not remain in the airport traffic pattern or within a 20-nautical mile radius.

For this Master Plan, two alternative GA and military forecast scenarios were developed, evaluated, and compared to the adjusted TAF. From these, the one that reflected the most valid level of anticipated activity was identified as the preferred forecast.

3.6.1 Adjusted GA and Military TAF

The adjusted GA and military TAF for ECP is presented in **Table 3-24**. This forecast accounts for the removal of 2013 GA air taxi operations from the "Air Taxi and Commuter" operations category and utilizes the 50/50 split (as identified previously in **Table 3-9**), and applies those operations to the GA itinerant operations total.

Note that high levels of local operations associated with recreational and flight training activity, are typically not prominent at airports with high levels of commercial aircraft activity. According to the TAF, local GA operations at ECP represent approximately 42 percent of the total 2011 GA and military operations. While commercial aviation activity at ECP is projected to increase, local GA operations are anticipated to remain an integral part of the Airport's operations throughout the forecast period. For purposes of this forecast, the 2011 based aircraft count provided in **Table 3-4** (86 single-engine, 15 multi-engine and 9 jet) provides the fleet mix baseline for subsequent GA and military based aircraft forecast scenarios.

Table 3-24 – 2013 Adjusted General Aviation TAF

Year	Based Aircraft	Itinerant Operations			Local Operations			Total Operations
		GA	Military	Total Itinerant	GA	Military	Total Local	
2011	72	20,090	3,518	**23,608**	12,588	4,622	**17,210**	**40,818**
2012	72	23,281	5,283	**28,564**	11,706	6,009	**17,715**	**46,279**
2013	72	23,588	5,283	**28,871**	13,590	6,009	**19,599**	**48,470**
2014	72	23,604	5,283	**28,887**	13,658	6,009	**19,667**	**48,554**
2015	72	23,620	5,283	**28,903**	13,726	6,009	**19,735**	**48,638**
2016	72	23,636	5,283	**28,919**	13,795	6,009	**19,804**	**48,723**
2017	72	23,652	5,283	**28,935**	13,864	6,009	**19,873**	**48,808**
2018	72	23,668	5,283	**28,951**	13,933	6,009	**19,942**	**48,893**
2019	72	23,684	5,283	**28,967**	14,003	6,009	**20,012**	**48,979**
2020	72	23,700	5,283	**28,983**	14,073	6,009	**20,082**	**49,065**
2021	72	23,716	5,283	**28,999**	14,143	6,009	**20,152**	**49,151**
2022	72	23,732	5,283	**29,015**	14,213	6,009	**20,222**	**49,237**
2023	72	23,748	5,283	**29,031**	14,285	6,009	**20,294**	**49,325**
2024	72	23,764	5,283	**29,047**	14,357	6,009	**20,366**	**49,413**
2025	72	23,780	5,283	**29,063**	14,429	6,009	**20,438**	**49,501**
2026	72	23,796	5,283	**29,079**	14,502	6,009	**20,511**	**49,590**
2027	72	23,812	5,283	**29,095**	14,575	6,009	**20,584**	**49,679**
2028	72	23,828	5,283	**29,111**	14,648	6,009	**20,657**	**49,768**
2029	72	23,844	5,283	**29,127**	14,721	6,009	**20,730**	**49,857**
2030	72	23,860	5,283	**29,143**	14,795	6,009	**20,804**	**49,947**
2031	72	23,876	5,283	**29,159**	14,869	6,009	**20,878**	**50,037**
2032	72	23,892	5,283	**29,175**	14,943	6,009	**20,952**	**50,127**
2012-3032 AAGR	**0.0%**	**0.13%**	**0.0%**	**0.11%**	**1.23%**	**0.0%**	**0.84%**	**0.40%**
2012-2032 Growth	**0.0%**	**2.6%**	**0.0%**	**2.1%**	**27.7%**	**0.0%**	**18.3%**	**8.3%**

Source: 2011 FAA ECP Terminal Area Forecast (Note that GA numbers are populated from FAA TAF Local Civil Operations)

3.6.2 GA and Military Market Share Forecast

The market share forecast methodology assumes that ECP GA and military based aircraft and operations will grow at the FAA projected national rates and maintain their respective share of fleet and operations throughout the forecast period. This methodology represents a static market share and relatively conservative approach to projecting this type of activity.

For based aircraft projections at ECP, each aircraft type was anticipated to grow at the national rates projected in the *FAA Aerospace Forecasts, FY2012-2032* and detailed in **Table 3-25**. Since each aircraft type is forecast independently based on specific growth rates unique to the aircraft type, a more robust fleet mix and total based aircraft count can be predicted with the

FAA Aerospace Forecast than when using the TAF as a sole source forecast (the TAF forecasts an aggregate based aircraft number, not by specific type).

Table 3-26 presents the market share based aircraft forecast in which the national growth rates were applied to the 2011 ECP fleet mix. Note that there are no military or rotor aircraft currently based at ECP, therefore, for purposes of this forecast those levels are assumed to remain constant throughout the planning period.

Table 3-27 presents the ECP market share operations forecast based on the national TAF growth rates for GA and military operations. Note that the total of 44,890 GA and military operations does not match the TAF reported 40,419 for 2011. For the purposes of the forecast, the ECP-reported total was considered to be the most accurate and therefore serves as the GA and military operations baseline for subsequent forecasts.

Table 3-28 compares the market share forecast to the adjusted ECP TAF forecast. By the end of the forecast period, projected operations are expected to be 1.9 percent above the TAF estimates. This difference can be attributed to the variance between the actual reported 2011 operations and the 2011 TAF estimate.

Table 3-25 – National GA Fleet Growth Rates

Year	Single Engine Piston	Multi Engine Piston	Turbo Prop	Jet	Rotor
2012-2017 AAGR	-0.2%	-0.4%	0.9%	3.7%	3.0%
2017-2022 AAGR	0.1%	-0.5%	0.9%	4.0%	2.1%
2022-2027 AAGR	0.4%	-0.4%	1.1%	4.3%	2.1%
2027-2032 AAGR	0.6%	-0.5%	1.1%	4.4%	2.0%

Source: FAA Aerospace Forecast FY 2012-2032, CHA Consulting 2012
Note: Single Engine includes Experimental and Sport aircraft category

Table 3-26 – Based Aircraft: Market Share Forecast

Year	Single Engine Piston	Multi Engine Piston	Jet	Rotor	Military	Total
2011	86	15	9	-	-	110
2012	86	15	9	-	-	110
2013	85	15	9	-	-	109
2014	84	15	10	-	-	109
2015	84	15	10	-	-	109
2016	83	15	11	-	-	109
2017	83	15	11	-	-	109
2018	83	15	12	-	-	109
2019	82	14	12	-	-	109
2020	82	14	12	-	-	109
2021	82	14	13	-	-	109
2022	82	14	13	-	-	110
2023	82	14	14	-	-	110
2024	82	14	15	-	-	111
2025	82	14	15	-	-	111
2026	82	14	16	-	-	112
2027	82	14	17	-	-	113
2028	83	14	17	-	-	114
2029	83	14	18	-	-	115
2030	83	14	19	-	-	116
2031	84	14	20	-	-	117
2032	84	14	21	-	-	118
2012-2032 AAGR	**-0.1%**	**-0.3%**	**4.3%**	**0%**	**0%**	**0.4%**
2012-2032 Growth	**-2.3%**	**-6.7%**	**133.3%**	**0%**	**0%**	**7.3%**

Source: PCBCAID, FAA Aerospace Forecast FY 2012-2032, CHA Consulting 2012

Table 3-27 – GA and Military Operations: Market Share Forecast

Year	Based Aircraft	GA Operations			Military	Total Operations
		Itinerant	Local	Total GA		
2011	110	24,235	12,209	**36,444**	8,466	**44,890**
2012	110	24,100	12,200	**36,300**	11,500	**47,800**
2013	109	24,200	12,200	**36,400**	11,500	**47,900**
2014	109	24,300	12,300	**36,600**	11,500	**48,100**
2015	109	24,400	12,300	**36,700**	11,500	**48,200**
2016	109	24,500	12,400	**36,900**	11,500	**48,400**
2017	109	24,600	12,400	**37,000**	11,500	**48,500**
2018	109	24,700	12,500	**37,200**	11,500	**48,700**
2019	109	24,800	12,500	**37,300**	11,500	**48,800**
2020	109	24,900	12,600	**37,500**	11,500	**49,000**
2021	109	25,000	12,600	**37,600**	11,500	**49,100**
2022	110	25,100	12,700	**37,800**	11,500	**49,300**
2023	110	25,200	12,700	**37,900**	11,500	**49,400**
2024	111	25,400	12,800	**38,200**	11,500	**49,700**
2025	111	25,500	12,800	**38,300**	11,500	**49,800**
2026	112	25,600	12,900	**38,500**	11,500	**50,000**
2027	113	25,700	13,000	**38,700**	11,500	**50,200**
2028	114	25,800	13,000	**38,800**	11,500	**50,300**
2029	115	25,900	13,100	**39,000**	11,500	**50,500**
2030	116	26,100	13,200	**39,300**	11,500	**50,800**
2031	117	26,200	13,200	**39,400**	11,500	**50,900**
2032	118	26,300	13,300	**39,600**	11,500	**51,100**
2012-2032 AAGR	**0.4%**	**0.4%**	**0.4%**	**0.4%**	**0.0%**	**0.3%**
2012-2032 Growth	**7.3%**	**9.1%**	**9.0%**	**9.1%**	**0.0%**	**6.9%**

Source: PCBCAID, FAA National TAF, CHA Consulting 2012

Table 3-28 – Market Share Forecast vs. TAF

Year	Based Aircraft			Operations		
	2013 TAF	Market Share	Forecast Vs. TAF	2013 TAF	Market Share	Forecast Vs. TAF
2012	72	110	34%	46,279	47,800	3.2%
2017	72	109	34%	48,808	48,500	-0.6%
2022	72	110	34%	49,237	49,300	0.1%
2027	72	113	36%	49,679	50,200	1.0%
2032	72	118	39%	50,127	51,100	1.9%
AAGR 2012-2032	**0%**	**0.4%**		**0.4%**	**0.3%**	

Source: FAA ECP TAF, CHA Consulting 2012

3.6.3 GA and Military Preferred Forecast

Because the previous market share methodology is based on national level trends and does not account for specific regional socioeconomic conditions, a population based econometric forecast model was developed to more accurately reflect local demand. This forecast methodology uses FAA-provided growth rates for based aircraft, independently provided for each aircraft type, moderately adjusted for the purposes of the methodology. In addition, socioeconomic factors and services at ECP justify growth projections for turbojet aircraft (key drivers of based aircraft growth) that are above national average forecasts. For GA operations, the preferred growth rate, which is slightly above the national TAF, was used to forecast operations based on ECP reported 2011 operations totals. Military aircraft operations are anticipated to remain static through the forecast period. This methodology is considered the preferred forecast of GA and military operations at ECP.

This preferred methodology begins with a market share forecast based on FAA growth factors provided in the *FAA Aerospace Forecast, FY2012-2032,*and adjusts the market share to account for expected incremental growth driven by above-average population growth within ECP's catchment area (i.e., market). This was then used to derive adjusted forecasted factors for the based aircraft and operations projections.

The 2012-2032 based aircraft AAGR of 0.9 percent provided in the national TAF is above that of the market share scenario AAGR of 0.3 percent. This, however, may be a function of ECP's current fleet mix which currently shows a higher percentage of based aircraft in the single engine piston category. Although single engine piston aircraft make up the largest percent of the based aircraft, experimental and sport aircraft are included in this category. At the same time the *FAA Aerospace Forecast, FY2012-2032* predicts a nearly static growth in single engine piston aircraft over the next five years. Single engine piston aircraft types currently make up 78.2 percent of the Airport's based aircraft, compared to 8.2 percent representation of turbojet aircraft, which is the fastest growing segment of GA aircraft. Turbojet aircraft are currently forecast to grow at an AAGR of 4.1 percent over the forecast period; this represents the strongest growth when compared to the decline in multi-engine piston projections as well as nearly static single engine piston-powered aircraft during the same period.

Despite being higher than the FAA Aerospace Forecast (likely due to fleet mix considerations), the national TAF AAGR may not be sufficient to adequately account for the expected incremental aircraft growth. Therefore, to account for the catchment area's above-average incremental population growth, a population adjustment percent was applied to the FAA Aerospace GA fleet growth rates. The resulting growth rates were then applied to the 2011 based aircraft counts for ECP. **Table 3-29** presents the preferred based aircraft forecast. In total, the based aircraft count is expected to increase to 133 aircraft by the end of the forecast period; an increase of approximately 21 percent.

Table 3-29 – Based Aircraft: Preferred Forecast

Year	Single Engine Piston	Multi Engine Piston	Jet	Rotor	Military	Total
2011	86	15	9	-	-	110
2012	86	15	9	-	-	110
2013	86	15	9	-	-	111
2014	86	15	9	-	-	111
2015	87	15	10	-	-	112
2016	87	15	10	-	-	112
2017	87	15	11	-	-	113
2018	88	15	11	-	-	114
2019	88	15	12	-	-	115
2020	88	15	12	-	-	116
2021	89	15	12	-	-	117
2022	89	15	13	-	-	118
2023	90	15	13	-	-	119
2024	91	15	14	-	-	120
2025	91	15	15	-	-	122
2026	92	15	15	-	-	123
2027	93	15	16	-	-	125
2028	93	16	17	-	-	126
2029	94	16	17	-	-	128
2030	95	16	18	-	-	129
2031	96	16	19	1	-	131
2032	97	16	20	1	-	133
2012-2032 AAGR	**0.6%**	**0.3%**	**4.1%**	**n/a**	**0%**	**1.0%**
2012-2032 Growth	**12.8%**	**6.7%**	**122.2%**	**100%**	**0%**	**20.9%**

Source: PCBCAID, FAA Aerospace Forecast FY 2012-2032, CHA Consulting, 2012
Note: Single Engine includes Experimental and Sport aircraft category

Essentially the same methodology used to forecast based aircraft was used to project GA and GA Air Taxi operations. The GA operations from the market share forecast scenario was used as the baseline and the growth rates were adjusted to reflect the above-average population growth in the ECP market area. **Table 3-30** provides the preferred, or population-based adjusted market share, forecast for air taxi, GA, and military operations. As previously mentioned, military operations were projected to remain static throughout the forecast period.

Table 3-30 – GA and Military Operations: Preferred Forecast

Year	Based Aircraft	Operations			Military	Total GA Operations
		GA Air Taxi	GA	Total GA		
2011	110	4,241	32,203	**36,444**	8,446	**44,890**
2012	110	4,300	32,400	**36,700**	11,500	**48,200**
2013	111	4,300	32,600	**36,900**	11,500	**48,400**
2014	111	4,300	32,800	**37,100**	11,500	**48,600**
2015	112	4,400	32,900	**37,300**	11,500	**48,800**
2016	112	4,400	33,100	**37,500**	11,500	**49,000**
2017	113	4,400	33,300	**37,700**	11,500	**49,200**
2018	114	4,400	33,400	**37,800**	11,500	**49,300**
2019	115	4,400	33,600	**38,000**	11,500	**49,500**
2020	116	4,500	33,800	**38,300**	11,500	**49,800**
2021	117	4,500	33,900	**38,400**	11,500	**49,900**
2022	118	4,500	34,100	**38,600**	11,500	**50,100**
2023	119	4,500	34,200	**38,700**	11,500	**50,200**
2024	120	4,600	34,400	**39,000**	11,500	**50,500**
2025	122	4,600	34,500	**39,100**	11,500	**50,600**
2026	123	4,600	34,700	**39,300**	11,500	**50,800**
2027	125	4,600	34,800	**39,400**	11,500	**50,900**
2028	126	4,600	35,000	**39,600**	11,500	**51,100**
2029	128	4,600	35,100	**39,700**	11,500	**51,200**
2030	129	4,700	35,300	**40,000**	11,500	**51,500**
2031	131	4,700	35,400	**40,100**	11,500	**51,600**
2032	133	4,700	35,500	**40,200**	11,500	**51,700**
2011-2032 AAGR	**1.0%**	**0.5%**	**0.5%**	**0.5%**	**0%**	**0.4%**
2011-2032 Growth	**20.9%**	**9.3%**	**9.6%**	**9.5%**	**0%**	**7.3%**

Source: PCBCAID, ECP FAA TAF, CHA Consulting 2012

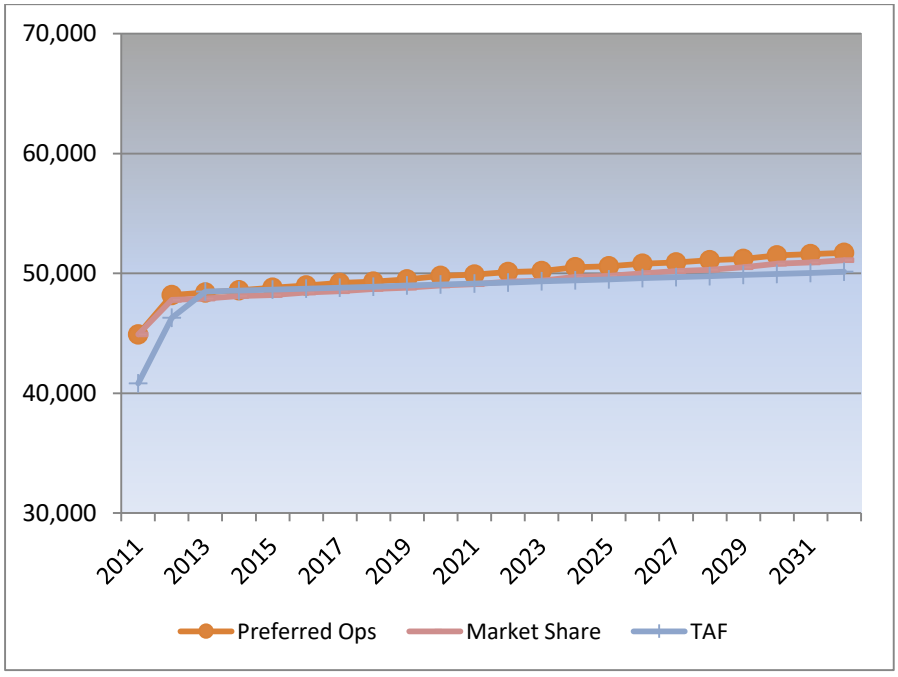
Table 3-31 compares the preferred forecast to the TAF. By the end of the forecast period, the combined GA and military operations are expected to be approximately 3.1 percent above the TAF estimates. The main discrepancy is apparent in the 2011 baseline year difference between TAF data and Airport Authority data. For comparison, **Figure 3-8** depicts the preferred operations forecast, the ECP TAF and the market share forecast scenario.

Table 3-31 – Preferred Forecast vs. TAF

Year	Based Aircraft			Operations		
	2013 TAF	Preferred	Forecast Vs. TAF	2013 TAF	Preferred	Forecast Vs. TAF
2012	72	110	53%	46,279	48,200	4.2%
2017	72	113	57%	48,808	49,200	0.8%
2022	72	118	64%	49,237	50,100	1.8%
2027	72	125	73%	49,679	50,900	2.5%
2032	72	133	85%	50,127	51,700	3.1%
AAGR 2012-2032	**0%**	**1.0%**		**0.4%**	**0.4%**	

Source: FAA TAF, CHA Consulting 2012

Figure 3-8 – GA and Military Operations Forecast Comparison



Source: FAA TAF, CHA Consulting 2012

3.7 FORECAST OF AIR CARGO ACTIVITY

Similar to most sectors within the aviation industry, air cargo activity and demand is cyclical in nature and fluctuates based upon local, national and global economic trends. According to the *FAA Aerospace Forecasts, FY2012-2032,* current factors influencing air cargo activity include

fuel price instability and globalization. The FAA predicts that the total volume of air cargo freight handled, both domestic and international, will grow at an AAGR of 4.9 percent throughout the forecast period; however, domestic air cargo is forecast to increase at a modest AAGR of 1.8 percent.

3.7.1 Baseline Air Cargo Data

Air cargo traffic is comprised of freight and express cargo, and mail. At ECP, air cargo is transported by two different methods; commercial air carrier "belly cargo" and dedicated all-cargo aircraft. Belly cargo is defined as cargo transported in the "belly" compartment of an aircraft during a commercial air carrier operation. In 2011 there were approximately 4,274 air cargo operations at ECP. Of those operations, roughly 960 operations were all-cargo carrier operations. However, the 960 all-cargo carrier operations comprised 57.8 percent of the total cargo tonnage at the Airport. Additionally in 2011, of the 11,513 commercial aircraft operations at ECP, approximately 3,314 operations contained belly cargo.

Table 3-32 shows the 2011 baseline air cargo operations and volume for the year. The total cargo operations count of 4,274 will be used as the baseline figure for the subsequent cargo forecasts. **Table 3-33** identifies the cargo volume handled by each type of carrier at ECP in 2011.

Table 3-32 – 2011 Baseline Cargo Operations

Cargo	2011 Operations	2011 Volume (lbs.)
Arriving	2,188	37,929
Departing	2,086	45,313
Total	**4,274**	**83,242**

Source: PCBCAID, BTS T-100, CHA Consulting 2012

Table 3-33 – 2011 Total Tonnage Share

Carrier	Volume (lbs.)	Share of Total
Commercial Airline Belly Cargo	35,134	42.2%
Dedicated All-Cargo Carriers	48,108	57.8%
Total	**83,242**	**100.0%**

Source: PCBCAID, 2012

3.7.2 Forecast of Air Cargo Operations and Volume

Considering the current level of air cargo activity at ECP and the existing facilities available to accommodate it, as compared to the cargo activity handled at PNS and TLH, the development of a single air cargo operations forecast was considered appropriate to identify projected cargo growth at the Airport. The selected forecast methodology anticipates that air cargo activity at ECP will increase at the same static rate as FAA national projections throughout the forecast period.

Important factors and assumptions accounted for in this forecast include:

- The current cargo carriers will continue operations at ECP and maintain a stable route structure. The fleet mix may change, but operations will grow throughout the forecast period consistent with national projections.
- The Airport Authority and charter cargo service operators at ECP indicate that Southwest Airlines will likely begin operating additional flights with belly cargo in the latter half of 2012.
- According to the *FAA Aerospace Forecast, FY2012-2032* the domestic commercial service air cargo operations experienced a decline in 2011. While this may suggest a decline in regional markets as well, ECP air cargo is anticipated to experience modest growth based upon increased belly cargo operations by Southwest and other commercial carriers.

The projected growth rates applied to the 2011 baseline ECP cargo figures were derived from the *FAA Aerospace Forecast, FY2012-2032.* The FAA predicts national average annual growth rates of 2.0 percent for air cargo operations (by cargo jet aircraft) and 1.8 percent for air cargo tonnage. As shown in **Table 3-34**, the static market forecast predicts an approximate 46 percent increase in air cargo operations and a 43 percent growth in cargo volume at the Airport throughout the forecast period.

Table 3-34 – Static Market Cargo Operations Forecast

Year	Operations		Cargo Volume (lbs.)			
	Annual Operations	Change	Deplaned	Enplaned	Projected Growth	Total
2011	4,274	-	45,313	37,929	-	83,242
2012	4,400	2.0%	46,100	38,600	1.8%	84,700
2013	4,500	2.0%	46,900	39,300	1.8%	86,200
2014	4,600	2.0%	47,700	40,000	1.8%	87,700
2015	4,700	2.0%	48,600	40,700	1.8%	89,300
2016	4,800	2.0%	49,500	41,400	1.8%	90,900
2017	4,900	2.0%	50,400	42,100	1.8%	92,500
2018	5,000	2.0%	51,300	42,900	1.8%	94,200
2019	5,100	2.0%	52,200	43,700	1.8%	95,900
2020	5,200	2.0%	53,100	44,500	1.8%	97,600
2021	5,300	2.0%	54,100	45,300	1.8%	99,400
2022	5,400	2.0%	55,100	46,100	1.8%	101,200
2023	5,500	2.0%	56,100	46,900	1.8%	103,000
2024	5,600	2.0%	57,100	47,700	1.8%	104,800
2025	5,700	2.0%	58,100	48,600	1.8%	106,700
2026	5,800	2.0%	59,100	49,500	1.8%	108,600
2027	5,900	2.0%	60,200	50,400	1.8%	110,600
2028	6,000	2.0%	61,300	51,300	1.8%	112,600
2029	6,100	2.0%	62,400	52,200	1.8%	114,600
2030	6,200	2.0%	63,500	53,100	1.8%	116,600
2031	6,300	2.0%	64,600	54,100	1.8%	118,700
2032	6,400	2.0%	65,800	55,100	1.8%	120,900
2012-2032 Growth	**45.5%**		**42.7%**	**42.7%**		**42.7%**

Source: BTS T-100, FAA Aerospace Forecast 2012-2032, CHA Consulting 2012

3.8 PREFERRED FORECAST SUMMARY

The following tables present a summary of the preferred aviation activity forecasts for air carrier activity (operations and enplanements), GA activity (based aircraft and operations), and military activity as detailed in the previous sections. Additionally, direct comparisons to the ECP TAF are provided for evaluation purposes. The preferred forecasts are the recommended projections on which future planning for the Airport will be based. It is important to note that air cargo operations at ECP are categorized as a function of GA activity. The FAA currently categorizes the regularly operating air cargo aircraft as GA/Air Taxi; therefore the air cargo operations are included within the GA counts. **Table 3-35** presents the complete summary of the preferred forecast for based aircraft, enplanements, and operations by type.

Table 3-35 – Preferred Forecast Summary

Year	Based Aircraft	Enplanements	Operations			
			Air Carrier	GA	Military	Total Operations
2011	110	433,081	11,513	36,444	8,446	**56,403**
2012	110	439,183	11,600	36,700	11,500	**59,800**
2013	111	454,300	12,000	36,900	11,500	**60,400**
2014	111	469,900	12,300	37,100	11,500	**60,900**
2015	112	486,100	12,600	37,300	11,500	**61,400**
2016	112	502,800	12,900	37,500	11,500	**61,900**
2017	113	520,200	13,200	37,700	11,500	**62,400**
2018	114	538,200	13,500	37,800	11,500	**62,800**
2019	115	556,800	13,800	38,000	11,500	**63,300**
2020	116	576,100	14,200	38,300	11,500	**64,000**
2021	117	596,000	14,500	38,400	11,500	**64,400**
2022	118	616,700	14,800	38,600	11,500	**64,900**
2023	119	638,200	15,200	38,700	11,500	**65,400**
2024	120	660,400	15,500	39,000	11,500	**66,000**
2025	122	683,400	15,900	39,100	11,500	**66,500**
2026	123	707,200	16,300	39,300	11,500	**67,100**
2027	125	731,900	16,700	39,400	11,500	**67,600**
2028	126	757,500	17,100	39,600	11,500	**68,200**
2029	128	784,000	17,500	39,700	11,500	**68,700**
2030	129	811,400	17,900	40,000	11,500	**69,400**
2031	131	839,900	18,300	40,100	11,500	**69,900**
2032	133	869,400	18,800	40,200	11,500	**70,500**
2012-2032 AAGR	**1.0%**	**3.5%**	**2.4%**	**0.5%**	**0.0%**	**0.8%**
2012-2032 Growth	**20.9%**	**98.0%**	**62.1%**	**9.5%**	**0.0%**	**17.9%**

Source: PCBCAID, CHA Consulting 2012, FAA ECP TAF, 2012-2032 FAA Aerospace Forecast

Table 3-36 details the preferred forecast air carrier enplanements and total operations (all activity types) in comparison to the 2013 TAF forecast. At the end of the planning period, the preferred forecast predicts a level of enplanements 22.2 percent above the ECP TAF, and total airport operations 5.0 percent above the TAF. The enplanement differential over the 20-year forecast period can be attributed to a number of variables the 2013 ECP TAF does not incorporate into the forecast. The 2013 TAF reflected enplanement levels for 2011 and 2012 that were well below that actually reported by the Airport and airlines (15,900 less for 2011 and 9,200 less for 2012). Therefore, the 2013 ECP TAF did not reflect the most recent ECP developments (e.g., introduction of Southwest Airlines, above-average local socio-economic growth, and anticipated airline expansion).

Table 3-36 – Air Carrier Enplanements and Total Operations vs. ECP TAF

Year	Enplanements			Operations		
	ECP TAF	Preferred Forecast	Forecast Vs. TAF	ECP TAF	Preferred Forecast	Forecast Vs. TAF
2012	429,943	439,183	2.1%	57,936	59,800	3.2%
2017	484,677	520,200	7.3%	61,572	62,400	1.3%
2022	548,748	616,700	12.4%	63,256	64,900	2.6%
2027	623,745	731,900	17.3%	65,117	67,600	3.8%
2032	711,536	869,400	22.2%	67,172	70,500	5.0%
2012-2032 AAGR	**2.6%**	**3.5%**		**0.7%**	**0.8%**	

Source: PCBCAID, CHA Consulting 2012, FAA ECP TAF, 2012-2032 FAA Aerospace Forecast

Table 3-37 details the based aircraft projections for the Airport by aircraft type. This forecast predicts an increase of up to 23 based aircraft, for a total of 133 by the end of the forecast period.

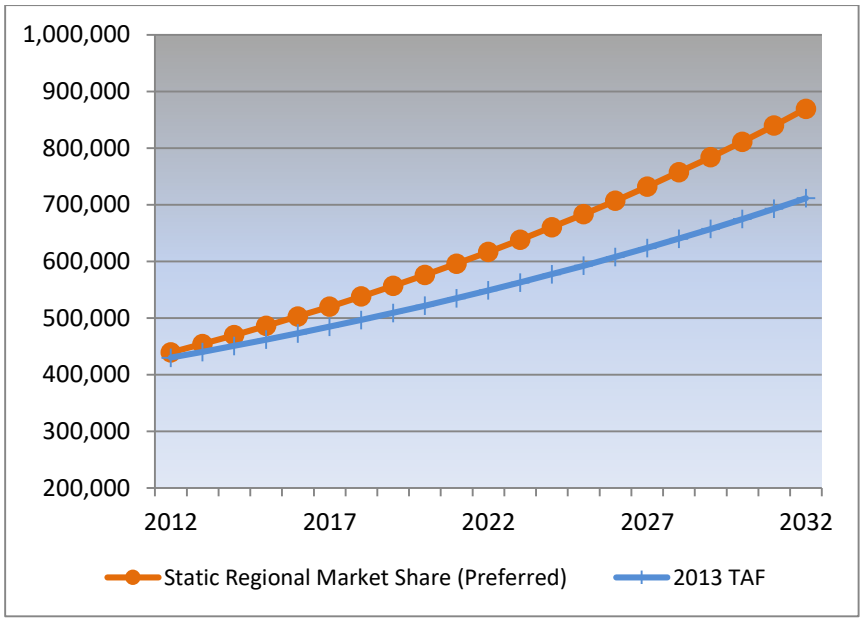
Table 3-37 – Based Aircraft Preferred Forecast

Year	Single Engine Piston	Multi Engine Piston	Jet	Rotor	Military	Total
2012	86	15	9	-	-	110
2017	87	15	11	-	-	113
2022	89	15	13	-	-	118
2027	93	15	16	-	-	125
2032	97	16	20	1	-	133
2012-2032 Growth	**12.8%**	**4.6%**	**119.4%**	**100%**	**0.0%**	**20.9%**

Source: PCBCAID, CHA Consulting 2012, FAA ECP TAF, 2012-2032 FAA Aerospace Forecast

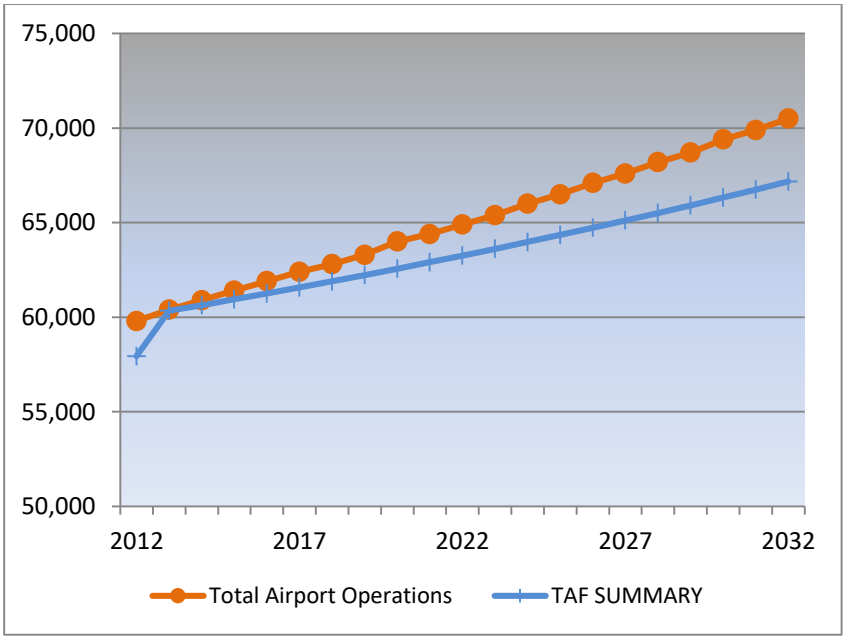
Figure 3-9 and **Figure 3-10** show the comparison between enplanements and total airport operations of both the TAF and the preferred forecast.

Figure 3-9 – Preferred Forecast vs. TAF Enplanements



Source: FAA TAF, CHA Consulting 2012

Figure 3-10 – Preferred Forecast vs. TAF Operations



Source: FAA TAF, CHA Consulting 2012

3.9 PEAK ACTIVITY FORECAST

Commercial service airports experience peak periods of activity that will drive demand and facility requirements for differing areas of airport infrastructure. Peak commercial carrier operations help define the requirements for airside facilities (e.g., gates and aprons), while peak enplanements are used to determine terminal (e.g., ticketing and baggage claim) and landside (e.g., access roads and parking) facility needs. Total peak airport operations are used to evaluate runway capacity and airfield needs. Peak month, peak month-average day (PMAD), and peak hour calculations are the key elements in identifying the facilities needed to accommodate these above average levels of utilization (i.e., peak activity).

3.9.1 Peak Month – Average Day

The peak month is defined as the calendar month of the year when the highest level of enplanements and aircraft operations typically occur. The peak month of passenger enplanements is not necessarily the same month as the peak month of operations. PMAD is simply the total operations, or total enplanements, divided by the number of days in the peak month. In order to provide the necessary metrics for the facility requirements analysis (i.e., demand/capacity analysis) described in **Chapter 4**, PMAD was forecast for the following:

- Enplanements
- Commercial Carrier Operations
- Total Operations

A review of historical monthly enplanements and operations at ECP was performed in order to identify the peak month for passenger activity. However, because the Airport opened in May, 2010, there was a limited amount of annual data for which to compare. The evaluation revealed seasonal variations in passenger traffic throughout the year, with peaks occurring during the summer months (e.g., May-August) and March. It is acknowledged that the peaks in March are associated with the collegiate spring breaks typically occurring during that month. Using Authority records presented in **Table 3-38**, it was determined that between 2010 through 2012, the month of July averaged the highest level of enplanements since the Airports inception.

Table 3-38 – Peak Month Enplanements: 2010 through 2012

Year	2010	2011	2012	Average	Percent of Average Total Enplanements
January	-	26,962	25,160	26,061	**6.0%**
February	-	26,712	27,098	26,905	**6.2%**
March	-	38,796	40,396	39,596	**9.1%**
April	-	36,780	39,747	38,264	**8.8%**
May[1]	-	42,286	43,089	42,688	**9.8%**
June	41,163	41,030	47,227	43,255	**10.0%**
July	42,209	43,507	46,881	44,199	**10.2%**
August	37,082	39,651	41,544	39,426	**9.1%**
September	33,417	36,322	36,339	35,359	**8.2%**
October	37,180	39,233	37,080	37,831	**8.7%**
November	33,161	33,482	30,232	32,292	**7.5%**
December	29,952	28,320	24,390	27,554	**6.4%**
Total	**254,509**	**433,081**	**439,183**	**433,430**	**100%**

Source: PCBCAID, CHA Consulting, 2012

[1] Airport Opened May 23, 2010

As the previous table shows, from 2010 through 2012, July averaged roughly 44,200 enplanements or 10.2 percent of the total annual passengers over this timeframe. To calculate the PMAD, that percentage was applied to the total number of forecast annual enplanements to determine the peak month enplanements. The peak month enplanements were then divided by the number of days in the peak month (31) to define the PMAD. The forecasts for ECP peak month and peak month-average day enplanements, presented in **Table 3-39**, use a constant 10.2 percent of total annual enplanements for the month through the forecast period.

Table 3-39 – Peak Month-Average Day Enplanement Forecast

Year	Enplanements	Peak Month Percent	Peak Month Enplanements	Peak Month Average Day
2012	439,183	10.2%	44,797	1,445
2017	520,200	10.2%	53,060	1,712
2022	616,700	10.2%	62,903	2,029
2027	731,900	10.2%	74,654	2,408
2032	869,400	10.2%	88,679	2,861

Source: PCBCAID, OAG 2012, CHA Consulting 2012

The same methodology used to calculate the PMAD for passenger enplanements was applied to commercial carrier operations. Unlike enplanements, the analysis reveals limited variation in carrier operations, with only February dipping below the eight percent share of annual traffic threshold. Historic monthly operations data, displayed in **Table 3-40**, shows March as the peak

month for commercial carrier operations with approximately 1,057 operations or 9.0 percent of the total average annual operations.

The forecast for ECP peak month and PMAD carrier operations, presented in **Table 3-41**, applied a constant 9.0 percent ratio for the month through the forecast period. To compute PMAD over the course of the forecast period, the peak month operations were divided by the number of days in the peak month (31).

Table 3-40 – Peak Month Commercial Carrier Operations: 2010 through 2012

Year	2010	2011	2012	Average	Percent of Average Total Enplanements
January	-	971	915	943	**8.1%**
February	-	897	850	874	**7.5%**
March	-	1,070	1,044	1,057	**9.0%**
April	-	1,015	937	976	**8.3%**
May[1]	-	1,030	1,004	1,017	**8.7%**
June	902	979	1,164	1,015	**8.7%**
July	1,009	961	942	971	**8.3%**
August	1,059	988	1,035	1,027	**8.8%**
September	1,019	920	936	958	**8.2%**
October	1,059	952	1,006	1,006	**8.6%**
November	1,033	868	913	938	**8.0%**
December	1,017	866	871	918	**7.8%**
Total	**7,098**	**11,517**	**11,617**	**11,699**	**100%**

Source: PCBCAID, CHA Consulting, 2012
1 Airport Opened May 23, 2010

Table 3-41 – Peak Month-Average Day Commercial Carrier Operations

Year	Annual Airline Operations	Peak Month Percent	Peak Month Operations	Peak Month Average Day
2012	11,600	9.0%	1,044	34
2017	13,200	9.0%	1,188	38
2022	14,800	9.0%	1,332	43
2027	16,700	9.0%	1,503	48
2032	18,800	9.0%	1,692	55

Source: PCBCAID, OAG 2012, CHA Consulting 2012

PMAD for all Airport operations (commercial carrier, GA, cargo, and military) were calculated in the same manner as the previous PMAD analyses. The historic monthly total operations for ECP, detailed in **Table 3-42**, yields March as the peak month with approximately 11.1 percent of total operations.

Table 3-42 – Peak Month-Total Airport Operations: 2010 through 2012

Year	2010	2011	2012	Average	Percent of Average Total Enplanements
January	-	3,375	4,160	3,768	**6.9%**
February	-	4,048	3,507	3,778	**6.9%**
March	-	6,026	6,146	6,086	**11.1%**
April	-	5,171	5,407	5,289	**9.7%**
May	-	5,040	5,485	5,263	**9.6%**
June	2,363	5,793	5,994	4,717	**8.6%**
July	3,973	5,779	5,213	4,988	**9.1%**
August	3,207	5,211	5,073	4,497	**8.2%**
September	4,442	4,305	4,559	4,435	**8.1%**
October	5,021	4,597	4,284	4,634	**8.5%**
November	4,364	3,606	3,973	3,981	**7.3%**
December	3,291	3,452	3,060	3,268	**6.0%**
Total	**26,661**	**56,403**	**56,861**	**54,703**	**100%**

Source: PCBCAID, CHA Consulting, 2012
1 Airport Opened May 23, 2010

The forecast for ECP peak month and PMAD total airport operations, presented in **Table 3-43**, uses a constant 11.1 percent ratio for the month through the forecast period.

Table 3-43 – Peak Month- Average Day Airport Operations Forecast

Year	Airport Operations	Peak Month Percent	Peak Month Operations	Peak Month Average Day
2012	59,800	11.1%	6,638	214
2017	62,400	11.1%	6,926	223
2022	64,900	11.1%	7,204	232
2027	67,600	11.1%	7,504	242
2032	70,500	11.1%	7,826	252

Source: PCBCAID, OAG 2012, CHA Consulting 2012

3.9.2 Peak Hour Operations and Enplanements

Establishing peak hour activity is instrumental in terminal facility planning and forms the basis for identifying any potential capacity issues. Using FAA methodology, hourly commercial operations and enplanement data was extracted from the Official Airline Guide (OAG), data to determining the 2012 peak hour activity for enplanements, commercial operations, and total airport operations.

As discussed previously, the month of March averaged the greatest number of total airport and commercial carrier operations for 2010 through 2012. To calculate the peak hour for commercial operations, it was first necessary to analyze the OAG for the peak month of March to define the peak hour, and the number of operations within the peak hour. This analysis

determined the average peak number of operations to be eight operations, or 23.7 percent of the PMAD, during the hour of 8:00 and 9:00 am. This percentage was then applied to the remainder of the forecast period to calculate the peak hour commercial operations.

The next step was to calculate the peak hour for total airport operations. Using the established peak month, it was determined that peak hour total airport operations (25) encompassed approximately 11 percent of the PMAD total airport operations. This percentage was then applied to the projected PMAD total operations to derive peak hour total airport operations through 2032. Peak hour passenger enplanements and the 30-min enplanement surge factor were calculated by using the following methodology:

- Reduce peak hour commercial air carrier operations by half to calculate the average air carrier departures
- Apply average air carrier departures to average seats per departure, provided in **Table 3-23**, to calculate average hourly seats
- Apply the load factor percentage, shown in **Table 3-23,** to the average hourly seats to calculate peak enplanements
- Apply a surge factor of 1.5 to peak hour enplanements to account for delays, schedule slippage, and early arrival of passengers

Table 3-44 shows the peak hour for passenger enplanements, commercial operations, and total Airport operations.

Table 3-44 – Projected Peak Hour Operations and Enplanements

Year	Enplanements			Commercial Carrier Operations		Total Airport Operations	
	PMAD	Peak Hour	30-min Surge	PMAD	Peak Hour	PMAD	Peak Hour
2012	1,445	303	454	34	8	215	24
2017	1,71 2	359	539	38	9	224	25
2022	2,029	425	638	43	10	233	26
2027	2,408	505	758	48	11	243	27
2032	2,861	600	900	55	13	253	28

Source: PCBCAID, OAG 2012, CHA Consulting 2012

These aviation forecasts were approved by correspondence from the FAA Orlando Airports District Office on March 14, 2013 as stated below:

"*The operations and enplanements forecasts shown in Table 3-36 of the report are found to be consistent with the 2013 Federal Aviation Administration (FAA) Terminal Area Forecasts (TAF.) Therefore, we approve the forecasts to be used in your on-going master planning efforts*."

3.10 AUTOMOBILE ACTIVITY FORECAST

The forecast growth in aviation activity will impact all operational areas of the Airport, including the landside facilities and adjacent roadways. In lieu of any existing automobile traffic counts, an estimation of existing and future surface transportation activity at the Airport was performed. Planning assumptions for this evaluation were garnered from professional experience and the following sources:

- Florida DOT's *Guidebook for Airport Master Planning* (2010)
- ACRP Report 40 *Airport Curbside and Terminal Area Roadway Operations*
- Other commercial service airport master plans including:
  - Fort Wayne International Airport (Fort Wayne, IN) Master Plan conducted by RW Armstrong in 2011
  - El Paso International Airport (El Paso, TX) Master Plan conducted by Ricondo & Associates in
  - T.F. Green State Airport (Providence, RI) Master Plan conducted by Landrum & Brown in 2001
  - San Diego International Airport (San Diego, CA) Master Plan conducted by HNTB in 1999

These assumptions were applied to the FAA approved forecast levels of commercial and general aviation traffic described in this chapter. The results are presented in **Table 3-45,** are based on peak month-average day (PMAD), and account for all sources of surface traffic, including passengers, employees, and tenants.

Table 3-45 – Estimated Automobile Traffic at ECP

Activity	Baseline 2012	2017	2022	2027	2032
Annual Enplanements	439,183	520,200	616,700	731,900	869,400
PMAD Enplanements	1,445	1,712	2,029	2,408	2,861
Vehicles Per Day (VPD)					
Passenger (personal, taxi, rental, van)	767	909	1,078	1,279	1,519
Employee	160	192	228	271	321
General Aviation	52	64	66	68	69
Operations & Maintenance	35	42	49	59	70
Miscellaneous (FAA, cargo)	26	31	37	44	52
Total Estimated VPD	*1,050*	*1,238*	*1,457*	*1,720*	*2,031*
Estimated Annual Vehicles	*383,400*	*451.788*	*531,972*	*627,776*	*741,331*

Source: CHA, 2014

4 FACILITY REQUIREMENTS

The purpose of this chapter is to identify existing needs and future development requirements of the facilities at Northwest Florida Beaches International Airport (ECP). The resultant findings of the facility inventory in **Chapter 2** and FAA-approved aviation demand forecast in **Chapter 3** provide the data used to evaluate and determine such necessities. The recommendations concluded through the analyses in this chapter form the basis for the development concepts discussed in **Chapter 5**.

Northwest Florida Beaches International Airport is poised to attract an increasingly broad customer base. This is largely attributed to the recent merger between Southwest Airlines and AirTran Airways, which is expected to draw additional passengers and new demand for the Airport's services. In order to remain competitive and sustainable, the Airport must realize its goals of providing high-quality and efficient services to their air travelers and aviation users. This requires a long-term perspective of facility needs and the various avenues of development that will provide flexibility in accommodating anticipated demand.

The demand, capacity, and the overall airport facility requirements at ECP were evaluated using guidance contained in several FAA publications, including AC 150/5060-5, *Airport Capacity and Delay*, AC 150-5300-13A, *Airport Design*, AC 150/5325-4B, *Runway Length Requirements for Airport* Design, AC 150/5360-13 *Planning and Design Guidelines for Airport Terminal Facilities*, *Airport Cooperative Research Program Airport Passenger Terminal Planning and Design Manual*, Federal Aviation Regulation (FAR) Part 77, *Objects Affecting Navigable Airspace*, and Order 5090.3C *Field Formulation of the National Plan of Integrated Airport Systems (NPIAS)*. The following elements of the Airport are accounted for in this assessment:

- Airfield Capacity
- Runways
- Taxiways
- Aprons
- Airfield Lighting, NAVAIDs, and Instrument Approach Capability
- Passenger Terminal Building
- Terminal Curbside
- Automobile Parking
- General Aviation Facilities
- Support Facilities

4.1 AIRFIELD PLANNING FACTORS

A variety of methodologies can be used for evaluating an airport's facility needs. Because every airport is unique in its requirements, planning approaches should be duly tailored to each specific airport. Several key planning factors were recognized as appropriate for use in facility planning for ECP. They establish the parameters for determining what, if any, developments are needed and when approximately they should be accomplished.

4.1.1 Aviation Activity Levels

Airfield facility planning for this Master Plan Study focuses on the "preferred forecast scenario" presented in **Chapter 3**, as the most likely level of aircraft activity over the planning horizon. These were approved by the FAA in March 2013 and are summarized in **Table 4-1**. Since activity levels are highly susceptible to fluctuations in economic conditions and industry trends, identifying recommended facility improvements solely on specific years can be problematic in some cases. For that reason, aircraft facilities such as storage hangars and apron space should only be developed in response to evidence of demand and to a level that is fiscally responsible.

Table 4-1 – Aviation Activity Levels

Activity	Baseline 2012	2017	2022	2027	2032
Total Annual Operations	59,800	62,400	64,900	67,600	70,500
Air Carrier	*11,600*	*13,200*	*14,800*	*16,700*	*18,800*
General Aviation	*36,700*	*37,700*	*38,600*	*39,400*	*40,200*
Military	*11,500*	*11,500*	*11,500*	*11,500*	*11,500*
Based Aircraft	110	113	118	125	133

Source: CHA Consulting, approved by FAA March 2013

4.1.2 Aircraft Classification and Design Aircraft

The FAA has established aircraft classification systems that group aircraft types based on their performance and physical characteristics. These classification systems (described below) are used to determine the appropriate airport design standards for specific runway, taxiway, taxilane, apron, or other facilities, as described in FAA AC 150/5300-13A *Airport Design*. Typically, the "design aircraft" or design aircraft family represents the most demanding aircraft of these three categories that are currently using or are anticipated to use the airport. **Table 4-2** details the aircraft classifications.

Aircraft Approach Category (AAC): a classification of aircraft based on a reference landing speed (V_{REF}), if specified, or if V_{REF} is not specified, 1.3 times stall speed (V_{SO}) at the maximum certificated landing weight. V_{REF}, V_{SO}, and the maximum certificated landing weight are those values as established for the aircraft by the certification authority of the country of registry.

Airplane Design Group (ADG): a classification of aircraft based on wingspan and tail height. When the aircraft wingspan and tail height fall in different groups, the higher group is used.

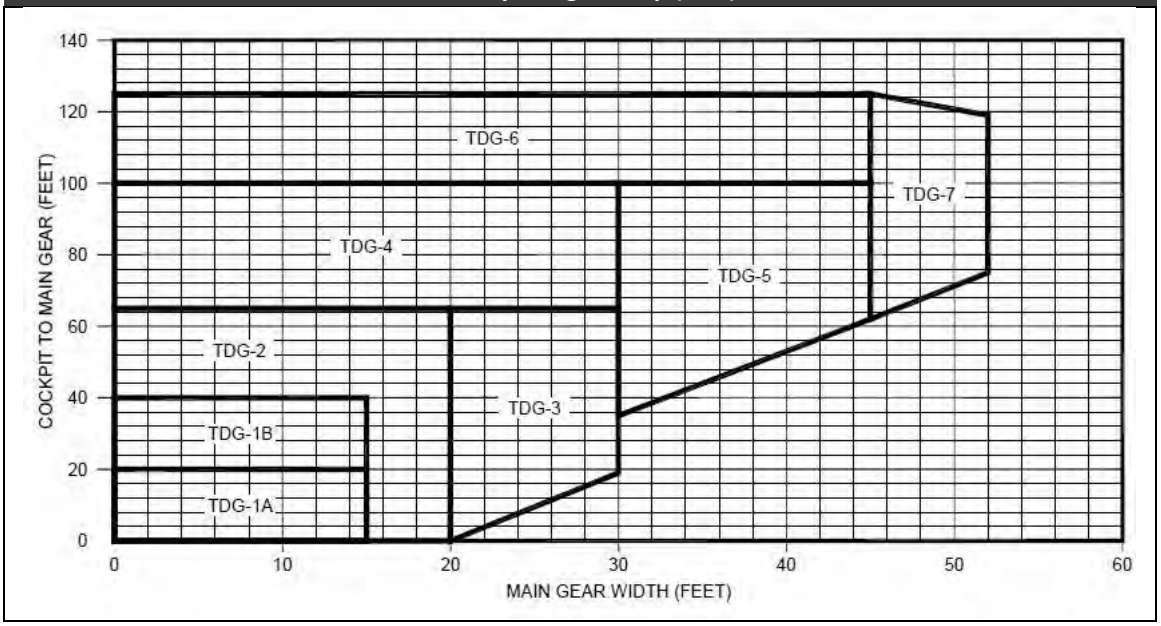
Taxiway Design Group (TDG): A classification of aircraft based on outer to outer Main Gear Width (MGW) and Cockpit to Main Gear (CMG) distance.

Table 4-2 – Aircraft Classification Criteria

Aircraft Approach Category (AAC)		
Approach Category	**Airspeed (knots)**	**Example Aircraft**
A	<91	Cessna 152, Beech Bonanza A36
B	91 - <121	Saab 340, Gulfstream I
C	121 - <141	MD 80, CRJ
D	141 - <166	Boeing 747, KC-135
E	>166	F-16, A-10

Airplane Design Group (ADG)			
Design Group	**Tail Height (ft)**	**Wingspan (ft)**	**Example Aircraft**
I	<20	<49	Cessna 172, Cirrus SR-22
II	20 - <30	49 - <79	Cessna Citation II, Falcon 900, CRJ
III	30 - <45	79 - <118	Boeing 737, Boeing MD 80
IV	45 - <60	118 - <171	Boeing 757, MD 11
V	60 - <66	171 - <214	Airbus A340, Boeing 777
VI	66 - <80	214 - <262	Airbus A380, C-5 Galaxy

Taxiway Design Group (TDG)



Source: FAA AC 150/5300-13A *Airport Design*

Each classification system can be associated with FAA airport design standards for individual airport components (such as runways, taxiways, or aprons). The applicability of these classification systems to the affected areas of an airport are presented in **Table 4-3**.

Table 4-3 – Applicability of Aircraft Classifications

Aircraft Classification	Affected Design Components
Aircraft Approach Speed (AAC)	Runway Safety Area (RSA), Runway Object Free Area (ROFA), Runway Protection Zone (RPZ), runway width, runway-to-taxiway separation, runway-to-fixed object
Airplane Design Group (ADG)	Taxiway and apron Object Free Areas (OFAs), parking configuration, hangar locations, taxiway-to-taxiway separation, runway-to-taxiway separation
Taxiway Design Group (TDG)	Taxiway width, fillet design, apron area, parking layout

Source: FAA AC 150/5300-13A *Airport Design*

4.1.3 Airport & Runway Classification

The FAA classifies airports and runways based on their current and planned operational capabilities. These classifications (described below), along with the aircraft classifications defined previously, are used to determine the appropriate FAA standards (as per AC 150/5300-13A) to which the airfield facilities are to be designed and built.

Airport Reference Code (ARC)

ARC is an airport designation that represents the AAC and ADG of the aircraft that the airfield is intended to accommodate on a regular[10] basis. The ARC is used for planning and design only and does not limit the aircraft that may be able to operate safely on the airport. The ALP completed for ECP in 2011 indicated the Airport as a C-III facility with the Airbus A320-200 as the critical design aircraft at that time. Based on the recorded aircraft activity in 2012 (FAA ETMSC), the Boeing 737-800 and MD-88, both D-III, are now considered the critical aircraft and current ARC. Based on the aviation forecasts in **Chapter 3**, the Boeing 737-800 (D-III) is considered to be an appropriate ARC and design aircraft for the future planning horizon. Consistent with the 2011 ALP and early airport planning efforts, the ultimate ARC and critical aircraft will remain the Boeing 777-300 (D-V).

Runway Design Code (RDC) and Runway Reference Code (RRC)

RDC is a code signifying the design standards to which the overall runway is to be planned and built. RRC is a code signifying the operational capabilities of each specific runway end. These classifications are expressed in three components: AAC, ADG, and the highest approach visibility minimums that either end of the runway is planned to provide. Within these classifications, instrument approach visibility minimums are expressed in RVR[11] values of 1200,

[10] According to FAA AC 150/5325-4B *Runway Length Requirements for Airport Design*, the terminology of "regular use" and "substantial use" is defined as 500 annual itinerant operations by an individual airplane or grouping of airplanes or scheduled commercial service.

[11] A Runway Visual Range (RVR) transmissometer measures the distance over which a pilot of an aircraft on the centerline of the runway can see the runway surface markings delineating the runway or identifying its center line.

1600, 2400 and 4000 feet as described in **Table 4-4**. Corresponding to the specific published approach procedures, a runway end may have more than one RRC depending on the minimums available to a specific AAC.

Currently Runway 16 is equipped with a Category I (CAT-I) ILS with ½ mile visibility minimums (RVR 2400) and Runway 34 has GPS/RNAV approach capability with ¾ mile visibility minimums (RVR 4000). With consideration of the current and future critical design aircraft, and D-III ARC, the RRC for Runway 16 is D-III-2400 and Runway 34 is D-III-4000; the RDC for the runway is D-III-2400. It should be noted that this does necessarily preclude operations by aircraft with an ARC greater than D-III. As operational demands warrant, the Authority and Air Traffic Control may establish standard operating procedures for accommodating such larger aircraft, and as described in **Section 4.4.1**, Runway 16-34 is generally capable of accommodating up to ARC D-V aircraft.

Additionally, the Authority is assessing the feasibility of upgrading the Runway 16 instrument approach with a CAT-II ILS (more detail is given in **Section 4.4.2**). If this upgrade is realized, the new RDC for Runway 16-34 and the RRC for Runway 16 would become D-III-1600, commensurate with the lowered approach minimums.

Table 4-4 – Visibility Minimums

RVR (ft)	Flight Visibility Category (statute mile)
4000	Lower than 1 mile but not lower than ¾ mile (APV ≥ 3/4 but < 1 mile)
2400	Lower than 3/4 mile but not lower than 1/2 mile (CAT-I PA)
1600	Lower than 1/2 mile but not lower than 1/4 mile (CAT-II PA)
1200	Lower than 1/4 mile (CAT-III PA)

Source: FAA AC 150/5300-13A *Airport Design*

4.2 AIRFIELD CONFIGURATION

The general configuration of the airfield (the number, location, and orientation of runways) should allow the airport to meet anticipated air traffic demands and maximize wind coverage and operational utility for all types of aircraft. As stated in AC 150/5300-13A *Airport Design*, it is an FAA recommendation that the runway system at an airport be oriented to provide at least 95 percent wind coverage. This means that 95 percent of the time in a given year, the crosswind coverage at an airport is within acceptable limits for the types of aircraft operating on the airfield. When a primary runway does not provide 95 percent wind coverage, the FAA recommends development of a crosswind runway.

As described in **Chapter 2**, the existing Runway 16-34 orientation does not provide the necessary wind coverage for ARC A-I and B-I aircraft during IFR or VFR weather conditions. This is of particular concern as there are 101 single- and multi-engine piston aircraft currently based at ECP. This number is anticipated to increase over the next 20 years. Additionally, general aviation operations account for roughly 65 percent of the total operations at ECP. While not all

of these are A/B-I aircraft, the FBO staff has indicated that a large percentage of tenants and operations fall within this ARC classification.

The original airport planning, design, environmental approval and site construction has prepared ECP for the development of a crosswind runway oriented with approximately 30 and 210 degree (3-21) headings. According to the Airport's *Design Report* completed in 2009, the crosswind runway was intended to be 5,000 feet long by 100 feet wide and accommodate up to ARC B-II aircraft. The FAA's 2006 *Record of Decision for Airport Relocation* approved construction of up to 5,000 feet in length in accordance with the Airport's Environmental Impact Statement (EIS). As of late 2014, Runway 3-21 had not been constructed.

The calculated total airfield wind coverage of the existing Runway 16-34, combined with the planned Runway 3-21, is presented in **Table 4-5**. Consistent with FAA recommendations, the addition of the planned crosswind runway would increase all-weather wind coverage for smaller aircraft from the 94.58% identified in **Table 2-14**, to 97.82 percent. The wind coverage for all other aircraft classes and weather conditions would also increase to over 99 percent. It is therefore recommended that the Authority continue the process of planning, programming, and designing the crosswind Runway 3-21.

Table 4-5 – Combined Crosswind Coverage (Runways 16-34 & 3-21)

Weather Class	10.5 Knots	13 Knots	16 Knots	20 Knots
All-Weather	97.82%	99.33%	99.91%	99.99%
Visual Flight Rule (VFR)	97.82%	99.34%	99.91%	99.99%
Instrument Flight Rule (IFR)	97.34%	99.09%	99.79%	99.94%
Poor Visibility Conditions (PVC)	100%	100%	100%	100%

Source: CHA Consulting, 2012, PFN Wind Data 2000-2009

Due to the changes in the earth's magnetic declination over time, the compass heading of a runway and its associated end number can change. The true north heading is 159 degrees for Runway end 16 and 339 degrees for Runway end 34. According to NOAA[12], the magnetic declination at the Airport is 3°17'34"W changing by 6.5'W per year. This corresponds to the current magnetic heading of 162 degrees for Runway 16 end and 342 degrees for the Runway 34 end. Runway designations change with the rounding of degree values to the nearest 10. By the year 2038, the magnetic declination will have increased to approximately 6°W, shifting the magnetic headings to 165 and 345 for Runway 16 and 34 ends, respectively. At this point, the runway designations would become 17 and 35.

[12] NOAA National Geophysical Data Center, http://www.ngdc.noaa.gov/geomag-web/#declination (accessed 5-21-14)

4.3 AIRFIELD CAPACITY

Airfield capacity refers to the maximum number of aircraft operations (takeoffs or landings) an airfield can accommodate in a specified amount of time. An assessment of the airfield's current and future capacity was performed using common methods described in FAA AC 150/5060-5, *Airport Capacity and Delay*. This evaluation helps to determine any improvements or expansions that would be needed in order to maintain operational efficiency. The estimated capacity of the airfield at ECP can be expressed in the following three measurements:

Hourly Capacity – the maximum number of aircraft operations an airfield can accommodate under continuous demand in a one-hour period. This expression calculates for both VFR and IFR activity and identifies any peak-period constraints on a given day.

- **Annual Service Volume (ASV)** – the maximum number of aircraft operations an airfield can accommodate without excessive delay in a one-year period. This calculation is typically used in long-range planning and referenced for capacity-related improvement projects.
- **Aircraft Delay** – the average number of minutes an aircraft could experience delay on the airfield and the total hours of delay incurred at an airport over a one-year period.

For airports such as ECP, where capacity is not currently anticipated to be a constraining factor, the FAA recommends using the "long-range planning" methodology for calculating the above capacities. Before this methodology could be employed, several key parameters and assumptions specific to ECP had to be identified. These include:

- Aircraft Fleet Mix Index
- Runway-Use Configuration
- Percentage of Aircraft Arrivals
- Percentage of "Touch and Go" (T & G) Operations
- Location of Exit Taxiways
- Airspace Limitations
- Runway Instrumentation

4.3.1 Aircraft Fleet Mix Index

Due to the varying performance features, the types of aircraft operating at an airport can have significant impact on an airfield's capacity. The FAA dictates that the heavier the aircraft operating at an airfield, the greater spacing is needed between aircraft to avoid wake turbulence. The airport's fleet mix index helps determine the size of typical aircraft and the frequency of their operations. For the purpose of determining an aircraft mix index, AC 150/5060-5 *Airport Capacity and Delay* has established four categories in classifying an aircraft by its maximum certificated takeoff weight (MTOW), as depicted in **Table 4-6**.

Table 4-6 – Aircraft Classification

Aircraft Class	MTOW (lbs)	Number of Engines	Wake Turbulence
A	<12,500	Single	Small
B		Multi	
C	12,500 – 300,000	Multi	Large
D	>300,000	Multi	Heavy

Source: AC 150/5060-5, CHA Consulting, 2012

The aircraft mix index is found using the formula *%(C + 3D)*, the letters corresponding with the aircraft class. This product falls into one of the FAA-established mix index ranges for use in capacity calculations listed below:

• 0 to 20 • 21 to 50 • 51 to 80 • 81 to 120 • 121 to 180

In review of the 2011 baseline and forecasted operations data, 25 percent of operations at ECP are currently performed by Class C aircraft, a percentage that is expected to increase to 30 by PAL 4. There are no current or planned Class D aircraft operations for ECP, so it will not be a factor in determining the mix index. Both baseline and forecast percentages fall under the aircraft fleet mix index range of 21 to 50 for the planning period.

4.3.2 Runway-Use Configuration

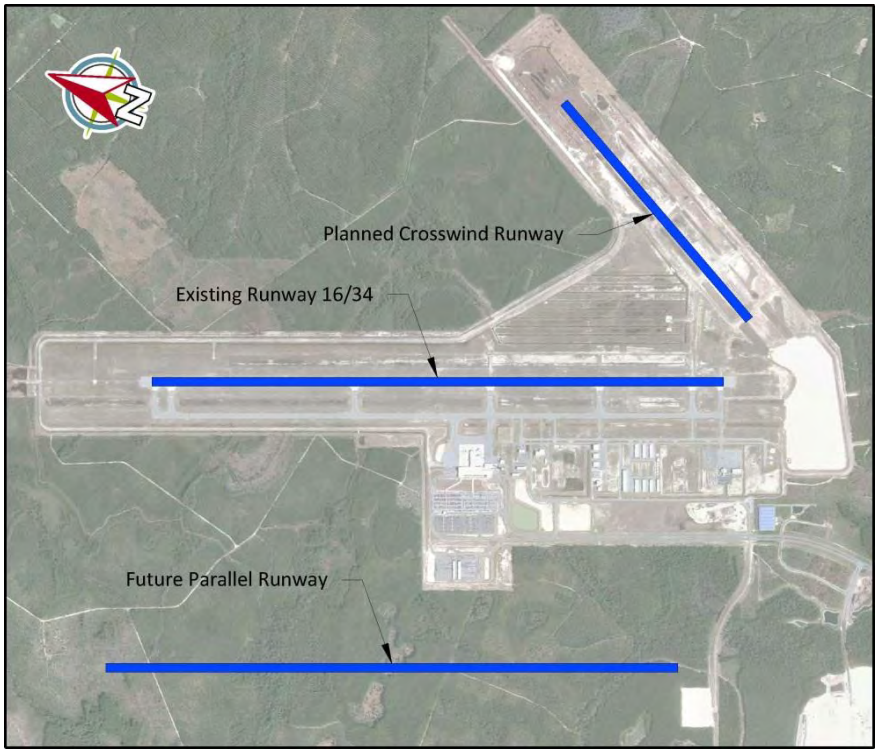
Airfield capacity is primarily determined by the number and orientation of runways. Similarly, potential airside developments must also account for the layout of the airfield. Therefore, it was necessary to understand the existing, planned, and potential future configurations of the airfield. This approach incorporates the foresight and flexibility necessary for long-range planning.

If an airfield layout consists of more than one runway, those runways can be termed as either “independent” or “dependent”. An independent runway is one that can operate without being affected by other runways’ operations (e.g. parallel runways with adequate separation). A dependent runway is one that is configured in a way that operations conflict with another runway, forcing aircraft to alternate in takeoffs and landings (e.g. intersecting runways). Because this configuration increases aircraft wait times, airfields with dependent runway systems inherently have a more limited capacity than those with independent runways. The current runway configuration of ECP is a single “independent” runway, optimally positioned for prevailing winds.

The addition of a crosswind runway, forming an “open-V” configuration, will establish greater wind coverage for smaller aircraft, allowing for increased operations when wind direction does not favor the primary runway. However, the planned orientation will create runway dependency. When winds are calm and operations are being conducted away from the two closer ends, the capacity of operations per hour increases. Conversely, when operations are conducted toward the two closer ends, the capacity is reduced.

Should future demand warrant, the Airport has incorporated on its ALP a runway parallel to Runway 16-34 on the land west of the existing rental car service area. This runway is intended to replicate the primary runway's capabilities and accommodate commercial aircraft operators. There are four basic layout options for parallel runways: *close parallel* (< 2,500 feet apart), *intermediate parallel* (2,500 to 4,300 feet apart), *far parallel* (> 4,300 feet apart), and *dual-line* (two pairs of parallel runways, > 4,300 feet between each pair). Due to the expanse of airport property and landside facilities, the parallel runway would have a separation greater than 4,300 feet from Runway 16-34, making it a *far parallel* runway. This is the separation distance required by the FAA for simultaneous instrument operations. **Figure 4-1** shows the existing, planned, and potential future runway configurations.

Figure 4-1 – Existing, Planned, and Future Runway Configurations



The prevailing winds and operational preferences of the Airport dictate the runway end usage of the existing configuration. Records kept by ATC indicate that operations were conducted on both runway ends nearly equally, with Runway 16 experiencing 52 percent of operations, and Runway 34 accounting for 48 percent. Because this usage implies frequently alternating wind direction, for the purposes of conservatively evaluating the capacity for the planned crosswind and future potential parallel runways, the lower-capacity configuration was applied to the calculations.

4.3.3 Percentage of Aircraft Arrivals

An aircraft arriving at an airport usually contributes more to delay than does a departing aircraft. The percentage of aircraft arrivals is the ratio of landing operations to total operations at an airport during a specified period of time, and is generally assumed to be equal to the percentage of departures. Therefore, a factor of 50 percent was used for the capacity calculations for the Airport.

4.3.4 Percentage of "Touch and Go" (T & G) Operations

Because a Touch and Go (T&G) is actually representative of two operations (i.e. a landing and takeoff performed consecutively, generally during local flight training operations), an airfield with a higher percentage of T&Gs typically has a greater airfield capacity than one with a higher percentage of air carrier operations. Therefore, an estimate of the percentage of T&G operations compared to total operations is needed to calculate overall airfield capacity.

The forecast data identified that, in 2012, 17,210 local operations (29.9 percent of total operations) took place at ECP. Based on methodology in AC 150/5060-5, it is assumed that roughly half of these operations (14.9 percent) are T&Gs.

4.3.5 Location of Exit Taxiways

The location and number of exit taxiways affect the capacity of an airport's runway system because they directly relate to an aircraft's runway occupancy time. Runway capacities are highest when they are complimented with full-length, parallel taxiways, ample runway entrance and exit taxiways, and no active runway crossings. All of these components reduce the amount of time an aircraft remains on the runway. ECP's existing runway is paired with a full-length parallel taxiway, seven exit taxiways and has no runway crossing problems. When the crosswind runway is completed, there will be a runway crossing on the south end of Runway 16-34. This, however, is not expected to have a significant impact on the airfield's capacity.

4.3.6 Airspace Limitations

The Airport has a controlled Class D airspace that extends from the ground to 2,500 feet. Currently, Tyndall and Eglin Air Force Bases' military operations areas (MOA) border the Airport's Class D airspace. The FAA defines a MOA as "airspace established outside Class A airspace to separate or segregate certain nonhazardous military activities from IFR traffic and to identify for VFR traffic where these activities are conducted". While these MOA's control aircraft operations outside of the Airport's airspace, according to ATC, there are no airspace concerns or limitations that would affect aircraft operating in and out of ECP.

4.3.7 Runway Instrumentation

Following FAA guidance for long-range planning calculations, it is assumed that at least one runway is equipped with an ILS and the airport has ATC facilities and radar capabilities. As inventoried in **Chapter 2**, Runway 16 is equipped with a CAT-I ILS and both ends are capable of Localizer Performance with Vertical Guidance (LPV) approaches using GPS and Wide Area Augmentation System (WAAS).

The Airport has expressed a desire to improve Runway 16's CAT-I ILS to a CAT-II (discussed in detail in **Section 4.4.3**). This new instrumentation could reduce approach minimums to half those of a CAT-I (lower the decision height (DH)) to a minimum of 100 feet above touchdown zone elevation and lower the runway visual range to a minimum of 1,200 feet). The results of a separate feasibility study for CAT-II ILS upgrade can be found in **Appendix B**. As depicted on the 2011 ALP, the planned crosswind runway is intended to initially provide visual approaches only, but eventually support precision approaches with a CAT-I ILS on both ends.

4.3.8 Summary

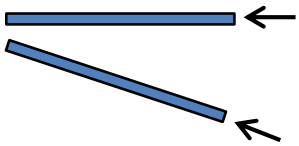
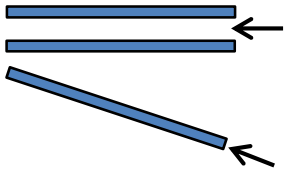
Table 4-7 presents a tabulation of the FAA-based parameters and assumptions for long-range planning applicable to ECP. With consideration of the existing, planned, and potential future runway configurations, these figures were then used to estimate the hourly capacity and ASV detailed in **Table 4-8**.

Table 4-7 – Parameters and Assumptions for Long-Range Planning

Mix Index %(C + 3D)	Percent Arrivals	Percent Touch & Go	Demand Ratios	
			Annual Demand / Avg. Daily Demand	Avg. Daily Demand / Avg. Peak Hour Demand
0-20	50	0-50	290	9
21-50	**50**	**0-40**	**300**	**10**
51-80	50	0-20	310	11
81-120	50	0	320	12
121-180	50	0	350	14

Source: AC 150/5060-5, CHA Consulting, 2012

Table 4-8 – Capacity and ASV

Runway Use Configuration	Mix Index % (C + 3D)	Hourly Capacity Ops/Hour		Annual Service Volume Ops/Year
		VFR	IFR	
Existing	0 to 20	98	59	230,000
	21 to 50	**74**	**57**	**195,000**
	51 to 80	63	56	205,000
	81 to 120	55	53	210,000
	121 to 130	51	50	240,000
Planned 	0 to 20	132	59	260,000
	21 to 50	**99**	**57**	**220,000**
	51 to 80	82	56	215,000
	81 to 120	77	59	225,000
	121 to 130	73	60	265,000
Future 	0 to 20	197	59	355,000
	21 to 50	**145**	**57**	**275,000**
	51 to 80	121	56	260,000
	81 to 120	105	59	285,000
	121 to 130	94	60	340,000

Source: AC 150/5060-5, CHA Consulting, 2012

Note:

For configurations that are subject to runway dependence, AC 150/5060-5 provides two estimates for each configuration based on dominance of runway usage. For the purposes of this analysis, the lower-capacity configurations are shown.

Figure 4-9 tabulates the results of the demand/capacity calculations for ECP. As the crosswind runway is expected to be constructed within the next five years, the *Runway-Use Configuration* is "dual" for planning years 2017 through 2032.

Please note that the minutes of aircraft delay is only a representation of what an airport could experience based on the extrapolation of calculated data, and does not reflect actual delays at ECP. Based on conversations with ATC staff, delays typically occur only when Air Traffic Flow or Ground Stop programs are imposed. At certain airports where high operational levels occur, actual delay is more closely associated with those airports' demand/capacity calculations.

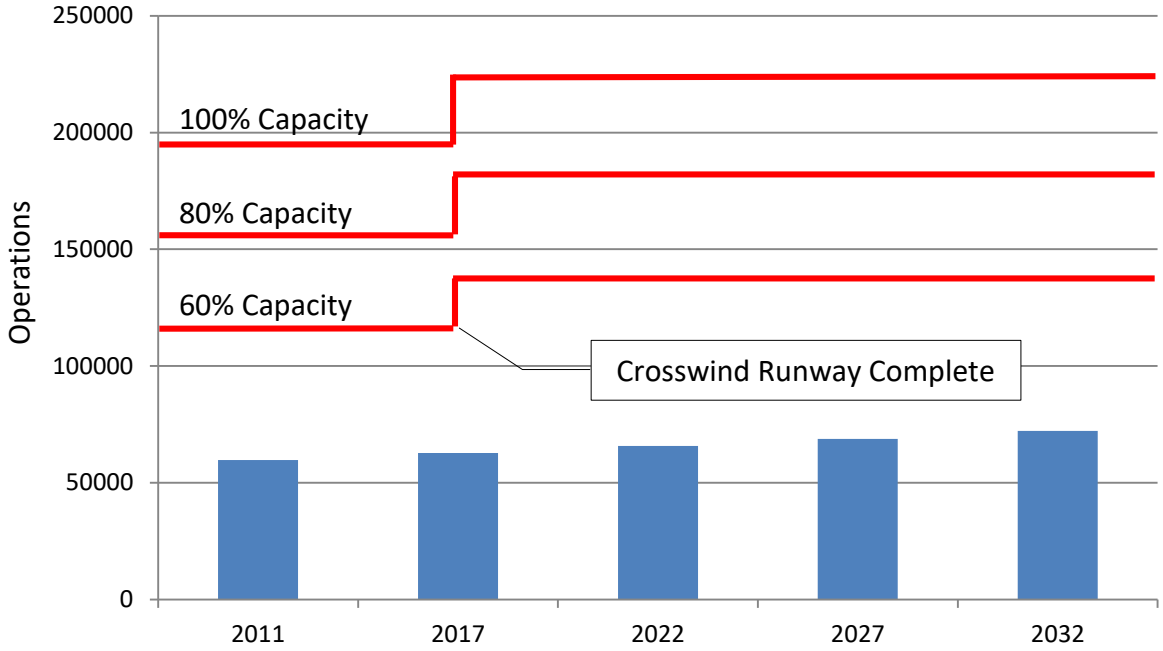
Table 4-9 – Summary of Existing Airfield Demand and Capacity

Planning Factor	Forecast Year				
	Baseline (2012)	2017	2023	2027	2032
Runway-Use Configuration	Single	Dual	Dual	Dual	Dual
Hourly Capacity – VFR/IFR Operations	74/57	108/57	108/57	108/57	108/57
Annual Service Volume (ASV)	195,000	225,000	225,000	225,000	225,000
Annual Operations	59,800	62,400	64,900	67,600	70,500
Capacity Level (Percentage of Annual Demand to ASV)	31%	28%	29%	30%	31%
Daily Demand Ratio (Annual Ops/Avg. Peak Daily Ops)	278	279	279	278	279
Hourly Demand Ratio (Avg. Peak Daily Ops/Avg. Peak Hourly Ops)	8.96	8.96	8.96	9.00	9.04
Avg. Delay in minutes per Aircraft (Low/High)	.12/.22	.08/.18	.09/.19	.11/.20	.12/.22
Minutes of Annual Delay (000)(Low/High)	7.2/13.2	5.0/11.2	5.8/12.3	7.4/13.5	8.5/15.5

Source: AC 150/5060-5, CHA Consulting, 2014

If the annual operations exceed the ASV, the airport is likely to see significant delays. As stated in the FAA Order 5090.3C *Field Formulation of the National Plan of Integrated Airport Systems (NPIAS)*, an airport is eligible to secure funding for capacity-enhancing projects once it has reached 60 percent of its annual capacity. This allows an airport to make necessary improvements and avoid delays before they are anticipated to occur. **Figure 4-2** portrays the existing airfield's demand and capacity levels at ECP throughout the planning horizon.

Figure 4-2 – Projected Demand and Capacity



Source: AC 150/5060-5, CHA Consulting, 2014

Based on these airfield capacity calculations and discussions with airport and ATC staff, it was acknowledged that overall airfield capacity should not be an issue at ECP over the planning years. However, that is not to say that the Airport will not experience delays during inclement weather conditions or periods of peak activity. The efficiency of the Airport should be continuously monitored to appropriately determine any changes or improvements the airfield may need in order to maintain a high level of customer service and reduce the potential of delay.

4.4 PRIMARY RUNWAY 16-34

As the primary airfield component, the runway system should meet the necessary criteria for those aircraft forecast to operate at the airport throughout the planning horizon. The following subsections evaluate the ability of Runway 16-34 to meet FAA design standards and the airfield requirements placed on ECP by the existing and anticipated operational demand.

4.4.1 Runway Design Standards

This master planning effort aims to achieve compliance with all FAA design standards related to the airfield facilities, including dimensions, separation distances, protection zones, clearance requirements, etc. The following FAA design elements related to runways were evaluated:

Runway Width – The physical width of the runway pavement, based on AAC.

Runway Shoulders – Provide resistance to blast erosion and accommodate the passage of maintenance and emergency equipment and the occasional passage of an aircraft veering from the runway. Paved shoulders are required for runways accommodating ADG-IV and higher aircraft, and recommended for ADG-III.

Runway Blast Pads – Provide blast erosion protection beyond runway ends during jet aircraft operations.

Runway Safety Area (RSA) – Graded surface centered on the runway centerline. The RSA shall be free of objects (except for objects that need to be located in the RSA to serve their function such as NAVAIDs and approach aids) and capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and firefighting (ARFF) equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

Runway Object Free Area (ROFA) – The ROFA is also centered on the runway centerline and requires the clearing of all above ground objects protruding above the RSA edge elevation (unless objects need to be located in the OFA for air navigation or aircraft ground maneuvering purposes).

Runway Object Free Zone (OFZ) – The OFZ is a defined volume of airspace centered above the runway centerline that extends 200 feet beyond each end of the runway surface that precludes taxiing or parked airplanes and object penetrations, except for frangible visual NAVAIDs that need to be located in the OFZ because of their function.

Precision Obstacle Free Zone (POFZ) – The POFZ is a volume of airspace above an area beginning at the threshold at the threshold elevation and centered on the extended runway centerline (200 feet long by 800 feet wide). The POFZ must be clear when an aircraft on a vertically guided final approach is within 2 NM of the runway threshold and the reported ceiling is below 250 feet or visibility less than ¾-mile.

Approach and Departure Runway Protection Zones (RPZ) – The RPZ's purpose is to increase the level of protection of people and property on the ground. This is best accomplished through the acquisition of property and clearance of incompatible objects and activities within the RPZ's bounds. The approach RPZ dimensions are a function of the AAC and visibility minimum associated with each specific runway end. The departure RPZ is a function of the AAC and departure procedures associated the specific runway end.

Runway Separation Standards – Separation standards between the runway and other airport facilities are established to ensure operational safety of the airport and are as follows:

- Runway centerline to parallel taxiway centerline
- Runway centerline to holdline
- Runway centerline to edge of aircraft parking area
- Runway centerline to aircraft parking area
- Runway centerline to helicopter touchdown pad

Table 4-10 identifies the geometric requirements of the above standards for RDC C/D-III through C/D-V, both with less than ¾-mile visibility minimums.

Table 4-10 – FAA Runway Design Standards

Design Standard	Runway Design Code (RDC)	
	C/D-III Through IV (< ¾-Mile Vis.)	C/D-V (< ¾-Mile Vis.)
Runway Design		
Runway Width	150’	
Shoulder Width	25’	35’
Blast Pad Length / Width	200’ / 200’	220’ / 400’
Runway Protection		
Runway Safety Area (RSA)		
Length beyond departure end	1,000’	
Length prior to threshold	600’	
Width	500’	
Runway Object Free Area (ROFA)		
Length beyond runway end	1,000’	
Length prior to threshold	600’	
Width	800’	
Runway Obstacle Free Zone (ROFZ)		
Length / Width	200’ / 400’	
Precision Obstacle Free Zone (POFZ)		
Length / Width	200’ / 800’	
Approach Runway Protection Zone (RPZ)		
Length / In. Width / Out. Width /Acres	2,500’ / 1,000’ / 1,750’ / 78.914	
Departure Runway Protection Zone (RPZ)		
Length/In. Width/Out. Width/Acres	1,700’ / 500’ / 1,010’ / 29.465	
Runway Separation *Runway Centerline to:*		
Parallel Runway Centerline	4,300’[1]	
Holding Position[2]	250’	280’
Parallel Taxiway/Taxilane Centerline	400’	
Aircraft Parking Area	500’	
Helicopter Touchdown Pad	Varies	

Source: AC 150/5300-13A, *Airport Design,* AC 150/5390-2C, *Heliport Design,* CHA Consulting, 2012

Notes:

[1]Required for simultaneous instrument approach operations (e.g. future parallel runway)

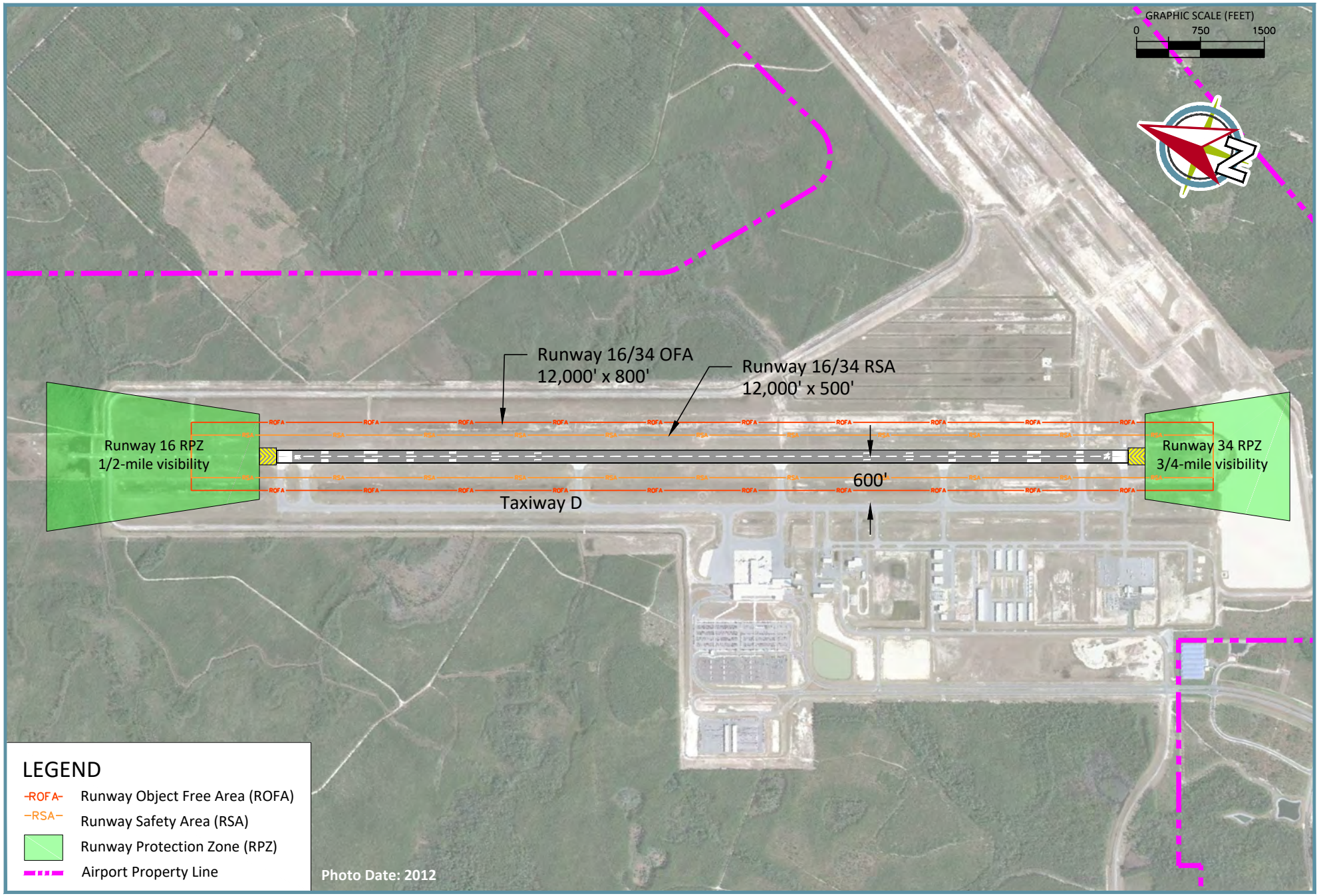
[2]For ADG IV & V, and approach categories D & E, this distance is increased 1 foot for each 100 feet above sea level

Other design considerations that are dependent on runway elevations, terrain, obstacles, and other factors specific to the airport are as follows:

Threshold Siting Standards – Ideally located at the beginning of the runway, the threshold provides proper clearance for landing aircraft over existing obstacles while on approach to landing. The primary runway's thresholds are located at the ends of the runway, and at the time of this study, there are no known penetrations of the associated threshold siting surfaces.

Building Restriction Line (BRL) – Though not a specific FAA design standard, the BRL is a reference line which provides generalized guidance on building location and height restrictions. The BRL is typically established with consideration of Object Free Areas and Runway Protection Zones as well as airspace protection by identifying areas of allowable building heights such as 25 or 35 feet above ground level. It should be noted that site-specific terrain considerations (i.e. grade/elevation changes) may allow buildings taller than indicated by the generalized BRL to be developed within the limits of the BRL.

Figure 4-3 depicts these standards as they apply to the primary runway. As supported by this figure and the previous table, ECP's current runway configuration is compliant with all FAA design standards up to D-III aircraft. Since the ARC is expected to be D-III throughout the planning horizon, no airfield improvements based on the ARC design and safety requirements are recommended at this time. For the runway to regularly support and an ARC D-IV or D-V critical design aircraft, such as the Boeing 777-300, paved shoulders 35 feet in width would be needed and the runway to holdline separation distance would increase to 280 feet.



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NORTHWEST FLORIDA BEACHES INTERNATIONAL AIRPORT

MASTER PLAN STUDY

Figure 4-3
Primary Runway Design Standards
(RDC D-III)

4.4.2 Runway Length

Adequate runway length is necessary for maximizing an airport's operational capabilities and lessening the restrictions placed on aircraft loading capacities (i.e. fuel, passengers, and cargo). Such aircraft restrictions may negatively impact an airport's revenue stream and/or profitability (or the aircraft operator's profitability). To ensure that Runway 16-34 is capable of accommodating anticipated traffic, take-off lengths for the Airport's current and future critical aircraft (B737-800 and MD-88) were evaluated. Consistent with FAA guidance for runway's serving aircraft over 60,000 pounds MTOW (or regional jets), the manufacturer's operating data was used to determine the needed runway length for the longest existing and potential stage lengths over the planning horizon.

Per the guidance provided in AC 150/5325-4B *Runway Length Requirements for Airport Design*, the factors used to determine runway length requirements are as follows:

- **Maximum takeoff weight (MTOW) of the Airport's critical aircraft** – As described previously, the Boeing 737-800 and MD-88 are the current critical aircraft. Over time, operations by the MD-88 are anticipated to be replaced by the 737-800, making it the future critical design aircraft. The 737-800 has an MTOW of 174,200 pounds and the MD-88 has a MTOW of 149,500 pounds.
- **Stage length (flight distance)** - The stage length determines the amount of fuel an aircraft will require to complete its flight. More fuel equates to heavier takeoff weights, and consequently, longer runway length requirements. Further explanation of current and possible future stage lengths are provided later in this section.
- **Atmospheric temperature** - Atmospheric temperatures are identified because air is less dense in a hot atmosphere, decreasing the amount of lift that can be generated under an aircraft's wings. More speed is then required to generate sufficient lift for takeoff, resulting in greater runway length requirements. According to the National Oceanic and Atmospheric Administration, (NOAA), the mean maximum temperature of the hottest month (July) in Panama City is 90.6 degrees Fahrenheit.
- **Runway elevation and gradient** - As elevation increases, air density decreases, making takeoffs longer and landings faster. Steeper gradients means more distance is needed for the aircraft to reach takeoff speed. The difference in runway end elevations at ECP is 15.1 feet and therefore can add approximately 150 feet to the required runway length calculation.

As of 2014, the longest commercial aircraft stage length at ECP is the ±694 nautical mile flight to Baltimore, MD (BWI) operated by Southwest with the Boeing 737-800. With the necessary fuel load to fly from ECP to BWI, the aircraft was calculated to weigh 149,600 pounds and have a runway takeoff length requirement of 6,100 feet (90.6^0 F, zero wind, 15-foot runway gradient). At its MTOW (174,200 pounds with payload), the B737-800 would require 8,720 feet of takeoff length. The longest stage length for the MD-88 is the ±210 nautical mile Delta flight to Atlanta, Georgia (ATL). With the necessary fuel load to fly from ECP to ATL, the aircraft was calculated to weigh 123,000 pounds and have a runway takeoff length requirement of 5,900

feet (90.6^0 F, zero wind, 15-foot runway gradient). At its MTOW (149,500 pounds with payload), the MD88 would require 8,640 feet of takeoff length.

Consideration was also given to the potential domestic and international markets that may be brought on in the future by Southwest, Delta, and prospective new airlines. Using the current and future critical design aircraft (B737-800 and MD-88), **Table 4-11** tabulates the runway length requirements needed to accommodate both existing and potential markets.

Table 4-11 – Takeoff Length Requirements

Destination	Stage Length (NM)	B737-800		MD-88	
		TOW to Destination (LBS)	Runway Length Required (FT)	TOW to Destination (LBS)	Runway Length Required (FT)
Longest Current Stage Lengths (2014)					
Baltimore, MD (BWI)	694	149,600	6,100	129,000	5,890
Atlanta, GA (ATL)	210	142,070	5,567	123,000	5,510
Potential Domestic Markets					
San Francisco, CA (SFO)	1,864	171,172	8,524	147,000	8,478
Chicago, IL (MDW)	691	150,703	6,298	129,000	5,886
Washington, DC (DCA)	668	150,291	6,298	128,500	5,832
Denver, CO (DEN)	1,086	157,794	6,828	134,500	6,534
Dallas, TX (DAL)	585	148,801	6,192	127,500	5,778
Los Angeles, CA (LAX)	1,668	168,241	8,206	144,000	7,830
Phoenix, AZ (PHX)	1,348	162,497	7,252	138,500	7,074
Las Vegas, NV (LAS)	1,511	165,422	7,570	141,000	7,344
Potential International Markets					
Oranjestad, Aruba (AUA)	1,382	163,107	7,358	138,000	7,074
Mexico City, Mexico (MEX)	974	155,783	6,722	133,000	6,534
St. George's, Bermuda (BDA)	1,090	157,866	6,722	134,500	6,588
Punta Cana, Dominican Republic (PUJ)	1184	159,553	7,146	136,000	6,642
Montego Bay, Jamaica (MBJ)	829	153,181	6,616	131,500	6,318
San Juan, Puerto Rico (SJU)	1294	161,527	7,252	137,500	6,858
San Jose Cabo, Mexico (SJD)	1,352	162,568	7,358	138,000	6,966
Cancún, Mexico (CUN)	561	148,370	6,298	127,500	5,778
Toronto, Ontario, Canada (YYZ)	851	153,575	6,616	131,500	6,318

Sources: Boeing, Airplane Characteristics for Airport Planning, http://www.boeing.com, FAA AC 150/5300-13A Airport Design, CHA Consulting, 2014

Required landing lengths were also evaluated for several of the aircraft operating at ECP including variations of the Boeing 737, Boeing 717 and MD-82/88. As identified in **Table 4-12,** at maximum landing weight (MLW) the FAR calculated runway requirements for both dry and wet conditions were less demanding than the takeoff lengths. However, with consideration of the FAA's 14 CFR Part 121 and 135 "destination requirements" and AC 91-79 *Overrun Protection* guidance, between 9,170 feet and 11,170 feet could be needed. These regulations state that Part 121 and Part 135 commercial aircraft operators must calculate their actual flight specific landing length requirement to be no more than 60 percent of the available runway length at their destination airport. Considering that aircraft typically land at less than MLW, due to fuel burn during flight, the 10,000-foot runway at ECP appears to provide sufficient landing distance for the anticipated aircraft fleet and route structure.

Table 4-12 – Landing Length Requirements

Aircraft	Flap Setting	Max Landing Weight (LBS)	FAR Landing Length (FT)		Effective Runway Length (Part 121/135 60%)
			Dry	Wet (+15%)	
717-200	40 deg.	102,000	4,700	5,500	9,170
MD 82/88	40 deg.	130,000	4,800	5,600	9,330
737-700	30 deg.	134,000	5,000	5,800	9,670
737-800/BBJ2	30 deg.	146,300	5,900	6,700	11,170

Sources: Boeing, Airplane Characteristics for Airport Planning, http://www.boeing.com, FAA AC 150/5300-13A Airport Design, CHA Consulting, 2012

These evaluations indicate that the Airport's existing 10,000-foot runway is sufficient to support operations to a multitude of existing and potential markets, as well as the current and future critical design aircraft at maximum takeoff weight. Previous airport planning has identified and preserved adequate space for an ultimate 12,000-foot primary runway. Should it become warranted in the future, the extra 2,000 feet of pavement would support heavier aircraft and/or longer haul routes that could be associated with maintenance, repair and overhaul (MRO), cargo, aircraft manufacturing or long-haul international type operations. While no primary runway length improvements are recommended at this time, the capability to extend the runway in the future should continue to be preserved.

4.4.3 Approach Capability

A runway's approach capability is predicated on the type of approach NAVAIDs and lighting with which it is equipped and the approach procedure minimums established by the FAA. As described in **Chapter 2**, both ends of Runway 16-34 are capable of visual approaches (supported by lighted wind cones and Precision Approach Path Indicators (PAPI-4)) and precision instrument LPV approaches supported by GPS and WAAS. Runway 16 additionally

provides a CAT-I ILS, including a 1,400-foot Medium Approach Lighting System with Rail (MALSR), which supports approach minimums of 200 foot decision height (i.e. cloud ceiling) and ½-mile visibility (the best minimums possible for a CAT-I approach). The instrument approach capabilities at ECP with the lowest minimums, as of 2013, are shown in **Table 4-13**.

Table 4-13 – Instrument Approach Minimums (2013)

Runway End	Approach Type	Approach Method	Minimums: *Ceiling (AGL) / Visibility*
Runway 16	Precision	ILS or RNAV (LPV)	200 ft. / ½ mile
Runway 34	Precision	RNAV (LPV)	200 ft. / ¾ mile

Source: ECP Instrument Approach Procedures Charts (14Nov13-12Dec13)

Runway 16

In an effort to lower the instrument approach minimums and accommodate a greater percentage of landings during poor weather conditions, the feasibility of upgrading the Runway 16 CAT-I ILS to a CAT-II system was evaluated. The detailed evaluation is provided in **Appendix B**. A CAT-II system could support approaches with a cloud ceiling of 100 feet and visibility of ¼ mile (RVR 1200) for adequately equipped aircraft and properly trained flight crews. Airlines would benefit through an increased level of safety, fewer diversions, and reduced fuel burn. Passengers would benefit from increased access and fewer flight delays during inclement weather. Air Traffic Control would benefit from increased operational flexibility.

Based on the weather data described in **Chapter 2**, Category II IFR conditions (ceiling less than 200 feet but more than 100 feet and visibility between ¼ and ½ mile) occur approximately 0.9% of the time or roughly 79 hours annually.

Developing a "standard" CAT-II ILS system at ECP would require the installation of the following equipment:

- Far Field Monitor (FFM) - The FFM provides additional monitoring of the localizer signal in the runway approach area. The FFM senses incursions in the critical area and problems with the localizer antenna array that may not be initially detected by the localizer integral monitors.
- ALSF-2 Approach Lights - The standards outlined in FAA Order JO 6850.2B, *Visual Guidance Lighting Systems* require an ALSF-2 (High-Intensity Approach Lighting System with Sequenced Flashing Lights) for CAT-II approaches. The existing MALSR at ECP would need to be replaced with an ALSF-2.
- Runway Visual Range (RVR) System – An RVR system is comprised of three ground-based sensors that measure horizontal visual distance at points along the runway. This information is used by Air Traffic Control and pilots for both takeoff and landing operations.
- Backup Power – Modifications to the exiting airfield lighting backup engine generator would be needed to ensure continuous power is able to be provided to the runway lighting system per FAA required transfer times.

Under certain conditions however, the FAA can issue "Special Authorization" (SA) Category II approach procedures. The special authorization allows the same minimums as the standard CAT-II approach category but identifies specific ground equipment exemptions such as alternative airfield lighting configurations and minimum sensor and equipment monitoring requirements. For ECP, the FFM would not be needed, the existing MALSR would be acceptable, and only two of the three RVR sensors would be needed. The aircraft capable of using the SA CAT-II procedures would however need to be equipped with enhanced airborne equipment such as "autoland" or Heads-Up Display (HUD) and the flight crews would need to be appropriately trained and certificated.

While CAT-II capability is desired by many of the airport stakeholders and operators, developing a standard system would require significant investment in equipment. The FAA has the potential to fund at least portions of this investment through their Facilities and Equipment (F&E) and Airport Improvement Program (AIP). The FAA would perform a Benefit Cost Analysis (BCA) to determine their level of support both in term of funding and continued operation and maintenance. This process, and the subsequent design, engineering and construction could take two to three years before the procedures would be available for use.

It could take approximately the same amount of time to develop Special Authorization CAT-II procedures however the financial investment would be substantially less. Based on the findings of the feasibility evaluation, it is recommended that the Authority continue coordinating with the FAA and pursue the phased development of CAT-II approach capability to Runway 16. The logical phasing would include:

- Install the three RVR system which could be used immediately by Air Traffic Control to manage instrument departure procedures.
- Develop Special Authorization CAT-II procedures and make the necessary airfield power backup modifications.
- As user demand increases, pursue development of a Standard CAT-II system with installation of a Far Field Monitor and ALSF-2 lighting system, or equivalent system/equipment at that time.

Runway 34

Based on discussions with various airline pilots and representatives from the Airline Pilots Associations (ALPA), many aircraft are not yet equipped or certified to fly the newer GPS based precision-type approach procedures. They are limited to instrument procedures supported by ground-based navaids (i.e. ILS, VOR, LOC/DME). With that in mind, ECP effectively has only one instrument approach to Runway 16 available for commercial aircraft. If the existing ILS system were to become unavailable or inoperable for some reason, there is no alternate or back-up instrument approach. If the ATC tower were closed and unable to provide radar guidance when the ILS became unavailable, the commercial aircraft would have to divert to another airport. For this reason, it is recommended that coordination with the FAA be pursued for the development of a ground-based navaid supported instrument approach procedure. It should be

noted that, unlike the commercial airlines, many corporate aircraft operators are capable of utilizing the GPS based approach procedures.

Until such time as the improvements to either runway end become justified and financially viable, the Authority and FAA should continue to monitor and capitalize on new development in navigation technology. The FAA's NexGen initiative, which promotes the advancement and utilization of satellite-based navigation technologies, will likely increase the practice of GPS-type approaches in the future.

4.4.4 Lighting, Signage, and Markings

Runway lighting, signage, and markings provide additional information to assist pilots in locating an airport, landing aircraft, and moving about the airfield. The following subsections evaluate these areas.

Lighting

The primary runway is equipped with High Intensity Runway Edge Lights (HIRLs), centerline lights, a lighted touchdown point on the Runway 16 end, and Runway End Identification Lights (REILs) on the Runway 34 end. These lighting systems (installed in 2010) appear to be in good condition, are consistent with precision approach runway requirements, and aside from routine maintenance, should be adequate throughout the planning horizon.

Signage and Markings

All airports receiving federal funding are required to install runway/taxiway guidance signs and paint pavement markings in accordance with AC 150/5340-18F, *Standards for Airport Signage Systems* and AC 150/5340-1K, *Standards for Airport Markings* respectively. Mandatory signs applicable to ECP include instruction holding position signs for runway/taxiway intersections, ILS critical areas, and runway approach areas. Additional signage includes:

- Runway/taxiway location signs
- RSA/OFZ, runway approach and ILS critical area/POFZ boundary signs
- Runway exit and taxiway direction signs
- Taxiway ending markers
- Inbound/outbound destination signs
- Vehicle roadway signs
- Information signage

As stated in **Chapter 2**, ECP currently meets all FAA signage and marking requirements. Future airfield improvements, including construction of the planned crosswind runway, must incorporate the standards in AC 150/5340-18F and AC 150/5340-1K.

4.5 PLANNED CROSSWIND RUNWAY 3-21

Consistent with the national and local forecast growth of corporate aircraft use, previous planning, design and construction of ECP included a future crosswind runway. The runway was

intended to be 5,000 feet long by 100 feet wide and accommodate up to ARC B-II aircraft with precision approach capability and visibility minimums of less than ¾ mile. As described in **Chapter 2**, the crosswind runway is needed to supplement the primary Runway 16-34 by providing greater crosswind coverage, especially for the smaller A/B-I aircraft operating at the Airport.

Now with over three years of operational experience at ECP, Air Traffic Control and the various aircraft operators have identified a strong desire for the crosswind runway to provide redundancy for commercial aircraft. This would allow the airfield to remain operational when the primary runway was unavailable due to maintenance, construction or in the unfortunate event of incident. This would also provide the controllers operational flexibility in managing traffic flow in all weather conditions and improve access for the smaller narrow-body and regional aircraft during poor weather conditions.

Considering the immediate small aircraft operator needs, the previous airport planning and design, and the desire to accommodate corporate and commercial aircraft – the following describes the facility requirements and standards needed to accommodate up to ARC C/D-III aircraft at ECP.

4.5.1 Runway Design Standards

Table 4-14 identifies the minimum FAA runway design standards for A/B-I through C/D-III aircraft with less than ¾ mile visibility as would be applicable to the development of the crosswind Runway 3-21.

Table 4-14 – FAA Runway Design Standards

Design Standard	Runway Design Code (RDC) A/B-I (<¾-Mile Vis.)	A/B-II (< ¾-Mile Vis.)	C/D-III (< ¾-Mile Vis.)
Runway Design			
Runway Width	100’	100’	150’
Shoulder Width	10’	10’	25’
Blast Pad Length / Width	100’ / 120’	150’ / 120’	200’ / 200’
Runway Protection			
Runway Safety Area (RSA)			
Length beyond departure end	600’	600’	1,000’
Length prior to threshold	600’	600’	600’
Width	300’	300’	500’
Runway Object Free Area (ROFA)			
Length beyond runway end	600’	600’	1,000’
Length prior to threshold	600’	600’	600’
Width	800’	800’	800’
Runway Obstacle Free Zone (ROFZ)			
Length / Width	200’ / 300’	200’ / 400’	200’ / 400’
Precision Obstacle Free Zone (POFZ)			
Length / Width	200’ / 800’	200’ / 800’	200’ / 800’
Approach Runway Protection Zone (RPZ)			
Length	2,500’	2,500’	2,500’
In. Width	1,000’	1,000’	1,000’
Out. Width	1,750’	1,750’	1,750’
Acres	78.914	78.914	78.914
Departure Runway Protection Zone (RPZ)			
Length	1,000’	1,000’	1,700’
In. Width	500’	500’	500’
Out. Width	700’	700’	1,010’
Acres	13.770	13.770	29.465
Runway Separation *(Runway Centerline to:)*			
Holding Position	250’	250’	250’
Parallel Taxiway/Taxilane Centerline[1]	275’	300’	400’
Aircraft Parking Area	400’	400’	500’
Helicopter Touchdown Pad	Varies	Varies	Varies

Source: AC 150/5300-13A, *Airport Design*, AC 150/5390-2C, *Heliport Design*, CHA Consulting, 2013
[1]For Approach Category D, distance is increased 1 foot for each 100 feet above sea level

4.5.2 Runway Length

The original planning, design, environmental approval and construction of the Airport accounted for the development of a 5,000-foot long by 100-foot wide crosswind runway in the 3-21 orientation (validated by the wind coverage analyses). In an effort to maximize airfield efficiency and provide flexibility in managing air and ground operations, various airport stakeholders, including ATC and the airlines, have indicated that the crosswind runway should not only serve A/B-I aircraft, but also provide a level of redundancy to the primary runway, including the accommodation of business jets and commercial aircraft. The following subsections assess the runway length requirements associated with the various aircraft types operating at ECP.

ARC A/B-I Aircraft

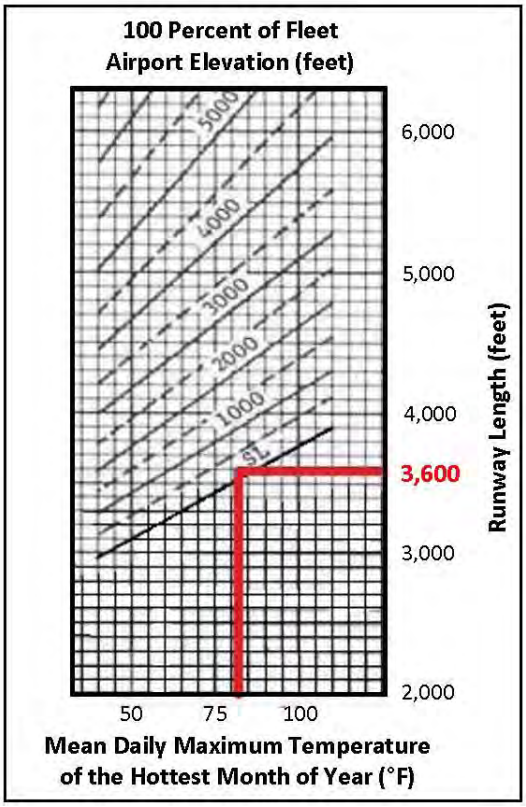
Those affected most by the wind coverage deficiency are the smaller GA aircraft. AC 150/5325-4b states that the runway length for a crosswind runway serving non-scheduled operations should be at least equal to 100% of the recommended runway length determined for the *lower crosswind airplanes* using the primary runway. For ECP, this grouping includes the large number of based and transient, ARC A/B-I aircraft operating at the Airport. The activity forecasts presented in **Chapter 3** indicate there were 110 based GA aircraft and 36,700 GA operations at ECP in 2011; a large majority of these were comprised of A/B-I personal and training aircraft. These aircraft will be used to identify the bare minimum, crosswind runway length needed at ECP.

AC 150/5300-13A provides a listing of common A/B-I aircraft to be used for facility planning purposes, all of which are categorized with a maximum certificated takeoff weight (MTOW) of 12,500 pounds or less, approach speeds of 50 knots or more, and less than 10 passenger seats. Following FAA methodology, other parameters specific to ECP include the mean daily maximum temperature of the hottest month of the year (90.6° F - *NOAA*), the Airport's elevation (68.8 feet MSL), and the percentage of the GA fleet to be accommodated. The two fleet options are:

- *95 percent* – For airports that are primarily intended to serve medium size population communities with a diversity of usage and a greater potential for increased aviation activities.
- *100 percent* – For airports that are primarily intended to serve communities located on the fringe of a metropolitan area or a relatively large population remote from a metropolitan area.

Given that ECP is located in the Panama City metropolitan area, and serves a large population of Florida's panhandle, the percentage of 100 was selected for the evaluation. Using these parameters, and the performance curves provided in AC 150/5325-4B and presented in **Figure 4-4**, an estimated bare minimum crosswind runway length of 3,600 feet is needed to accommodate these types of aircraft.

Figure 4-4 – Runway Length for Small Airplanes with Fewer than Ten Seats



Source: AC 150/5325-4B, *Runway Length Requirements for Airport Design*

Business Aircraft (Up to ARC B-II)

AC 150/5325-4B also recommends that potential future airport and operator needs be considered when evaluating runway development. If a runway were constructed to the bare minimum requirements/standards, it could result in operational limitations to larger aircraft in need of that runway at any given time. With the current site already prepared for a 5,000-foot long by 100-foot wide (ADG II) runway, and with the FAA forecasted growth in corporate traffic, it may prove prudent, in the long-run, to construct a runway that is at least capable of accommodating business aircraft (up to ARC B-II).

The National Business Aviation Association (NBAA), which focuses primarily on the general aviation and business sectors of the aviation industry, has established general guidelines for airport development in its *Airports Handbook*. This documentation associates runway dimensions with the following aircraft classifications:

- Very Light Jet/Turboprop (up to 12,500 pounds)
- Light Jet (up to 25,000 pounds)
- Medium Jet (up to 50,000 pounds)
- Heavy Jet (above 50,000 pounds)

While "heavy jet" business aircraft utilize the Airport, according to the flight data previously mentioned, the majority of business aircraft currently operating at ECP fall within the "very light jet/turbo prop" to "medium jet" categories. With consideration of the most demanding category, the *Airports Handbook* identifies that, at sea level, a 5,001-foot long by 100-foot wide runway is generally acceptable to support "medium jet" (up to 50,000 lbs.) operations.

Due to their varying performance characteristics, the FAA also recommends that runway length requirements be evaluated for the individual aircraft (up to B-II) the runway is intended to serve. Based on flight data collected from the Airport, **Table 4-15** identifies some of the more demanding B-II business jet aircraft that operate at ECP and their required runway lengths. While not a corporate operator, Key Lime Air, which operates the Swearingen Metro III, currently performs multiple daily cargo flights at ECP and as such, was included in this analysis.

Table 4-15 – Runway Length Requirements for Business Aircraft

Aircraft	Max Takeoff Weight	Takeoff Distance ISO (Dry)	Landing Distance ISO (Dry)	Landing Distance ISO (Wet)
Cessna 550 Citation II	13,300 lbs.	3,450 feet	2,078 feet	2,390 feet
Cessna 550 Citation Bravo	14,800 lbs.	3,600 feet	2,517 feet	2,895 feet
Cessna 560 Citation Excel	20,000 lbs.	4,060 feet	4,995 feet	5,744 feet
Dassault Falcon 50	38,800 lbs.	4,700 feet	2,150 feet	2,473 feet
Embraer Phenom 300	17,526 lbs.	3,707 feet	2,953 feet	3,396 feet
Swearingen Metro III	14,500 lbs.	3,850 feet	2,450 feet	2,818 feet

Source: Aircraft performance manuals, CHA Consulting
Notes:
Red text denotes that the requirement is over 5,001 feet.
Takeoff distance is based on maximum takeoff weight and no effective gradient.
Landing Distance is based on maximum landing weight and no wind.
Wet Landing Distance is calculated using the guidance in AC 91-79 "Runway Overrun Prevention."
ISO = Sea Level at 59 Degrees Fahrenheit.

This evaluation affirms, along with the NBAA's recommendation, that in most conditions a 5,000 runway would be able to meet the requirements of most B-II aircraft. In practical application, the runway should be constructed to at least 5,001 feet and correspondingly documented in the various airport data publications. Consistent with the insurance and flight planning guidelines of certain corporate flight departments, the published length greater than 5,000 feet will enable them to acknowledge and operate on an effective 5,000-foot runway.

Commercial Aircraft (up to ARC D-III)

According to AC 150/5325-4b, for the crosswind runway to be considered a fully redundant commercial service runway, it would have to be 100 percent of the primary runway length. Because this is not the intent of the crosswind runway at ECP, nor is it considered practicable at this time, an evaluation was performed to determine the minimum length needed to effectively

accommodate the current and future critical design aircraft during times when Runway 16-34 may be closed due to maintenance/repair activities or in the unfortunate event of an incident. Airline and ATC staff have also indicated that, along with the regional jets, there are currently occasions when the Boeing MD-88 (ARC D-III) could utilize the runway during a strong crosswind. As the fleet transitions commensurate with recent airline trends and the forecasts presented in **Chapter 3**, there would be more occasions when the B737-800 may also prefer to utilize the crosswind runway.

Based on the landing length requirements determined for the primary runway in **Section 4.4.2**, a 6,700-foot runway is needed accommodate the landing of a B737-800/BBJ-2 in wet conditions. A 6,800-foot runway would provide access to the markets of Washington, DC, Chicago, Denver, Mexico, the Caribbean, Canada, and possibly Puerto Rico. A 7,500-foot runway could provide access as far west as Las Vegas and to additional markets in Mexico and the Caribbean. Approximately 8,500 feet would be needed to service the west coast markets and the critical design aircraft would need 8,700 feet to operate at maximum takeoff weight particularly during the hotter summer months. It should be noted that with Panama City and the surrounding beach communities being a significant tourist destination, the summer months are also the busier activity months at ECP.

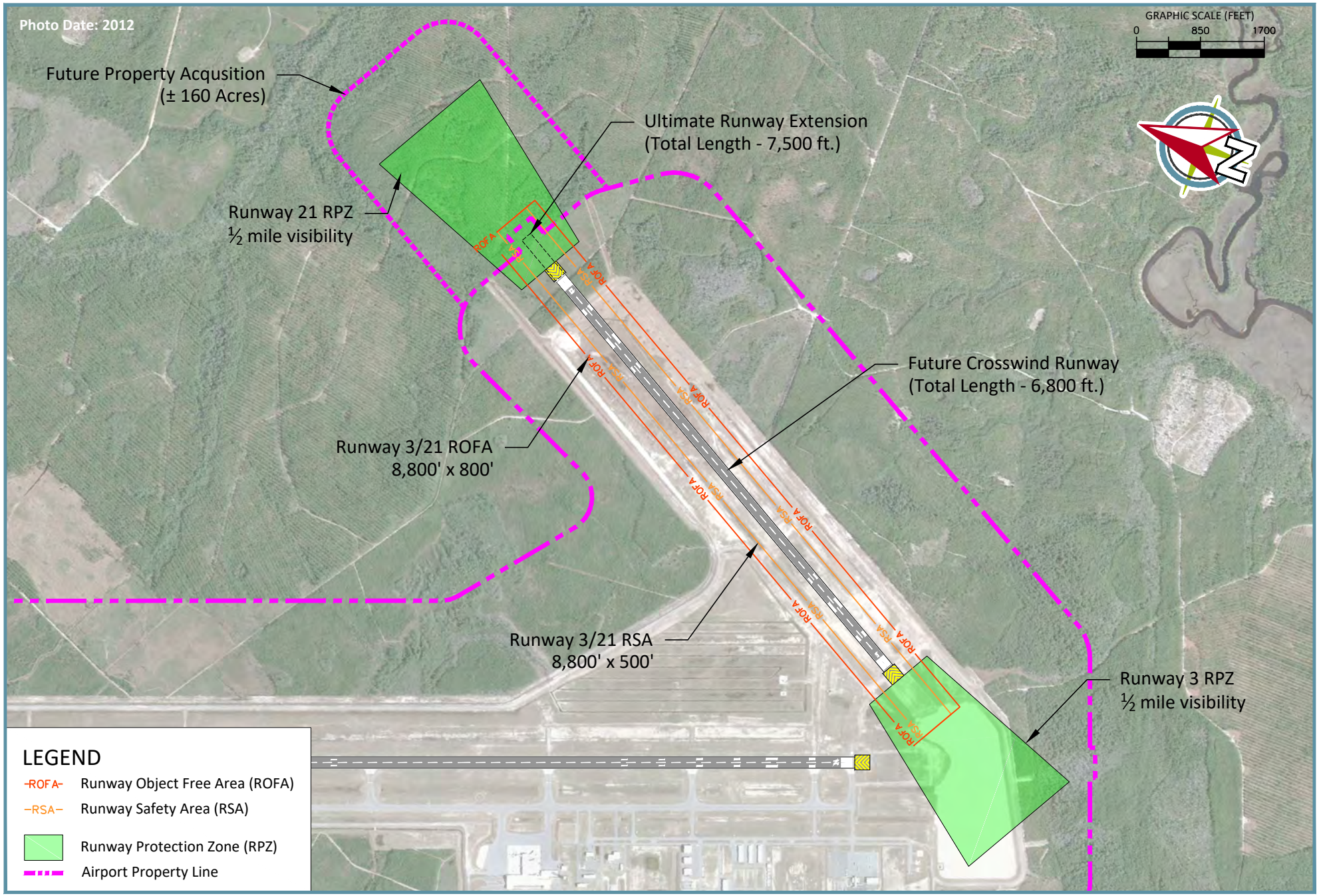
4.5.3 Approach NAVAIDs and Procedures

Both ends of the crosswind runway are portrayed on the Airport's 2011 ALP as eventually being equipped with CAT-I ILS. While having precision instrument approach capability would be ideal, it may not be viable upon initial construction of the runway. Because of this, a phasing plan could be implemented to initiate the runway with visual approach capability, and as it becomes warranted or feasible, improve to a non-precision (RNAV/GPS) or precision approach system (LPV or CAT-I ILS). Further obstruction analysis and coordination with the FAA would be needed before precision approaches could be implemented.

In planning for an ultimate approach scenario, an evaluation of the potential precision approach RPZs was necessary. Occupying approximately 79 acres, a precision approach RPZ would fall within the Airport's bounds on the Runway 3 end. However, the property on the north end would need to be extended in order to envelope the RPZ for Runway 21.

4.5.4 Crosswind Runway Recommendation

With these considerations in mind, and with respect for financial prudence, a phased development of the crosswind runway is recommended. To serve the broadest range of users, and to provide the needed utility to air traffic control and the airlines, the first phase of development should be no less than 6,800 feet long and 150 feet wide. Continued planning and ongoing airport development should also preserve adequate space to extend Runway 3-21 to at least 7,500 feet as market conditions and traveler needs develop. The airlines have also indicated that 7,500 feet is a common minimum operating preference. This strategy will also assist the region in capitalizing on the investment and development potential of this new airport facility. Error! Reference source not found. depicts the phased runway development, he needed ±160 acres of land acquisition, and the major C/D-III design standards.



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NORTHWEST FLORIDA BEACHES INTERNATIONAL AIRPORT

MASTER PLAN STUDY

Figure 4-5
Phased Crosswind Runway Development

4.6 TAXIWAYS

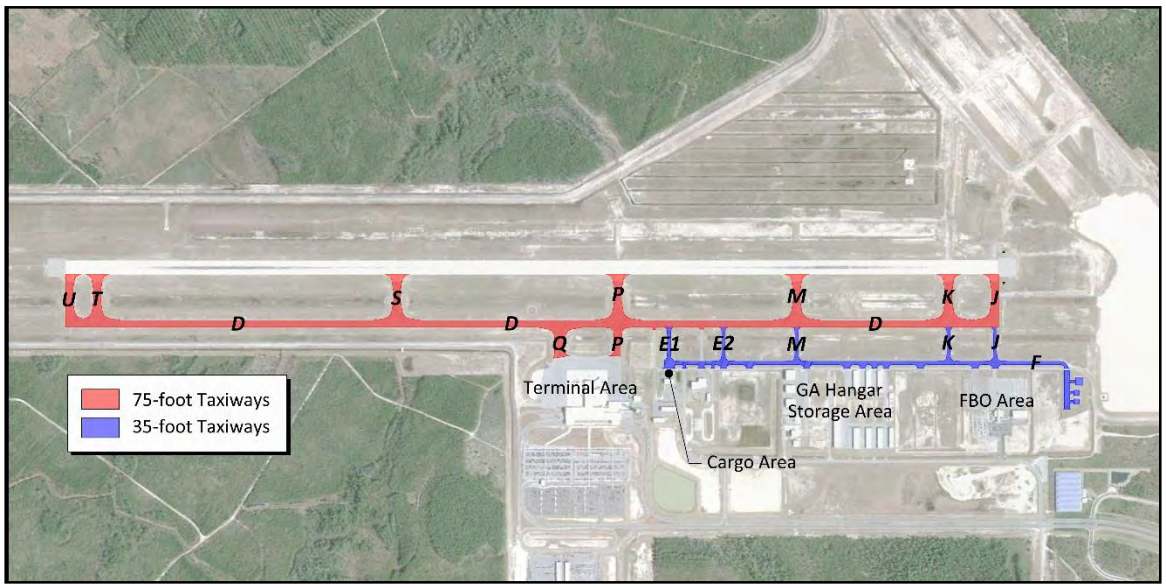
An efficient taxiway system enhances operational safety and provides for the orderly flow of aircraft thereby reducing the potential for congestion and/or pilot confusion. The following subsections describe the FAA design and safety standards, as well as the capacity and efficiency of the taxiway system at ECP.

4.6.1 Taxiway Configuration

The location, geometry, access and bypass capability of the taxiways can help reduce runway occupancy, taxiing, and engine idle times. Similar to the runway system, there are no apparent taxiway capacity issues at ECP, but some developments would improve aircraft access/flow and increase the margin of safety of the airfield.

The existing taxiway system was designed to meet the needs of the commercial and general aviation operators respectively. The parallel taxiway, runway exit taxiways, and taxiways to the terminal area are 75 feet wide. All other taxiways, which provide access to the cargo, GA hangar storage, and FBO areas, are 35 feet wide. **Figure 4-6** portrays the existing taxiway configuration at ECP.

Figure 4-6 – Existing Taxiway Configuration



Source: CHA, 2014

Exit Taxiways

As mentioned in **Section 4.3.5**, Runway 16-34 has seven right-angle exit taxiways, distributed in a manner that permits free flow to the parallel taxiway. Based on the anticipated traffic volumes and fleet mix, no improvements to the exit taxiway structure appear necessary for the future planning horizon. Planning for the ultimate airfield configuration, however, should give

consideration to adding high-speed exits to Runway 16-35 to optimize utility of the runway should it become warranted.

When planning the location of exit taxiways for the crosswind runway, attention must be given to the types of aircraft that are expected to utilize it. Right-angle taxiways are recommended because they maximize the exits for bi-directional traffic, coupled with the fact that anticipated use does not necessitate high-speed exits. Based on guidance in AC 150/5300-13A, **Table 4-16** provides the cumulative utilization percentages as applicable to the crosswind runway exit taxiways.

Given the anticipated dominance of small, single engine and small, twin engine aircraft, a logical location for an exit taxiway would be approximately 3,500 feet from the threshold of a 5,001-foot runway (in addition to entrance/exit taxiways located at the ends of the runway).

Table 4-16 – Exit Taxiway Cumulative Utilization Percentages

Runway Threshold to Exit Taxiway (feet)	Percentage					
	Wet Runways			Dry Runways		
	S	T	L	S	T	L
3,000	96	10	0	100	39	0
3,500	99	41	0	100	81	2
4,000	100	80	1	100	98	8
4,500	100	97	4	100	100	24
5,000	100	100	12	100	100	49
5,500	100	100	27	100	100	75

Source: CHA Consulting 2012, AC 150/5300-13A
Notes:
S – Small, single engine (12,500 lbs or less)
T – Small, twin engine (12,500 lbs or less)
L – Large (12,500 lbs to 300,000 lbs)

Bypass Taxiways and Hold Bays

Bypass taxiways are used to access the runway when other aircraft are performing run-up operations before takeoff or are given hold instructions from ATC at the runway's usual point of entry. A pavement outcropping that provides space for pilots to pull off of the taxiway for the same reasons, known as a hold bay, is another design option that accomplishes this function.

Runway 16-34 is currently supported with bypass taxiways for each end, but was not designed with hold bays. FAA guidance suggests that, due to their capacity-enhancing qualities, hold bays should be implemented in place of bypass taxiways when the Airport realizes 30 peak hour operations. While this level of activity is forecasted to occur near the end of the 20-year planning period, it is recommended that the existing bypass capabilities be maintained. Due to the extensive stormwater management systems located south of the runway and the planned crosswind configuration, developing efficient hold bays would be difficult. As indicated on the

2011 ALP, initial site design provided the capability for a second parallel taxiway (Taxiway Y) to be developed west of Taxiway D. Should it become warranted in the future, this taxiway would provide additional circulation options thereby offsetting the need for traditional hold bays.

Future Runway Access

The taxiway system will need to provide access to the planned crosswind runway from all areas of the airfield. It is recommended that the Airport provide this access via extensions of the existing Taxiways K and J to the Runway 21 end, with a full-length parallel taxiway along the east side leading to the Runway 3 end. Because it is recommended that the crosswind runway serve up to C/D-III aircraft, these taxiways should be constructed to the ADG-III/TDG-3 standard of 50 foot width.

Long-term potential taxiway configuration may include additional parallel taxiways – one east of Runway 16-34 and one west of Runway 3-21. This would support future development of facilities on the northeast side of the airfield between the two runways.

Furthermore, consideration must be given for taxiway access to a potential future parallel Runway 16R-34L, as well as the aircraft that runway will serve. It is recommended that the Airport preserve space to the north of the terminal area for a TDG-5 (75 feet wide) cross-field taxiway.

4.6.2 Taxiway Design Standards

Similar to runways, taxiways are subject to FAA design requirements such as pavement width, edge safety margins, shoulder width, safety areas, and object free areas. Taxiway system design standards are determined by the design aircraft's ADG (wingspan and tail height) and TDG (Main Gear Width (MGW) and Cockpit to Main Gear (CMG) distance). It is necessary to consider these undercarriage dimensions because taxiway pavements are designed for "cockpit over centerline" maneuvering. The FAA standards in relation to taxiways (as defined in AC 150/5300-13A) are described below.

Taxiway / Taxilane Safety Area (TSA) – The TSA is located on the taxiway centerline and shall be cleared and graded, properly drained, and capable, under dry conditions, of supporting snow removal equipment, ARFF equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

Taxiway / Taxilane Object Free Area (TOFA) – The TOFA is centered on the taxiway centerline and prohibits service vehicle roads, parked airplanes, and above ground objects, except for objects that need to be located in the TOFA for air navigation or aircraft ground maneuvering purposes.

Taxiway Separation Standards – Separation standards between the taxiways and other airport facilities are established to ensure operational safety of the airport and are as follows:

- Taxiway centerline to parallel taxiway/taxilane centerline
- Taxiway centerline to fixed or movable object
- Taxilane centerline to parallel taxilane centerline
- Taxilane centerline to fixed or movable object

Taxiway / Taxilane Wingtip Clearance – A function of ADG and TDG, it is the distance required for an aircraft to safely taxi by an object.

Taxiway Width – The physical width of the taxiway pavement.

Taxiway Edge Safety Margin – The minimum acceptable distance between the outside of the airplane wheels and the pavement edge.

Taxiway Shoulder Width – Taxiway shoulders provide stabilized paved surfaces to reduce the possibility of blast erosion and engine ingestion problems associated with jet engines which overhang the edge of the taxiway pavement.

The dimensions for each of these standards vary according to the airplane and taxiway design groups of the aircraft they are intended to accommodate. To better understand how taxiways are designed, **Table 4-17** and **Table 4-18** show the dimensional standards as they apply to ADG and TDG.

Table 4-17 –Taxiway Design Standards Based on ADG

Design Standard	Airplane Design Group (ADG)					
	I	II	III	IV	V	VI
Taxiway Protection						
TSA Width	49	79	118	171	214	262
Taxiway OFA Width	89	131	186	259	320	386
Taxilane OFA Width	79	115	162	225	276	334
Taxiway Separation						
Taxiway CL to Parallel Taxiway/Taxilane CL	69	105	152	215	267	324
Taxiway CL to Fixed or Movable Object	44.5	65.5	93	129.5	160	193
Taxilane CL to Parallel Taxilane CL	64	97	140	198	245	298
Taxilane CL to Fixed or Movable Object	39.5	57.5	81	112.5	138	167
Wingtip Clearance						
Taxiway Wingtip Clearance	20	26	34	44	53	62
Taxilane Wingtip Clearance	15	18	23	27	31	36

Source: AC 150/5300-13A, CHA Consulting 2012
Note: Numbers are in feet

Table 4-18 – Taxiway Design Standards Based on TDG

Design Standard	Taxiway Design Group (TDG)						
	1	2	3	4	5	6	7
Taxiway Width	25	35	50	50	75	75	82
Taxiway Edge Safety Margin	5	7.5	10	10	15	15	15
Taxiway Shoulder Width	10	10	20	20	25	35	40
Taxiway/Taxilane CL to Parallel Taxiway/Taxilane CL	69	69	160	160	240	350	350

Source: AC 150/5300-13A, CHA Consulting 2012
Note: Numbers are in feet

While all of ECP's 75-foot wide taxiways can support up to ADG-V/-TDG-6 aircraft, paved shoulders would be needed for regular use by ADG IV and larger aircraft. The 35-foot taxiways are limited to the navigation of ADG-II/TDG-2 and lower aircraft. The taxiway system should be configured to meet the operational needs of the corporate and private entities with larger aircraft (ADG-III/TDG-3), as well as provide the most flexibility and circulation to the GA facilities. Parallel Taxiway D is the primary circulation route for all aircraft. Parallel Taxiway F provides circulation for the smaller ADG-II/TDG-2 aircraft to the general aviation area. The original airfield design provided sufficient space for an ultimate ADG-III parallel taxiway (taxiway Y) to be located between Taxiways D and F should activity levels warrant additional circulation. The need for triple parallel taxiways is not anticipated over the course of this planning horizon.

To meet the needs of the current aircraft operators, and improve circulation and reduce the potential for congestion and aircraft conflicts on the existing taxiway system, it is recommended that, at a minimum Taxiway K be widened to 50 feet to provide ADG-III/TDG-3 aircraft access to the FBO area and proposed transient apron. Portions of Taxiways F, J, W and E1 could also be widened to support specific tenant needs and development of the currently unoccupied parcels within the general aviation area.

4.7 APRONS

The apron areas at ECP were evaluated on their ability to accommodate current and forecasted activity and fleet mix. Keep in mind that these activity projections are based on the trends and assumptions relevant at the time of forecast approval and are susceptible to change over the course of the planning horizon. The requirements identified herein should be viewed as order-of-magnitude space needs and any facility development should be pursued with sufficient evidence of demand and not in a predetermined timeline. **Figure 4-7** depicts the current apron areas at ECP.

Figure 4-7 – Apron Areas

4.7.1 Terminal Apron

The terminal apron is 17,400 SY in size and used for commercial aircraft gate parking and airline support and servicing operations. Gates 1, 3, 4, and 5 were designed to accommodate aircraft up to Boeing 737-800, Gates 6 and 7 for up to Embraer ERJ-145s, and Gate 2 for up to Boeing 767-300 (for anticipated international traffic).

The size and configuration of the terminal apron is driven by the number of gates and terminal configuration, the type of aircraft to be accommodated at each gate, airline safety and setback requirements, airfield configuration, apron maneuvering, and FAA design standards. Adjacent buildings and land uses, security procedures, utility corridors, storm water management and drainage infrastructure, and other site/terrain constraints can also influence the ultimate layout of the terminal apron. Because of these variables, a determination on how much additional terminal apron space will be needed over the planning horizon, is addressed with the overall terminal area development concepts discussed in **Chapter 5**.

Part 77 Transitional Surface Clearance

FAR Part 77 establishes imaginary surfaces for determining obstructions to air navigation. One of the main issues most airports face when considering Part 77 surfaces is the proximity of the runway to parked aircraft. The transitional surface extends outward and upward from the edge of the primary surface at a 7:1 slope. If aircraft are parked too close to the runway, their tail heights can penetrate this surface, thus becoming an obstruction to the airspace. An obstruction to an airport's airspace could be considered a safety hazard to air navigation and should be avoided to the maximum extents feasible. For obstructions that cannot be avoided, additional coordination with the FAA to determine the most viable mitigation strategies would be needed.

The dimensions of these surfaces vary based on the runway dimensions to which they are applied. At ECP, the primary surface extends 1,000 feet in width (500 feet from the centerline) at the elevation of the runway. The aircraft gates closest to the runway are those designed to accommodate the ERJ-145 which has a tail height of 22'-2". At this distance, approximately 63 feet of clearance is maintained between the tail height and the 7:1 slope of the transitional surface. Therefore, it was determined that there are no Part 77 concerns associated with the existing terminal apron and aircraft parking configuration. Part 77 surfaces will need to be considered during the planning and design for any changes to the terminal building and gate layout.

4.7.2 Remain Overnight (RON) Apron

Attached to the north end of the terminal apron is a ±4,000 SY concrete pad preserved for remain-overnight (RON) aircraft and deicing operations (when necessary). According to ATC staff, as of early 2013, three Boeing 737s and one CRJ "overnight" at ECP, but infrequently use the RON. Instead, they remain parked at the jet bridges, staged for the next morning's departures. Although there is not a need for additional RON space currently, as airline traffic increases throughout the planning horizon, it is likely that airlines will require increased segregated space for overnight parking. As discussed later in the chapter, it is probable that any future terminal expansion will occur to the north, encroaching on the existing RON apron. Replacement RON apron space will need to be coordinated with any such terminal expansion building plans.

4.7.3 Air Cargo Apron

As identified in **Chapter 2**, air cargo operations are conducted in the air cargo facility located south of the terminal at the end of Taxiway E-2. The apron located in front of this facility is approximately 10,418 SF (1,158 SY). The current aircraft fleet mix for the cargo operators[13] at ECP was identified as the following:

- *Flight Express* – Beechcraft Baron, Cessna 210
- *Key Lime Air* – Piper PA-31 Navajo, Cessna 404, Metro II, Metro III Heavy

The configuration and size of the cargo apron limits operators to a maximum of two freighters able to occupy the apron simultaneously. Based on the conversation with the cargo operators, the existing apron and facility are adequate to support current and forecast cargo activity. However, the current location inhibits the expansion of the cargo apron and associated facilities. It is recommended that the Airport identify and preserve space for the potential relocation and expansion of the cargo facility and apron should it become warranted in the future.

4.7.4 General Aviation Apron

As identified previously, the GA apron, which is operated by the FBO, has ±23,830 SY available for aircraft parking. The FBO staff has indicated that the apron is over capacity during peak months, forcing them to park transient aircraft on the helipads located at the south end of the airfield. To best determine the amount of apron space the GA aircraft operators could require over the planning horizon, the number of based and transient aircraft using the apron were identified.

At peak demand periods of the year (generally March through July), up to 30 based aircraft remain parked on the apron - approximately 80 percent piston aircraft and 20 percent turbine aircraft. After a comprehensive assessment of the apron configuration and typical aircraft positioning used by the FBO, general planning assumptions were derived and applied to determine the piston and turbine space requirements. This is shown in **Table 4-19.**

[13] Delta Air Lines, Express Jet, and Southwest Airlines also perform belly cargo operations in conjunction with commercial operations, but do not use the cargo apron for these operations.

Table 4-19 – Apron Space Requirement for Based Aircraft

Based Aircraft	SY per Aircraft	Forecast Year									
		Baseline (2012)		2017		2022		2027		2032	
		#	SY	#	SY	#	SY	#	SY	#	SY
Piston	400	24	9,600	25	10,000	26	10,400	27	10,800	29	11,600
Turbine	800	6	4,800	6	4,800	6	4,800	7	5,600	7	5,600
Total		**30**	**14,400**	**31**	**14,800**	**32**	**15,200**	**34**	**16,400**	**36**	**17,200**

Source: CHA Consulting, 2013
Notes: Assumes based aircraft growth as forecast in Chapter 3
SY per aircraft includes 25-foot wingtip-to-wingtip separation

The above calculations show that based aircraft currently occupy about 61 percent of the GA apron during the peak season. Using the forecast growth rates described in **Chapter 3**, this could increase to 72 percent by 2032. It can consequently be deduced that approximately 6,630 SY (28 percent) remain available for transient aircraft after based aircraft are parked. According to FBO staff, this translates to about 20 tie-down spaces and five non-tie-down spaces. For the purposes of this evaluation, a peak month-average day (PMAD) methodology was used to determine the space requirements for transient itinerant aircraft. The following is a description of the PMAD aircraft parking metric detailed in **Table 4-20.**

GA Itinerant Operations – According to the Air Traffic Activity System (ATADS) data for 2011, itinerant GA operations at ECP accounted for approximately 66 percent of total GA operations.

GA Transient Itinerant Operations – Itinerant operations performed by aircraft that are not based at ECP - assumed to be 70 percent of total GA itinerant operations.

GA Peak Month Transient Itinerant Operations – According to 2011 ECP data, the month of March experienced the greatest number of GA itinerant operations (approximately 10.1 percent).

GA PMAD Transient Itinerant Operations – The GA Peak month itinerant operations were divided by the number of days in the peak month of March (31).

GA Transient Itinerant Arrivals – The number of PMAD operations was reduced by half to derive the approximate number of GA itinerant arrivals.

In lieu of aircraft-type data, professional experience and FBO customer base assumptions rationalize that the based aircraft-type percentages roughly equate to those of transient aircraft.

Table 4-20 – PMAD Transient Itinerant Aircraft

Factors	Forecast Year				
	Baseline (2012)	2017	2022	2027	2032
GA Operations	36,444	37,700	38,600	39,400	40,200
GA Itinerant Operations	23,470	24,279	24,858	25,374	25,889
GA Transient Itinerant Operations	16,429	16,995	17,401	17,762	18,122
GA Peak Month Transient Itinerant Operations	1,659	1,717	1,757	1,794	1,830
GA PMAD Transient Itinerant Operations	54	55	57	58	59
Transient Itinerant Arrivals	27	28	28	29	30

Source: CHA Consulting, 2013
Notes: Assumes General Aviation growth as forecast in Chapter 3

Table 4-21 shows the results of applying the total based aircraft-type percentage and square yardage assumptions to the transient aircraft.

Table 4-21 – Apron Space Requirements for Transient Aircraft

Transient Aircraft	SY per Aircraft	Forecast Year									
		Baseline (2012)		2017		2022		2027		2032	
		#	SY	#	SY	#	SY	#	SY	#	SY
Piston	400	25	10,000	26	10,400	26	10,400	27	10,800	28	11,200
Turbine	800	2	1,600	2	1,600	2	1,600	2	1,600	2	1,600
Total		**27**	**11,600**	**28**	**12,000**	**28**	**12,000**	**29**	**12,400**	**30**	**12,800**

Source: CHA Consulting, 2013
Note: Turbine are assumed to be ADG-II

The total apron space required to house the existing peak demand of based and transient aircraft was calculated to be 26,000 SY, which exceeds the capacity of the existing GA apron. In addition, the FBO has also expressed a desire to accommodate aircraft larger than ADG-II. In August of 2011, a *Master Site and Phasing Plan* was developed by the FBO (see **Appendix C**) that includes apron and hangar expansion. Based on these calculated apron space requirements, it is recommended that the Airport coordinate with the FBO in pursuing an expansion of the general aviation parking facilities to support anticipated activity levels through the near and mid-term planning horizons. These improvements should include preserving space for ADG-III aircraft (e.g. Boeing BBJ, Gulfstream V, DHC Dash-8).

Military Accommodation

Military aircraft frequently overnight at ECP due to early tower closure at Tyndall AFB. Because the RON apron is located in the security identification and display area (SIDA), all personnel (including passengers on the military aircraft), are required to have or be escorted by an

individual with secured area access. This condition precludes most of the military aircraft from utilizing the RON apron due to the unauthorized passengers being carried onboard. If the overnighting military aircraft (typically C-130s) are too large to access the GA apron, ATC must park them on Taxiway M, obstructing access to GA areas. As previously mentioned, widening of the taxiways leading to the GA apron would allow such larger aircraft to use the apron, thus alleviating the constraining issue. While the FBO's *Master Site and Phasing Plan* does not account for military aircraft, the Authority should consider them in future GA apron development.

4.7.5 Helipads

The FBO currently uses the three helipads on the south end of the airfield as a remote apron for overflow and overnighting GA aircraft, forcing military and trainer helicopters to land on taxiways. This causes the taxiway to temporarily shut down (usually for three to five minutes). Due to the restricting nature of these operations, ATC has expressed a desire for three to four dedicated helicopter pads. As helicopter operations are not expected to grow over the planning period, it is recommended that the Airport preserve the existing helipads and allow any GA apron expansion to absorb the aircraft occupying them.

4.8 PASSENGER TERMINAL BUILDING

Based upon the activity forecasts described in **Chapter 3,** programmatic terminal building requirements were identified to accommodate growing passenger activity at the Northwest Florida Beaches International Airport. Specific facility demands, quantified by area square footages for the various components of the terminal, were generated by applying ACRP Report 25: *Airport Passenger Terminal Planning and Design, Volume 1 Guidebook* (2010), and FAA and International Air Transport Association (IATA) industry standards and guidelines to the projections of annual and peak hour passenger enplanements, aircraft operations, and aircraft fleet mix. The requirements were then tailored and refined to reflect ECP specific staff, airline and tenant operational needs and observations. The current use and configuration of the terminal building, as well as evolving technologies and increased passenger reliance on self-service functions, indicate that efficient redevelopment and space re-purposing within the terminal should be emphasized before considering facility expansion.

4.8.1 Terminal Facility Requirements

The facility evaluation considered the following primary functional areas of the terminal building calculated directly from annual and peak hour passenger levels:

- Passenger and baggage ticketing and check-in
- Security screening checkpoint
- Baggage screening and handling
- Gate lounge waiting areas
- International arrivals areas
- Restrooms

Space requirements within these areas are directly related to general assumptions of passenger volume and commercial aircraft fleet mix as described in the following subsections. Other critical functional areas, which may not have a direct correlation to passenger activity levels, are largely driven by local operational needs and by the physical configuration and architectural design of the terminal. Traditional terminal planning factors and the primary area calculations above are utilized to estimate future requirements for areas such as:

- Public circulation and common areas
- Concessions spaces
- Airline customer service specialties, clubs, and baggage service space
- Agency support spaces
- Terminal service spaces such as roof-top or remote mechanical systems
- Airport administration offices

Additional planning assumptions, specific to each functional area of the terminal, are described in the respective subsection of this chapter. A comprehensive spreadsheet of these calculations and associated planning factors and assumptions is also provided in **Appendix D**.

4.8.2 Planning Activity Levels

Since passenger activity levels are highly susceptible to fluctuations in economic conditions, industry and regional trends, and airline business models, identifying recommended facility improvements based solely on specific years can be problematic. Therefore, as a supplement to calendar year projections, planning activity levels (PALs) were established to identify significant demand thresholds for terminal area planning and facility enhancement projects.

Generally speaking, the PALs used for this evaluation focus on the "preferred enplanement forecasts" described in **Chapter 3** but also account for the low and high enplanement forecast scenarios. This range provides scalability in accommodating passenger demands that can fluctuate. **Table 4-22** summarizes the total annual and peak hour passenger enplanement levels used to calculate and estimate future terminal facility requirements at each PAL.

As a planning tool, PALs provide the Authority with the flexibility to advance or slow the rate of development in response to actualized demand, as opposed to a predetermined timeline. If the analyses in this chapter prove conservative (i.e. the high growth forecast scenario is realized

as a result of successful airport marketing and route development initiatives), any improvements recommended in the following chapter should be advanced in schedule. In contrast, if demand occurs at a rate that is slower than the preferred forecast predicts, the improvements should be deferred accordingly. As actual activity levels approach a PAL and trigger the need for a facility improvement, sufficient lead time for planning, design and construction must be also given to ensure that the facilities are available for the impending demand.

Table 4-22 - Passenger Planning Activity Levels (PALs)

PAL	Basis	Annual Enplanements	Peak Hour Enplanements*
Baseline	2012 Actual	439,183	454
PAL 1	2022 Preferred Forecast	616,700	638
PAL 2	2032 FAA TAF (i.e. 20 year low)	711,500	734
PAL 3	2032 Preferred Forecast	869,400	900
PAL 4	2032 Adjusted Regional Market Share (i.e. 20 year high)	1,017,900	1,277

Source: CHA Consulting 2013
* includes 30 minute activity surge for planning contingency

4.8.3 Design Aircraft and Gate Allocation Factors

Using projected aircraft fleet mix information, discussed in **Chapter 3**, a design aircraft was selected for each PAL. Allowing for maximized flexibility of gate utilization, the CRJ-900 has been identified as the dominant regional aircraft type while the B737 series has been identified as the dominant narrow body aircraft type. **Table 4-23** provides a summary of the gate allocation planning factors.

Table 4-23 – Design Aircraft and Gate Allocation Factors

Activity	Baseline	PAL 1	PAL 2	PAL 3	PAL 4
Peak Hour Departures	4	5	6	7	7
30 Minute Surge Factor	2	3	3	3	3
Contingency Gate	1	1	1	1	1
Total # of Gates	**7**	**9**	**10**	**11**	**11**
Narrow Body Aircraft Gates	*5*	*6*	*6*	*7*	*7*
Regional Aircraft Gates	*2*	*3*	*4*	*4*	*4*
Estimated # of Airlines	2	3	4	4	4

Note: Peak hour arrivals are estimated to equal peak hour departures

4.8.4 Airline Space

The Airline Space category represents the areas of the terminal facility directly related to and utilized for airline operations. These areas include ticket counter agent positions, baggage

check-in positions, self-service kiosks, boarding gates, gate hold rooms, airline offices and airline clubs. Commensurate with the growth in passenger enplanements, it is assumed that the number of airlines to be accommodated in the terminal will also increase. For space planning purposes, this evaluation accounts for up to four airlines providing service at ECP as indicated in the previous table. **Table 4-25** represents a summary of the Airline Space program requirements throughout the planning period.

Passenger Check-in Trends

The increasing reliance on evolving technologies has changed and will continue to change passenger behavior with regards to the check-in process. Off-Airport and mobile check-in processes allow for increased levels of enplaned passengers without the need for increasing ticketing lobby area. These trends and assumptions pertaining to evolving technologies are represented in **Table 4-24,** and have been utilized in determining requirements for curbside and agent positions, baggage check positions and self-service kiosks. Current industry trends and technologies will have lasting effects on the size and use of the passenger ticketing hall. Self-service equipment for passengers to check-in and print boarding passes, either on- or off-airport property, and the emerging technology allowing self-bag check, have the potential to reduce occupied ticket agent positions.

These trends and associated planning factors in the travel industry have been applied to the ECP programming requirements. The location and percentage of passenger ticketing and baggage check-ins are critical drivers for determining the spatial requirements for the terminal.

Table 4-24 – Passenger Check-in Assumptions

	PAL 1	PAL 2	PAL 3	PAL 4
Bags Checked by Location				
Terminal	95%	90%	90%	90%
Curbside	5%	10%	10%	10%
Off-Airport	0%	0%	0%	0%
Total	**100%**	**100%**	**100%**	**100%**
Passenger Ticketing by Location				
Ticket Counter Agent Assist	15%	10%	10%	10%
Kiosk Check-in Landside Terminal	35%	25%	25%	25%
Passenger Check-in Curbside	5%	10%	10%	10%
Self-Ticketing Off-Airport	45%	55%	55%	55%
Total	**100%**	**100%**	**100%**	**100%**

Source: CHA Consulting 2013

Passenger Check-in Locations

Passenger check-in trend data provided by Delta Air Lines local management indicates an average of 60 percent of the passengers check bags. This data was used in formulating the requirements for the check-in areas. Utilizing the distribution percentages in **Table 4-24**, the

trending factors for where passengers check-in for flights and where they check their baggage was projected. Throughout the planning period, trends in check-in methods and baggage check demand reflect a consistent reduction as the travel industry continues to optimize self-service technology, reducing the need for staffed positions and kiosks within the terminal. Self-bag-tagging is not yet fully developed in the US however its initial implementation at international airports has proven to be successful. Off-airport baggage check-in is the subject of much speculation and not likely to be introduced to the ECP travel market as it is better suited for the bulk handling of baggage at large destination airports.

The number of agent positions is directly related to the number of check-in transactions being resolved at the counter, and the number of baggage drop transactions. Using this method, a future demand of 9 agent positions and 17 baggage check positions would be necessary to accommodate PAL 4 activity demands. Currently there are ten counter positions in use at ECP, with a capacity for 18 positions in place.

The Check-in Lobby is evaluated in three components: check-in counter with passenger and agent work zone, passenger queue area, and a passenger walking zone or circulation corridor.

The current check-in counter work zone is approximately 1,570 square feet. A slight increase in total area is projected for PALs 3 and 4. Future agent positions may be accommodated within underutilized floor area by the addition of casework, back wall branding, and modifications to the baggage conveyors.

Passenger queue and circulation areas total approximately 2,440 square feet. This area is comprised of a 12 feet deep queue and 12 feet deep circulation corridor, by the length of the ticket counters, 110 feet, and includes four (4) existing kiosks. Conventional planning suggests the circulation corridor should be a minimum of 15 feet to allow passengers with baggage to travel in bypassing directions, however the future circulation corridor is sized using a minimum 20 feet to allow the floor area for kiosks, existing vestibules, and miscellaneous seating.

Other potential check-in lobby factors to be considered in future planning are the introduction of international flights and curbside check-in. International flights typically require longer agent assisted check-in transactions. International travelers usually have a higher bag-per-passenger ratio along with larger baggage. International flights and a general increase in enplanements will at some point trigger the desire for a higher level of service by way of curbside check-in. Neither ECP nor the air carriers offer curbside check-in today. A curbside check-in operation may relieve to some extent passenger congestion at the check-in counters.

Aircraft Gates and Gate Lounges

There are currently seven (7) aircraft boarding gate positions; five (5) at the upper concourse level (Gate 1 - Gate 5) with passenger boarding bridges (PBB) and two (2) at the lower ramp level for ground boarding, each associated with gate lounge areas for passenger seating, gate counters, queue space and public corridors. As of 2013, not all of the gates are fully utilized. Gate 1 has apron access limitations that are being rectified with an apron expansion and adjusted pavement markings (i.e. lead-in and safety envelope lines). Gate 2 is currently used

only for deplaning passengers and the aircraft position hinders efficient ramp operations (i.e. inbound baggage processing). The ramp space issue will be partially mitigated through relocation of the lead-in and safety envelope marking. The forecasted peak hour departures, and the provision of a contingency gate to accommodate unexpected delays, early arrivals or the occasional charter aircraft, indicate a larger gate area is needed. PAL 4 requirements include up to four (4) additional gates.

Gate lounge sizing is based on a criterion of 1,637 square feet to accommodate the passengers of a 76-seat regional jet and 2,355 square feet to accommodate the passengers of a 145-seat narrow body aircraft. Sizing is generally based on IATA level-of-service C, and includes an 80% load factor and a 75% distribution of seated versus standing passengers. Consideration throughout the planning period should be given to the evolving changes in the airline industry with regards to mergers and opportunities for existing air carrier relocation, including the introduction of new entrant air carriers, with regards to future fleet mix and associated gate and hold room layouts.

Airline Ticket Offices (ATO)

There is currently 6,206 square feet of area on the non-secure side of terminal utilized for airline ticket offices and operations offices behind the ticket counters. Assuming 1,200-1,500 square feet per airline, this space is considered satisfactory to accommodate four to five airlines over the planning horizon.

Airline Ramp Operations/Services

At ramp level airside beneath the gates is a vacant space of 6,130 square feet available for future occupancy by airlines. Airline operations space, both office and ramp services, are projected using a programming criterion of 1,300 square feet of office space and 2,500 square feet for ramp services for each airline. Assuming four airlines, a total programmed area of 15,200 square feet would be required for PALs 2-4. It is reasonable to anticipate that any ramp level airline office and service functions would be accommodated within the overall footprint of a future second level concourse above, and may be customized and expanded as needed during the planning period without changes to the passenger operations above.

Table 4-25 – Airline Space Requirements

Terminal Area Function	Existing	Baseline Demand*	PAL 1	PAL 2	PAL 3	PAL 4
Function						
Curbside Positions	0	0	2	2	4	6
Ticket Kiosks – Self-Service	10	11	13	14	13	17
Bag Check Positions	10	9	11	10	13	17
Agent Assist Positions	10	8	7	8	7	9
Total Counter Frontage (LF)	102	94	99	99	110	143
Gates	7	7	9	10	11	11
Area (SF)						
Kiosks & Queuing	In gen. circ.	303	358	385	358	468
Ticket Counter & Work Zone	1,570	1,403	1,485	1,485	1,650	2,145
Ticket Counters Queuing	1,220	1,122	1,188	1.188	1,320	1,716
Ticket Lobby Circulation	1,220	1,870	1,980	1,980	2,200	2,860
Airline Ticket Offices	6,206	6,206	6,206	6,206	6,206	6,206
Gate Lounge	9,112	15,050	19,042	20,679	23,034	23,034
Airline Ramp Operations	0	2,600	3,900	5,200	5,200	5,200
Airline Ramp Services	6,130	5,000	7,500	10,000	10,000	10,000
Total	**25,458**	**33,553**	**41,658**	**47,123**	**49,968**	**51,629**

Source: Gresham, Smith & Partners, Inc. 2013

* This is a theoretical calculation of the facilities required to meet 2012 baseline activity levels

4.8.5 Baggage Services

This category represents the area of the terminal dedicated to the processing of both inbound and outbound checked baggage. This includes the inbound checked baggage process for the baggage claim lobby, bag claim carousels, and baggage claim loading areas. It also includes the area dedicated to outbound baggage make-up and sortation processes. **Table 4-26** represents a summary of the baggage services program requirements throughout the planning activity range.

Baggage Claim

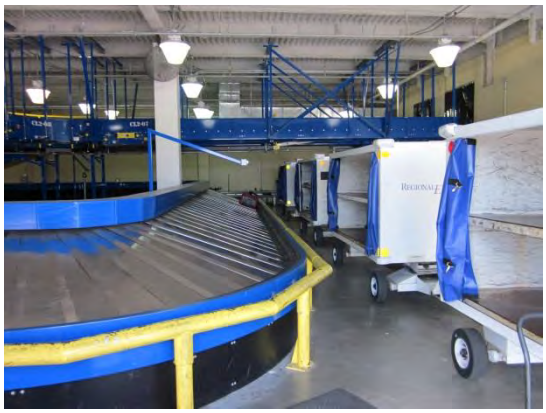
The existing baggage claim lobby utilizes three recirculating carousel baggage claim devices with a usable 100 feet frontage each for a total presentation frontage of 300 feet. The area provided for the claim devices, actively claiming and waiting passengers is approximately 8,175 square feet.

For planning purposes, the number of peak hour arriving passengers drives the demand for baggage claim capacity. Future baggage claim lobby requirements have been projected based on the resulting volume of inbound baggage, 100 feet presentation frontage per claim device, or 3,500 square feet per claim device. These result in a substantial increase in the baggage

claim lobby area needed to efficiently accommodate the existing and future planning activity levels.

Outbound Baggage Make-up

There is one common airline baggage make-up room located immediately south of the Checked Bag Inspection System (CBIS). The baggage make-up room is approximately 5,939 square feet. Baggage is conveyed from the check-in lobby through TSA security screening and delivered to one large recirculating carousel. Baggage carts circulate in one direction around the carousel using one staging lane and one bypass lane.



The existing 4-sided carousel provides a total of 104 feet of presentation frontage for loading baggage carts and capacity of no more than eight (8) simultaneously departing flights. This method requires manual visual sorting of airlines and destinations in order to properly load the baggage carts. As passenger enplanements and associated checked baggage volume increases across the planning activity range, consideration should be given to independent airline specific carousels and a baggage sortation system.

Outbound baggage make-up space requirements have been programmed based on the Equivalent Aircraft (EQA) method for each PAL. EQA is a concept that normalizes each gate based on seating capacity of the design aircraft, in terms of a Group-III narrowbody jet. One EQA is equivalent to 145 seats. Combining EQA with factors representing area per staging carts, and departures per gate, approximately 16,000 to 24,000 square feet of baggage make-up area would be needed to accommodate the various planning activity levels.

Inbound Baggage Make-up

Inbound baggage is currently processed via an outside conveyor belt system behind the baggage claim lobby, adjacent to the Gate 2 ramp. This area is uncovered and operationally constrained due to aircraft parking and safety area configuration. If an aircraft is parked at Gate 2, baggage tugs must often pass underneath, or very close to, the wings of the aircraft.

Depending on the future configuration of the terminal building, this process could be covered or placed inside the lower level of a building expansion. Aircraft parking configuration and/or extension of the conveyor system could mitigate at least some of the constraints. For planning purposes, the approximate space required for an enclosed inbound baggage make-up area is also provided.

Table 4-26 – Baggage Service Space Requirements

Terminal Area Function	Existing	Baseline Demand*	PAL 1	PAL 2	PAL 3	PAL 4
Function						
Bag Claim Devices	3	4	6	7	8	12
Baggage Claim Frontage (LF)	315	409	575	661	810	1,150
Area (SF)						
Baggage Claim Hall	8,175	14,000	21,000	24,500	28,000	42,000
Baggage Service Office	430	430	430	430	430	430
Outbound Baggage Makeup	5,939	15,931	19,936	21,303	23,943	23,943
Total	**14,544**	**30,361**	**41,366**	**46,233**	**52,373**	**66,373**
Inbound Baggage Make-up	*Exterior*	*7,952*	*11,928*	*13,916*	*15,904*	*23,856*

Source: Gresham, Smith & Partners, Inc. 2013

* This is a theoretical calculation of the facilities required to meet 2012 baseline activity levels

4.8.6 Public Space

This category represents areas within the terminal utilized by the public for general circulation and restrooms. These areas include common areas within the ticket lobby, a common corridor within the concourses between airline departure hold rooms, and areas utilized by meeters/greeters. **Table 4-27** represents a summary of the public space program requirements throughout the planning activity range.

General Circulation

General circulation area for the existing terminal facility represents approximately 17 percent of the overall terminal area. This area includes common spaces connecting key terminal functions used primarily for passenger circulation, and is a function of the terminal design and configuration. Separate circulation areas related to key terminal functions and passenger activity include concourse and ticket lobby circulation. The areas represented in **Table 4-27** are non-leasable public space requirements necessary to support specific terminal and airline functions.

Concourse circulation area is the post-security public corridor connecting the Security Screening Check Point (SSCP), concessions, restrooms, and amenities with the gate lounges. The prime factors establishing the required area are the distance calculated from the cumulative wingspan total of the gated aircraft and a minimum corridor width. It is assumed the aircraft are spaced at a distance of 25 feet between wingtips, and the minimum corridor width is 15 feet. The total distance is multiplied by the minimum corridor width assuming a single loaded concourse at each gate. By associating 15 feet corridor width to a single gate, the program area projects the appropriate corridor width for a double loaded concourse, or 30 feet. Based on this criterion, additional concourse circulation is needed now and throughout each planning activity level.

Ticket lobby circulation requirements assume a 20’-0”corridor width times the length of the ticket counters to determine circulation between the queue and the exterior face of the

terminal. The meeter/greeter calculation uses a factor of 10 percent of the total arriving passengers to project the number of people awaiting deplaning passengers within the terminal. This function is currently accommodated within the existing general circulation space.

While general circulation is associated with terminal functions it is also driven by the size and configuration of the terminal. For planning purposes, it has been estimated that 3% of the total building space will be dedicated to other circulation such as stairs, elevators, and escalators. This building area program for all areas of passenger and staff circulation should be evaluated at each PAL as terminal configuration alternatives are developed.

Restrooms

There are currently 3,145 square feet of existing public restroom facilities throughout the terminal; 1,672 square feet are on the landside and 1,473 square feet on the airside.

Landside restroom facility requirements are determined using the peak hour enplanements and deplanements in either the ticketing or baggage claim areas, along with a percentage of meeters, greeters and well-wishers. Airside restrooms are calculated using the EQA factor for each PAL to determine a number of restroom modules and a minimum number of fixtures per module. Typically, one restroom module per eight EQA is preferred for concourse walking distances and passenger activity. The public space requirements are summarized in **Table 4-27**.

Table 4-27 – Public Space Requirements

Terminal Area Function	Existing	Baseline Demand*	PAL 1	PAL 2	PAL 3	PAL 4
Area (SF)						
Concourse Circulation	4,970	13,560	17,235	18,840	20,910	20,910
Ticket Lobby Circulation			*Listed under Airline Space*			
Meeter/Greeter Waiting	na	1,135	,595	1,835	2,250	3,193
Public Restrooms – Concourse	1,473	2,340	2,700	2,820	3,960	3,960
Public Restrooms - Landside	1,672	3,000	3,720	3,960	4,200	5,400
Passenger Services	in Concourse	1,158	1,526	1,718	2,050	2,804
Stairs, Elevator, Escalators	2,619	4,167	5,201	5,756	6,358	7,396
Total	**10,734**	**25,360**	**31,977**	**34,929**	**39,728**	**43,663**

Source: Gresham, Smith & Partners, Inc. 2013

* This is a theoretical calculation of the facilities required to meet 2012 baseline activity levels

4.8.7 Concessions

The concessions requirements represent all of the areas of the terminal facility utilized for retail space both airside and landside including storage requirements. Each concession area requirement has been divided into specific retail type; food and beverage, news/gifts/specialty and services such as advertising, information desks, banking etc. The current distribution between pre-secure and post-secure concessions is 50 percent pre-secure and 50 percent post-

secure. Areas for rental car and ground transportation counters have been represented as a separate concession category.

Overall future concessions area requirements were projected by using a square foot utilization factor of 10 square feet per 1,000 annual enplaned passengers. Consistent with national trends, Authority and concessionaire staff report that 75 percent of the concessions business at ECP is conducted post security screening. Therefore the recommended overall strategy is to shift the distribution of concessions to approximately 75 percent within the post-secure area. This focuses the majority of future concessions development to the gate and holdroom area, thereby resulting in increased revenue potential. **Table 4-28** represents a summary of the concessions program requirements throughout the planning activity range. As international traffic develops, consideration should also be given to future duty-free concessions as a subset of the total post-secure concession area.

Pre-Secure Concessions

The current pre-secure concessions occupy 1,905 square feet, of which 72 percent is food and beverage and 28 percent is news\gifts\specialty. Pre-secure food and beverage concessions could grow slightly, based on total annual enplanements, but the existing space appears sufficient and would be approximately 25 percent of the total concession space requirement at PAL 4.

Post-Secure Concessions

The current post-secure concessions occupy 1,928 square feet, of which 70 percent is food and beverage and 30 percent is news\gifts\specialty, which is similar to pre-secure composition. Post-secure concessions would grow commensurate with total enplanement growth. To best serve the traveling public and optimize revenue potential, the target goal of 75 percent post-secure concessions results in an increase of 1,300 to 5,700 square feet through PAL 4. Based on current concessionaire needs and industry experience, approximately 80 percent of the airside concessions should be dedicated to food and beverage.

Concessions Storage

The current ECP concessions storage facilities occupy approximately 30 percent of the overall concessions area, or 1,158 square feet. As the concessions program expands to provide additional offerings to keep pace with forecast passenger growth, one would expect the storage requirement to increase, however the magnitude of storage is normally approximately 10 percent the sales area. Utilizing a sizing factor of 10 percent of the total concessions program, the existing storage area has adequate capacity for foreseeable future needs.

Rental Car and Ground Transportation Counters

There are currently 3,199 square feet of rental car counter, customer queuing, and office facilities located adjacent to the baggage claim area equally subdivided among 5 counters. Ground transportation services are provided from an information desk in the baggage claim lobby.

To determine future requirements for rental car counter and office needs, each operator was surveyed and their requirements were considered in determining sizing factors. Using an average of these requirements, it is assumed for each operator that each counter is 20'-0" long, that each queue depth is 10'-0", each work space is 10'-0" deep and each office is 12'-0" deep. For PAL 3, there is a total increase of 1,451 sq. ft. in office, work area, and queue space to accommodate anticipated staffing increases and storage needs to keep in pace with the forecast increase in passenger levels. At present, there is no apparent need for additional ground transportation space as the current facilities are not fully utilized.

Table 4-28 – Concessions Space Requirements

Terminal Area Function	Existing	Baseline Demand*	PAL 1	PAL 2	PAL 3	PAL 4
Area – Pre-Secure (SF)						
Food and Beverage	1,374	1,374	1,374	1,423	1,739	2,036
News, Gifts and Specialty	531	531	531	531	531	531
Services	In Gen. Circ.	22	31	36	43	51
Subtotal	**1,905**	**1,927**	**1,936**	**1,990**	**2,313**	**2,618**
Area – Post-Secure (SF)						
Food and Beverage	1,345	2,635	3,700	4,269	5,216	6,107
News, Gifts and Specialty	583	593	833	961	1,174	1,374
Services	In Concourse	66	93	1007	130	153
Subtotal	**1,928**	**3,294**	**4,625**	**5,336**	**6,521**	**7,634**
Concessions Storage	1,158	1,158	1,158	1,158	1,325	1,538
Total	**4,991**	**6,379**	**7,578**	**8,484**	**10,159**	**11,790**
Rental Car/Ground Transportation						
Rental Car/Ground Transportation	3,199	3,370	4,010	4,010	4,650	4,650
Total Concession Area	**8,190**	**9,748**	**11,730**	**12,493**	**14,808**	**16,439**

Source: Gresham, Smith & Partners, Inc. 2013

* This is a theoretical calculation of the facilities required to meet 2012 baseline activity levels

4.8.8 Agency Space

Agency space represents the areas of the terminal that are dedicated to governmental entities focused on security functions, for both the screening of passengers and checked baggage, and international flights arriving into the United States. The space program includes the existing but vacant areas reserved for a future U.S. Customs and Border Protection (CBP) facility to provide the ability for ECP to process arriving international passengers. **Table 4-29** presents a summary of the agency space program requirements throughout the planning activity range. The Federal Aviation Administration (FAA) does not occupy space within the terminal building.

Security Screening Checkpoint (SSCP)

The existing 3,136 square foot area includes capacity for three baggage x-ray machines, two Advanced Imaging Technology (AIT) machines, and passenger queue area. A Navy Test Bed Evaluation Center of 246 square feet is adjacent to the checkpoint. Assuming a complement of two x-ray machines and one AIT provides a net screening rate of 240 passengers per hour, and requires roughly 2,000 square feet per complement, the necessary area required to accommodate the current passenger volume should be approximately triple the existing size. This increase is due in large part to a current deficit in recomposure space, and pre- and post-travel document check (TDC) queue space. SSCP requirements at the end of PAL 3 are projected to be approximately four times larger than at present.

Checked Baggage Inspection System (CBIS)

Currently, checked baggage is screened through the use of an automated inline explosives detection system (EDS). The area of the terminal dedicated to checked baggage screening is approximately 11,000 square feet which includes conveyors, EDS equipment, and a TSA staffed checked bag resolution area (CBRA) for manual inspection and resolution of all baggage not cleared by the automated system, and TSA support space. This area appears to be adequately sized for the existing peak hour enplanements but will need additional space for equipment, conveyors, and support space beginning at PAL 3.

TSA Offices

The existing TSA offices located within the terminal provide support and administrative facilities for the TSA staff including break rooms, supervisor offices, storage, and lockers. Space needs vary based on local operating structure, and TSA staff have indicated a need for approximately 1,500 additional square feet by PAL 1. The need for additional space beyond that should be re-evaluated at each future planning level.

U.S. Customs and Border Protection (CBP) and International Arrivals

Currently, ECP does not have scheduled international air carrier service however existing floor area has been set aside for a future CBP facility; 10,741 square feet at the second level for primary processing, and 1,150 square feet at level one adjacent to the baggage claim for secondary processing. It is assumed the future CBP facility would use the northern most baggage claim device (2,857 square feet) with appropriate security partitions in place. These areas suggest a maximum passenger processing rate on the order of 200-300 passengers per hour, based on current US Customs and Boarder Protection guidelines.

Table 4-29 – Agency Space Requirement

Terminal Area Function	Existing	Baseline Demand*	PAL 1	PAL 2	PAL 3	PAL 4
Area (SF)						
Security Checkpoint & Queue	3,136	9,043	9,043	11,999	11,999	17,911
In-Line Baggage Screening	10,990	10,990	10,990	10,990	12,240	13,200
TSA Offices	3,095	3,095	4,595	4,595	4,595	4,595
CBP/International Arrivals	11,900	10,622	13,386	13,386	13,386	13,386
Total	**29,121**	**33,750**	**38,014**	**40,970**	**42,220**	**49,092**

Source: Gresham, Smith & Partners, Inc. 2013,
U.S. Customs and Border Protection, Airport Technical Design Standards, 2006
* This is a theoretical calculation of the facilities required to meet 2012 baseline activity levels

4.8.9 Terminal Services

These are the areas of the terminal facility directly related to non-public spaces, such as mechanical, electrical and information technology rooms. It also includes areas for deliveries, loading dock, compactor\recycling and storage of building maintenance equipment such as lifts. **Table 4-30** represents a summary of the terminal services space requirements throughout the planning activity range.

Mechanical and Electrical

The mechanical and electrical areas within the ECP terminal facility account for approximately 5 percent of the overall terminal square foot area, which is 5,888 square feet. These areas typically include mechanical rooms, electrical rooms, communication rooms, roof top equipment penthouses, building shafts and chases. In that the ECP terminal utilizes modern mechanical and electrical technology it is anticipated that future requirements will remain at 5 percent of the overall terminal area.

Building Services

The building services for the terminal facility include airport operations, airport storage, delivery and loading areas, compactor\recycling areas and maintenance equipment storage. Currently, there is spaced allocated throughout the terminal facility at 2 percent of the total terminal area.

Table 4-30 – Terminal Service Space Requirements

Terminal Area Function	Existing	Baseline Demand*	PAL 1	PAL 2	PAL 3	PAL 4
Area (SF)						
Mechanical and Electrical	5,888	6,944	8,668	9,594	10,597	12,327
Building Services	In Above	2,778	3,467	3,837	4,239	4,931
Total	**5,888**	**9,722**	**12,135**	**13,431**	**14,836**	**17,258**

Source: Gresham, Smith & Partners, Inc. 2013
* This is a theoretical calculation of the facilities required to meet 2012 baseline activity levels

4.8.10 Airport Administration

These are areas of the terminal facility directly related to ECP staff operations including offices, conference rooms, file storage, police, security and internal circulation. **Table 4-31** represents a summary of the airport administration program requirements throughout the planning activity range.

There are approximately 9,158 square feet of area, distributed between landside and airside, dedicated to airport administration on levels one and two of the terminal. Administrative office and support space needs are associated with passenger and facility growth, and what staffing levels and facilities are necessary to support this growth. Using a planning factor of 20 square feet per forecast peak passenger, an overall administration office area total can be projected. At PAL 3, the administration space requirement could be almost double the current square footage.

Military Welcome Center and Passenger Club

Currently at ECP, there is a landside lounge facility for military and Department of Defense personnel, but there are not proprietary airline or airport clubs for premium passengers. The Military Welcome Center space is included in the existing airport administration square footage. As passenger levels increase, there may be a need for a third party pay-for-use, or proprietary premium passenger club of approximately 1,200 square feet, including welcome desk, seating areas and restrooms. The area for a passenger club could also function as a business center providing amenities such as computers, printers, and fax machines.

Table 4-31 – Airport Administration Space Requirements

Terminal Area Function	Existing	Baseline Demand*	PAL 1	PAL 2	PAL 3	PAL 4
Area (SF)						
Airport Administration	9,158	9,080	12,760	14,680	18,000	25,540
Airport Club	0	1,200	1,200	1,200	1,200	1,200
Total	**9,158**	**10,280**	**13,960**	**15,580**	**19,200**	**26,740**

Source: Gresham, Smith & Partners, Inc. 2013

* This is a theoretical calculation of the facilities required to meet 2012 baseline activity levels

4.8.11 Passenger Terminal Summary

Terminal size and configuration should reflect the characteristics and projected magnitude of passengers and baggage to be handled. Planning terminal capacity with each terminal area function in mind is key to the successful development of airport passenger terminals, and has long-term financial and operational implications for passenger facilities.

As the passenger volume at Northwest Florida Beaches International Airport grows the physical area requirements will increase largely in a proportional way however some areas may see substantial growth while other only marginal growth. Among the terminal areas listed in **Table**

4-32, areas projected to require substantial change are airline and gate space, baggage handling, terminal service space, public space, and baggage service space.

The requirements for terminal service space, which is comprised of primarily mechanical and electrical rooms is projected to outpace the growth in overall area because the larger facility will justify dedicated facilities such as a truck dock and concessions screening, refuse holding and recycling areas, sweeper and lift storage, and airport maintenance storage and staff areas. The public space requirement is also projected to outpace the overall growth being driven by not only increased peak hour enplanements but also additional and larger aircraft spaced across the terminal apron. The terminal service space requirement and public space requirement are both impacted by the geometrical configuration terminal and to a lesser extent by peak hour enplanements and should be evaluated in light of the conceptual development. The requirement for baggage service space is projected to increase due to additional and larger baggage claim devices as well as outbound baggage rooms and equipment dedicated to each airline rather than one common room with one common carousel as exists today.

Table 4-32 – Terminal Building Space Requirements

Terminal Area Function	Existing	Baseline Demand*	PAL 1	PAL 2	PAL 3	PAL 4
Area (SF)						
Airline Space	25,458	33,553	41,658	47,123	49,968	51,629
Baggage Services	14,544	30,361	41,366	46,233	52,373	66,373
Covered Inbound Baggage Make-Up (Optional)	0	7,952	11,928	13,916	15,904	23,856
Public Space	10,734	25,360	31,977	34,929	39,728	43,663
Concessions	4,991	6,379	7,578	8,484	10,159	11,790
Rental Car/Ground Transportation	3,199	3,370	4,010	4,010	4,650	4,650
Agency Space	29,121	33,750	38,014	40,970	42,220	49,092
Terminal Services	5,888	9,722	12,135	13,431	14,836	17,258
Airport Administration	9,158	9,080	12,760	14,680	18,000	25,540
Airport Clubs (Optional)	0	1,200	1,200	1,200	1,200	1,200
Total	**103,093**	**160,727**	**202,626**	**224,976**	**249,038**	**295,051**

Source: Gresham, Smith & Partners, Inc. 2013

* This is a theoretical calculation of the facilities required to meet 2012 baseline activity levels

4.9 TERMINAL CURBSIDE REQUIREMENTS

Passenger drop-off and pick-up takes place on the ground level and consists of an inner curbside (Lanes 1 through 3) and an outer curbside (Lanes 4 and 5). The following provides a summary of each lane and the respective characteristics for each that were used to develop the curbside requirements.

Lane 1 – Connects to the terminal curbside immediately adjacent to the terminal facility and represents approximately 580 linear feet of curbside capacity.

Lanes 2 and 3 – Primarily utilized for vehicle circulation. During peak operating times, Lane 1 can become congested, resulting in additional vehicle traffic defaulting to Lane 2 as a secondary curb. While not a preferred situation due to safety concerns, utilization of this lane for POV and taxi staging can increase the available curbside by another ¾ of the existing length. Vehicles are not permitted to stop in Lane 3 as it must always remain open for circulation.

Lanes 4 and 5 – These outer lanes, which are furthest from the terminal facility, are primarily utilized for Airport and agency vehicles and commercial vehicles, such as taxi cabs, limousines and shuttle buses. Vehicle staging occurs in Lane 4 (curbside) and Lane 5 is used for circulation only. Double-parking is not permitted.

Table 4-33 details the lengths for each curbside. These lengths are used as the baseline comparison for the planning periods and establish the curbside requirements for each period.

Table 4-33 – Existing Curbside Lengths

Lane	Linear Feet
Lane 1 - POV/Taxi Curbside	580
Lane 2 - Circulation or Overflow (double-parking)	580
Lane 3 - Circulation	N/A
Lane 4 - Commercial/Airport/Agency Curbside	415
Lane 5 - Circulation	N/A

Source: ECP 2012

Utilizing ACRP Report 25: *Airport Passenger Terminal Planning and Design, Volume 1 Guidebook* (2010), which documents industry accepted design criteria for terminal planning and design, curbside programming assumptions for a 15-minute peak planning period were used to determine the required curbside linear frontage and capacity for each curb. Based on industry trends and professional experience, it was determined an average total forecasted peak hour vehicle quantity could be determined by utilizing a factor of 0.5 vehicles per peak hour enplanement. These vehicle totals are then separated into vehicle type, including vehicle length and average curb dwell time. These criteria were used to determine the curbside frontage requirements.

A more significant factor in determining required curbside length is the anticipated dwell time for each vehicle type at each specific curb. Using industry standards documented in ACRP Report 25, average vehicle dwell times based on specific vehicle types were used to define vehicle behavior patterns specific to ECP. **Table 4-34** represents the vehicle dwell time assumptions for the individual terminal curbs.

Table 4-34 – Vehicle Dwell Time by Curb

Type	Time (min)	Comment
Inner Curb - Lane 1 (and 2 for overflow)		
POV	2.0	Average for unloading
Taxi	2.0	Average for unloading and transaction time
Limousine	3.0	Average for unloading and transaction time
POV	5.0	Average for additional waiting and loading time
Outer Curb - Lane 4		
Taxi	2.0	Average for loading
Limousine	3.0	Average for loading and unloading
Shuttle	4.0	Average loading and unloading

Source: Gresham, Smith & Partners, Inc. 2013
Note: Lanes 3 and 5 are for circulation only

The following assumptions and methodologies have been utilized to determine curbside requirements in **Table 4-35:**

- Vehicle Distribution by Curbside
  - Lane 1: 80% of total peak hour vehicles
    - POV – 85% (½ unloading, ½ waiting/loading)
    - Taxi Cab – 10% (only utilized for dropping off passengers)
    - Limousine – 5% (only utilized for dropping off passengers)
  - Lane 4: 20% of total peak hour vehicles
    - Taxi Cab – 45%
    - Limousine – 10%
    - Shuttle – 45%

POV's pick up and drop off passengers exclusively at Lane 1 curbside. Taxi cabs and limousines drop off passengers at Lane 1 curbside, but return to Lane 4 curbside to pick up passengers. Shuttles and motor coaches\buses pick up and drop off passengers at Lane 4 curbside. Up to two airport or agency vehicles are staged at any given time in Lane 4, eliminating approximately 50 feet for commercial vehicle use. Curbside linear capacity requirements are determined based on the 15-minute peak vehicle demand quantities (peak hour vehicles x 30%), peak 15-minute volume x (dwell time/15 min) x vehicle length

This curbside capacity calculation is applied to each individual vehicle type per curbside level, with the total curbside requirement at each level being determined by the sum of each vehicles

linear curbside requirement. **Table 4-35** provides a summary of the terminal curbside demand over the planning activity range.

Table 4-35 – Curbside Demand Requirements

PAL	Peak Hour Vehicles				Curbside Requirements (ft)		
	POV	Taxi	Limo	Shuttle	Existing	Required	Surplus/(Deficit)
Inner Curbside							
Baseline	154	23	11	0	580	339	241
PAL 1	217	25	13	0	580	462	118
PAL 2	250	29	15	0	580	531	49
PAL 3	306	36	18	0	580	650	**(70)**
PAL 4	434	51	26	0	580	923	**(343)**
Outer Curbside							
Baseline	0	20	5	20	365	205	160
PAL 1	0	29	6	29	365	289	76
PAL 2	0	33	7	33	365	330	35
PAL 3	0	40	10	40	365	410	**(45)**
PAL 4	0	58	12	58	365	578	**(213)**

Source: Gresham, Smith & Partners, Inc., 2013
Note: For Inner Curbside requirements, a 1.75 multiplier was used to account for the Lane 2 utilization.

Both the inner and outer curbsides are estimated to reach capacity by PAL 3. Curbside requirements and capacity should be confirmed at each PAL to verify that vehicle types, numbers and distribution utilizing the curb have not changed significantly, impacting the use or capacity of the curbside. It is likely that as the terminal building expands northward or southward to accommodate passenger ticketing and baggage claim functions, additional curbside could be developed contiguous to that expansion.

4.10 AUTOMOBILE PARKING

4.10.1 Public Parking

As of early 2014, there are a total of 1,347 on-airport public parking spaces within the ring-road at ECP. Approximately 300 of these spaces were covered in late 2013 providing all-weather protection for either short- or long-term parkers. In addition, there is a non-paved parking area located outside of the ring-road just east of the rental car fueling and wash area. This area can accommodate approximately 300 vehicles and is used for overflow parking during peak times such as Thanksgiving and Christmas. When this overflow area is utilized, shuttles are required to transport patrons to and from the passenger terminal. There are no private off-airport parking lots in operation. A previous "Covered Airport Parking" lot (CAP) located directly adjacent to the Airport was closed in Mid-December 2012. **Table 4-36** presents a breakdown of the total public parking supply at the Airport as of January 2014.

Table 4-36 – Total Public Parking Supply

Type	Supply
Covered Lot	298
Short-Term Lot	196
Long-Term Lot	853
Unpaved Overflow	300
Total	**1,647**

Source: Northwest Florida Beaches International Airport

Public Parking Peak Demand

Public parking demand is the number of spaces required on the peak day in the peak month. According to discussions with Republic Parking System's Manager at ECP, peak occupancy occurred in November (week of Thanksgiving).

The overnight occupancy for the week of Thanksgiving in November of 2011 shows that Friday the 25th was the peak parking day in the peak month, see **Table 4-37.**

Table 4-37 – Overnight Occupancy – Week of Thanksgiving, 2011

Parking Lot	Sun 20th	Mon 21st	Tue 22nd	Wed 23rd	Thu 24th	Fri 25th	Sat 26th
Short-Term	60	58	80	97	90	94	81
Long-Term	385	389	465	572	455	440	344
Extended Long-Term	20	17	115	434	630	648	510
Total	**465**	**464**	**660**	**1,103**	**1,175**	**1,182**	**935**

Source: Republic Parking System
Note: Orange cells indicate "peak" volume

It should be noted that the overnight occupancies in the above table are from November of 2011 during which time, the private off-airport "CAP" lot was in operation. This lot had a total parking supply of 305 spaces. To determine if the lot closing had a measurable effect on the on-airport parking demand, overnight occupancy from the first week in April 2012 (when the lot was open) was compared to the same week in 2013 (after the lot closed). There was no significant difference in the occupancy numbers.

The table shows that, on the absolute peak day in 2011, there were 1,182 vehicles parked overnight. This number is used for the design day and from which an airport parking demand ratio has been developed. This overnight peak occupancy number was increased by 27% to account for the daytime accumulation of parkers. This is based on comparing one week of overnight occupancy in the first week of April 2013 with the same week's daytime occupancy to determine the percent of daytime accumulation. **Table 4-38** shows that the peak accumulation

during one week was 27%. This results in a peak parking demand number of 1,501 or 1,182 x 1.27 = 1,501.

Table 4-38 – Percent Accumulation, April 2013

	Mon 1st	Tue 2nd	Wed 3rd	Thu 4th	Fri 5th	Sat 6th	Sun 7th
Overnight Occupancy							
Short-Term	65	60	62	40	27	30	31
Long-Term (total)	312	320	362	381	378	337	301
Total	**377**	**380**	**424**	**421**	**405**	**367**	**332**
Daytime Occupancy							
Short-Term	50	34	30	78	39	37	52
Long-Term (total)	400	370	300	434	423	388	368
Total	**450**	**404**	**330**	**512**	**462**	**425**	**420**
Percent Accumulation	**19%**	**6%**	**-22%**	**22%**	**14%**	**16%**	**27%**

Source: Republic Parking System

Public Parking Demand Ratio

Public parking demand at an airport is a direct function of airline passenger activity. The public parking demand ratio is calculated by comparing annual enplanements with the peak parking demand in order to determine the number of parking spaces required per 1,000 annual enplanements. In 2011, there were 433,081 enplaned passengers at ECP. Based on the on-airport peak parking demand of 1,501 spaces, the on-airport parking demand ratio for ECP is 3.47 spaces per thousand annual enplanements or 1,501 / (433,081 / 1,000) = 3.47.

Projected Public Parking Demand

Not including the unpaved overflow parking lot, there is an approximate deficit of 175 public spaces at current peak-period passenger activity levels. As presented in **Table 4-39,** this deficit is projected to increase to over 2,100 spaces by PAL 4.

Table 4-39 – Projected Public Parking Surplus and Deficit

Year	Enplanements	Demand	Supply	Surplus/Deficit
Baseline	439,183	1,522	1,347	-175
PAL 1	616,700	2,138	1,347	-791
PAL 2	711,500	2,468	1,347	-1,121
PAL 3	869,400	3,014	1,347	-1,667
PAL 4	1,017,900	3,528	1,347	-2,181

Source: Albersman & Armstrong, Ltd.

Parking User Groups

In terms of parking, there are typically three basic user groups at airports; short-term, premium long-term and economy. Short-term parkers are usually meeters/greeters and well-wishers. These spaces are generally the closest and most convenient parking. Typically, at the average airport, the number of short-term parkers is approximately 65% to 75% of the total parkers but, because of high turnover, the number of parking spaces required is only about 15% to 20% of the total parking supply.

At ECP, the overnight inventory numbers indicate that, during peak times, there can be 90 or more vehicles parked in the short-term lot. Discussions with the Republic Parking System manager revealed that about half (45 to 50) of these vehicles are from "monthly pass" parkers (airline employees who pay a monthly fee) who should be parking in the long-term lot. The remaining vehicles are long-term parkers who pay the higher fee in order to park in the short-term lot. This means that only about 6% of the total airport parking supply is available to short-term parkers during peak periods and many short-term parkers are forced to park in less convenient long-term spaces.

Premium long-term parkers are those who are willing to pay more for the added convenience of parking near the terminal building. These parkers are often associated with business trips.

Economy parkers are those who are willing to endure some inconvenience to save money. Economy parkers are the most likely parkers to be lured to less expensive private off-airport parking facilities. As stated above, there are currently no private off-airport parking facilities at ECP.

Future facility alternatives will consider the size and configuration required to satisfy the user groups described above.

4.10.2 Employee Parking

Employee Parking Demand

The airport provides 204 employee parking spaces in a lot just south of the extended long-term lot. An occupancy count dated January 1, 2012[14] indicated the employee lot was 34% occupied. Even though this was a New Year's Day, this occupancy count suggests that the size of the current employee lot is adequate to serve the Airport's current needs. In order to calculate future demand, this occupancy was increased by 20% to allow for any peaks during busy days, holidays and shift changes. This yields a current demand of 110 spaces.

Employee Monthly Pass Parkers

Currently, the Airport has issued 95 "monthly passes" for airline employees to park in the long-term lot. Discussions with the Republic Parking System Manager yields an estimated 50% of the

[14] Occupancy count from Google Earth Pro Imagery dated January 1, 2012

monthly pass parkers are on-airport at any given time. These airline employees are intended to park in the long-term lot. However, as previously discussed, overnight occupancy counts reveal that most, if not all, of these employees (45 to 50) are parked in the short-term lot.

These monthly pass parkers (50) were added to the employee demand number above for a total employee parking demand of approximately 160 spaces.

Employee Parking Demand Projections

The employee parking demand number above was used and increased at the same rate as the projected enplanements to achieve the projected employee parking demand see **Table 4-40**. It should also be noted that the supply used for these projections only included the spaces in the employee parking lot (this assumes the monthly pass parkers are removed from the public parking lots).

The assessment of the projected employee parking demand shows a small surplus of employee spaces currently, with a deficit increasing to about 170 spaces to support PAL 4 activity levels.

Table 4-40 – Projected Employee Parking Surplus and Deficit

Year	Enplanements	Demand	Supply	Surplus/Deficit
Baseline	439,183	162	204	42
PAL 1	616,700	228	204	-24
PAL 2	711,500	263	204	-59
PAL 3	869,400	321	204	-117
PAL 4	1,017,900	376	204	-172

Source: Albersman & Armstrong, Ltd.

4.10.3 Rental Car Parking

The rental car facility consists of rental counters inside of the passenger terminal across from the baggage claim area with 250 ready and return spaces located north of the short-term parking within about a 600 foot walk. The Quick-Turn-Around Area (QTA), for fuel and washing, is located on the west side of the airport ring-road across from the long-term parking. Currently, there are no vehicle maintenance/service center facilities located on or around the airport property.

Total Rental Car Area Requirements

The total rental car facility requirements include the area for ready and return car parking, vehicle storage, QTA, and associated vehicle circulation. As can be seen in **Table 4-41** the total rental car area at ECP is larger than other airports with similar size rental car markets in terms of gross revenue.

Table 4-41 – Comparison/Benchmark – RAC Revenue vs. Acres

Airport	2010 Gross Revenue [1]	Total Rental Car Facility Acres	% of ECK Facility
Gulfport-Biloxi International	$1,756,929	6.4	65%
Ashville Regional	$1,704,629	5.7	57%
Burlington International	$1,535,930	6.1	62%
Hilo International	$1,513,180	8.0	81%
Gallatin Field	$1,493,843	6.0	60%
Akron-Canton Regional	$1,468,771	6.3	64%
Valley International	$1,440,166	5.9	60%
Lehigh Valley International	$1,407,930	7.4	75%
The Eastern Iowa	$1,328,228	7.1	72%
Quad City International	$1,326,833	5.6	57%
Northwest Florida Beaches International	**$1,314,518**	**9.9**	**100%**
Midland International	$1,285,114	4.1	41%
Lovell Field	$1,257,814	8.2	83%

[1] FAA Compliance Activity Tracking System (CATS)

Ready and Return Car Demand

The demand for rental cars grows as a function of enplanements. As airline traffic increases, the size of the fleet increases to serve demand and therefore the size of the area required to park rental cars increases. However the size of the ready and return car parking area does not necessarily increase. Typically, as rental car demand increases the rental car agencies will increase shuttling between the maintenance/service center sites and the ready car area.

Since, there are no maintenance/service center sites at ECP, the increased shuttling would occur between the ready/return lot and the QTA. **Table 4-42** is a benchmark for comparing the size of the ready and return area at ECP with other airport of similar size in terms of rental car revenue. This table shows that with the exception of Lehigh Valley, Quad City and Gallatin Field, ECP is larger than most airports with higher rental car revenue.

Table 4-42 - Comparison/Benchmark – RAC Revenue vs. Ready and Return Area

Airport	2010 Gross Revenue [1]	Total Rental Car Facility Acres	% of ECK Ready/Return
Gulfport-Biloxi International	$1,756,929	1.2	44%
Ashville Regional	$1,704,629	0.9	34%
Burlington International	$1,535,930	1.9	70%
Hilo International	$1,513,180	1.5	57%
Gallatin Field	$1,493,843	2.9	110%
Akron-Canton Regional	$1,468,771	1.1	43%
Valley International	$1,440,166	2.3	87%
Lehigh Valley International	$1,407,930	3.2	120%
The Eastern Iowa	$1,328,228	1.6	58%
Quad City International	$1,326,833	2.9	107%
Northwest Florida Beaches International	**$1,314,518**	**2.7**	**100%**
Midland International	$1,285,114	2.5	95%
Lovell Field	$1,257,814	2.9	109%

[1] FAA Compliance Activity Tracking System (CATS)

Ready and Return Car Demand Projections

Rental and return car areas are typically sized to accommodate two times the peak hour rentals plus one hour of returns during that same period. In May of 2012 a survey of the rental car industry at ECP was conducted in order to determine the peak rental car activity. During the peak rental car day, 445 vehicles were rented. After comparing peak hour transaction data with peak day transaction data at other airports, it was determined that, on average, peak hour rental transactions are 12.06% of the peak day rental transactions, while return transactions during the same period are an average of 10.38%.

Using the peak hour rental and return transaction numbers, the following **Table 4-43** shows a surplus of ready and return spaces through PAL 2. This table is also consistent with the findings in both of the benchmarking tables shown above.

Table 4-43 – Projected Ready and Return Parking Surplus and Deficit

Year	Enplanements	Demand	Supply	Surplus/Deficit
Baseline	439,183	149	250	101
PAL 1	616,700	209	250	41
PAL 2	711,500	241	250	9
PAL 3	869,400	294	250	-44
PAL 4	1,017,900	344	250	-94

Source: Albersman & Armstrong, Ltd.

4.10.4 Projected Taxi Queue Demand

Taxi cabs servicing arriving passengers at ECP currently have four dedicated spaces under the canopy just outside of the passenger terminal building. ECP also has a designated taxi queue lot for staging taxis that are waiting to service arriving patrons. As the taxis leave the curbside, they are replaced with taxis from the queue lot. These taxi cabs are staged in the taxi queue area just south of the passenger terminal with capacity for five additional taxi cabs (the remaining five spaces are designated for cell phone parking).

Table 4-44 shows a comparison of taxi queue areas at other airports of similar size in terms of enplanements. As this table shows, ECP has fewer taxi spaces than the majority of others. This is probably because the demand for taxi cabs at ECP, a predominately tourism destination, is relatively low.

Table 4-44 – Taxi Queue Comparison/Benchmark – Similar Size Airports

Airport	Similar Enplanements [1]	Taxi Parking Capacity
Bishop International	497,649	None
Columbia Metropolitan	486,879	31
Quad City International	477,086	9
The Eastern Iowa	462,670	None
Gulfport-Biloxi International	461,072	6
Northwest Florida Beaches International	**426,865**	**9**
Phoenix-Mesa Gateway	417,862	14
Lehigh Valley International	414,427	5
Wilmington International	408,058	10
Bellingham International	398,368	16
St. Petersburg-Clearwater International	384,394	14

[1] FAA Compliance Activity Tracking System (CATS)

Providing that the current number of taxi spaces at ECP satisfies the Airport's desired level of customer service, and in order to calculate the demand for taxi queue requirements, it was assumed that on a busy day, all taxi spaces would be occupied (both curbside and queue lot - nine total). Assuming the number of taxi space will grow in proportion to enplanements, **Table 4-45** presents the projected taxi queue throughout the planning activity range.

Table 4-45 – Projected Taxi Queue Surplus and Deficit

Year	Enplanements	Demand	Supply	Surplus/Deficit
Baseline	439,183	9	9	0
PAL 1	616,700	13	9	-4
PAL 2	711,500	15	9	-6
PAL 3	869,400	18	9	-9
PAL 4	1,017,900	21	9	-12

Source: CHA Consulting, Albersman & Armstrong, Ltd.

4.10.5 Cell Phone Parking

The purpose of a cell phone lot is to allow patrons (meters & greeters) to park in relatively close proximity to the airport (usually for free) and wait for their arriving party to call when they are ready to leave the airport. Typically in a cell phone lot drivers are required to stay in their vehicle while waiting, although some airports apply time limits to cell phone parking which implies the patron may leave the vehicle for a short period. The sizing comparison presented in **Table 4-46** shows available cell phone parking at other airports of similar size. The cell phone lot at ECP is by far the smallest of the comparable airports. It is recommended that the current number of cell phone spaces be doubled to 10 in the near future and increased to at least 20 to support PAL 3 activity levels.

Table 4-46 – Cell Phone Lot Comparison/Benchmark – Similar Size Airports

Airport	Similar Enplanements [1]	Cell Lot Capacity
Bishop International	497,649	33
Columbia Metropolitan	486,879	10
Quad City International	477,086	None
The Eastern Iowa	462,670	54
Gulfport-Biloxi International	461,072	22
Northwest Florida Beaches International	**426,865**	**5**
Phoenix-Mesa Gateway	417,862	200
Lehigh Valley International	414,427	15
Wilmington International	408,058	None
Bellingham International	398,368	11
St. Petersburg-Clearwater International	384,394	12

[1] FAA Compliance Activity Tracking System (CATS)

4.11 AIRPORT ACCESS

Access to the Airport is currently limited by a single entrance road – West Bay Parkway. While vehicles coming from the Panama City area or other Emerald Coast regions have mostly direct access to the Airport via State Highway 388, motorists coming from areas north of the Airport

must circle around to the single entrance on the south side. This can prove to be inconvenient for travelers as well as lead to congestion and delays during peak travel periods.

With many areas of the Airport available for aviation and non-aviation related development, ensuring effective circulation and efficient transportation of people and goods is important to the long-term sustainability and marketability of the airport property. These future developments should be easily accessible from main roadways, such as Interstate 10, the main corridor that runs the width of northern Florida. Development of an additional access road to the north side of the Airport could reduce motorist travel time by as much as 12 minutes and promote efficient traffic flow within the regional transportation network. That said, further evaluation of the capacity of State Routes 20, 77, and 79 and their ability to handle potentially increased traffic both by volume and modes (i.e. large trucks, buses, etc.) would be needed. In the meantime however, the ability to develop a north-south roadway corridor between the existing and potential future parallel runway should be preserved.

4.12 GENERAL AVIATION FACILITIES

Currently, all general aviation (GA) facilities are located south of the Public Safety building and adjacent to Taxiway F. Using the aviation activity levels described in **Section 4.1.1** (i.e. projected aircraft operations) this section evaluates the anticipated needs of the Airport's GA community based on discussions with Airport management and FBO staff, as well as calculations of aircraft space requirements. As with the apron requirements described previously, these activity projections are based on the trends and assumptions relevant at the time of forecast approval and are susceptible to change over the course of the planning horizon. The requirements identified herein should be viewed as order-of-magnitude space needs and any facility development should be pursued with sufficient evidence of demand and not in a predetermined timeline.

4.12.1 GA Terminal and Storage

The GA facilities include a GA terminal building and a 10,435 SF hangar/office complex that are leased and maintained by the FBO. Having opened in July 2011, the facilities are currently in good condition and provide sufficient amenities and support for GA users. Aside from regular maintenance, these facilities should remain in useable condition throughout the planning years, and no improvements are recommended.

However, in addition to the apron expansion plans shown in the FBO's *Master Site and Phasing Plan*, the FBO desires to grow their current leasehold, including up to five new hangars, each with class A office space. These new facilities would add approximately 77,600 SF of hangar space and 10,560 SF of office space. That said, discussions with the FBO management reveal that, although currently at capacity with nearly 15 tenants storing up to five aircraft at a time, more tenants must be on the waiting list before any new hangar facilities can be constructed. As with the apron, it is recommended that future expansion to the FBO facilities begin as it becomes financially feasible, and that any expansion be in consult with the strategies outlined in this Master Plan, the ALP, and the FBO's *Master Site and Phasing Plan*.

4.12.2 Airport-Aircraft Storage

The based aircraft not stored in the FBO hangar or on the apron are stored in group and T-hangars located southerly adjacent to the Public Safety building. The majority of these hangars are leased out by the Airport, while some are owned by private tenants. In total, there is approximately 157,810 square feet of aircraft storage available in this area. Because the number of based aircraft is expected to increase by 23 over the next 20 years, it was necessary to conduct an analysis of hangar storage space needed to accommodate this increase. General planning assumptions for aircraft space requirements were applied to the anticipated demand of based aircraft in **Table 4-47** to produce the hangar space requirements over the planning horizon in **Table 4-48**. For consistency with earlier analysis, the baseline and forecast based aircraft parked on the FBO apron and in the FBO hangar were removed from the total baseline based aircraft count used for this calculation.

Table 4-47 – Based Aircraft Storage Demand

Aircraft Type	Forecast Year				
	Baseline (2012)	2017	2022	2027	2032
Single-Engine Piston	86	87	89	93	97
Multi-Engine Piston	15	15	15	15	16
Jet	9	11	13	16	20
Rotorcraft	0	0	0	0	1
Total	**110**	**113**	**117**	**124**	**134**
Aircraft Parked on Apron and in FBO Hanger	35	36	37	39	41
Aircraft Demand for Airport Hangars	**75**	**77**	**80**	**85**	**93**

Source: CHA Consulting 2012

Table 4-48 – Based Aircraft Storage Requirements

Based Aircraft	SF per Aircraft	Forecast Year									
		Baseline (2012		2017		2022		2027		2032	
		#	SF	#	SF	#	SF	#	SF	#	SF
Piston	1,600	72	115,200	72	115,200	73	116,800	76	121,600	79	126,400
Turbine	7,400	3	22,200	5	37,000	7	51,800	9	66,600	13	96,200
Rotorcraft	750	0	0	0	0	0	0	0	0	1	750
Total		**75**	**137,400**	**77**	**152,200**	**80**	**168,600**	**85**	**188,200**	**93**	**223,350**
Existing Space			157,810		157,810		157,810		157,810		157,810
Surplus/Deficit			**20,410**		**5,610**		**(10,790)**		**(30,390)**		**(65,540)**

Source: CHA Consulting 2013

Table 4-48 indicates that the Airport can currently house an additional two to four aircraft, but will likely be deficient of space needed to store based aircraft in the latter part of the planning horizon. However, the FBO's planned development of approximately 77,600 SF of new storage would increase the hangar space available to 235,410 SF. While these new hangars are intended to be built in phases, the total sum of the square footage of the facilities would accommodate the demand through the planning horizon. Based on this assessment, it is recommended that the Airport and FBO continue to pursue development of a combination of group and T-hangars to satisfy the hangar demand as it arises.

4.13 SUPPORT FACILITIES

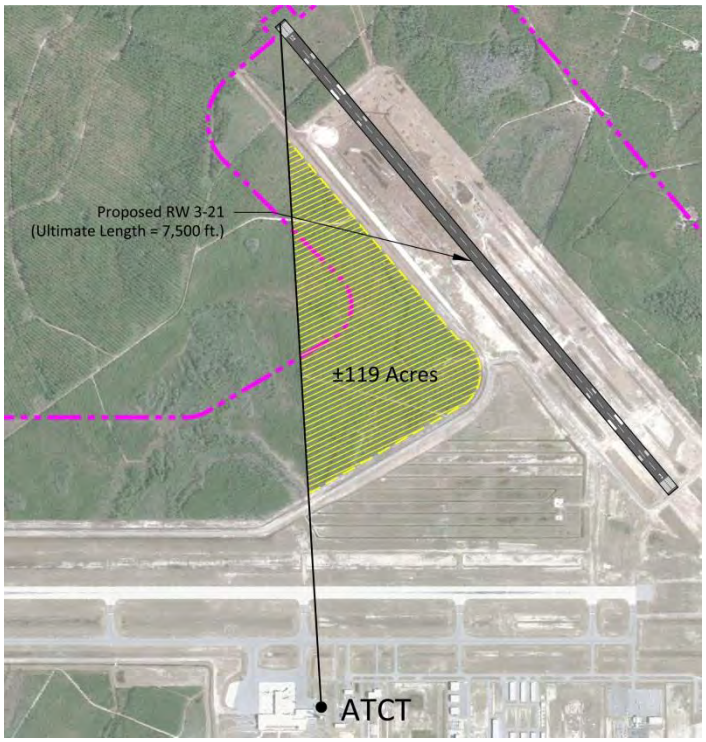
Various support facilities are needed at an airport to maintain safe, efficient aircraft operations and effectively serve the travelling public. At ECP, support facilities include the Air Traffic Control Tower (ATCT), fueling, Aircraft Rescue and Fire Fighting (ARFF), rental cars, airport maintenance, and internal access.

4.13.1 Air Traffic Control Tower (ATCT)

ATC staff has indicated that the existing tower does not provide sufficient space for office, training or support functions. The tower cab appears adequate and current and forecast activity levels do not indicate a need for any enhancements at this time.

ATCT staff has also indicated that to provide adequate visibility to the both the existing runway and planned crosswind runway, the tower should ideally be located east of Runway 16-34, between the two runways. However, at a minimum, to establish the necessary line of sight to the 7,500-foot Runway 21 end, approximately 119 acres of trees and vegetation would require clearing. This is shown in **Figure 4-8**.

Figure 4-8 – Tree Clearing for ATCT Line of Sight



Note: Photo Date 2012

Additionally, the proximity of the tower to public parking and access roads presents a security concern as the FAA prefers ATC facilities to be somewhat distanced from other airport functions. The tower also has a line of sight issue with a portion of Taxiway F that is blocked by a corporate hangar. As future activity levels or requirements necessitate new airfield expansion, a comprehensive tower siting study will be needed to determine the best possible location for a relocated tower. This evaluation would also have to consider the potential for a future parallel runway west of the terminal area and lines of sight to both those runway ends. A preliminary identification of potential future ATCT sites will be addressed in **Chapter 5** and identified on the proposed ALP.

4.13.2 Fueling Facilities

Conversations with airport and FBO staff have indicated that the fuel system is in good working condition and supports the existing air traffic at ECP. With four 50,000-gallon Jet-A tanks and four 15,000-gallon 100LL AvGas tanks, fuel storage is considered to be adequate to support the future operational levels at ECP, and other than routine maintenance, no improvements are anticipated.

4.13.3 Aircraft Rescue and Firefighting (ARFF)

As described in **Chapter 2**, the Airport currently operates with an ARFF Index of B corresponding to the Boeing 737-700, which is the longest aircraft (110 feet, four inches) having at least five daily departures at ECP. According to the aviation forecast, the Boeing 737-700 is expected to be superseded by the Boeing 737-800 as the longest aircraft (129 feet, six inches – ARFF Index C) having at least five daily departures. Based on the new aircraft length, it is recommended that the Airport begin making the transition to ARFF Index C in the mid-term planning horizon. This would require a change in staff schedules and the addition of one vehicle carrying water and the commensurate quantity of aqueous film-forming foam (AFFF) so the total quantity of water for foam production carried by both vehicles is at least 3,000 gallons.

FAR Part 139 mandates that within three minutes from the time of alarm, at least one firefighting vehicle must be capable of reaching the midpoint of the farthest runway from its assigned post and applying extinguishing agent. Within three minutes from the time of alarm, all other vehicles must reach that same point and begin application of extinguishing agent. The existing ARFF station at ECP is situated so that response times to the midpoint of the existing primary runway are within the allowable timeframe. This location also accounted for the planned construction of the crosswind runway. However, airport staff has indicated that if a parallel runway were to be developed in the future, the existing ARFF station would not be able to achieve response requirements, and relocation would be required. Because it is a relatively new facility and meets all FAA requirements for current and anticipated conditions, no improvements are recommended at this time.

4.13.4 Airport Maintenance and Storage

South of the terminal building are the Airport's ±4,300 square foot maintenance building and ±4,000 square foot equipment storage building. According to airport staff, both are in good condition however additional covered equipment storage and office space is desired. As depicted in **Figure 4-9**, there is space within the fenced maintenance area that these buildings could be expanded.

4.13.5 Internal Access

With approximately 4,000 acres of property, an internal route for service vehicles to access all areas of the airfield should be considered. The existing internal access road is mostly unpaved,

and circumscribes the present airfield and crosses through the site of the planned crosswind runway. Upon construction of the crosswind runway, the road will require reconfiguration to encircle the new airfield pavements and associated facilities. It is recommended that this new road and any additional access roads be paved to support the all-weather, safe and efficient maneuverability of ground vehicles.

Figure 4-9 – Possible Maintenance Building Expansion

Note: Photo Date 2012

4.14 SUMMARY OF FACILITY REQUIREMENTS

This chapter evaluated the ability of the Northwest Florida Beaches International Airport's facilities to meet the existing and anticipated traveler and stakeholder needs over an approximate 20-year planning horizon. By applying FAA standards, industry accepted planning methodologies and reasonable experience based assumptions, the facility requirements for ECP are summarized in the following table. Development concepts for several of these requirements are evaluated in **Chapter 5** and a phased implementation plan for the resultant facility recommendations is provided in **Chapter 7**:

Table 4-49 – Summary of Facility Requirements

Airfield
• Pursue development of a 7,500-foot by 150-foot crosswind/back-up runway, and associated taxiways, lighting and NAVAIDS capable of accommodating C/D-III commercial aircraft • Improve Runway 16 instrument approach capability, install Runway Visual Range (RVR) system, pursue Special Authorization CAT-I and/or II approach procedures • Pursue navaid supported instrument approach to Runway 34 • Construct general aviation apron capable of accommodating transient military and charter aircraft and correspondingly widen Taxiway J and appropriate portions of Taxiway F to provide access • Pave internal airfield service road • Preserve space for northerly extension of Runway 16-34 to 12,000 feet • Develop taxiway system to support aviation related development between Runways 16-34 and 3-21 (as warranted) • Preserve space for parallel commercial service Runway 16L-34R and midfield connector taxiway • Preserve space for relocation of Air Traffic Control Tower
Terminal
• Phased expansion and reconfiguration of gates, hold rooms, concessions and inbound baggage handling areas • Corresponding phased construction of terminal apron expansion • Expand and reconfigure TSA screening checkpoint • Phased expansion and reconfiguration of outbound baggage makeup area • Expansion of airport administration space • Develop/build-out Customs and Border Patrol (CBP) shell space (as warranted) • Relocate and expand air-cargo facilities (as warranted)
Parking
• Phased expansion of public automobile surface parking • Expand employee and cell phone parking lots • Pave overflow parking area (as warranted) • Phased development of public access road around airport property to support aviation and non-aviation development • Pursue development of northern roadway access including coordination with Florida Department of Transportation, planning, environmental approval, design and construction • Preserve the ability to develop a structured parking garage
Support Facilities
• Expand covered maintenance equipment storage • Upgrade to ARFF Index C - adjust staffing schedules, add one vehicle to increase total AFFF-carrying capacity to 3,000 gallons

5 DEVELOPMENT CONCEPTS

To satisfy the facility requirements identified in **Chapter 4**, various development concepts were prepared and evaluated. The goals of this evaluation, as prescribed by AC 150/5070-6B, *Airport Master Plans*, were to:

- Identify alternative concepts to address previously identified facility requirements
- Evaluate these alternatives, individually and collectively, so there is a clear understanding of the strengths, weaknesses and implications of each
- Select the most reasonable alternatives to incorporate into the Airport's ongoing development and capital improvement program

Although the study team considered numerous concepts, site configurations, and development options, only those that were found most reasonable to support the long-term operational sustainability of the Airport were brought forward as either recommendations or as alternative concepts requiring a more detailed analysis. This chapter further describes those recommendations and evaluations. The functional areas and facilities of ECP that were evaluated include:

- Off- and on-airport land use
- Airfield – runways, taxiways
- Southwest general aviation facilities and aprons
- Passenger terminal and apron
- Automobile parking and access
- Potential air-cargo facilities
- Potential air traffic control tower relocation

The results of these evaluations form the overall development strategy recommended to accommodate anticipated traveler needs and user demands over the planning horizon and beyond. With consideration of the approved 20-year activity forecasts and the terminal Planning Activity Levels (PALS), the identified facility requirements can be considered as *near-term, intermediate, long-term* and *ultimate* recommended improvements. Recommendations for the *near-term* and *intermediate* planning horizons are presented in more detail while, due to the changing nature of the aviation industry and travel trends, recommendations for the *long-term* and *ultimate* airport conditions are presented in a more conceptual form. Regardless of time-frame or activity level, the overarching principals guiding these recommendations are to provide a high level of customer service and promote regional economic health while accommodating the ever-changing business model of the airlines.

5.1 EVALUATION OF DEVELOPMENT CONCEPTS

Throughout this process, from preliminary idea to final recommendation, consideration was given to several evaluation factors. Due to the relative young age of the Airport, the expanse of airport property, and the foresight of the Airport's original planning, the recommended

improvements for some facility requirements, such as airfield configuration, were generally straightforward and did not require an extensive analysis of alternatives. For others, such as the terminal building, a more thorough comparison of near-term versus long-term benefits was needed. The following is a list of general considerations that the FAA recommends when deriving development strategies for airport improvements:

- **Operational Performance**
  - Capability of accommodating future activity levels
  - Capability of meeting specific functional objectives, such as accommodating the design aircraft
  - How well the alternatives work as a system by examining combined alternative elements
- **Best Planning Tenets and Other Factors**
  - Conforms to best practices for safety and security
  - Conforms to the intent of applicable FAA design standards and other appropriate planning guidelines
  - Provides for the highest and best on- and off-airport land use
  - Allows for forecast growth throughout the planning period
  - Provides for growth beyond the planning horizon, as applicable
  - Provides balance (typically capacity) between elements
  - Provides the flexibility to adjust to unforeseen changes
  - Conforms to the airport sponsor's strategic vision
  - Conforms to appropriate local, regional, and state transportation plans and other applicable plans
  - Technically feasible (limited site constraints)
  - Socially and politically feasible
  - Satisfies user needs

While general environmental factors were considered throughout this master planning effort, potential impacts related to the recommended airport improvements will need to be evaluated in detail during any future environmental approval efforts as required by the National Environmental Policy Act (NEPA) and FAA Orders 1050.1 *Environmental Impacts: Policies and Procedures* and 5050.4 *NEPA Implementing Instructions for Airport Projects*. Based on cursory evaluation, any potential impacts to the natural environment would be relatively similar for any of the development concepts. Aside from temporary impacts during construction of the proposed improvements, there appears to be little potential for long-term environmental impacts that could not be avoided or mitigated within the framework of the federal and state regulations.

For comparison of the terminal and parking concepts described in this chapter, order-of-magnitude cost estimates were prepared using costs from comparable projects at similar airports as well as local industry knowledge and professional experience. The per-unit costs presented in **Table 5-1** include design services, materials, construction, construction administration, and a contingency factor. These preliminary estimations are generalized and should be used for concept comparison purposes only. Depending on the eventual final design,

and level of "fit and finish," the actual costs could be higher or lower. The following per-unit costs were also used in preparation of the ten-year funding program presented in **Chapter 5**.

Table 5-1 – Order-of-Magnitude Cost Estimates

Project Component	Cost Assumption
Building Demolition	$35-40 (per SF)
Terminal Building Rehabilitation / Reconfiguration	$173 (per SF)
Terminal Building Expansion / New Construction (med)	$360 (per SF)
Terminal Building Expansion / New Construction (high)	$504 (per SF)
Passenger Boarding Bridges	$793,728 (per unit)
Commercial Apron Expansion (16"P501, 8"P509)	$269 (per SY) assuming 20-40k SY
Commercial Apron Rehabilitation	$62 (per SY)
General Aviation Apron Construction - Asphalt	$260 (per SY) assuming +/- 5k SY
General Aviation Apron Construction - Concrete	$300 (per SY) assuming +/- 5k SY
Taxiway Pavement – more than 20k SY	$190/SY
Taxiway Pavement – less than 20k SY	$240/SY
Roadway Improvements	$180-232 (per SY)
Surface Parking Expansion	$105 (per SY)
Structured Parking Garage	$16,000 (per space)
Hangar Building Construction (Low Cost)	$158 (per SF)
Hangar/Office Building Construction (Medium Cost)	$240 (per SF)
Office/ARFF Building Construction (High Cost)	$360 (per SF)

Source: CHA Consulting, ZHA Inc., 2013

5.2 LAND USE

Sustainable development and efficient operation of the Airport are highly dependent on the effective use of airport property and its compatibility with surrounding community uses. Located in a relatively undeveloped area, early planning for the Northwest Florida Beaches International Airport provided ample space for both the Airport and local vicinity to grow, serve a multitude of uses and become a transportation and economic focal point within the Florida Panhandle. The basic principles of managing land use on and near an airport include:

- Minimizing the public's exposure to safety hazards
- Promoting safe and efficient aircraft operations
- Guarding the airport from infringement of incompatible land uses
- Providing efficient and expedient public access

- Promoting regional economic health and quality of life
- Promoting sound stewardship of regional assets and environmental resources

The following sections describe the on- and off-airport land uses as they exist in early 2014 and the recommended uses to accommodate the previously described facility requirements and the *preferred development strategy* described at the end of this chapter.

5.2.1 Off-Airport Land Use

Effectively managing land uses near an airport is a collaborative effort between the Authority, Bay County, local municipalities, adjacent landowners, the state of Florida, and the FAA. In 2009, "The Bay County Comprehensive Plan" was adopted that included a future land use plan, in the form of the West Bay Sector Area Plan, and several policies to promote and preserve compatible land uses surrounding the Airport. The Sector Area Plan and established land uses are depicted in

Figure 5-1**.** The airport specific policies and objectives of the Bay County Comprehensive Plan are provided in **Appendix E** and on the County's website at http://www.baycountyfl.gov/planning/comp-plan/comp-toc.pdf.

St. Joe Company, the real estate developer that provided the Airport its 4,000 acres of property, owns over 300,000 acres in the surrounding vicinity and directly adjacent to the airport boundary. The Authority and St. Joe have become strategic partners in the land use and economic development of the local area. St. Joe Company is developing "Venture Crossings" directly adjacent to the Airport. Venture Crossings is a commercial property, business development center that offers numerous real estate options including pad-ready sites, build-to-suit construction and thousands of acres of developable land. The location of Venture Crossings aims to capitalize on the proximity of the Airport, the region's major arterial highways and affordable land. The current plan for Venture Crossings includes a mix of office, retail, warehouse, industrial and light-industrial uses, developed over three phases and approximately 750 acres of land.[15] These are depicted in **Figure 5-2.**

Upon review of these plans, and acknowledging the Authority and airport staff's close interaction with Bay County and the St. Joe Company, it is believed there is sufficient land area and several mechanisms in place to effectively manage off-airport land uses and promote the long-term operational sustainability of the Airport. The boundaries identified within these plans may need to be adjusted to accommodate the crosswind runway requirements identified in **Chapter 4**. Airport property north of the planned Runway 21 would need to be expanded by approximately 160 acres to accommodate the future Runway Protection Zone. The Authority and staff will need to maintain these relationships and continually monitor local conditions for opportunities and threats.

[15] St. Joe Website, http://venturecrossings.com/pdf/vc_siteplan.pdf, accessed 12-9-13

5.2.2 On-Airport Land Use

Airport property consists of approximately 4,000 acres of land, much of which is currently undeveloped. Previous planning for the Airport identified areas of property to be preserved for future development of airfield facilities (i.e. crosswind and parallel runways) and areas that could be developed with aviation- and non-aviation related commercial facilities.

For the most part, based on the facility requirements identified in **Chapter 4**, the overall land uses previously planned still appear valid for the current market conditions. There are, however, a few revisions that would aid in preserving adequate space for recommended or potential future improvements. These items include the additional land needed for the crosswind Runway 3-21 Runway Protection Zone, a public access corridor from the north, and potential locations for a relocated air traffic control tower. The details of these and the other recommended improvements are described later in this chapter.

The various activities taking place on, or planned for, airport property can be generalized into eight land use categories. These categories are summarized in **Table 5-2** and depicted in **Figure 5-3**. Both the existing land uses and recommended modifications are included.

Table 5-2 – Land Use Categories

Land Use	Existing Acreage	Future Acreage
Aviation Use (undeveloped)	1023	1012
General Use (undeveloped)	641.5	630.5
Airfield Operations	1,722	1,834
Terminal Area and Parking	142	142
General Aviation	41.5	41.5
Cargo	3	3
FAA/Agency/Support	15	15
Public Access	412	482
Total Airport Property	**4,000**	**4,160**

Source: CHA, 2013

[1] Acreage decreases with the development of the public access to the north

[2]Depending on future development in these parcels, total acreage could change, becoming GA, Cargo, FAA/Agency/Support, or other use

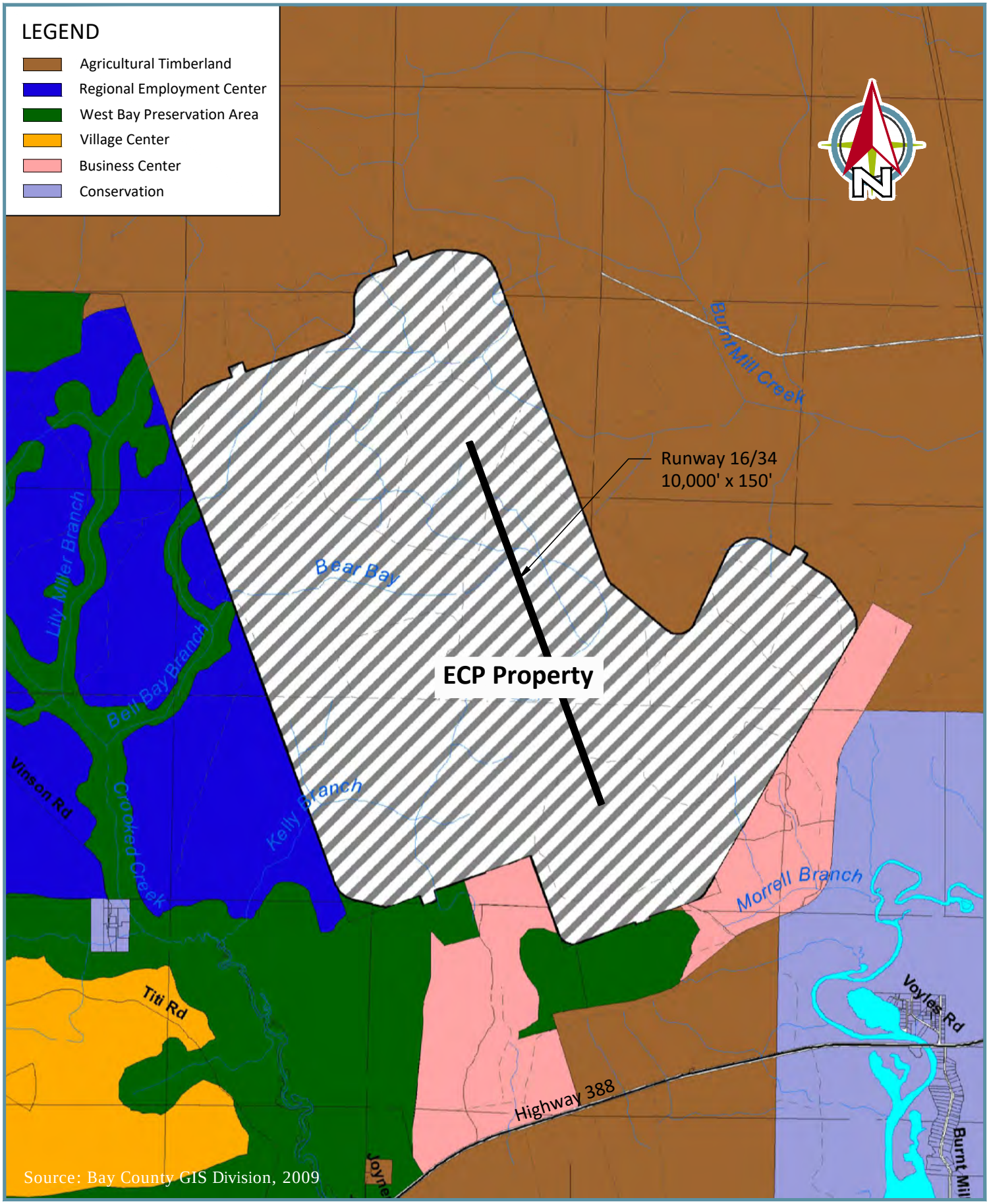


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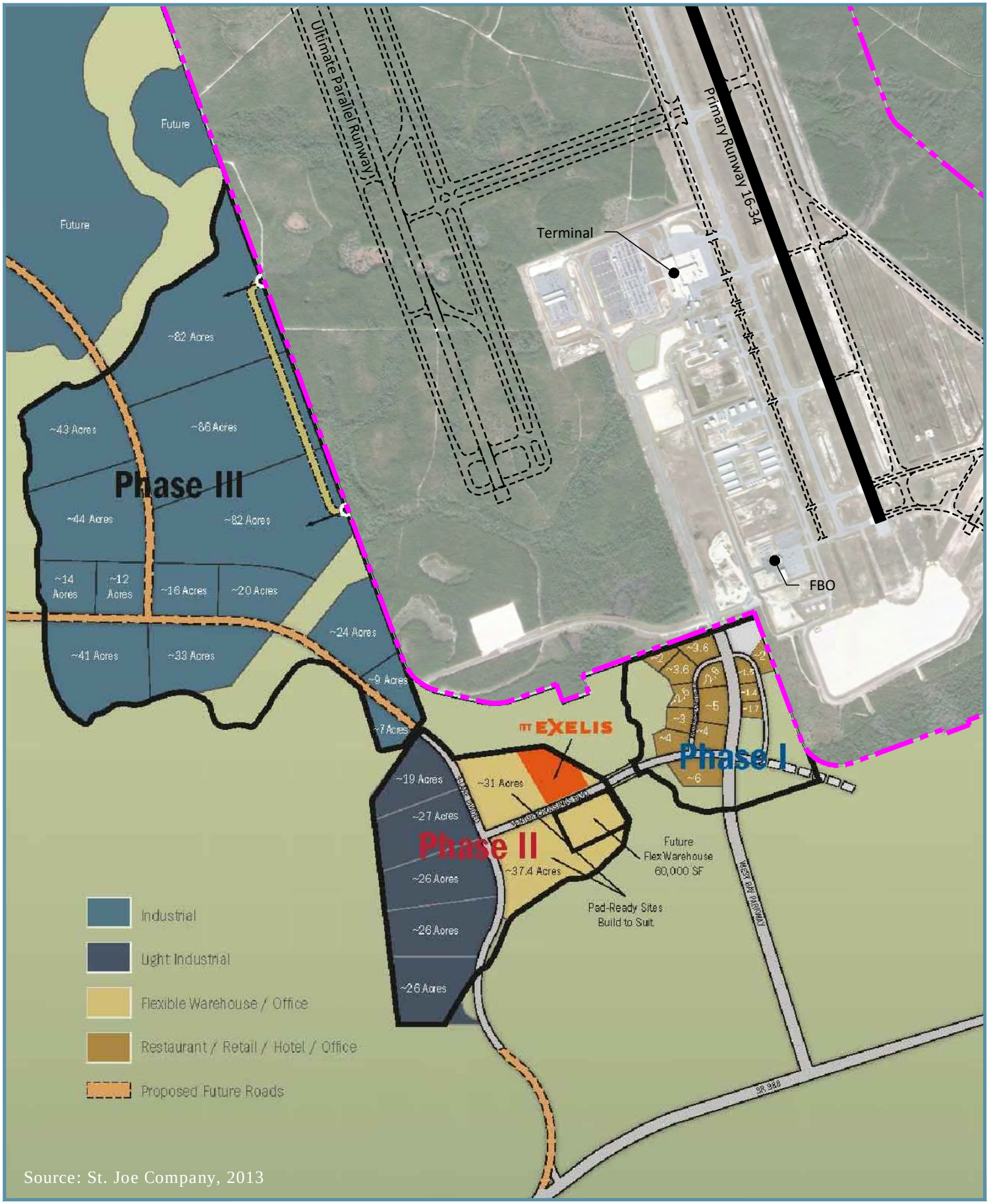
Figure 5-1
Off-Airport Land use



Source: St. Joe Company, 2013

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Figure 5-2
Venture Crossings Site Plan

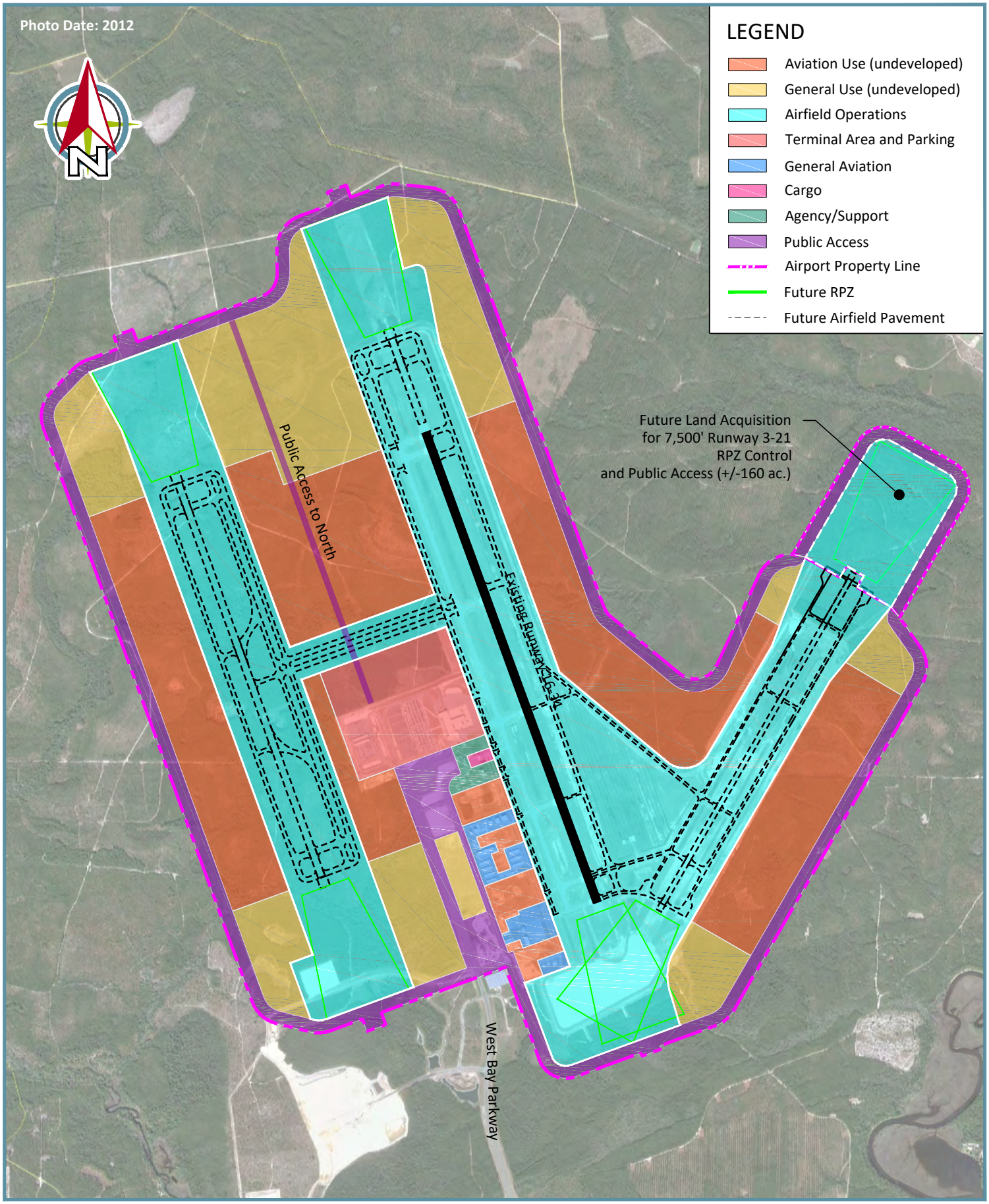

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Figure 5-3
On-Airport Land use

5.3 AIRFIELD DEVELOPMENT

As described in **Chapter 4**, the existing airfield facilities appear capable of accommodating the majority of aircraft types and operational demand through the 20-year planning horizon. There are however, a few airside areas that, if improved upon, could optimize the overall use and functionality of the airfield. There are also potential ultimate airfield facilities that should be accounted for in the ongoing facility and land use planning efforts. The following sections aim to address these issues and identify the preferred facility configurations and anticipated phasing.

5.3.1 Runway System

It is recommended that the instrument approach capability to Runway 16-34 be improved and the capability be preserved to ultimately extend the runway to 12,000 feet, as previously planned. The 2,000-foot extension would support heavier aircraft and/or longer haul routes that could be associated with maintenance, repair and overhaul (MRO), cargo, aircraft manufacturing or long-haul international type operations. Based on current FAA standards, a 12,000-foot primary runway could be accommodated within the existing airport boundary.

Environmental approval, initial design and site preparation for a planned 5,001-foot crosswind Runway 3-21 has previously been performed. As of 2013, the Authority is pursuing funding for at least a portion of its construction. To support the operational needs of the airlines and air traffic control, planning and environmental approvals to develop a 7,500-foot by 150-foot crosswind runway in the foreseeable future should also be pursued. During the initial design effort, coordination with the FAA for instrument approach procedures would also be needed. It is likely that non-precision, GPS-based approaches will become available first, followed by improved capabilities in the future. Consistent with previous planning, the runway should be designed, and sufficient space preserved for, the eventual implementation of precision instrument approaches. This would include acquisition of additional land at the north end of Runway 3-21 to provide positive control of the future Runway Protection Zones.

With approximately 4,000 acres of airport property, previous planning has identified sufficient space for an ultimate 8,400-foot parallel Runway 16R-34L capable of supporting commercial aircraft. While demand for a third runway at ECP is not envisioned over the 20-year planning horizon, preserving this capability for the future is recommended and accounted for in the previous land use description. As envisioned, spacing between the two runways would be 5,000 feet which, by current FAA design standards, would allow for simultaneous instrument approaches.

5.3.2 Taxiway System

As the runway system and aeronautical use areas of the Airport develop, additional or improved taxiways will be needed to provide efficient circulation. There are however some immediate needs within the southwest general aviation (GA) area that should be addressed in the earlier part of the planning horizon. As activity levels increase, and congestion and capacity

become more of a concern, there are also some potential ultimate taxiway improvements that should be considered during the ongoing planning and development of facilities.

The existing taxiway system provides adequate access to Runway 16-34 to support anticipated traffic levels through the planning horizon. By-pass capability is provided at both runway ends and there are sufficient right-angled exit taxiways to provide free-flow to the parallel Taxiway D. Consistent with current FAA design standards, Taxiway D is spaced 600 feet from the runway, which enables the development of "high-speed" exits. Should future activity levels warrant the development of high-speed exists to improve the operational capacity of Runway 16-34, the location of such exits would typically be around 6,000 feet from the landing thresholds. At that time, consideration should also be given to the potential ultimate 12,000-foot length of Runway 16-34.

Typically, high-speed exits are supported by dual parallel taxiways to optimize circulation and separation of aircraft types. Previous airfield planning for ECP included the potential development of dual, west-side parallel taxiways north of the terminal area and triple, west-side parallel taxiways south of the terminal area. The existing dual parallel taxiways (Taxiways D and F) and their connectors support the general aviation facilities and activities south of the terminal area. The distance between these two taxiways is 420 feet, which provides for the potential development of a third taxiway between them. If this configuration were pursued in the future, it is envisioned that Taxiway D would accommodate up to ADG-V aircraft, the new taxiway would accommodate up to ADG-III aircraft, and the existing Taxiway F would accommodate up to ADG-II aircraft.

Concurrent with the initial construction of the crosswind Runway 3-21, east-side extensions of Taxiways J and K would be needed to provide access from the existing facilities. A parallel taxiway supporting Runway 3-21 could be developed on either the east or west sides of the runway, however placing the taxiway to the east would more directly support aeronautical development to the southeast of the runway – the area by which landside access can most readily be provided.

Eventual development of aeronautical facilities between Runway 16-34 and Runway 3-21 would require the incremental development of taxiway access potentially including additional parallel taxiways to both runways. Ongoing planning and facility design should account for these potential ultimate taxiway connections. Adequate space should also be preserved for a dual cross-field taxiway connecting the existing Runway 16-34 to the potential ultimate Runway 16R-34L. This corridor is logically located north of the terminal, providing ample space for the expansion of passenger and other aeronautical facilities that would be located near the terminal area. Consideration of the taxiway corridor must also account for the long-term development of a northern access roadway. To efficiently access the terminal area, this roadway would be located between the parallel runways and run beneath the mid-field taxiway.

5.4 GENERAL AVIATION FACILITIES

It was determined in the previous chapter that additional general aviation apron space would be needed to support forecast traffic. This section describes the existing development plans for the FBO area as well as an approach to increasing transient apron space.

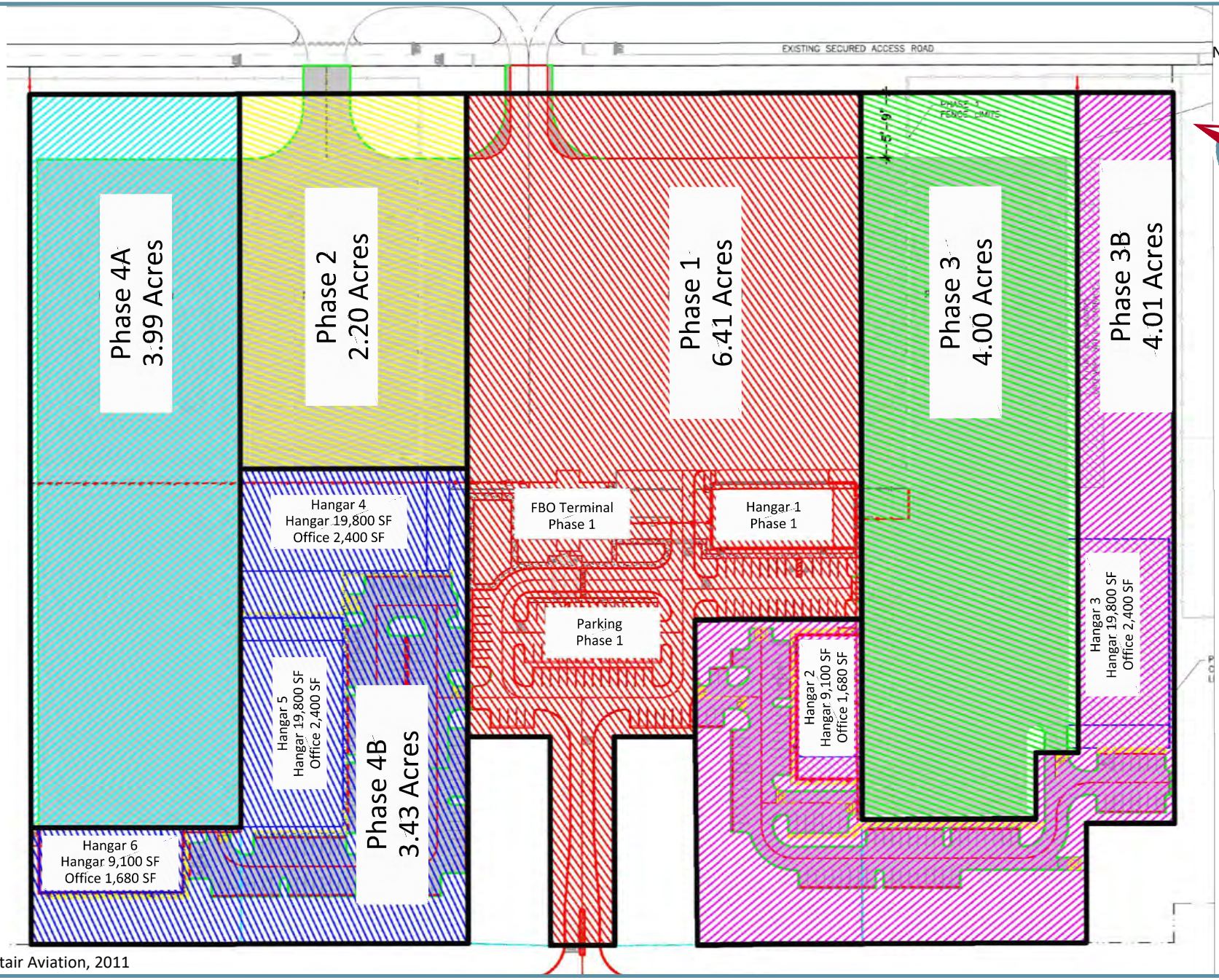
5.4.1 FBO Plans

Following the construction of the Airport's primary facilities, the current FBO (Sheltair Aviation) conceived a *Master Site and Phasing Plan* for the general aviation area on the southwestern side of Runway 16-34. This plan accounts for approximately 24 acres of property and the development is divided into four major phases (see **Figure 5-4**). Phase 1 (the FBO terminal, auto parking, hangar, and apron) and Phase 2 (northerly apron expansion) were completed by July of 2011. As discussed in **Chapter 3**, these two phases combine for approximately 23,800 SY of general aviation apron available for use by based and transient aircraft. Phase 3A and 3B will expand over 8.0 acres, increasing apron space and adding two hangars and associated auto parking. Phase 4A and 4B will develop 7.5 acres in the same manner to the north, but adding three hangars.

5.4.2 Transient Apron Expansion

It is acknowledged that during peak activity months, demand for apron parking is over capacity. This forces aircraft to be parked on the helicopter pads located south of the FBO area. Additionally, this apron and supporting Taxiway F are only configured to accommodate up to ADG-II aircraft. Transient general aviation and military aircraft larger than ADG-II, such as the Boeing BBJ, Gulfstream V, Dash-8, and C-130, are often parked on taxiways thereby constraining circulation and efficiency of the airfield. The existing commercial Remain Overnight Night (RON) apron is not an option for accommodating these aircraft as it is located north of the passenger terminal within the Security Identification Display Area (SIDA).

For these reasons, an expanded or new transient apron capable of supporting large corporate and military aircraft is recommended. For an apron to support up to three C-130 pull-through parking spaces, including necessary safety clearances, it would need to be approximately 16,600 SY in size. To maximize developable, and leasable, space within the southwest GA area, there are two sites that could readily accommodate this need (refer to **Figure 5-5**). These sites are both in proximity to the FBO facilities and services and include the area between the existing apron and helicopter pads, which is within the FBO's leasehold/option limits, and the open area just north of the FBO leasehold. While both sites could be adequately configured, the open northern site is considered the most optimal one for development. This site would not affect existing FBO leases and the needed taxiway improvements would be less than that for the southern site.



Source: Sheltair Aviation, 2011

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Figure 5-4
FBO Master Site and Phasing Plan

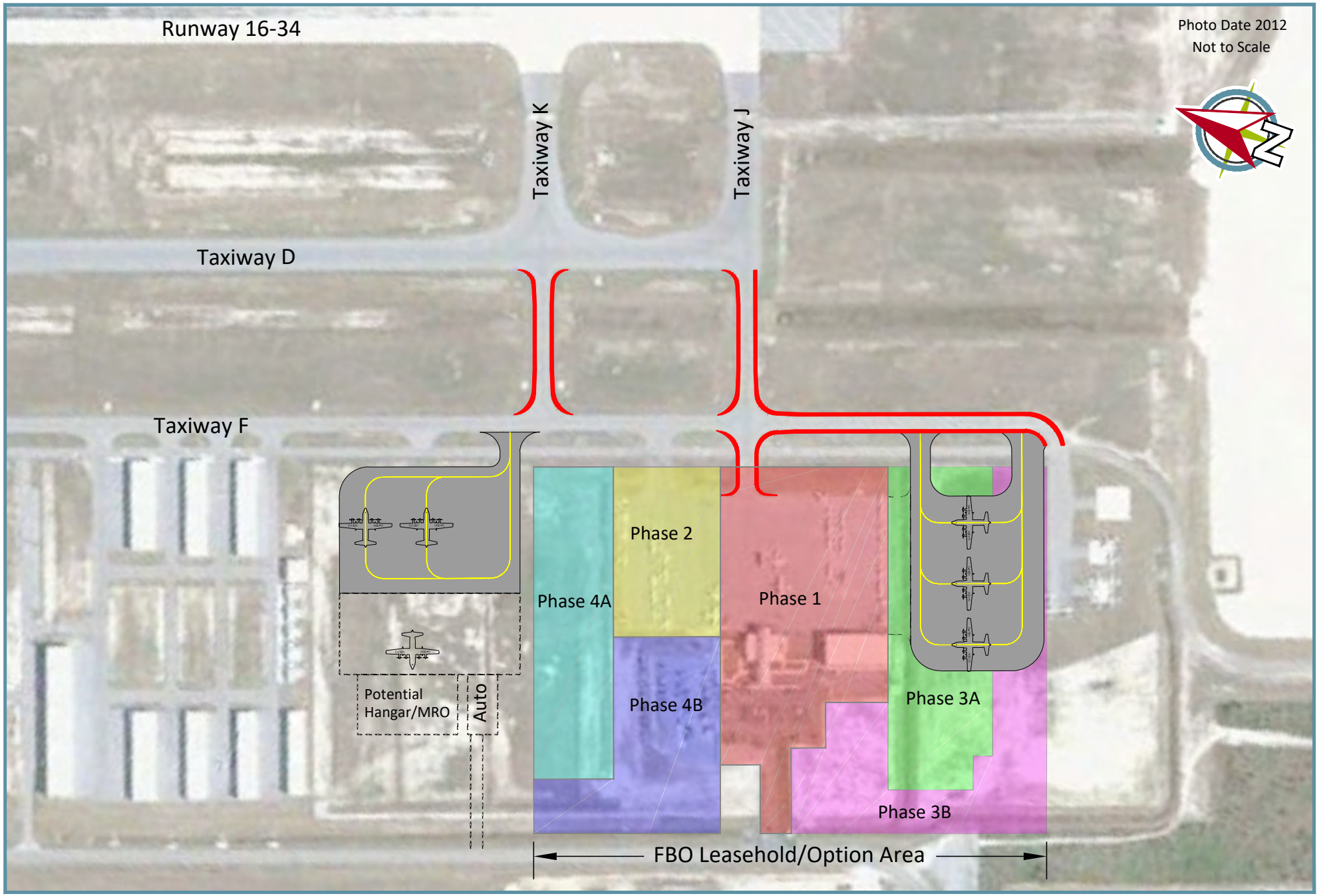

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Figure 5-5
Transient Apron Expansion

5.5 PASSENGER TERMINAL

As described in **Chapter 3**, ECP experienced a 2.8 percent growth in enplanements between 2010 and 2011 (June through December) and another 1.4 percent growth from 2011 to 2012 (January through December). With a brand new facility satisfying the previously unmet traveler demand in the Florida Panhandle, the FAA Terminal Area Forecasts anticipated an average annual growth in enplanements of 2.6 percent through the planning horizon. The approved master plan enplanement forecast assumed that ECP would maintain its 2012 market share of regional activity through the planning horizon, as projected by the 2005 Florida Airport System Plan, resulting in a 3.5 percent average annual growth rate through 2032. However, due to the national economic downturn and associated reduction in tourist related travel, Southwest Airlines schedule changes at ECP, and to some extent the consolidation and mergers within the airline industry, airport records indicate that through November 2013 total enplanements were down approximately 7.8 percent from the previous year.[16]

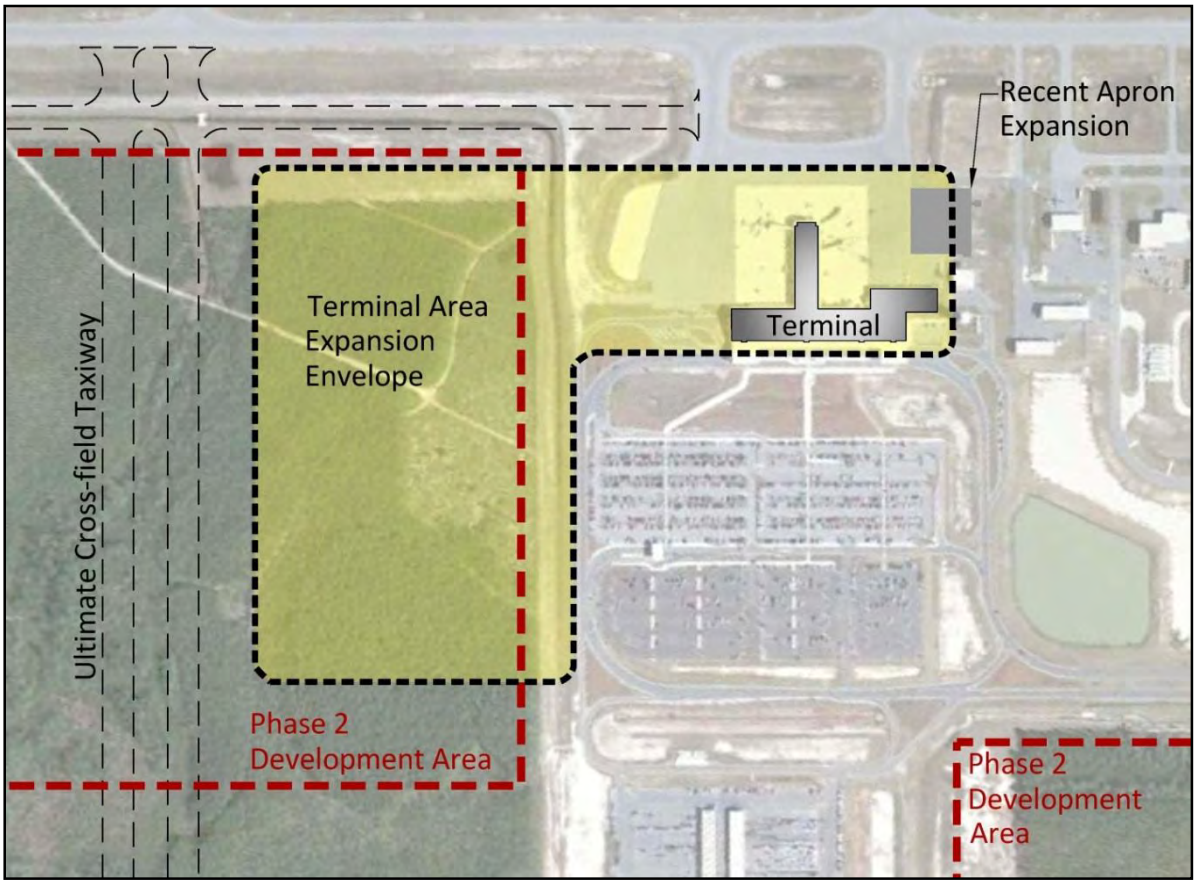
With ECP being predominately a seasonal tourist destination airport, and until the route structures stabilize, flexibility will be a key component in the Authority's ability to accommodate these traffic fluctuations while preserving the capability to accommodate potential long-term demands. Therefore, the development strategy for the terminal building was prepared in three steps. The first identified the terminal development envelope consistent with existing facilities and the previously described land use plan. The second evaluated terminal concepts intended to meet PAL 1 activity levels. The third identified a possible phasing strategy that focuses on the "priority development areas" of the terminal building. These are the areas of deficiency that were found to have the greatest effect on efficient passenger travel and should be addressed in the nearer-term portion of the planning horizon.

5.5.1 Terminal Area Expansion Envelope

With substantial financial investment, the existing terminal building and supporting landside infrastructure (i.e. parking lots, rental car facilities, access roads, storm water management) was constructed between 2008 and 2010. Previous terminal area planning provides for terminal expansion to the north and ultimately to the northwest along a midfield connector taxiway (i.e. between the existing and potential ultimate parallel runways). The location of the air traffic control tower, taxiway Obstacle Free Areas, and other support infrastructure generally preclude terminal expansion to the south. With consideration of those factors, the terminal area "expansion envelope" is depicted in **Figure 5-6**. This framework offers the greatest flexibility and is most conducive for both airside and landside development in surrounding areas.

[16] ECP website, http://www.iflybeaches.com/aviation-statistics/detail/november-2013-activity-report, accessed 12/30/13

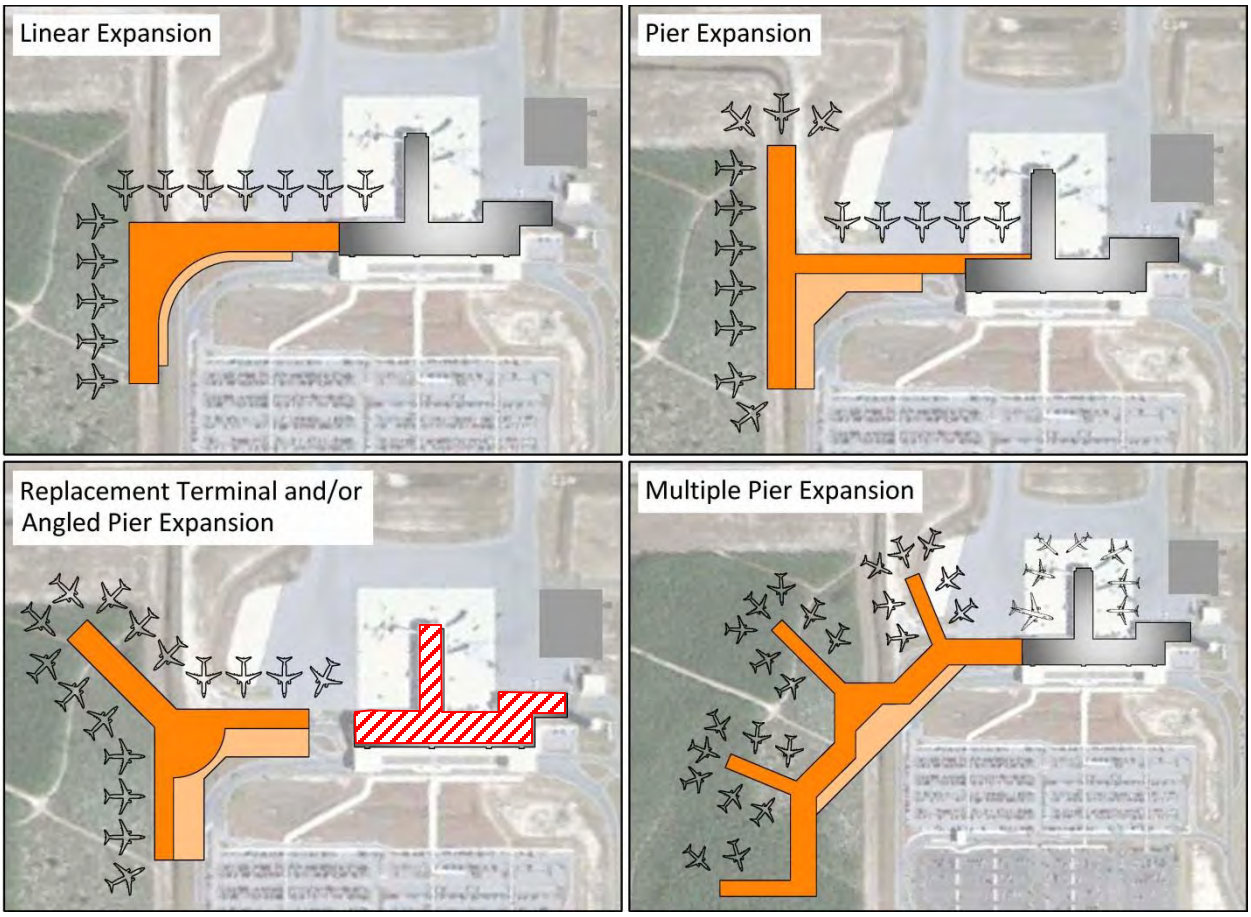
Figure 5-6 – Terminal Area Expansion Envelope



Note: As of late 2013, the Authority is pursuing environmental evaluation and approval for development within the "Phase 2 Development Areas"

Within this envelope, numerous terminal configurations could be realized to accommodate long-term passenger demand. As presented in **Figure 5-7**, several rudimentary concepts were conceived to show the direction of expansion and provide an idea of what the terminal could look like in the future. None of the terminal improvements evaluated or recommended for the foreseeable future would prevent such an ultimate expansion.

Figure 5-7 – Potential Ultimate Terminal Expansion



5.5.2 PAL 1 Terminal Concepts

With ongoing terminal expansion guided northwards, focus was placed on identifying improvements needed to address PAL 1 activity levels. PAL 1 represents an increase of 177,000 enplanements over 2012 activity levels (i.e. 439,200 to 616,700 or 40 percent). As described in **Chapter 4**, the terminal space planning calculations also indicate that several areas of the existing terminal building are undersized to serve current passenger demand. Through terminal planning analyses and coordination with Airport staff and tenants, deficiencies were identified in the following priority areas:

- Passenger security screening checkpoint configuration and available space
- Outbound baggage handling space
- Gate hold room space
- Inbound baggage handling space
- Post-security concessions

As a result of this coordination, six concepts were developed that address the PAL 1 and priority area space requirements. Most of the concepts share a common expansion and

reconfiguration of the TSA checkpoint and outbound baggage handling areas. A predominant theme within these concepts was determining the best-use for the existing Customs and Border Protection (CBP) "shell space" that remains unfinished since the terminal's original construction and is currently used for miscellaneous storage. The two most logical potential uses of the CBP shell space are:

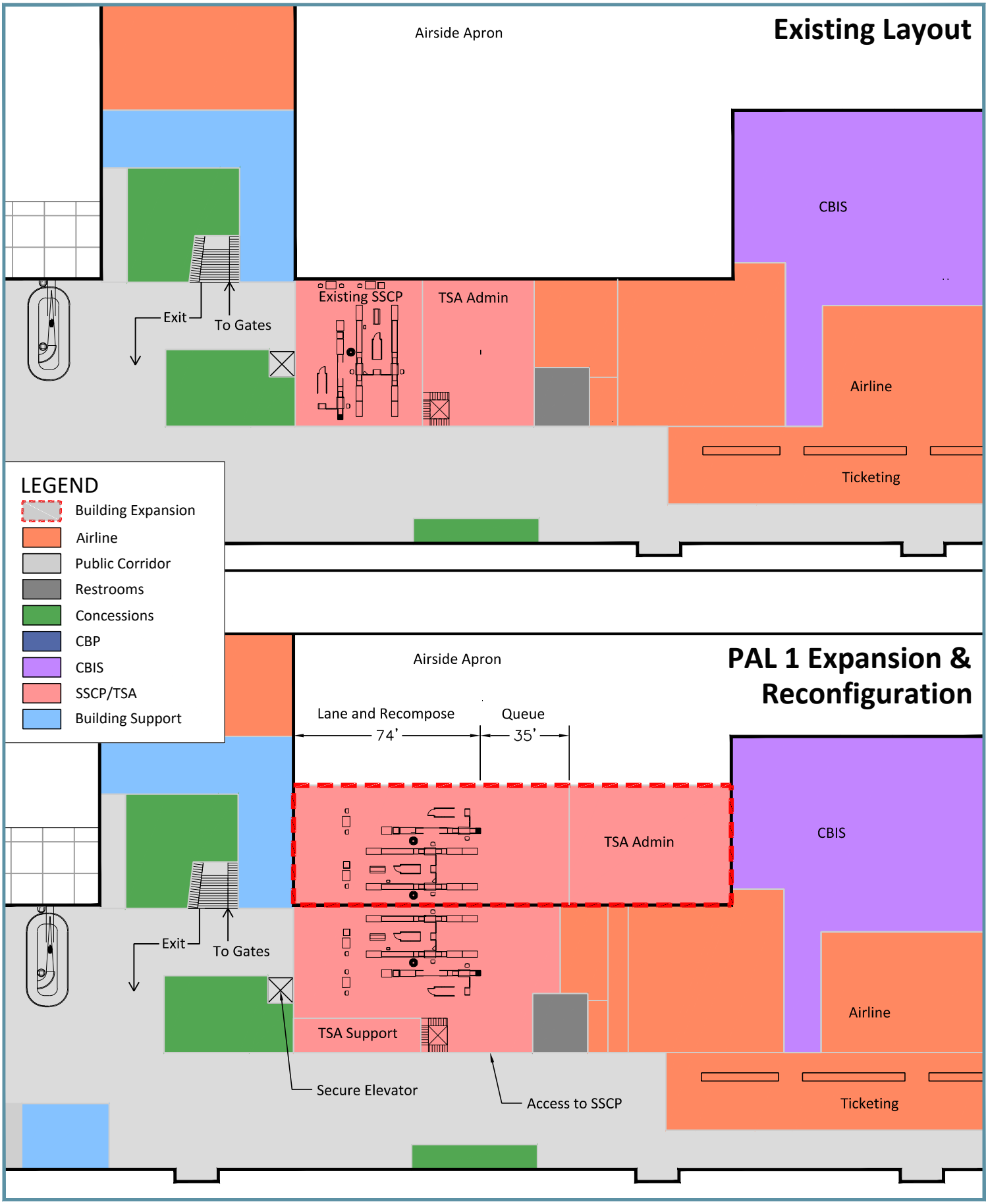
1. Repurpose for concourse expansion including gates, hold rooms, and concessions; or
2. Preserve for a future CBP build-out

Security Screening Checkpoint Expansion Concepts

Space calculations, based on TSA design standards, indicate that the existing security screening checkpoint (SSCP) is undersized for the current level of passenger activity. Operationally, it is acknowledged that the configuration of equipment and flow of traffic is hindered by the limited space available. This in turn impacts passenger circulation within the main lobby. All of the PAL 1 terminal concepts include the same build-out of the terminal building towards the existing Gate 1 to allow expansion and reconfiguration of the SSCP to meet the PAL 1 requirement of 9,043 SF. Within the combined existing and expanded area, the SSCP could be developed on the ground floor or be relocated and developed on the second floor. Both concepts increase the SSCP and queue space to over 10,000 SF and provide ample space and flexibility for various configurations of TSA or support offices. With either option, the areas on the opposite level could be used for additional offices or administrative support space.

The ground-level SSCP expansion concept is depicted in **Figure 5-8**. Entry to the SSCP could be relocated and the equipment reoriented to provide additional queue space, reducing congestion in the terminal lobby. The existing vertical circulation would remain. As activity and equipment demands increase, the building could be expanded further towards the airfield to accommodate additional screening lanes. By shifting the location of boarding bridges slightly, this long-term configuration would work with any of the PAL 1 concepts.

Figure 5-9 shows the SSCP relocated to the second level. Airport administrative offices would need to be relocated to the lower level and additional stairs and escalators would be needed to bring departing passengers to the second level. This concept would provide additional exposure to the concessions area while passengers are in queue, which could result in increased sales and improved customer convenience. However, during peak periods, there is potential that the queue could back-up onto the escalator thus diminishing customer service and requiring additional TSA staff to control traffic flow at the bottom of the escalator. These factors, combined with the cost of providing additional vertical circulation and relocating both TSA and airport administration, indicate that relocating the SSCP to the second level at ECP would not be practical or financially prudent.


Existing Layout
Airside Apron
CBIS
Existing SSCP
TSA Admin
Exit
To Gates
Airline
Ticketing
LEGEND
Building Expansion
Airline
Public Corridor
Restrooms
Concessions
CBP
CBIS
SSCP/TSA
Building Support
PAL 1 Expansion & Reconfiguration
Airside Apron
Lane and Recompose
74'
Queue
35'
TSA Admin
CBIS
Exit
To Gates
TSA Support
Airline
Secure Elevator
Access to SSCP
Ticketing

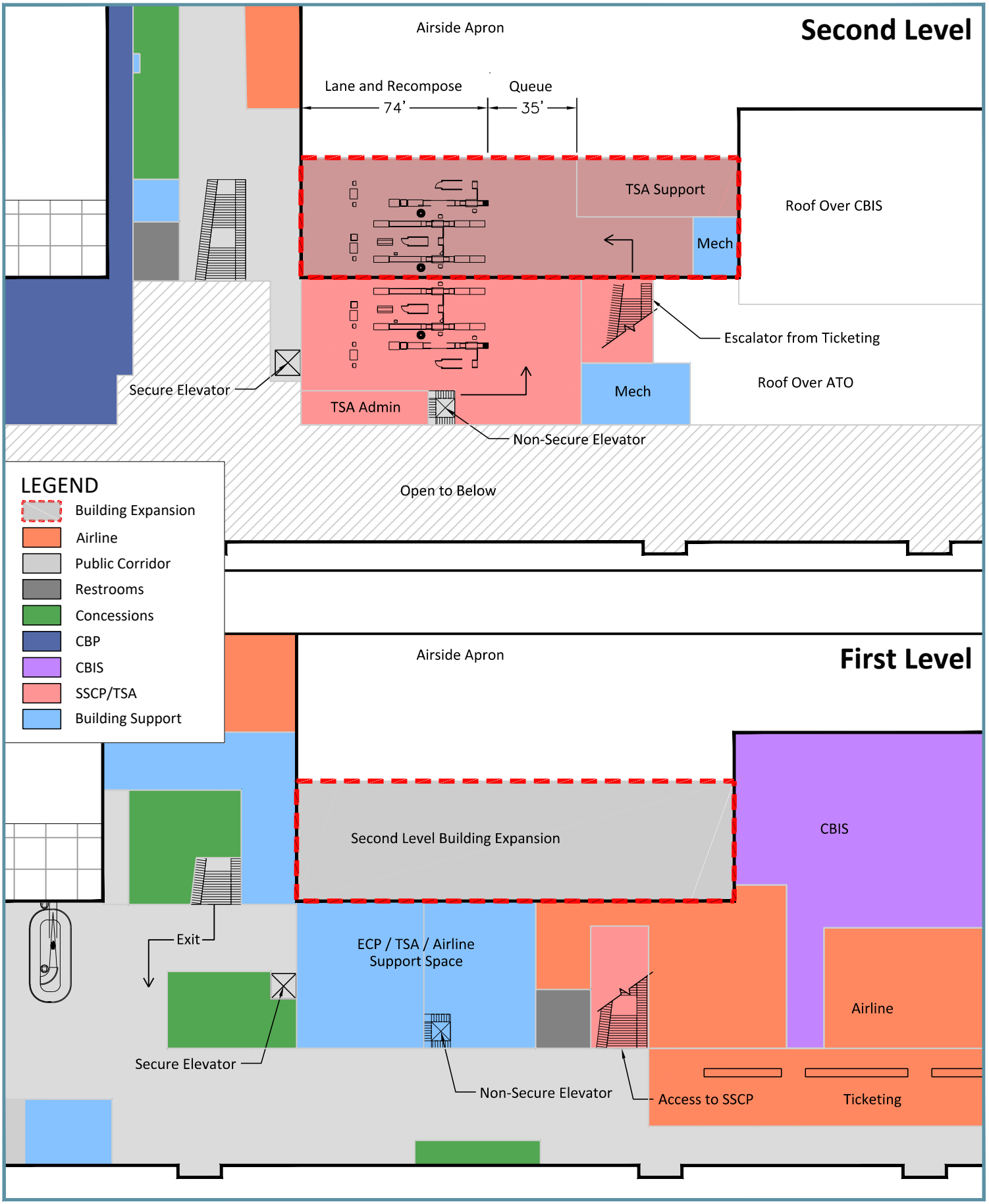


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Figure 5-9
SSCP Relocation
to Second Level

Outbound Baggage Handling Space

As mentioned previously, a single concept for increased outbound baggage handling can work with and is incorporated into all of the PAL 1 terminal building development concepts. With the outbound baggage handling space PAL 1 requirement of 19,936 SF, this concept extends the entire southern portion of the terminal building, increasing the area to nearly 22,200 SF. This would establish space for multiple airline-specific carousels and a baggage sortation system, reducing the amount of manual labor involved in the handling process. It should also be noted that this expansion would bring the terminal close to meeting the space requirements for outbound baggage handling through PAL 4 (23,943 SF).

Terminal Building Concept 1: "Hammerhead" Concessions Core

As depicted in **Figure 5-10**, the distinguishable improvement in this concept is the build-out at the end of the concourse (beyond Gates 4 and 5). This would allow for the development of an appropriately-sized post-security concessions area within the expansion and provide space for Gates 6 and 7 to be relocated to the upper level and their hold rooms expanded. The existing CBP shell space would be used for Gates 8 and 9 and supplementary concessions (as passenger demand dictates) and replacement CBP space could be reconstructed on the north end of the building. Reconfiguration of the gates and boarding bridges would provide additional space for inbound baggage tug circulation, and the loading conveyors could be extended and covered to improve utility. Additional administrative office space could be developed on the second level above the expanded SSCP, and building services or airline support functions could be located in the previous Gates 6 and 7 hold rooms.

To accommodate the gate reconfiguration, provide adequate aircraft circulation and maintain the existing Remain Overnight (RON) parking positions, the commercial aircraft apron would need to be expanded by approximately 17,231 SY. This expansion includes the development of the ADG III apron taxilane that, if operational demand is realized, could form a section of an ultimate parallel taxiway to the existing parallel Taxiway F. The estimated costs for this concept are presented in **Table 5-3**.

Table 5-3 – Concept 1 Cost Estimate

Primary Project Component	Units	$ per Unit	Cost ($)
Terminal Building Rehabilitation / Reconfiguration	20,239 SF	$173/SF	3,501,347
Terminal Building Expansion / New Construction	53,465 SF	$504/SF	26,946,360
Passenger Boarding Bridges	4 units	$793,728/ea.	3,174,912
Apron Expansion	17,231 SY	$269/SY	4,635,139
Total Project Costs			**38,257,758**

Source: CHA, 2014

Terminal Building Concept 2: CBP Shell Space Concessions

This concept focuses largely on the reconfiguration of the interior layout, having the least building expansion of the five concepts. As with the previous concept, the existing CBP shell space would be utilized, establishing a second-level concessions core and the hold room for Gate 8. This in turn would allow for the expansion of the hold rooms for Gates 1 through 5 in the east concourse. Gates 6 and 7 would remain as they are on the ground level, supporting smaller regional or commuter type aircraft. The second level floor would be extended into the "atrium" to provide space for circulation to the northern gates and concessions. As with the previous Hammerhead concept, inbound baggage handling would be improved through reconfiguration of the boarding bridges and sheltering of the loading conveyors. The corresponding expansion of the commercial apron would be approximately 13,753 SY. This concept is depicted in **Figure 5-11** and the estimated costs are shown in **Table 5-4**.

Table 5-4 – Concept 2 Cost Estimate

Primary Project Component	Units	$ per Unit	Cost ($)
Terminal Building Rehabilitation / Reconfiguration	24,492 SF	$173/SF	4,237,116
Terminal Building Expansion / New Construction	34,139 SF	$504/SF	17,206,056
Passenger Boarding Bridges	2 units	$793,728/ea.	1,587,456
Apron Expansion	13,753 SY	$269/SY	3,699,557
Total Project Costs			**26,730,185**

Source: CHA, 2014

Terminal Building Concept 3: North Concessions

This concept would expand the north end of the terminal building toward the airside and preserve the existing CBP shell space for future use. The expansion would accommodate the relocation of Gate 2, a centralized concessions core, circulation to the northern concourse and Gates 8 and 9. The relocation of Gate 2 would provide space for an overflow lounge and expansion of Gates 1, 3, 4 and 5. Gates 6 and 7 and the existing vertical circulation (i.e. stairs, escalator, elevators) would remain in the current configuration. The corresponding expansion of the commercial apron would be approximately 13,753 SY. This concept is depicted in **Figure 5-12** and the estimated costs are presented in **Table 5-5**.

Table 5-5 – Concept 3 Cost Estimate

Primary Project Component	Units	$ per Unit	Cost ($)
Terminal Building Rehabilitation / Reconfiguration	11,454 SF	$173/SF	1,981,542
Terminal Building Expansion / New Construction	42,116 SF	$504/SF	21,226,464
Passenger Boarding Bridges	2 units	$793,728/ea.	1,587,456
Apron Expansion	13,753 SY	$269/SY	3,699,557
Total Project Costs			**28,495,019**

Source: CHA, 2014

Terminal Building Concept 4: South Concessions

Compared to the previous North Concessions concept, this configuration would relocate Gates 1 and 2 and centralize the concessions in a building expansion to the south of the existing concourse. This would allow the hold rooms for Gates 3, 4 and 5 to be expanded. Gates 8 and 9 and the relocated Gate 2 would be accommodated in a building expansion to the north of the concourse, preserving the existing CBP shell space. Gates 6 and 7, and vertical circulation would remain in the current configuration. The corresponding expansion of the commercial apron would be approximately 13,753 SY. This concept is depicted in **Figure 5-13** and the estimated costs are detailed in **Table 5-6**.

Table 5-6 – Concept 4 Cost Estimate

Primary Project Component	Units	$ per Unit	Cost ($)
Terminal Building Rehabilitation / Reconfiguration	11,312 SF	$173/SF	1,956,976
Terminal Building Expansion / New Construction	46,838 SF	$504/SF	23,606,352
Passenger Boarding Bridges	2 units	$793,728/ea.	1,587,456
Apron Expansion	13,753 SY	$269/SY	3,699,557
Total Project Costs			**30,850,341**

Source: CHA, 2014

Terminal Building Concept 5: Split Core Concessions

As depicted in **Figure 5-14**, this model essentially combines the previous two concepts, but would provide two centrally located concessions areas, both at the top of the existing escalator. These two areas could be developed separately for retail and/or restaurant functions. Relocated Gate 2 and the added Gates 8 and 9 would be accommodated in a northern building expansion that preserves the CBP shell space. Gates 1, 3, 4, and 5 would be expanded and Gates 6 and 7 would remain in their current configuration. The corresponding expansion of the commercial apron would be approximately 13,753 SY. The estimated costs for this concept are presented in **Table 5-7**.

Table 5-7 – Concept 5 Cost Estimate

Primary Project Component	Units	$ per Unit	Cost ($)
Terminal Building Rehabilitation / Reconfiguration	10,354 SF	$173/SF	1,791,242
Terminal Building Expansion / New Construction	52,669 SF	$504/SF	26,545,176
Passenger Boarding Bridges	2 units	$793,728/ea.	1,587,456
Apron Expansion	13,753 SY	$269/SY	3,699,557
Total Project Costs			**33,623,431**

Source: CHA, 2014

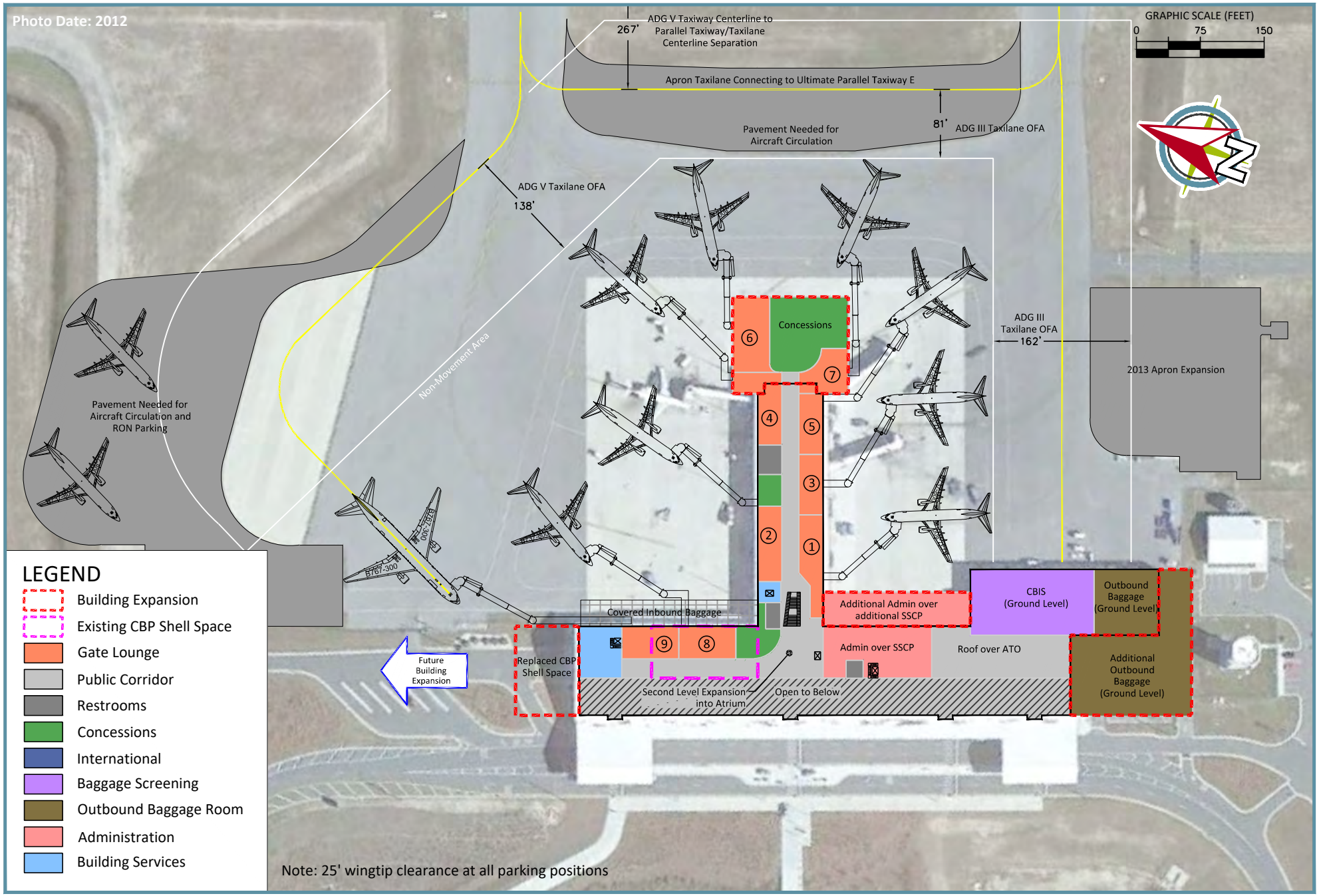

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Figure 5-10
Terminal Concept 1
Hammerhead Concessions Core

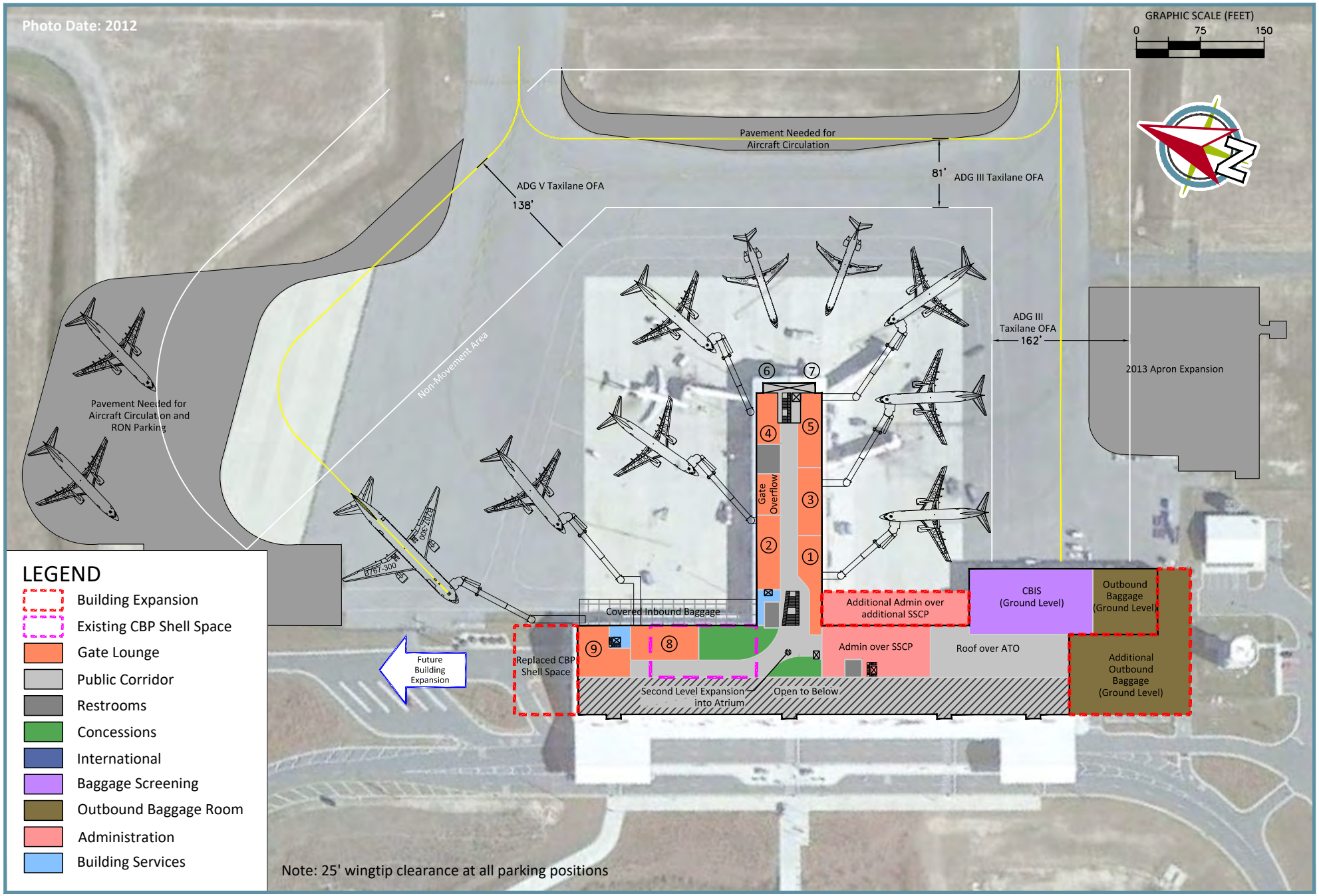

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Figure 5-11
Terminal Concept 2
CBP Shell Space Concessions

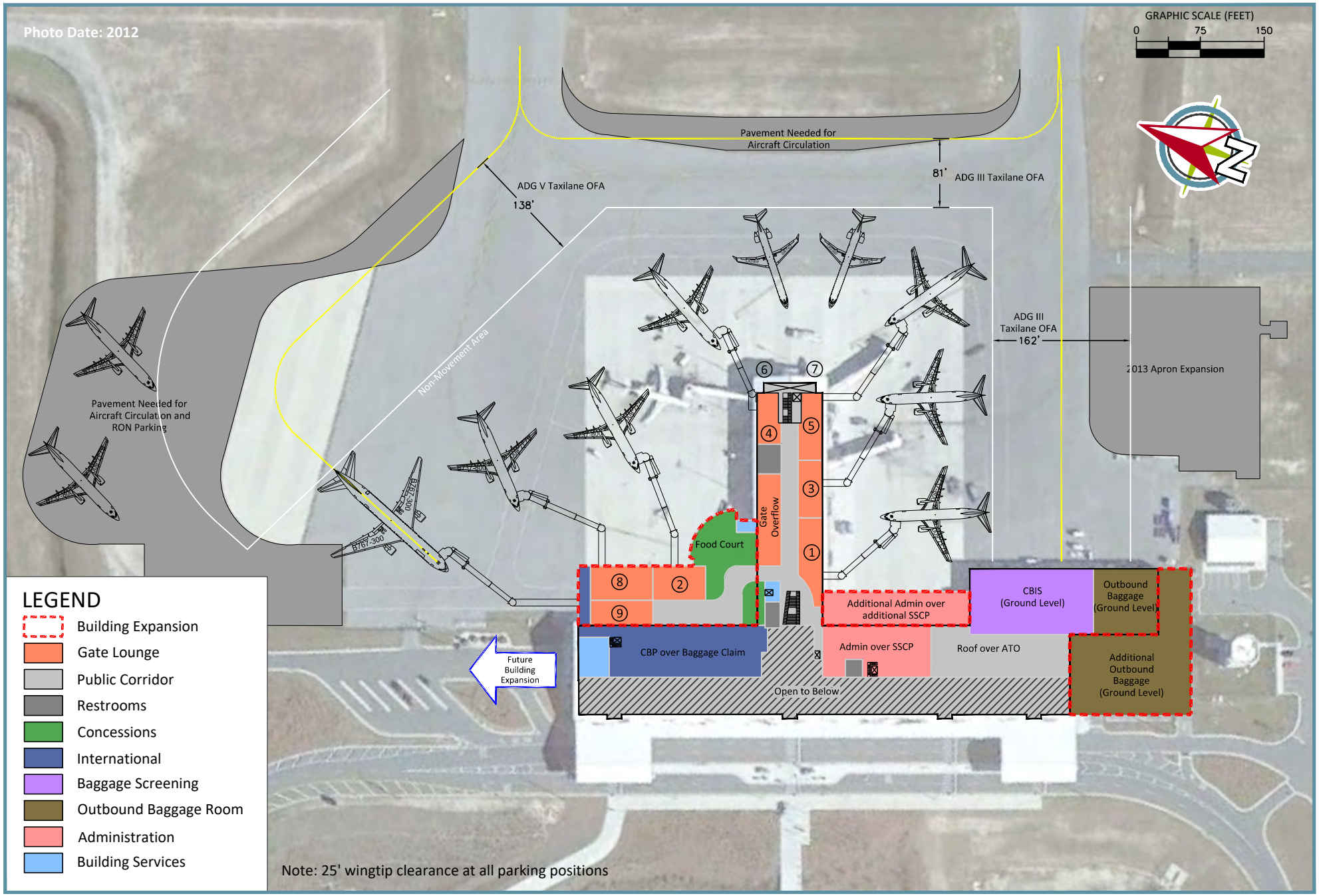

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Figure 5-12
Terminal Concept 3
North Concessions

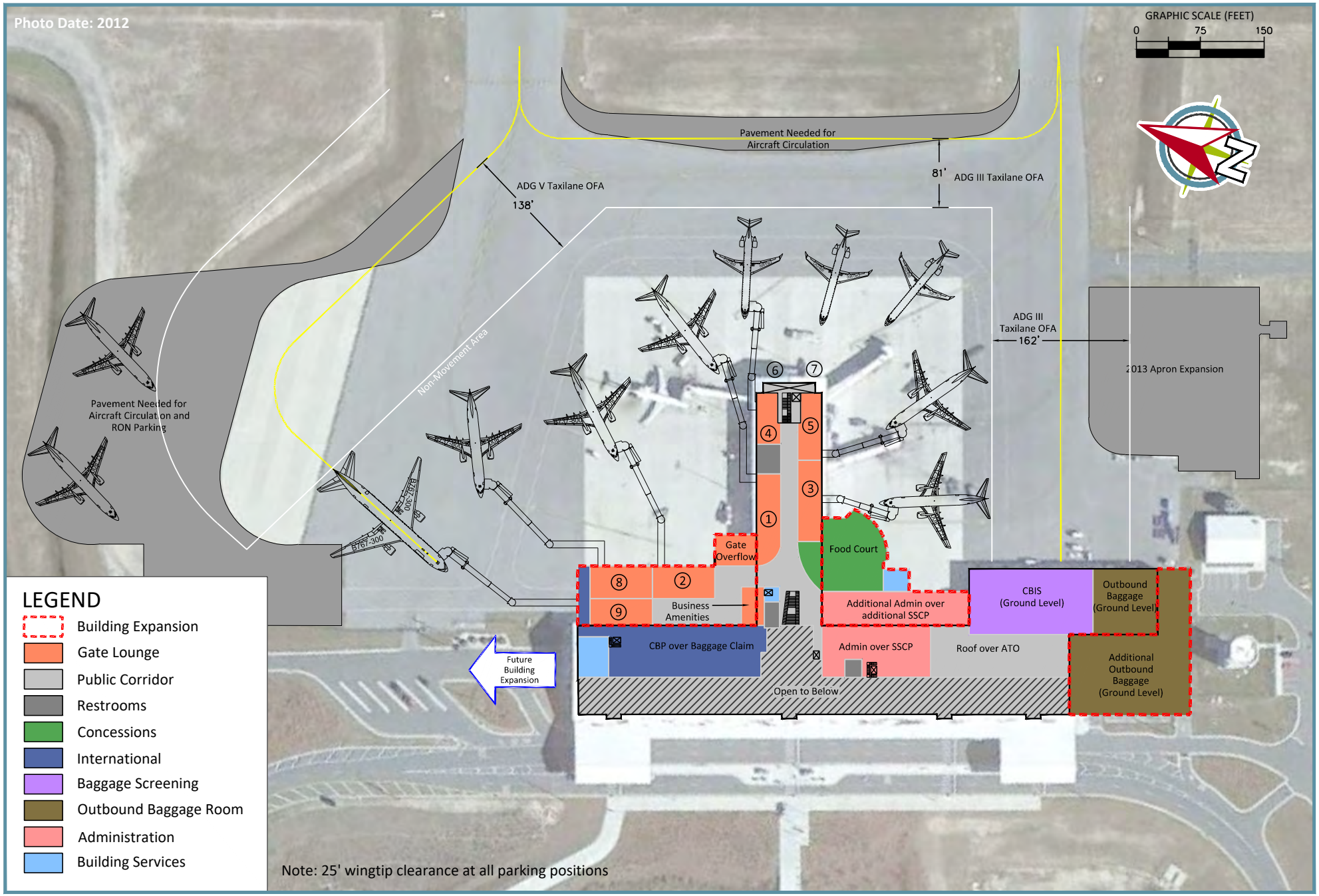

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Figure 5-13
Terminal Concept 4
South Concessions

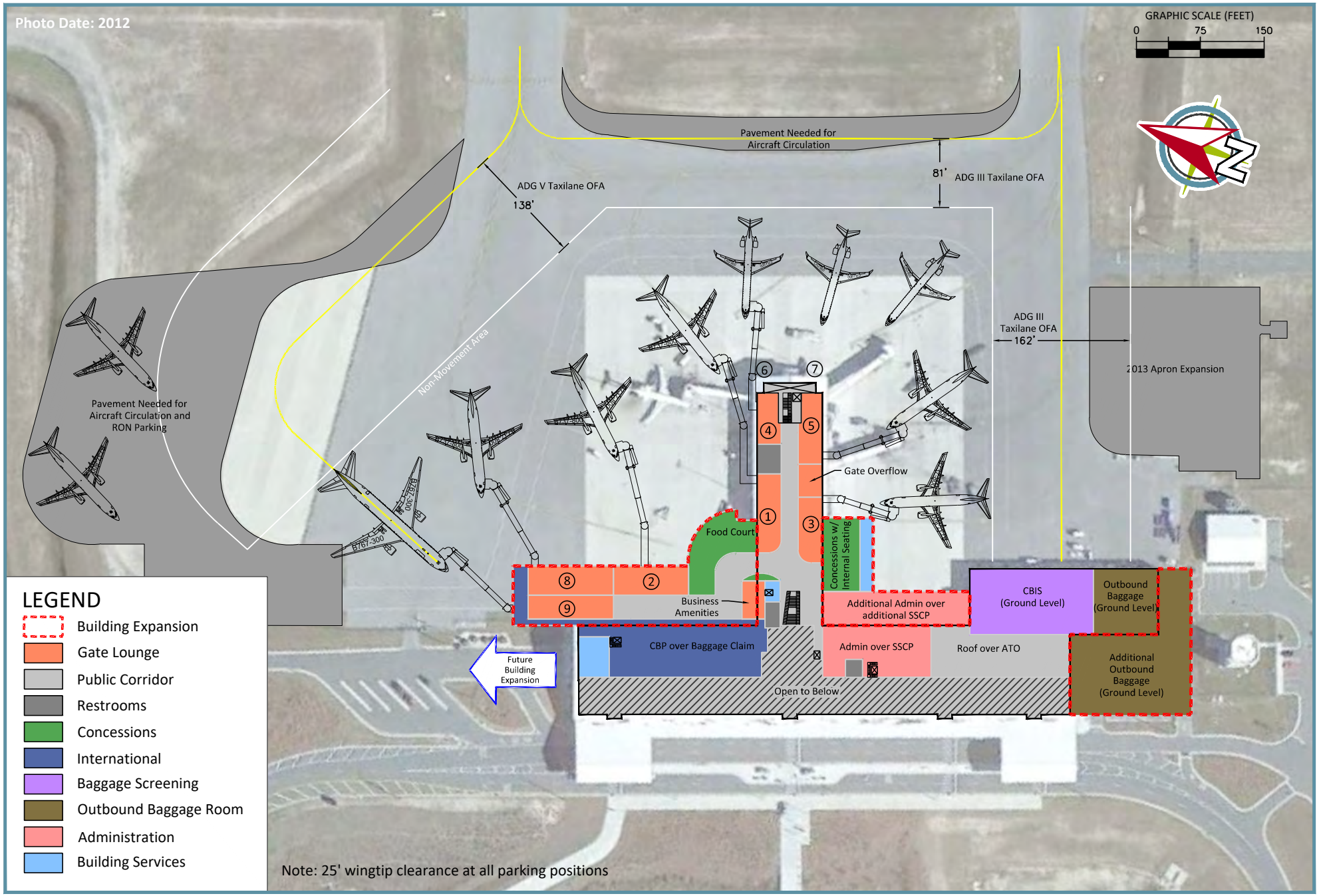

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Figure 5-14
Terminal Concept 5
Split Core Concessions

5.5.3 Comparison and Preferred PAL 1 Terminal Concept

Because all of the aforementioned terminal concepts incorporate the same SSCP and outbound baggage handling PAL 1 requirement expansions, comparisons must be made of the remaining three priority areas: the gate hold rooms, the inbound baggage handling area, and post-security concessions.

Table 5-8 contains the square footages of the reconfigured and/or newly constructed priority areas for each terminal concept.

Table 5-8 – Comparison of PAL 1 Priority Area Development

Project Component	PAL 1 Requirements	Concept 1	Concept 2	Concept 3	Concept 4	Concept 5
SSCP	**9,043**	13,570	13,570	13,570	13,570	13,570
Outbound Baggage Handling	**19,936**	22,200	22,200	22,200	22,200	22,200
Gate Hold Rooms	**19,042**	24,009	19,169	19,053	25,444	19,225
Inbound Baggage Handling	**11,928**	6,354	6,354	18,879[1]	16,475[1]	24,293[1]
Post-Security Concessions	**4,625**	10,213	4,650	6,141	7,510	8,811

Source: CHA, 2014

[1]Total ground level space available from building expansion on north side of terminal – can have multiple uses

Red text indicates insufficient area to accommodate PAL 1 space requirement

Building expansions and optimization of the existing second level interior floor space allows all of the concepts to increase the gate hold room and post-security concessions capacities to meet PAL 1 requirements. Concepts 1 and 2 incorporate the cost-effective solution of a shelter for the inbound baggage handling area. Although the reconfigured aircraft parking position layout and boarding bridges would establish space for the covered area, that space would be limited by the existing vehicle passageways under the pier, leaving it short of the calculated space demands of PAL 1 and beyond. The northern terminal build-outs in Concepts 3, 4, and 5 not only accommodate the additional, larger gate hold rooms, but also provide abundant ground level space for enclosed inbound baggage handling operations. These concepts also provide the opportunity to enlarge the baggage claim area on the lower level of the terminal.

Table 5-9 summarizes the preliminary cost estimates for each PAL 1 concept. New construction to the terminal has the greatest impact on the amount of apron needed and has the highest cost per square foot, making Concept 1 and Concept 2 the most and least expensive options, respectively.

Table 5-9 – Cost Comparison of PAL 1 Terminal Development Concepts

Project Component	Concept 1	Concept 2	Concept 3	Concept 4	Concept 5
Terminal Building Rehabilitation/Reconfiguration	3,501,347	4,237,116	1,981,542	1,956,976	1,791,242
Terminal Building Expansion/New Construction	26,946,360	17,206,056	21,226,464	23,606,352	26,545,176
Passenger Boarding Bridges	3,174,912	1,587,456	1,587,456	1,587,456	1,587,456
Apron Expansion	4,635,139	3,699,557	3,699,557	3,699,557	3,699,557
Total Project Cost ($)	**38,257,758**	**26,730,185**	**28,495,019**	**30,850,341**	**33,623,431**

Source: CHA, 2014

The FAA encourages adaptation of the general considerations listed at the beginning of the chapter in order to address the specific needs and vision of the airport sponsor. Collaboration between the study team and airport staff identified the following criteria to be essential in evaluating the various terminal development options. The following criteria were further weighted in **Table 5-10** to reflect the Authority's highest concerns and decision making priorities:

Implementation Cost **-** Estimated total program development costs including design, environmental approval, construction, and impact costs (i.e. demolition and replacement of displaced facilities). Does not account for inflation related to project phasing.

Potential for Maximized Revenue **-** Provides opportunities for increased airport revenue through additional leasable space and/or optimized rate structures. Includes ability to attract new tenants and users to new, expanded or redeveloped landside facilities.

Disruption to Surrounding Facilities **-** Quantitative and qualitative impacts related to the displacement and/or relocation of surrounding facilities including apron space, automobile parking, hangars, etc. The more facilities/tenants displaced - the higher the chance of increased project complexity, inconvenience, and duration.

Passenger Convenience **-** Supports the safe, efficient, and comfortable movement of passengers - allows easy access, low wait times, minimizes walking distances, and protects passengers in inclement weather conditions.

Operational Convenience **-** From an airport employee and tenant perspective, provides facilities that support efficient daily operations including movement of aircraft and baggage, security and emergency access, facility maintenance, and snow removal.

Development Phasing **-** Ability to develop the concept in phases consistent with demand growth in a manner that does not overburden the financial resources of the Authority and funding agencies.

Flexibility **-** Ability to be scaled, or adjusted, to meet changing market conditions and passenger demand well into the future.

The concepts were ranked on their ability to meet the parameters of each criterion. The ranking values range from 1 (least benefit/most impact or cost) to 3 (largest benefit/least impact or cost). The ranking value was then multiplied by the weighting factor to arrive at point value score. The concept with the highest cumulative score was determined to be the preferred development concept.

Table 5-10 – PAL 1 Terminal Building Concept Scoring Matrix

Criteria	Weight	Concept 1		Concept 2		Concept 3		Concept 4		Concept 5	
		Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score
Implementation Cost	4	1	4	3	12	3	12	2	8	2	8
Potential for Maximized Revenue	3	2	6	1	3	2	3	2	9	3	9
Disruption to Surrounding Facilities	1	1	1	3	3	2	2	2	2	2	2
Passenger Convenience	7	1	7	2	14	3	21	2	14	3	21
Operational Convenience	2	1	2	1	2	2	4	2	4	3	6
Development Phasing	5	2	10	3	15	1	5	1	5	3	15
Flexibility	6	1	6	2	12	2	12	2	12	2	12
Total Score			**36**		**61**		**59**		**54**		**73**

Source: CHA, 2013

After collaborating with airport staff and board members and settling on criterion rankings for each concept, it was determined that *Terminal Concept 5: Split Concessions* had the greatest viability for near-term development and long-term sustainability. Although it has the second highest cost and amount of new construction, the concept requires the least amount of interior reconfiguration and offers the greatest potential for revenue with its scalable, centralized concessions areas. The new layout would preserve the atrium's ambiance while maximizing second level floor space, thus providing passengers with a sense of order and efficiency. The configuration and building expansion in Concept 5 should effectively meet all priority area capacity shortfalls, improve operations, and meet the Authority's strategic objectives.

5.5.4 Phased Terminal Development

Because of the current fiscal climate and the increasingly limited funding available for airports, a key development priority was the ability for the concept to be phased as passenger levels actualize. With expansion and reconfiguration occurring in several areas of the terminal, numerous phasing alternatives could be explored; however, because this model is strictly conceptual and final design may deviate from what is shown, only the most logical phasing scheme was presented.

Expansion of the SSCP and outbound baggage handling areas will likely transpire as whole programs due to the size of equipment and necessary space for functional reconfiguration. Phasing was therefore focused on the improvements of the other priority areas in the east and north sections of the terminal, assuming the prior completion of the SSCP enhancement. Alternatively, the concourse improvements could be pursued first and the SSCP could be pursued at a later time, pending the level of TSA support.

As depicted in **Figure 5-15**, following the expansion of the SSCP area, the first phase of the concourse expansion would include the relocation of Gate 2 and development of an expanded concessions area. This would establish the circulation corridor to future gates located in a northward concourse expansion. The remaining hold-rooms would be reconfigured to increase the seating areas. The second phase would establish the northern concourse by relocating Gate 2, providing up to two additional gates, and expanding the concessions area. Inbound baggage handling and baggage claim facilities could also be expanded and improved at this time. As warranted, the third phase could begin expanding the southern side of the existing concourse to provide additional concessions or other passenger amenities such as an airline club or premium passenger lounge.

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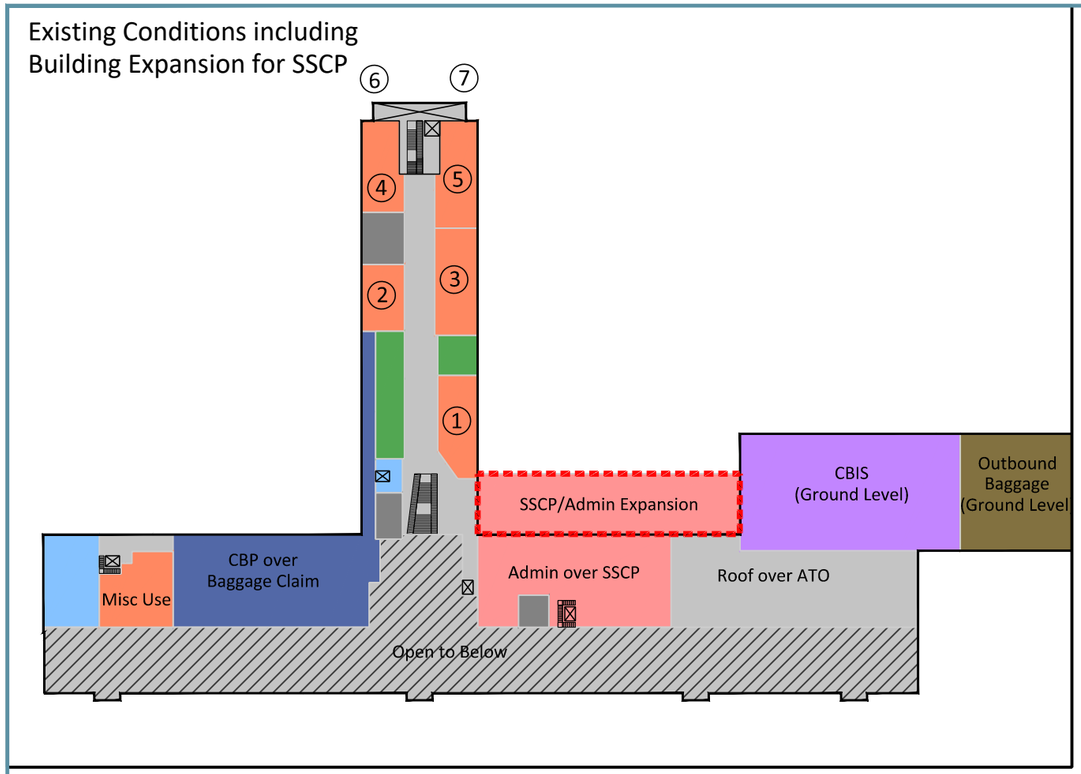
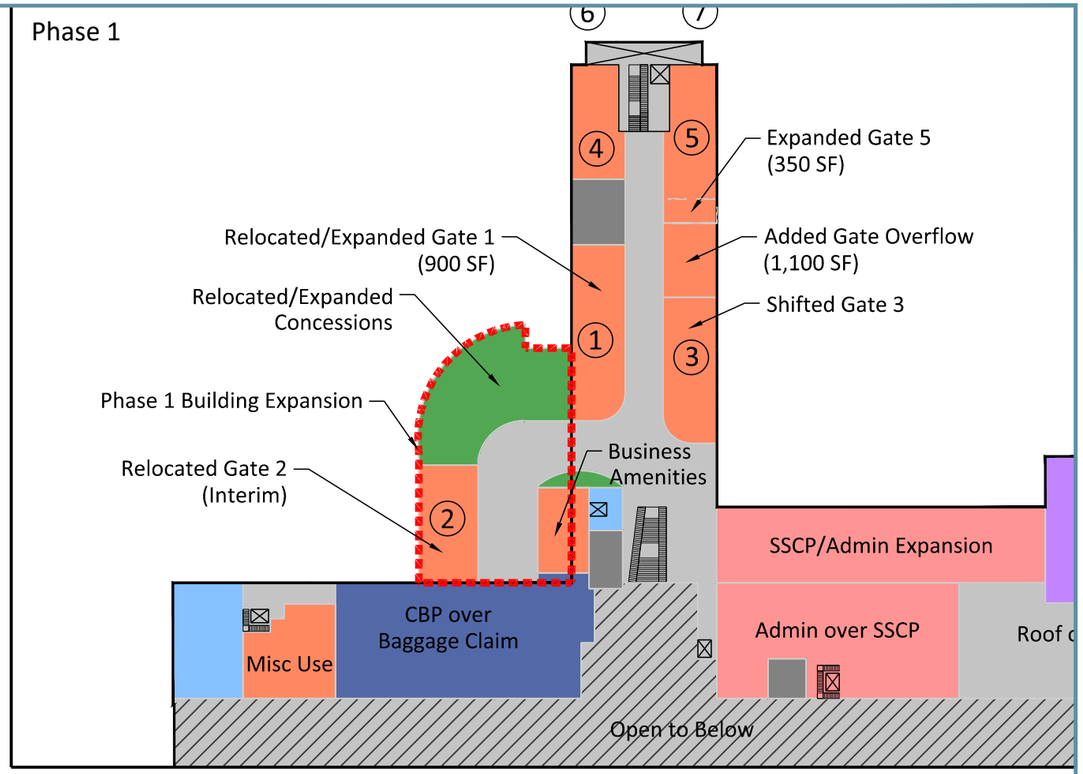
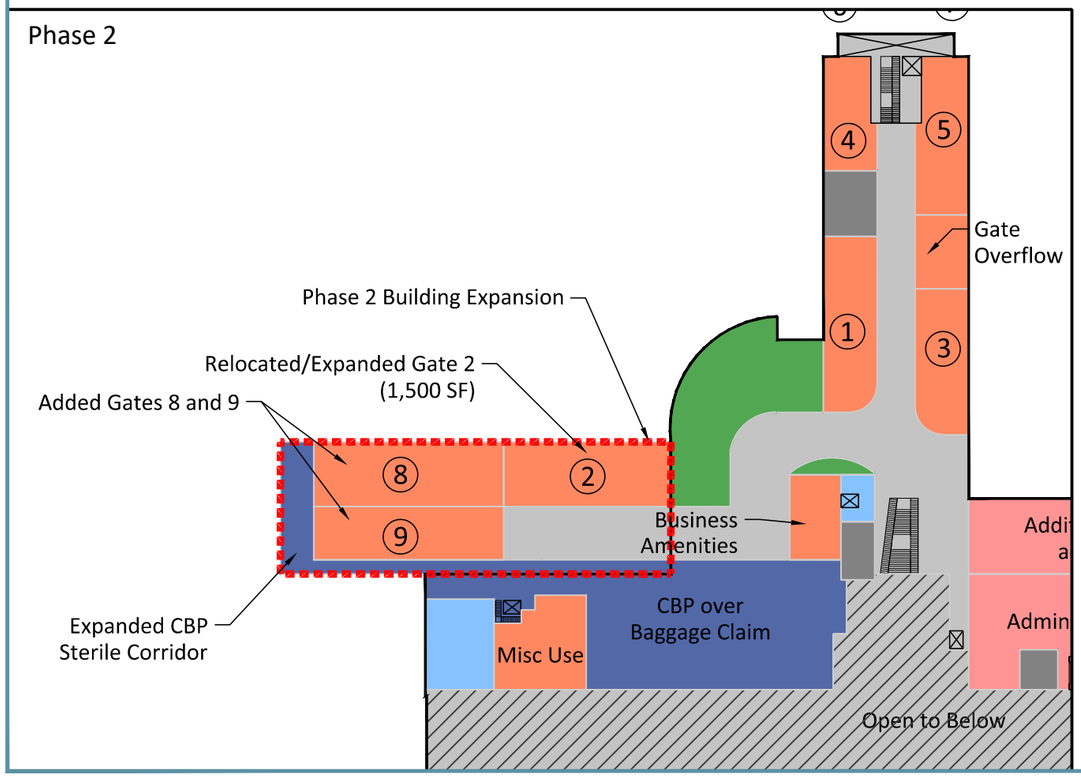
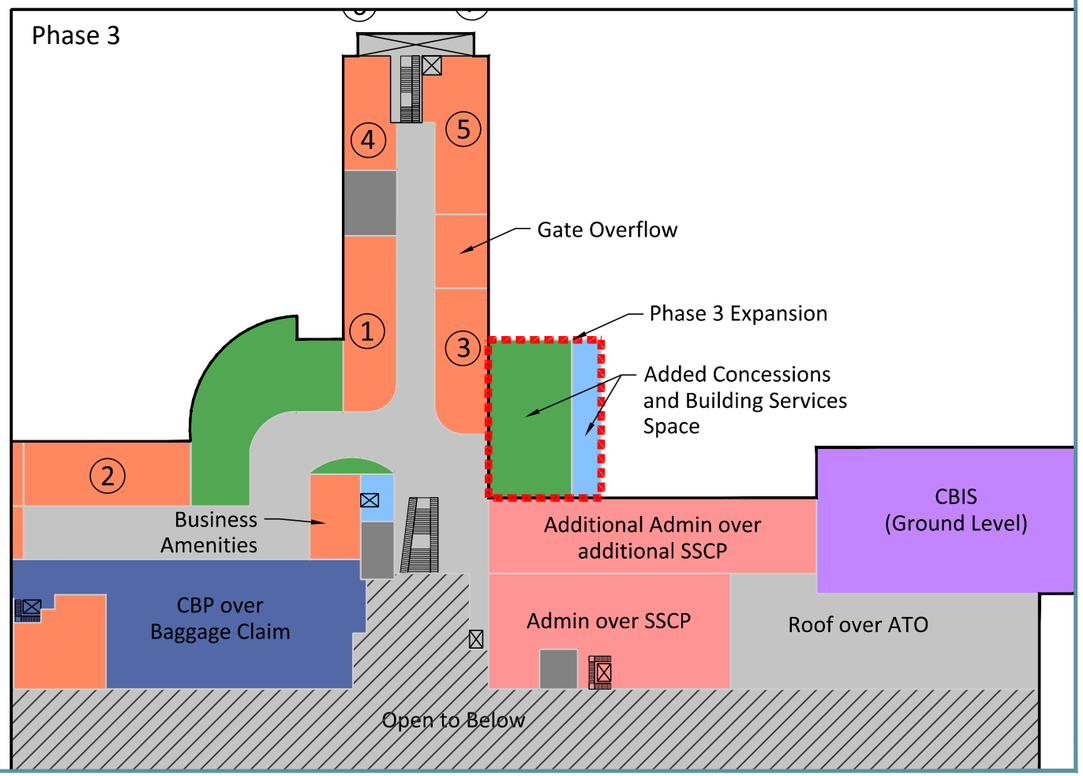
Not to Scale









LEGEND

- Building Expansion
- Gate Lounge
- Public Corridor
- Restrooms
- Concessions
- International
- Baggage Screening
- Outbound Baggage Room
- Administration
- Building Services

Figure 5-15
Terminal Development
Phasing

5.6 AUTOMOBILE PARKING AND ACCESS

As described in **Section 4.10**, there are approximately 1,800 paved surface parking spaces to accommodate short- and long-term public parkers, employees and rental car ready return. There is also an unpaved area located between the ring-road and the rental car fueling and wash area (QTA area) that can accommodate approximately 300 overflow parkers during peak times such as holidays. The QTA area can accommodate about 885 vehicles. In late 2013, approximately 298 public spaces were covered with shade/rain canopies and became available for use by either short- or long-term parkers. All parking spaces are located more than 300 feet from the terminal building. The existing parking configuration is depicted in **Figure 5-16**.

The parking demand calculations for the planning horizon are summarized in **Table 5-11**. These indicate that, with use of the unpaved overflow lot, there is sufficient parking supply during current peak passenger activity levels. At PAL 1, there is projected to be a deficit in available public and employee spaces. As demand continues to rise, parking constraints will become more pronounced over the planning horizon, emphasizing the need for a long-term solution.

Table 5-11 – Parking Supply and Demand

Existing Supply >		Public *1,647**		Employee *204*		Ready/Return *250*		Total Surplus/ Deficit
Period	Enplanements	Demand	Difference	Demand	Difference	Demand	Difference	
2012	439,183	*1,522*	125	162	42	149	101	268
PAL 1	616,700	*2,138*	-491	228	-24	209	41	-474
PAL 2	711,500	2,468	-821	263	-59	241	9	-871
PAL 3	869,400	3,014	-1,367	321	-117	294	-44	-1,528
PAL 4	1,017,900	3,528	-1,881	376	-172	344	-94	-2,147

Source: Albersman & Armstrong, 2013
* Does not include unpaved overflow

To meet the growing parking demands and provide a high level of customer service, in the most cost effective manner, a phased parking expansion program is recommended. The following describes a three-phase concept with two alternatives for Phase 3.

5.6.1 Parking Expansion Phase 1 – Surface Parking

As depicted in **Figure 5-17**, Phase 1 is intended to satisfy PAL 1 parking demands. Public short-term and rental car ready/return parking would be provided directly west of the passenger terminal within a 300-foot walking distance. This expanded parking is within a zone commonly referred to as the TSA "300-foot rule" which essentially restricts parking activities during periods of heightened security threat levels. During those times, parking patrons would be subject to inspection prior to entering this zone. Access to these parking areas would be provided outside of the 300-foot zone, thus making it possible to close that area of parking and avoid the inspection process. This expansion would provide 550 short-term spaces and 340 rental car ready/return spaces.

The public long-term lot would expand into the areas previously occupied by rental car ready/return and short-term parking. This increases the total available public long-term parking to 1,960 spaces (including covered and overflow parking). Exiting traffic for public parking (except overflow) would utilize the existing exit plaza located along the north/south spine road between the two long-term lots. This Phase 1 concept would provide a total of 2,510 public parking spaces. The existing employee lot would be expanded to the south providing 370 parking stalls. Access for the employee lot would remain and function as it does today.

5.6.2 Parking Expansion Phase 2 – Surface Parking

Phase 2 of the parking expansion, refer to **Figure 5-18**, would satisfy the parking demand through PAL 3. In this concept, the public parking exit plaza is moved to the east edge of the ring-road and expanded to handle the increase in traffic flow. The spine road between the two long-term lots is eliminated (shown dashed) providing more efficient parking and way-finding within the ring-road. Long-term public parking occupies the entire west side of the in-field providing 2,420 parking spaces (including covered parking). The employee parking lot is relocated to the west side of the ring-road (previously overflow parking) and expanded to provide 370 spaces. The public short-term parking location remains and is expanded to 790 spaces. The rental car ready/return lot location remains and is expanded to 340 spaces. As depicted, this phase would provide a total of 3,210 public parking spaces.

5.6.3 Parking Expansion Phase 3 – Surface Parking Option

Phase 3 of the proposed parking expansion program is intended to satisfy PAL 4 parking demands. As depicted in **Figure 5-19**, to satisfy this demand with surface parking only, this concept would extend the ring-road to the north and would expand the long-term parking within the expanded loop. This would keep all public parking contiguous, which in turn would keep the parking operations more efficient than providing an additional (and separate) remote lot, which would require additional shuttling across active roadways. This concept provides 790 short-term spaces, and 3,000 long-term spaces (including covered parking) for a total public parking supply of 3,790. PAL 4 employee and rental car parking demands would have been met with the proposed Phase 2 expansion. The total program cost for this parking concept, including all three phases, is approximately $8.2 million (refer to **Table 5-12**).

Table 5-12 – Surface Parking Option Cost Estimate

Project Component	Units	$ per Unit	Cost
Surface Parking Rehabilitation / New Pavement	55,000 SY	$105 / SY	$5,775,000
Toll Plazas	2,000 SF	$250 / SF	$500,000
Roadway Improvements	12,000 SY	$160 / SY	$1,920,000
Total Project Cost			**$8,195,000.00**

Source: Albersman & Armstrong, CHA, 2013

5.6.4 Parking Expansion Phase 3 – Garage Parking Option

To satisfy the PAL 4 parking demand, this concept proposes a one level structure above the short-term and rental ready/return parking areas. As depicted in **Figure 5-20**, this would provide 790 short-term public spaces at grade, and 1,000 long-term spaces on the supported level. This leaves a total of 2,400 surface spaces west of the garage (including covered parking) for a total of 4,190 public parking spaces. PAL 4 employee and rental car parking would remain as is from the Phase 2 expansion. Alternatively, the garage could be built with two supported levels to provide more covered parking closer to the terminal. The resulting surplus of "economy" parking could be cordoned off and remain available for peak overflow and future expansion.

This concept would require a temporary remote lot to accommodate the parking spaces displaced during construction of the garage. A temporary lot capable of accommodating up to 1,000 spaces would require approximately 8 acres of space. If still available, the previous CAP parking lot could be utilized which could provide approximately 350 spaces. A likely location for this lot would be to the north of the ring-road as depicted in the Phase 3 surface parking concept.

To maximize the revenue potential, it is recommended that the Authority consider rebranding the surface parking behind the short-term as "economy" and restructuring the parking rates accordingly. This would also simplify the user's parking choices and enable the Airport to better control parking utilization. Typical parking products offered at other airports, and those recommended for ECP, include Short-Term, Long-Term and Economy. One option to consider would be providing Covered-Long-Term parking by maintaining the covered surface lot constructed in 2013 or installing canopies on the upper deck of the garage.

As summarized in **Table 5-13**, the total program cost for this parking concept, including all three phases, is approximately $36.3 million.

Table 5-13 – Garage Parking Option Cost Estimate

Project Component	Units	$ per Unit	Cost
Surface Parking Rehabilitation / New Pavement	16,000 SY	$105 / SY	$1,680,000
Parking Garage	2,100 Spaces	$16,000 / Space	$33,600,000
Toll Plazas	2,000 SF	$250 / SF	$500,000
Roadway Improvements	3,300 SY	$160 / SY	$528,000
Total Project Cost			**$36,308,000**

Source: Albersman & Armstrong, CHA, 2013

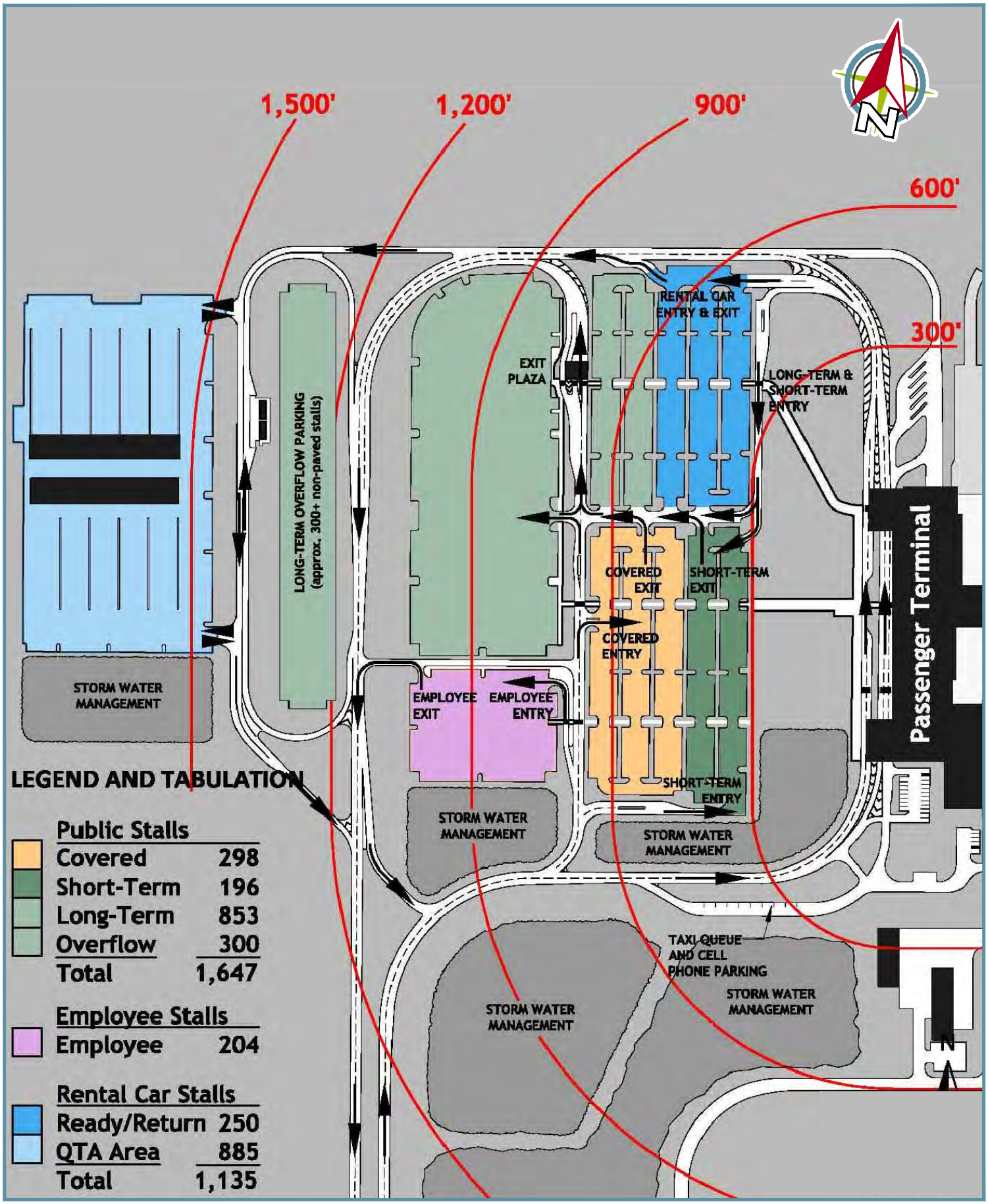


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Figure 5-16
Existing Parking Facilities

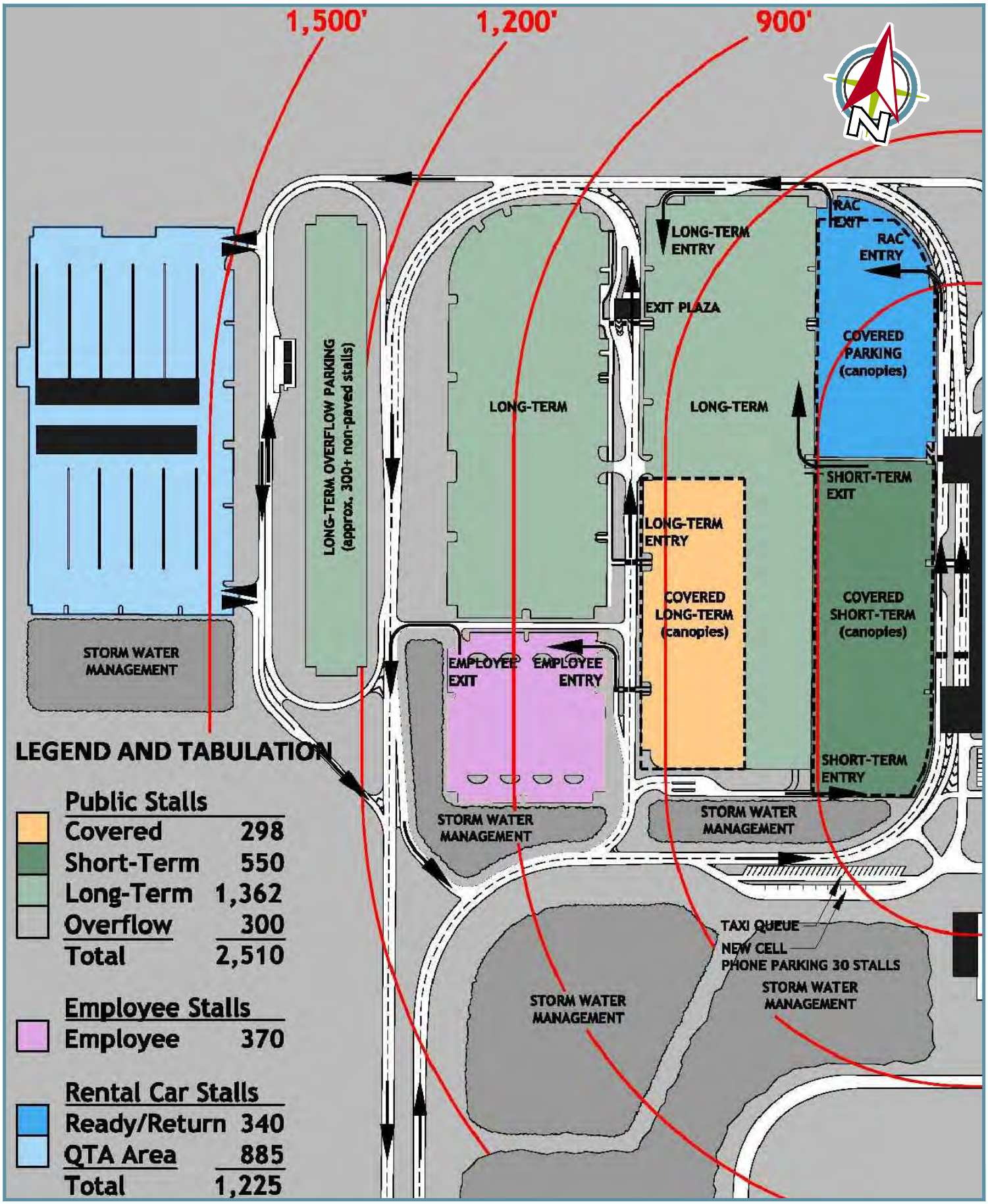

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Figure 5-17
Parking Concept Phase 1
(PAL 1)

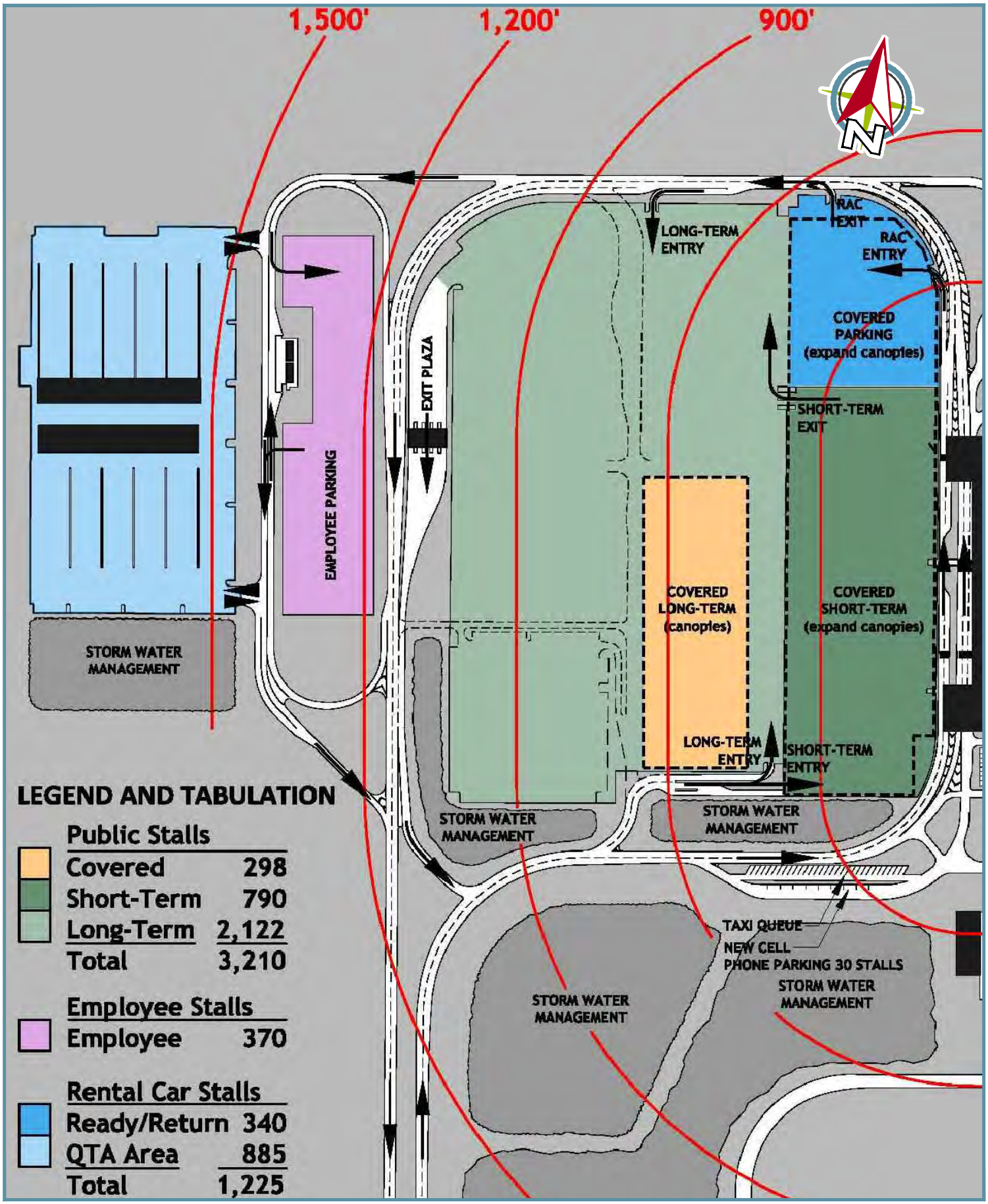

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Figure 5-18
Parking Concept Phase 2
(Pal 3)

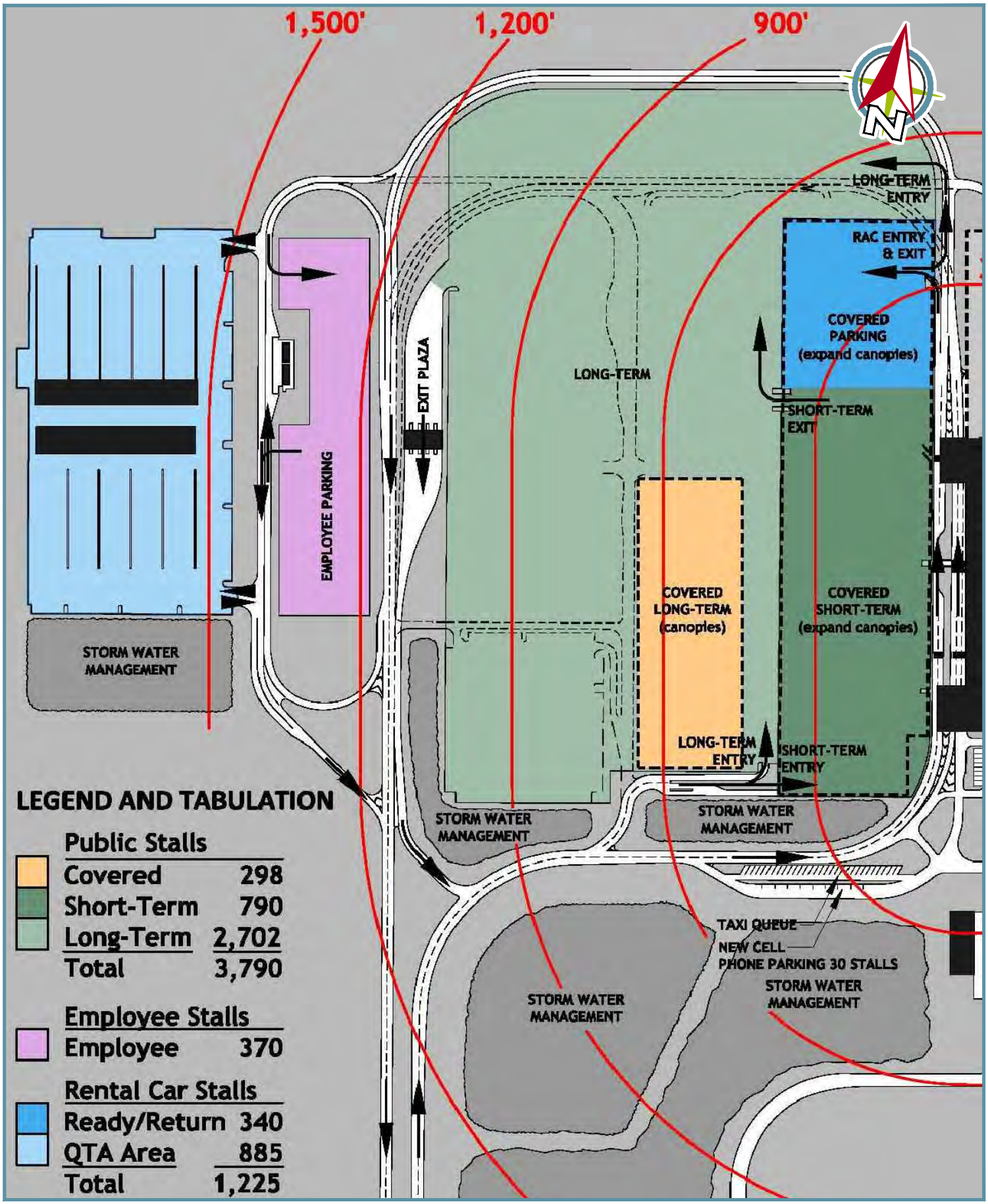

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Figure 5-19
Parking Concept Phase 3
Surface Option (PAL 4)

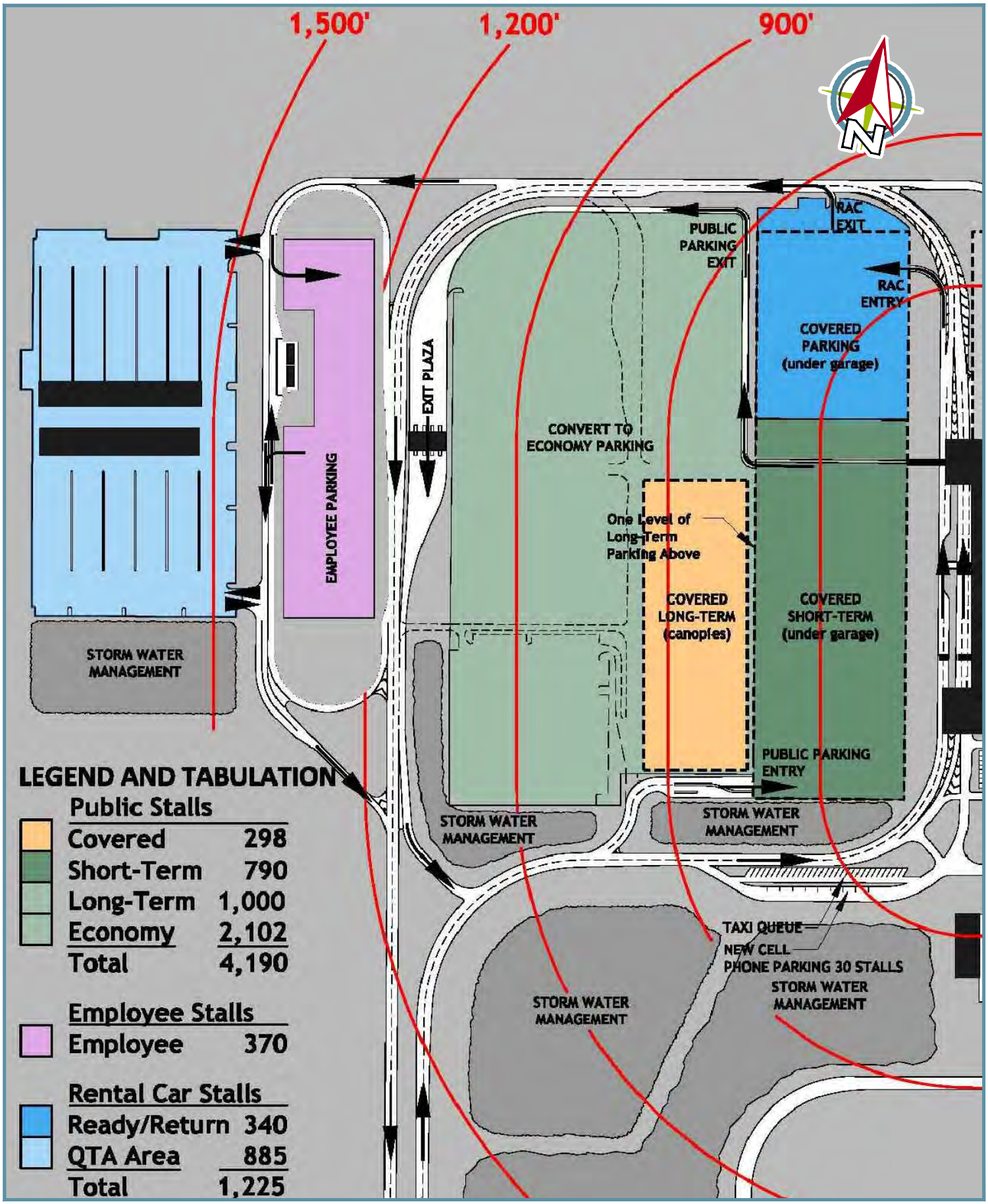

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Figure 5-20
Parking Concept Phase 3
Garage Option (PAL 4)

5.6.5 Comparison and Preferred Parking Concept

As proposed, all phases of the parking expansion program slightly exceed the calculated public parking demand. Acknowledging that not all spaces may be available for use at any given time, these additional spaces provide an "effective buffer" to account for parking contingencies including vacancies resulting from improperly parked vehicles, maintenance work and to provide enough open space for circulating parkers to find an open stall.

While both of the Phase 3 options can meet the user demands, there are several considerations that will influence what solution (surface or garage) the Authority will ultimately pursue. The estimated construction costs of the two concepts are presented in **Table 5-14**. These reflect the total program costs to expand the parking facilities, inclusive of all three phases.

Table 5-14 – Cost Comparison of Phase 3 Parking Concepts

Project Component	Surface Parking	Parking Garage
Surface Parking Rehabilitation / New Pavement	$5,775,000	$1,680,000
Parking Garage	0	$33,600,000
Toll Plazas	$500,000	$500,000
Roadway Improvements	$1,920,000	$528,000
Total Project Cost	**$8,195,000**	**$36,308,000.00**

Source: Albersman & Armstrong, CHA, 2013

As evidenced in the comparison, expanding the surface parking carries a lower implementation cost than constructing a garage, but it does not improve passenger convenience (e.g. long walking distances) and would be operationally less efficient (e.g. additional shuttle buses). Alternatively, the parking garage would improve passenger convenience and improve overall parking efficiency, but requires heavy investment. The same criteria and scoring matrix used to evaluate the terminal concepts were also applied to these two parking concepts (presented in **Table 5-15**). According to this analysis, the Parking Garage is the preferred ultimate option.

Table 5-15 – Parking Concept Scoring Matrix

		Expand Surface Parking		Parking Garage	
	Weight	Rank	Score	Rank	Score
Implementation Cost	4	2	8	1	4
Potential for Maximized Revenue	3	1	3	2	6
Disruption to Surrounding Facilities	1	2	2	1	1
Passenger Convenience	7	1	7	2	14
Operational Convenience	2	1	2	2	4
Development Phasing	5	2	10	1	5
Flexibility	6	1	6	2	12
Total Score			**38**		**46**

Source: CHA, 2014

5.7 POTENTIAL AIR CARGO FACILITIES

Although there is not an expressed or forecasted need for an expanded air-cargo facility, the Authority's business development strategy or the market may change in the future, warranting larger accommodations for cargo operations. In the event that this happens, the current site is limited by stormwater management and other infrastructure, and would require relocation in order to expand.

With the expected development of the crosswind runway and the hundreds of acres of property dedicated to future aviation use development, many locations are possible for a new, larger cargo facility. **Figure 5-21** depicts a conceptual cargo facility capable of accommodating a mix of aircraft including Boeing 737 size cargo planes and cross-docking for multiple tractor-trailers. Also depicted in the figure are several sites where an expanded cargo facility could occur. Sites 1 and 2 would be optimal for near-term development as they are in a location where taxiways, auto access and civil infrastructure are already in place. Access to Sites 3 could be developed from the exiting Taxiway D or an initial component of a mid-field connector taxiway to the potential parallel runway. Landside access could be developed from the existing airport entrance road and remain consistent with future roadway connections to the north. Site 4 would require development of a portion of the pubic perimeter road and would most logically be dependent on the development of the crosswind runway and associated taxiway system. Site 4 however is an area that is envisioned for GA development focused on corporate and personal aircraft.

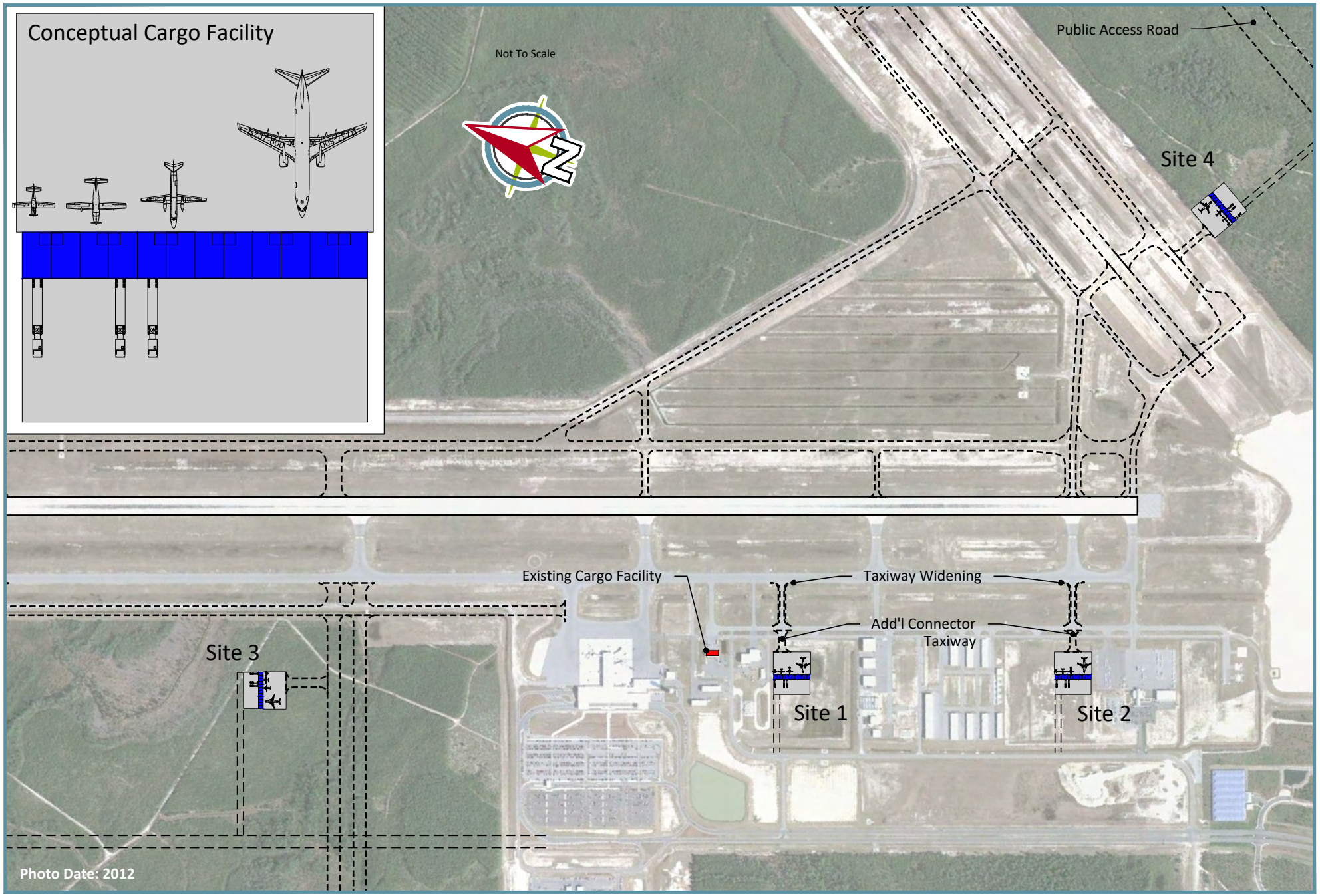

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Figure 5-21
Conceptual Cargo Facility
and Relocation Sites

5.8 POTENTIAL AIR TRAFFIC CONTROL TOWER SITES

At a ground elevation of 53 feet MSL, the existing 147'-10" air traffic control tower has an effective vantage point for line of sight to aircraft operations on the primary runway and on the majority of the taxiway system. As the airfield develops with the programmed crosswind runway and ultimate parallel runway, the need may arise to relocate the air traffic control tower to a more central location in order to oversee operations on the entire airfield. Control tower staff has indicated that management of the primary and crosswind runways would best be performed from a tower located east of Runway 16-34. With development of a parallel Runway 16R-34L, the airfield may however be more effectively managed from a tower located between the parallel runways.

A preliminary, top-level analysis yielded three sites within the air operations area (AOA) that may be suitable for control tower relocation in the future. As pictured in **Figure 5-22**, all concepts assume development of the parallel runway and provide the desired 200-foot separation from public facilities. It should be noted that, if the idea of relocation is pursued, full-scale site selection and line of sight studies would need to be performed.

ATCT Site 1

Site 1 is located approximately 500 feet north of the existing parking lots between the primary and future parallel runway. A tower at this location would not penetrate either runway's transitional surface, and at a ground elevation of 65 feet MSL, would have a cab height limit of around 153 feet. This location would provide the best visibility to the primary and ultimate parallel runways; however, the tower may not have a clear line of sight to the crosswind runway. Tree clearing would likely be needed between the primary and crosswind runways (both on and off airport property) to allow full visibility of the Runway 21 end. Also, visibility of GA activity on the south end of the Airport may also be partially obscured by buildings and hangars.

ATCT Site 2

Site 2 is situated toward the middle and west of the primary runway. Similar to Site 1, transitional surfaces would not be penetrated. At a ground elevation of 60 feet MSL, the cab height limit would be approximately 158 feet. While visibility to the crosswind Runway 21 end may be improved, visibility of the future parallel runway may be compromised by existing buildings.

ATCT Site 3

Site 3 is located west of the primary Runway 16 end. Positioned at 65 feet MSL, a tower would not impact transitional surfaces, and could have a cab height of about 153 feet. This site provides perhaps the most equally distributed visibility to all three runways; however, the northern location could make view of operations on the south end of the airfield slightly more difficult.

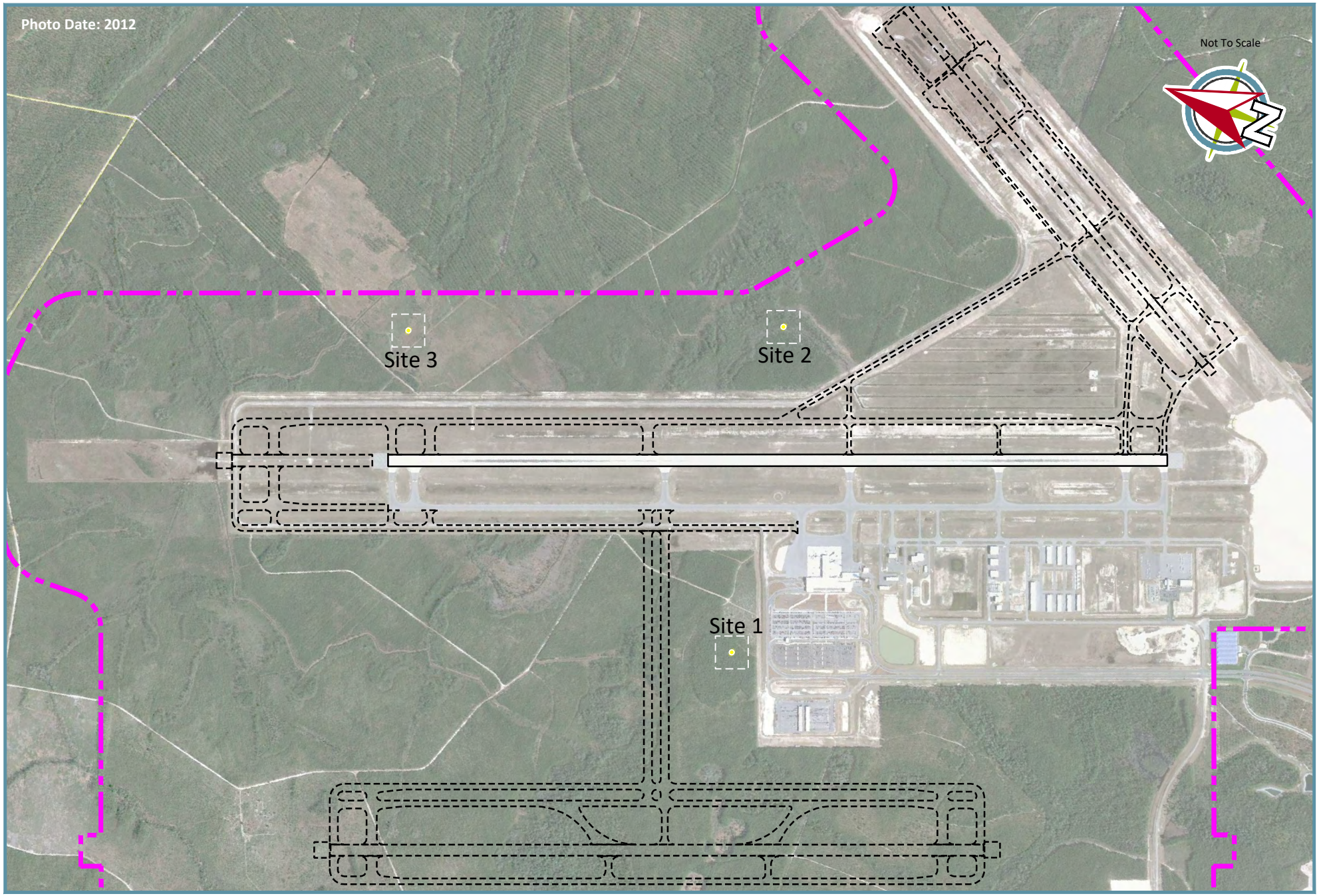

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Figure 5-22
Potential ATC Relocation Sites

5.9 PREFERRED DEVELOPMENT STRATEGY

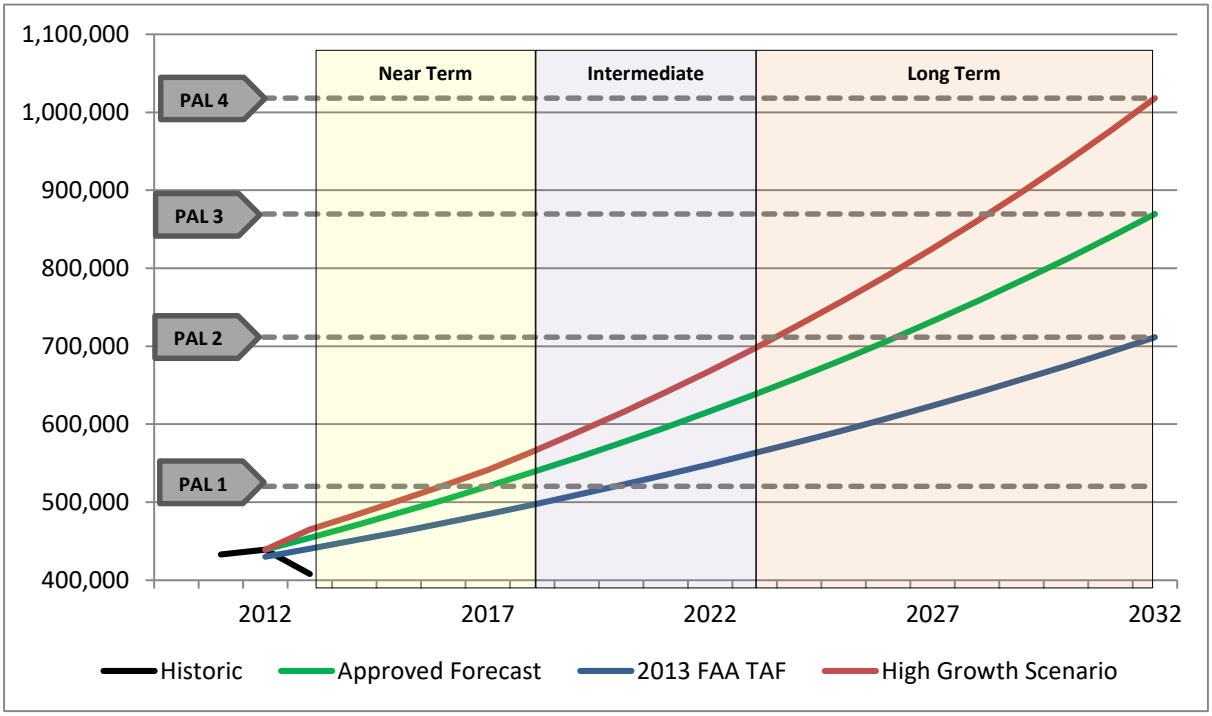
Chapter 4 identified the facility improvements needed to meet passenger and stakeholder needs over the planning horizon. This chapter evaluated various development concepts for the key functional areas of the Airport and recommended facility configurations were identified. Cumulatively, and with consideration of specific project phasing, these recommendations make up the "preferred development strategy" for the Northwest Florida Beaches International Airport.

5.9.1 Development Timeline

With consideration of a 20-year planning horizon, the approved activity forecasts, and the Planning Activity Levels (PALs), the recommended facility improvements would likely be pursued as *near-term* (±5 years)*, intermediate* (±10 years)*, long-term* (±20 years) and *ultimate* (20+ years) improvement projects.

Relative to the approved passenger forecasts presented in **Chapter 3**, 2013 experienced a decrease in passenger enplanements from the previous year. It is understood that passenger activity decreased across the entire Florida Panhandle and that ECP maintained its relative market share. This is considered to be a temporary fluctuation in year-to-year activity, caused in large part by the national economic downturn and corresponding reduction in tourist related travel. As the economy rebounds, and airline route structures stabilize, passenger activity is anticipated to return to positive growth in the near-term. The correlation between activity levels and anticipated project phasing is depicted in **Figure 5-23**. At the approved forecast projection, PAL 1 would occur at approximately the 4 to 5-year mark and PAL 2 would occur around the 12 to 14-year mark.

Figure 5-23 – Development Strategy Timeline



Sources: FAA Terminal Area Forecast; CHA forecasts Chapter 3; ECP records; 2013

5.9.2 Phased Development Program

Even with the recent passenger trends, there is still existing demand driving several recommended facility improvements – particularly the crosswind runway and the PAL 1 priority terminal areas. To satisfy those needs, this development strategy focuses on the *near-term* and *intermediate* phases of the planning horizon. Due to the variability of the aviation industry and fluctuations in the local and national economies, the longer term planning horizons are addressed more conceptually in nature, and in effect, represent an ultimate vision for the Airport.

Generally speaking, the *near-term* strategy for the terminal would be to pursue improvement of the outbound baggage handling area, expansion of the security screening checkpoint, and Phase-1 of the concourse expansion and reconfiguration. This would be followed in the *intermediate* timeframe with Phases 2 and 3 of the concourse expansion, including additional gates, commensurate with the passenger and airline activity being experienced at that time. These concourse expansions would include corresponding reconfiguration of the gate hold rooms and expansion of the post-security concessions. The lower level of the northward concourse expansion would be developed into a covered inbound baggage handling area. During this timeframe, further expansion of the outbound baggage handling area may also be warranted. As activity levels increase into the *long-term* planning horizon, incremental

concourse and facility expansions could be pursued to accommodate PAL 3 demands including up to 11 aircraft gates. Due to the aggressive marketing by the Authority, it is anticipated that the existing second-level shell space will be preserved for development of an FIS facility and swing-gate for international traffic as demand warrants in the future.

Concurrent with the terminal improvements, the public parking facilities would also be expanded. Phase-1 expansion of the surface parking lot, towards the terminal building, would be pursued in the *near-term*. The employee and cell phone parking lots would also be expanded. These projects are intended to improve passenger convenience and operational efficiency. A second phase expansion and reconfiguration of the surface parking would likely be needed in the *long-term* planning horizon to accommodate PAL 2 and 3 activity levels. *Ultimately* a structured parking garage would be pursued.

Significant airfield improvements for the *near-term* and *intermediate* planning horizons are focused on the development of a crosswind/secondary runway capable of accommodating commercial aircraft. This extension would require acquisition of adjacent property to accommodate the FAA required Runway Protection Zone. Development of a transient apron, capable of supporting large aircraft, would be pursued near the current FBO facilities during the *intermediate* time-frame. Throughout the planning horizons, continual improvement to the instrument approach capability of all runways would also be pursued. This would begin with developing a Special Authorization CAT-II approach for Runway 16. Coordination with the FAA for improved Runway 34 procedures would also be pursued. Adequate space within airport property should be preserved for the *ultimate* development of a parallel Runway 16R-34L, a second parallel taxiway to Runway 16-34, taxiway infrastructure supporting aviation use of the northeastern airport property, and a potential 2,000-foot extension of Runway 16-34. Pavement maintenance and rehabilitation would be pursued as needed throughout the phases.

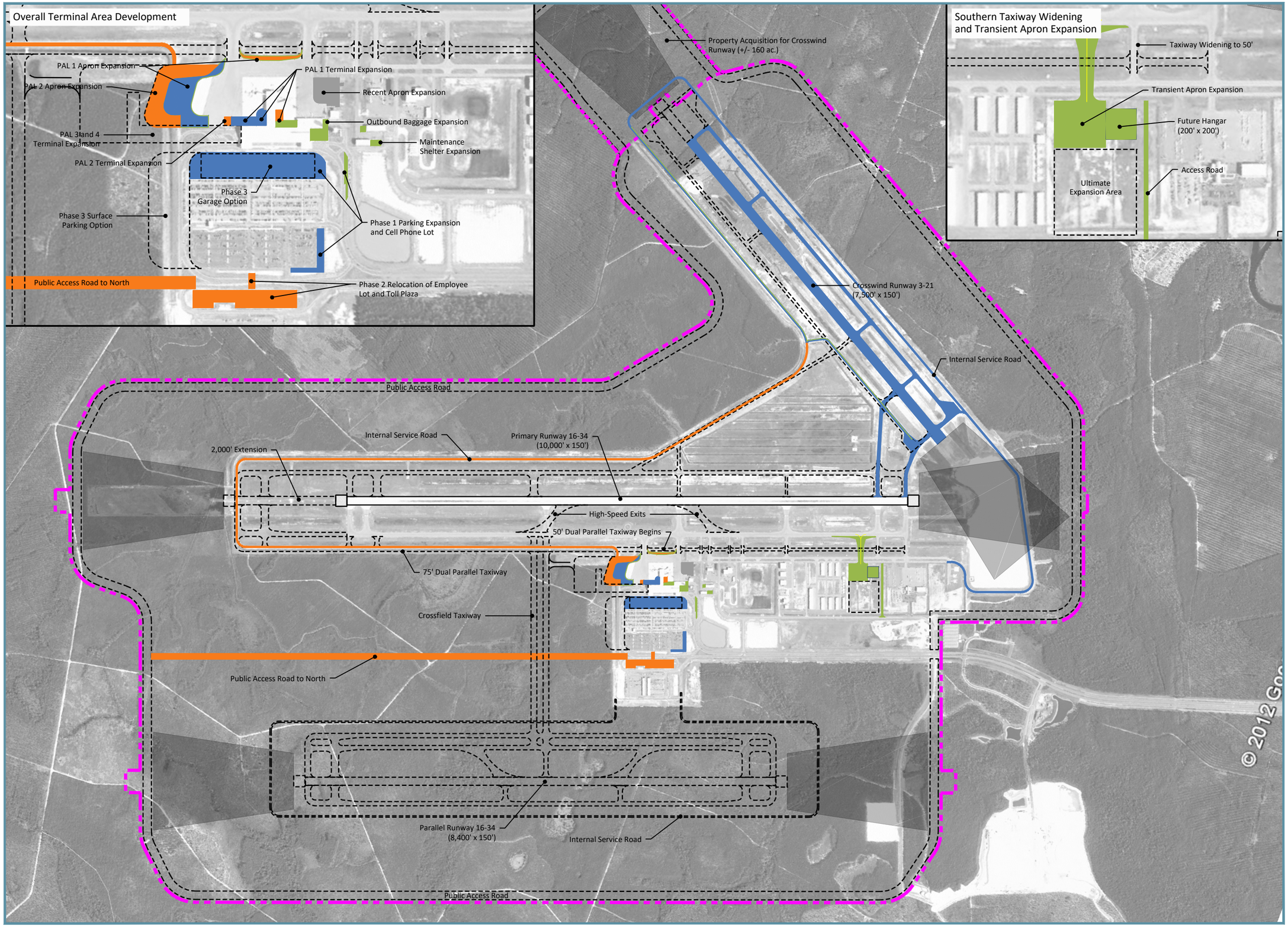
Based on this phasing, the recommended facility configurations and preferred development strategy are presented **Figure 5-24** and **Table 5-16**. Should the activity levels increase faster than indicated by the forecasts and recent trends, projects should be advanced accordingly. Conversely, should activity be less than anticipated, projects should be deferred.

5.9.3 Estimated Project Costs

Preliminary cost estimates have been prepared for each of the projects recommended in this Master Plan study. These estimates are based on 2014 dollars and, in addition to the order-of-magnitude costs described earlier, were derived from similar, recent airport improvement projects with the implied assumption that incomes and expenses will generally rise commensurate with inflation. These estimates are intended for planning purposes only and should not be construed as detailed construction cost estimates, which can only be compiled following the preparation of detailed design documentation. The phased development strategy, including all recommended projects and estimated costs, is presented in **Table 5-16.**

5.9.4 10-Year Funding Program

Care must be taken to provide adequate lead-time for detailed planning, permitting, and construction to ensure that the proposed facilities are operational when warranted by user demands. Focusing on the 10-year planning horizon, the recommended projects were broken down into design and construction elements as appropriate, and combined with the Authority's other planned capital improvement projects to create a comprehensive 10-year funding program. This program is presented in **Table 5-17** and an annual funding summary is provided in **Table 5-18**. The financial feasibility of this program is further evaluated in **Chapter 7**.



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GRAPHIC SCALE (FEET)

0 800 1600

LEGEND

- Near-Term Development
- Future Development
- Long-Term Development
- Ultimate Development
- Airport Property Line
- Future Airport Property Line
- Future RPZ

Figure 5-24
Preferred Development Strategy

Table 5-16 Phased Development Strategy and Estimated Costs

	Near-Term (0-5 Years)		Intermediate (6-10 Years)		Long-Term (11-20 Years)		Ultimate
Airfield	Acquire property for Runway 21 Runway Protection Zone (RPZ) (approximately 160 acres)	$400,000	Crosswind Runway 3-21 (7,500' x 150' , C-III design standards for commercial service redundancy) and associated parallel and connector taxiways (50 feet wide), runway/taxiway lighting, visual approach aids, extend Taxiways K and J to provide access.	$47,600,000	Pave internal airfield service road, Section 2 (around primary runway), 25' wide, ±18,740 LF (design & construction)	$3,841,700	Pursue northerly extension of Runway 16-34 (up to 2,000')
	Improve Runway 16 instrument approach capability, install 3 Runway Visual Range (RVR) system, pursue Special Authorization CAT-I and/or II approach procedures	$675,000	Pursue improved instrument approach capability to Runway 3-21	TBD			Develop taxiway system to support development between Runway 16-34 and Runway 3-21
	Pursue navaid supported instrument approach to Runway 34	TBD	Pave internal airfield service road, Section 1 (around crosswind runway), 25' wide, ±20,650 LF (construction only, designed w/runway)	$5,369,000			Pursue second parallel taxiway and high speed exits for Runway 16-34
	Construct general aviation apron capable of accommodating transient military, charter and corporate aircraft (±16,600 sy)	$4,648,000					Pursue parallel commercial service Runway 16L-34R and midfield connector taxiway
	SUBTOTAL	**$5,723,000**		**$52,969,000**		**$3,841,700**	
Terminal	Expand and reconfigure outbound baggage makeup area (±16,200 SF) (PAL 2 requirement)	$5,832,000	Expand commercial apron and relocate RON positions (±13,753 sy)	$3,850,840	Phase 3 South Concourse Expand Concessions (±5,000 SF ea level)	$4,320,000	Continue expansion of terminal facilities and commercial apron in response to demand (PAL 3 and 4)
			Phase 1 – Expand North Concourse and inbound baggage handling areas (±10,000 SF ea level)	$8,640,000	Commercial apron expansion and RON position relocation (±12,100 SF)	$3,388,000	
	Expand and reconfigure TSA screening checkpoint (lower level) and administration space (upper level)(±8,000 sf ea level)	$8,064,000	Phase 2 - Expand North Concourse (±14,300 SF upper level), plus 2 gates/boarding bridges, and expand inbound baggage handling (±7,000 SF lower level)	$11,314,656	Expand North Concourse (PAL 2 requirement)(±4,000 SF upper level), plus 1 gates/boarding bridge, and expand lower level (±2,000 SF)	$3,529,728	Relocate and expand cargo facilities as warranted
			Develop/build-out Customs and Border Patrol (CBP) shell space (±11,900 SF), as warranted	$2,058,700			
	SUBTOTAL	**$13,896,000**		**$25,864,196**		**$11,237,728**	
Parking	Expand cell phone and taxi queue parking lot (± 1,200 sy)	$216,000	Phase 1 - Expand automobile surface parking towards terminal (± 890 spaces) and expand employee lot (±130 spaces) (±29,000 sy)	$3,045,000	Phase-2 Expand surface parking, reconfigure circulation, relocate employee parking and relocate exit plaza	$4,971,500	Phase-3 Develop a structured parking garage
					Pursue development of northern roadway access including coordination with Florida Department of Transportation, planning, environmental approval, design and construction (±8,700 LF, 4 lanes separated, w/in 100' ROW)	$8,694,274	Phased development of public access road around airport property to support development of aviation and non-aviation land uses
	SUBTOTAL	**$216,000**		**$3,045,000**		**$13,665,774**	
Support	Expand airport maintenance facilities (covered equipment storage and office space) (±3,700 sf)	$888,000	Upgrade to ARFF Index C - add one vehicle to increase total AFFF-carrying capacity to 3,000 gallons	$800,000		$0	Relocation of Air Traffic Control Tower
	SUBTOTAL	**$888,000**		**$800,000**		**$0**	
Planning	Environmental Assessment (EA) for 5-Year Devlopment Program (incl. terminal, apron & parking expansion)	$500,000	Environmental Assessment for 5-Year Devlopment Program (incl. Runway 3/21, Terminal, parking and roadway expansion)	$750,000	Environmental Assessment for 5-Year Devlopment Program (TBD)	$600,000	
	Develop FAA Sustainable Management Plan	$260,000	Master Plan Update (w/AGIS survey)	$750,000	Master Plan Update (w/AGIS survey)	$750,000	
	Master Plan Update	$450,000					
	SUBTOTAL	**$1,210,000**		**$1,500,000**		**$1,350,000**	
	PHASE TOTAL	**$21,933,000**		**$84,178,196**		**$30,095,202**	
					Total 20 Year Program	**$136,206,398**	

Table 5-17 10-Year Funding Program

Item #	Description	Total Cost	AIP	State Share	Sponsor	Local PFC	CFC	Other	Remarks/Item Justification
Year 1									
1	Environmental Assesment (5 Year Development)	$500,000	$450,000	25,000		$25,000			
2	Transient Apron - Design	$418,320	$376,488	20,916		$20,916			
3	Expand Outbound Baggage Makeup - Design	$524,880		262,440		$262,440			
4	Public Access Road & Utilities to GA Area - Design & Construct	$8,000,000		4,000,000	$4,000,000				
5	Update Airport Security System	$1,000,000	$900,000	50,000		50,000			
6	Replacement ARFF Vehicle	$163,000	$146,700	8,150		8,150			
7	Purchase Security Vehicles	$57,000	$0	28,500	$28,500				
8	Purchase Maintenance Equipment	$257,200	$0	128,600	$128,600				
Total		$10,920,400	$1,873,188	$4,523,606	$4,157,100	$366,506	$0	$0	
Year 2									
9	Transient Apron - Construction	$4,229,680	$3,806,712	211,484		$211,484			
10	Install RVRs Runway 16 Approach - Design & Construct	$675,000	$607,500	33,750		$33,750			May be eligible for FAA F&E funding program
11	Extend Airport Infrastructure	$2,000,000		1,000,000	$1,000,000				
Total		$6,904,680	$4,414,212	$1,245,234	$1,000,000	$245,234	$0	$0	
Year 3									
12	Expand Outbound Baggage Makeup - Construction	$5,307,120		2,653,560		$2,653,560			
13	Expand/Reconfigure Pax Screening Checkpoint - Design	$725,760	$310,262	17,237	$362,880	$17,237		$18,144	Assume 50% of space (lower level) is FAA eligible, possibly more eligilbity if command center relocated from public safety building, assume 5% TSA funding, upper level neither FAA or FLDOT eligible
14	Sustainable Management Plan	$260,000	$234,000	13,000		$13,000			
15	Rehabilitate Vehicular Acess Road	$2,075,000		1,037,500	$1,037,500				
16	Rehabilitate Terminal Area Parking	$1,200,000		600,000	$600,000				
Total		$9,567,880	$544,262	$4,321,297	$2,000,380	$2,683,797	$0	$18,144	
Year 4									
17	Expand/Reconfigure Pax Screening Checkpoint - Construction	$7,338,240	$3,137,098	174,283	$3,669,120	$174,283		$183,456	Assume 50% of space (lower level) is FAA eligible, possibly more eligilbity if command center relocated from public safety building, assume 5% TSA funding, upper level neither FAA or FLDOT eligible
Total		$7,338,240	$3,137,098	$174,283	$3,669,120	$174,283	$0	$183,456	
Year 5									
18	Acquire Property Runway 21 RPZ (±160 ac, fee simple, incl. services)	$400,000	$360,000.00	$20,000		$20,000			assume FAA eligible per Order 5100.38C, Chapter 7
19	Expand Cell Phone Parking Lot - Design & Construct	$216,000		108,000	$108,000	not eligible			
20	Expand Airport Maintenance Building - Design & Construct	$888,000			$888,000				
21	Environmental Assesment (incl. Runway 3/21, terminal & parking expansion)	$750,000	$540,000	105,000		$105,000			Assume 80% FAA eligible
22	Master Plan Update	$500,000	$450,000	25,000		$25,000			
Total		$2,754,000	$1,350,000	$258,000	$996,000	$150,000	$0	$0	
	Year 1-5 Total	$37,485,200	$11,318,760	$10,522,420	$11,822,600	$3,619,820	$0	$201,600	

Notes:

1. AIP eligibility assumes "small hub" NPIAS classification status even though 2013-2017 NPIAS identifies "non-hub" classification

Orange cells indocate projects on Authority's 2013 Airport Capital Improvement Plan (ACIP)

Table 5-17 10-Year Funding Program (continued)

Item #	Description	Total Cost	AIP	State Share	Local Sponsor	Local PFC	Local CFC	Local Other	Remarks/Item Justification
Year 6									
23	**Commercial Apron Expansion - Design**	$346,000	$311,400	17,300		$17,300			
24	**North Concourse Expansion Phases 1 & 2 - Design**	$1,795,900	$886,688	89,130	$232,986	$587,096			
25	**CBP International Screening Facility - Design & Construct**	$2,058,700	$926,415	514,675	$514,675	$102,935			assume 50% FAA AIP/PFC eligible
26	**Acquire ARFF Vehicle (for Index C)**	$800,000	$720,000	40,000		$40,000			
27	**Update Airport Security System**	$1,000,000	$900,000	50,000		50,000			
Total		$6,000,600	$3,744,503	$711,105	$747,661	$797,331	$0	$0	
Year 7									
28	**North Concourse Expansion Phase 1 - Construction**	$7,862,400	$2,122,848.00	511,056	$1,965,600	$3,262,896			
29	**Automobile Parking Expansion Phase 1 - Design**	$274,000		89,050	$89,050		$95,900		assume 35% CFC eligible
Total		$8,136,400	$2,122,848	$600,106	$2,054,650	$3,262,896	$95,900	$0	
Year 8									
30	Runway 3/21 - Design (incl. service road)	$3,000,000	567,000	1,216,500	$1,185,000	31,500			assume 21% FAA AIP/PFC eligible based on 3,600'x60' A/B-I runway, and State eligible for 50% of balance
31	Commerical Apron Expansion - Construction	$3,504,800	3,154,320	175,240		$175,240			
32	Automobile Parking Expansion Phase 1 - Construction	$2,771,000		900,575	$900,575		$969,850		assume 35% CFC eligible
Total		$9,275,800	$3,721,320	$2,292,315	$2,085,575	$206,740	$969,850	$0	
Year 9									
33	**Runway 3/21 - Construction Phase 1**	$22,300,000	4,214,700	9,042,650	$8,808,500	234,150			assume 21% FAA AIP/PFC eligible based on 3,600'x60' A/B-I runway, and State eligible for 50% of balance
34	**North Concourse Expansion Phase 2 - Construction**	$10,296,300	6,842,692	390,154	$390,154	$2,673,300			
Total		$32,596,300	$11,057,392	$9,432,804	$9,198,654	$2,907,450	$0	$0	
Year 10									
35	Runway 3/21 - Construction Phase 2	$22,300,000	4,214,700	9,042,650	$8,808,500	234,150			assume 21% FAA AIP/PFC eligible based on 3,600'x60' A/B-I runway, and State eligible for 50% of balance
36	Pave Internal Service Road Phase 1 - Construction	$5,369,000	4,832,100	268,450		$268,450			
37	Master Plan Update	750,000	675,000	37,500		$37,500			w/AGIS survey
Total		$28,419,000	$9,721,800	$9,348,600	$8,808,500	$540,100	$0	$0	
	Year 6-10 Total	$84,428,100	$30,367,863	$22,384,930	$22,895,040	$7,714,517	$1,065,750	$0	
	Year 1-10 Total	$121,913,300	$41,686,623	$32,907,350	$34,717,640	$11,334,337	$1,065,750	$201,600	

Notes:

1. AIP eligibility assumes "small hub" NPIAS classification status even though 2013-2017 NPIAS identifies "non-hub" classification

Orange cells indocate projects on Authority's 2013 Airport Capital Improvement Plan (ACIP)

Table 5-18 – 10-Year Funding Program - Summary

Year	Total Cost	AIP	State Share	Local		CFC	Other
				Sponsor	PFC		
Year 1	$10,920,400	$1,873,188	$4,523,606	$4,157,100	$366,506	$0	$0
Year 2	$6,904,680	$4,414,212	$1,245,234	$1,000,000	$245,234	$0	$0
Year 3	$9,567,880	$544,262	$4,321,297	$2,000,380	$2,683,797	$0	$18,144
Year 4	$7,338,240	$3,137,098	$174,283	$3,669,120	$174,283	$0	$183,456
Year 5	$2,754,000	$1,350,000	$258,000	$996,000	$150,000	$0	$0
Year 6	$6,000,600	$3,744,503	$711,105	$747,661	$797,331	$0	$0
Year 7	$8,136,400	$2,122,848	$600,106	$2,054,650	$3,262,896	$95,900	$0
Year 8	$9,275,800	$3,721,320	$2,292,315	$2,085,575	$206,740	$969,850	$0
Year 9	$32,596,300	$11,057,392	$9,432,804	$9,198,654	$2,907,450	$0	$0
Year 10	$28,419,000	$9,721,800	$9,348,600	$8,808,500	$540,100	$0	$0
Total 10 Year Program	**$121,913,300**	**$41,686,623**	**$32,907,350**	**$34,717,640**	**$11,334,337**	**$1,065,750**	**$201,600**

6 ENVIRONMENTAL OVERVIEW

An important component of the master planning process is to consider potential environmental issues associated with the proposed plan. The purpose of this chapter is to provide consideration of environmental concerns through an overview of the existing environmental conditions at the Northwest Florida Beaches International Airport (ECP). This overview is not a NEPA (National Environmental Policy Act) document, such as an Environmental Assessment (EA), as defined by FAA Order 5050.4A. However, this environmental overview sets the stage for a future NEPA analysis, which will be conducted as specific improvement projects are moved forward. This analysis is conducted following guidelines established in FAA Order 5050.4B, including approximately 20 categories that should be addressed, which are:

- Air Quality
- Biological Resources
- Threatened and Endangered species
- Coastal Zone Management
- Prime Farmlands
- Floodplains
- Cultural Resources (including historic, architectural, and archaeological resources)
- Land Use
- Noise
- Coastal Barriers
- Wild and Scenic Rivers
- Water Quality
- Wetlands
- Essential Fish Habitat
- Social Impacts
- Socio-Economic Impacts
- Department of Transportation Act, Section 4(f) resources
- Energy Supply and Natural Resources
- Light Emissions
- Construction Impacts
- Hazardous Materials/Hazardous Waste
- Solid Waste Impacts
- Cumulative Impacts

This overview is a qualitative analysis based on current information primarily focused on the existing environment within the airport boundary, although specific resources may extend beyond the boundary. The resource categories listed above will be addressed as they apply to ECP. Potential impacts that are identified within the environmental overview may require additional and more detailed analysis in a formal NEPA document for proposed development projects.

6.1 AIR QUALITY

Air quality of a specific location is the concentration of pollutants in the atmosphere, expressed in units of parts per million (ppm), micrograms per cubic meter (µg/m3), or as a pollution standard index. Overall air quality is determined by the type and amount of pollutants present in the atmosphere, meteorological conditions, topography, and air basin size. Pollutant concentrations are compared to federal and/or state ambient air quality standards for determining severity. Emissions over 3,000 feet above the ground do not affect ground level air quality and are typically not included in management areas or implementation plans.

Air quality is regulated federally under the Federal Clean Air Act (CAA) and enforcement responsibility belongs to the Environmental Protection Agency (EPA). The EPA determines primary and secondary criteria pollutants as well as air quality levels that are necessary to protect the public from adverse effects and provide a level of safety. FAA Orders 1050.1E and 5040.4B further define the need, type, and extend of an air quality assessment for airport-related actions and projects. The CAA General Conformity Rule applies in areas classified by the EPA to be nonattainment for any of the National Ambient Air Quality Standards (NAAQS), which identifies maximum allowable concentrations for: ozone (O3), nitrogen dioxide (NO2), sulfur dioxide (SO2), particulate matter with an aerometric diameter less than or equal to 10 micrometers (PM10), carbon monoxide (CO), and lead (Pb). Non-attainment areas must reach attainment within deadlines identified in the regulations and the NAAQS requires federal actions to conform to any implementation plan approved or developed under the Clean Air Act. Conformity determinations are required for any pollutant in a nonattainment area (or area under maintenance) that equals or exceeds de minimis thresholds identified in the conformity regulations (40 CFR 51).

The air quality control region that includes ECP is currently designated as an “attainment area” for all criteria pollutants. The air quality control region is not considered a maintenance area for any criteria pollutant, and no SIP has been prepared for northwest Florida. Based on the region’s attainment status and the fact that no SIP is available, the General Conformity regulations would not apply to proposed projects. Bay County is currently in attainment for all criteria under the NAAQS and Florida Ambient Air Quality Standards (FAAQS).

Previous FAA guidance stated that an air quality analysis was only needed if annual aircraft operations exceed 180,000 operations and 1.3 million passengers. Based on the aviation demand forecasts included within the Master Plan study, ECP would not exceed these thresholds within the next 20 year period. It is unlikely that the implementation of the projects within the Master Plan would result in a reasonably foreseeable emission increase. A qualitative air quality assessment would be prepared as part of any NEPA documents associated with specific projects.

6.2 BIOLOGICAL RESOURCES

Biological resources are generally defined by FAA's Environmental Desk Reference as "various types of flora (plants) and fauna (fish, birds, reptiles, amphibians, marine mammals, coral reefs, etc.) in a particular area. The definition also includes habitat types including streams, rivers, lakes, wetlands, forests, upland communities, and other communities supporting flora and fauna.

The terminology for ecological communities utilizes Florida Natural Areas Inventory (FNAI) (2010) along with the Florida Land Use, Cover and Forms Classification System (FLUCCS) as established by FDOT (1999) provided for additional community description. Modified FLUCCS classifications were established during the previous analyses and permitting for the relocation of the airport to the current site, and developed using Northwest Florida Water Management District (NWFWMD) GIS files as an initial basis then combined with the FLUCCS GIS files to produce a single modified FLUCCS dataset. During the previous iteration of the analysis, which occurred in 2011, a desktop analysis was conducted using GIS and recent aerial photographs (from 2010), and an updated classification was made for the airport site.

The historical ecological landscape of the ECP site was an open, park-like expanse of large scattered pines and old growth pond cypress. Frequent fires maintained the diversity of ecosystems and appropriate plant lifeforms (including graminoid groundcover, coppiced shrubs, and trees with fire resistant bark). Most of the landscape, including plant communities and ecosystems, on the ECP site has been converted into a fire suppressed, industrial pine plantation, resulting in a reduction of ecosystem functions, loss of ecological complexity and resilience, and blurring of historic plant community boundaries. The well to moderately drained soils of elevated landscapes would have supported upland communities of Sandhill (FLUCCS 412 Longleaf Pine – Xeric Oak) and Mesic Flatwoods (FLUCCS 411 Pine Flatwoods). The poorly drained, flattened and often depressional landscapes would have supported wetland communities of Wet Prairie (FLUCCS 643 Wet Prairie), Bog (FLUCCS 614 Titi Swamp), and Dome Swamp (FLUCCS 621 Cypress/Wetland Coniferous Forest). The sloping landscape may have also supported seepage wetland communities, which are primarily ecotone landscapes found waterward of the uplands. Many of these seepage wetland communities have perennial streams and are best described as Seepage Stream (FLUCCS 510 Streams and Waterways).

The majority of the land within the current airport boundary was managed for industrial pine timber and has been previously impacted by associated activities. The property within the boundary surrounding the existing development consists primarily of industrial planted pine. The majority if not all of the uplands within the ECP boundary were planted in industrial pine plantations of either sand pine (Pinus clausa) in areas with well-drained sands (historically FNAI Sandhill) or slash pine (Pinus elliottii) in the remaining areas (historically FNAI Mesic Flatwoods). The dominant vegetation beneath the planted pines is often a dense understory of fire suppressed oaks (Quercus spp.), gallberry (Ilex glabra), sweet pepperbush (Clethra alnifolia), black titi (Cliftonia monophylla), white titi (Cyrilla racemiflora), fetterbush (Lyonia lucida), and saw palmetto (Serenoa repens).

Wetland vegetation varies depending on the landscape position. Planted wetlands have furrows and ridges, and as a result, often supports upland species on the ridges and wetland species within the furrows. Isolated Dome Swamps may contain a canopy of pond cypress (Taxodium ascendens), black titi (Cliftonia monophylla), and unplanted slash pine (Pinus elliottii). The presence of pond cypress (Taxodium ascendens) within the current Dome Swamp community indicates that these were landscapes that would have periodically burned within the historical landscape. Pond cypress (Taxodium ascendens) seedlings require open groundcover with abundant light and little competition from woody shrubs and pines. Wet Prairies were historically one of the most plant diverse landscapes in the survey area, but this habitat is currently an industrial pine plantation.

The initial ECP development converted approximately 1,370 acres to industrial airport development. The remaining acreage of the 4,007 acre site is primarily Planted Pine Plantations (FLUCCS 441) and Hydric Planted Pine Plantation (FLUCCS 441W), along with wetland community types such as Titi-Dominated Wetlands (FLUCCS 614), Cypress Dominated Wetlands (FLUCCS 621), Mixed Forest Wetlands (FLUCCS 630), Streams and Waterways (FLUCCS 510), and Vegetated Non-Forested Wetlands (FLUCCS 640).

6.3 T&E SPECIES & WILDLIFE

Biological resources are regulated through several federal and state laws. The Endangered Species Act provides the protection mechanism for federally threatened and endangered species, ensuring that federal actions do not jeopardize the continued existence of a species and provides the conservation of the ecosystems necessary for these species. The Migratory Bird Treaty Act prohibits taking, killing, or possession of migratory bird species and the Bald and Golden Eagle Protection Act prohibits the taking, killing, or possession of Bald and Golden Eagles. State regulations include the Endangered Species Protection Act, which prohibits the intentional wounding or killing of state listed species, while the Florida Endangered and Threatened Species Act establishes the conservation and management of state protected species but provides no prohibitions or penalties.

The Florida Fish and Wildlife Conservation Commission (FWC) maintains the state list of animals designated as endangered, threatened, or species of special concern. The state lists of plants, which are designated endangered, threatened, and/or commercially exploited, are administered and maintained by the Florida Department of Agriculture and Consumer Services. The federal agencies that share the authority to list species as Endangered and Threatened are the National Oceanic and Atmospheric Administration-National Marine Fisheries Service (NOAA-NMFS) and the U. S. Fish and Wildlife Service (USFWS). The NOAA-NMFS is responsible for listing most marine species (NOAA-NMFS), and the federal list of animals and plants is administered by the USFWS, (50 CFR 17 – animals, and 50 CFR 23 - plants).

The existing ECP development area was completed in 2010. The majority of the undeveloped property within the boundary is industrial pine plantation. The site was ditched and drained as part of the silvilculture activities. Access roads were constructed throughout the site and

include culverts and drainage ditches/swales. In addition, the site was bedded and furrowed as part of the industrial timber process. The industrial silviculture landscape is best described as FLUCCS 441 Coniferous Plantations (FNAI Pine Plantation). Generally, rare and sensitive species such T&E species cannot persist in these heavily modified landscapes. Consequently, these planted landscapes have very low ecological value and are not expected to yield healthy populations of T&E species.

The FAA conducted Endangered Species Act Section 7 consultation with USFWS during the environmental documentation and processing phase for the initial development relocation, which included the overall conceptual project for the entire site development and the off-site mitigation property. Determinations of no effect were made for the American alligator (Alligator mississippiensis), eastern indigo snake (Drymarchon corais couperi), gulf moccasinshell (Medionidus penicillatus), Gulf sturgeon (Acipenser oxyrinchus desotoi), oval pigtoe mussel (Pleurobema pyriforme), Piping Plover (Charadrius melodus), Red-cockaded Woodpecker (Picoides borealis), and Bald Eagle (Haliaeetus leucocephalus). A determination of likely to adversely affect was made for the flatwoods salamander (Ambystoma bishopi). The USFWS issued a Biological Opinion in 2006, concurring with the no effect determinations on the species listed above and issuing incidental take for the flatwoods salamander (Ambystoma bishopi). One of the conditions of the incidental take was the 9,609 mitigation property to compensate for wetland loss. In May 2007, further evaluation and consultation was conducted for the Ivory Billed Woodpecker (Campephilus principalis), with the USFWS concurring that the ECP relocation project was not likely to affect the Ivory Billed Woodpecker.

Prior to the commencement of development activities and as part of the NEPA documentation for these activities, detailed site specific surveys will be conducted to evaluate the potential habitat and to determine occurrence or potential occurrence of federal or state protected flora and fauna species within a site. A list of all federal and state threatened, endangered plant and animal species, and species of special concern that could potentially occur in Bay County, Florida is shown in Table 8-1. This list includes a review of known T&E species occurrences based upon FNAI, T&E species lists prepared by the USFWS, and DOACS records. There is no Designated Critical Habitat within or adjacent to the ECP property.

Table 6-1 – List of Federal and State Threatened and Endangered Plant and Animal Species Potentially Occurring in Bay County

Fish Scientific Name	Common Name	Federal Status	State Status
Acipenser oxyrinchus desotoi	Gulf Sturgeon	T	SSC
Micropterus cataractae	Shoal bass	N	SSC
Pteronotropis welaka	Bluenose Shiner	N	SSC

Crayfish Scientific Name	Common Name	Federal Status	State Status
Procambarus econfinae	Panama City crayfish	N	SSC

Bivalves (Mussels) Scientific Name	Common Name	Federal Status	State Status
Pleurobema pyriforme	Oval pigtoe	E	E
Hamiota australis	Southern sandshell	T	N
Hamiota subangulata	Shinyrayed pocketbook	E	E
Pleurobema strodeanum	Fuzzy pigtoe	T	N
Villosa choctawensis	Choctaw Bean	E	N
Medionidus penicillatus	Gulf moccasinshell	E	E
Fusconaia burkei	Tapered pigtoe	T	N
Ptychobranchus jonesi	Southern kidneyshell	E	N

Amphibians Scientific Name	Common Name	Federal Status	State Status
Ambystoma bishopi	Reticulated Flatwoods Salamander	LE	FE
Lithobates capito	Gopher Frog	N	SSC

Reptiles Scientific Name	Common Name	Federal Status	State Status
Alligator mississippiensis	American Alligator	SAT	FT(S/A)
Caretta caretta	Loggerhead	LT	FT
Chelonia mydas	Green Turtle	LE	FE
Dermochelys coriacea	Leatherback	LE	FE
Lepidochelys kempii	Kemp's Ridley	LE	FE
Eretmochelys imbricata imbricata	Hawksbill	LE	FE
Drymarchon couperi	Eastern Indigo Snake	LT	FT
Gopherus polyphemus	Gopher Tortoise	N	ST
Macrochelys temminckii	Alligator Snapping Turtle	N	SSC
Pituophis melanoleucus mugitus	Florida Pine Snake	N	SSC

Mammals Scientific Name	Common Name	Federal Status	State Status
Peromyscus polionotus allophrys	Choctawhatchee beach mouse	E	E
Peromyscus polionotus peninsularis	St. Andrew beach mouse	E	E
Trichechus manatus	Manatee	LE	FE
Ursus americanus floridanus	Florida Black Bear	N	Delisted

Birds Scientific Name	Common Name	Federal Status	State Status
Charadrius alexandrinus	Snowy Plover	N	ST
Charadrius melodus	Piping Plover	LT	FT
Cistothorus palustris marianae	Marian's Marsh Wren	N	SSC
Egretta caerulea	Little Blue Heron	N	SSC
Egretta thula	Snowy Egret	N	SSC
Egretta tricolor	Tricolored Heron	N	SSC
Eudocimus albus	White Ibis	N	SSC
Falco sparverius paulus	Southeastern American Kestrel	N	ST
Haematopus palliatus	American Oystercatcher	N	SSC
Mycteria americana	Wood Stork	LE	FE
Falco peregrinus tundrius	Artic peregrine falcon	E	FE
Pelecanus occidentalis	Brown Pelican	N	SSC
Picoides borealis	Red-cockaded Woodpecker	LE	FE
Rynchops niger	Black Skimmer	N	SSC
Sternula antillarum	Least Tern	N	ST
Ammodramus maritimus peninsulae	Scott's seaside sparrow	N	SSC
Haliaeetus leucocephalus	Bald Eagle	BGEPA	
Calidris canutus	Red Knot	Proposed	

Plants and Lichens Scientific Name	Common Name	Federal Status	State Status
Eurybia spinulosus	Pine-woods aster	N	T
Andropogon arctatus	Pine-woods Bluestem	N	LT
Arnoglossum album	Chalky Indian-plantain	N	E
Scutellaria floridana	Florida skullcap	T	E
Harperocallis flava	Harper's beauty	E	E
Phoebanthus tenuifolius	Narrow-leaved phoebanthus	N	T
Paronychia chartacea minimi	Papery whitlo-wort	T	E
Eriocaulon nigrobracteatum	Dark-headed hatpins	N	E
Euphorbia telephioides	Telephus spurge	T	E
Macbridea alba	White birds-in-a-nest	T	E
Asclepias viridula	Southern milkweed	N	T
Calamintha dentata	Toothed savory	N	T
Calamovilfa curtissii	Curtiss' Sandgrass	N	T
Coreopsis integrifolia	Ciliate-leaf tickseed	N	E
Carex baltzellii	Baltzell's Sedge	N	T
Cleistes divaricata	Spreading pogonia	N	T
Gentiana pennelliana	Wiregrass gentian	N	E
Hymenocallis henryae	Panhandle spiderlily	N	E
Linum westii	West's flax	N	E
Litsea aestivalis	Pondspice	N	E
Lachnocaulon digynum	Bog button	N	T
Oxypolis greenmanii	Giant water-dropwort	N	E
Physostegia godfreyi	Apalachicola dragon-head	N	T
Drosera filiformis	Thread-leaf Sundew	N	T
Drosera intermedia	Spoon-leaved Sundew	N	T
Lupinus westianus	Gulf Coast Lupine	N	T
Macranthera flammea	Hummingbird Flower	N	E
Panicum nudicaule	Naked-stemmed panic grass	N	T

Plants and Lichens (continued) Scientific Name	Common Name	Federal Status	State Status
Pinguicula ionantha	Godfrey's butterwort	T	E
Pinguicula primuliflora	Primrose-flowered Butterwort	N	E
Platanthera integra	Yellow Fringeless Orchid	N	E
Polygonella macrophylla	Large-leaved Jointweed	N	T
Rhynchospora crinipes	Hairy-peduncled beaksedge	N	E
Rhexia parviflora	Small-flowered Meadowbeauty	N	E
Rhexia salicifolia	Panhandle meadowbeauty	N	E
Ruellia noctiflora	Nightflowering wild petunia	N	E
Rhododendron austrinum	Florida flame azalea	N	E
Sarracenia leucophylla	White-top pitcherplant	N	E
Sarracenia psittacina	Parrot pitcherplant	N	E
Sarracenia rosea	Gulf purple pitcherplant	N	E
Stachydeoma graveolens	Mock pennyroyal	N	E
Verbesina chapmanii	Chapman's crownbeard	N	T
Xyris isoetifolia	Quillwort yellow-eyed grass	N	E
Xyris longisepala	Karst Pond yellow-eyed grass	N	E
Xyris scabrifolia	Harper's yellow-eyed grass	N	T

Source: Ecological Resource Consultants, Inc., 2014

6.4 COASTAL ZONE MANAGEMENT

FDEP, which administers the Florida Coastal Management Program (FCMP), has the authority to review federal actions within a coastal zone. The FCMP was developed and is implemented to meet the intent of the Coastal Zone Management Act (CZMA). Under the FCMP, the entire State of Florida is within the coastal zone. Therefore, specific projects will be evaluated within specific NEPA documents for potential impacts to the coastal zone under the guidance provided by state statutes.

6.5 PRIME FARMLAND

The Natural Resource Conservation Service (NRCS) has oversight over the regulations pertaining to farmlands under the Farmland Protection Policy Act and federal designations of Prime and Unique farmlands under the Code of Federal Regulations. Prime farmland soils as designated by NRCS are not located on NWFBIA and would therefore not be affected by proposed projects associated with the Master Plan.

6.6 FLOODPLAINS

Floodplains are defined under Executive Order 11988 as "lowland and relatively flat areas adjoining inland and coastal waters, including flood-prone areas of offshore islands, including at a minimum, those that are subject to a 1 percent or greater chance of flooding in any given year." The Federal Emergency Management Agency (FEMA) utilizes the 100-year floodplain as the base flood area for floodplain management. Federal agencies, including the FAA, are required under Executive Order 11988 to determine if proposed action will occur in a floodplain, if a substantial encroachment would occur and determine if the proposed action is

the only practicable alternative before proceeding. If the only practicable alternative requires siting in a floodplain, then the proposed action would be designed or modified to reduce adverse floodplain impacts. Based on the FEMA Base Flood Elevations from 2002, which were utilized during the relocation to the current location, approximately 550 acres of 100-year floodplain are located within the ECP boundary. Based on the same data, a large portion of the ECP boundary lies within flood zone X, which are areas outside the 500 year floodplain. Areas primarily associated with the tributaries of Burnt Mill and Crooked Creeks, including Bell Bay Branch, Bear Bay Branch, Kelly Branch, Morrell Branch and unnamed tributaries are within designated flood zone A, 100-year special flood hazard area. Floodplain acreage with the ECP boundary also corresponds with jurisdictional acreage. Future projects associated with the Master Plan would be evaluated for potential floodplain impacts within specific NEPA documents.

6.7 CULTURAL RESOURCES

Numerous laws and regulations require the consideration of potential impacts to cultural resources during the planning and execution of federal activities. The responsibilities of the State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation are outlined through these laws, along with the relationship and processes for action agencies. The primary laws are the National Historic Preservation Act (NHPA) (1996), the Archaeological Resources Protection Act (1979), the American Indian Religious Freedom Act (1978), and the Native American Graves Protection and Repatriation Act (NAGPRA) (1990).

A cultural resource investigation of ECP was conducted as part of the initial relocation project to the current site. The Cultural Resource Assessment Survey evaluated approximately 9,000 acres that encompassed the ECP property. The study was completed and transmitted to the State of Florida Division of Historical Resources in 2001. The Florida SHPO concurred with the FAA's finding that "the proposed undertakings at the West Bay site will have no effect on historic properties". As of October 2014, no historic properties, archaeological or cultural resources have been discovered during construction of the airport, nor has any unanticipated effects occurred on historic properties or cultural resources.

6.8 LAND USE

Part of the master planning process is to ensure compatible land use between an airport and the surrounding community. The ECP site is currently designated as "Airport/Industrial" on Bay County Zoning Maps. A specific detailed area plans (DSAP) has been developed for the airport property and includes land uses that are compatible with the aviation community, such as industrial, commercial retail, services, and office land uses and facilities. The adjacent property also has a DSAP encompassing 16,500 acres and focused on economic and community development through industrial and commercial development. In addition, the proposed Sector Plan would guide development within the 110,000 acres surrounding the Airport, including compatible land uses for the Airport.

The Bay County Land Development Regulations and the Bay County Zoning have established an Airport Noise Zone for noise compatibility with adjacent land usage. Several sector plans have been established for the areas around ECP, providing designations that are consistent with the Airport DSAP, West Bay DSAP, and the updated Bay-Walton Sector Plan. The updated Bay-Walton Sector Plan includes the Airfield Compatibility Use Special Treatment Zone, which was proposed in the previous West Bay Sector Plan as a noise protection zone. Currently, the overall airport property remains surrounded by industrial timber lands and wetlands with industrial/commercial development located to the south and west of the existing development.

6.9 NOISE

Noise is considered to be unwanted sound that interferes with normal activities or otherwise diminishes the quality of the environment and is an apparent potential impact associated with an airport. When describing sound and its effect on a human population, A-weighted decibel (dBA) sound levels are typically used to account for the response of the human ear. The A weighted noise level has been found to correlate well with people's judgments of the noisiness of different sounds and has been used for many years as a measure of community noise. A common noise measure is the day-night average sound level (DNL), in units of the decibel (dB). DNL is an average sound level generated by all aviation-related operations during an average or busy 24-hour period, with sound levels of nighttime noise events emphasized by adding a 10-dB weighting. The standard threshold for determining the point at which noise impacts become a nuisance is 65 DNL. The FAA utilizes the sound level of less than 65 DNL as compatible with most residential land uses. Levels exceeding 65 DNL for residential uses could potentially require mitigation such as land acquisition and zoning requirements.

Airfield operations are the primary source of noise at ECP, although construction noise associated with project implementation is a potential noise generator. Infrequent aircraft fly-overs can increase noise levels for short periods of time. Industrial operations can produce relatively localized noise.

The ECP property is located in a rural area. Current land use plans and zoning have established compatible uses adjacent to ECP and within the surrounding area. There have been no complaints regarding noise from aircraft or aircraft related operations at ECP. There are no new noise sensitive land uses for the areas adjacent to the Airport. Limited rural residential and support services are located adjacent to Crooked Creek and Burnt Mill Creek. The property indicated by the projected future noise contours within the previous NEPA evaluations for the relocation and the runway extension remain undeveloped or are used for transportation or utility easements.

6.10 COASTAL BARRIERS

The ECP site is not located within a Coastal Barrier Resource System Unit as defined by the Department of the Interior (DOI) under The Coastal Barrier Resources Act of 1982. The nearest

coastal barrier island is in the Saint Andrew State Recreation Area, approximately 15 miles from ECP. This resource would not be affected by future projects associated with the Master Plan.

6.11 WILD AND SCENIC RIVERS

The Department of the Interior (DOI) and National Park Service (NPS) have oversight of the Wild and Scenic Rivers Act of 1968 and oversee Guidelines for Eligibility, Classification and Management of River Areas. The Act designates river segments that are free-flowing and possess important natural or cultural characteristics of regional or national scale. The closest area designated under the Wild and Scenic River System is over 200 miles away in central Florida. The nearest stream on the National Rivers Inventory is Econfina Creek, located approximately 15 miles from ECP. No Wild and Scenic Rivers would be affected by projects associated with the Master Plan.

6.12 WATER QUALITY

The ECP site is located within the St. Andrews Bay watershed. Burnt Mill Creek and Crooked Creek are Class III waters that drain the ECP site and discharge into West Bay. The ECP property is located within four smaller hydrologic units: Burnt Mill Creek, Crooked Creek, Kelly Branch, and Bell Bay Branch. Stormwater from the initial development area discharges into Bear Bay and Kelly Branch (to Crooked Creek) as well as Burnt Mill Creek and Morrell Branch (to Burnt Mill Creek) as authorized under permit associated with the existing development.

Stormwater from the undeveloped area consists of sheetflow into wetlands and silvicultural ditches and discharges via Morrell Branch, Kelly Branch, Bell Bay Branch or indirectly to Crooked Creek. There are no stormwater management facilities that have been constructed within the specific study area, however, stormwater management facilities will be constructed for future development projects such as those associated with the Master Plan. Specific water quality will be addressed within specific NEPA documents. Appropriate Best Management Practices will be applied and implemented during construction.

6.13 WETLANDS

Jurisdiction of wetlands falls under Section 404 of the Clean Water Act (CWA) which requires regulation of discharges into Waters of the U.S., which has broad meaning and incorporates both wetlands and surface waters. Wetlands are defined as “those areas that are inundated or saturated by groundwater at a frequency and duration sufficient to support, and that under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.” Executive Order 11990 requires that new construction in wetlands be avoided to the extent possible, and that all practicable measures be taken to minimize or mitigate impacts to wetlands. Wetlands are federally regulated by the US Army Corps of Engineers (USACE) and regulated by the State of Florida (Department of Environmental Protection or regional Water Management Districts).

The USACE requires the presence of three parameters in support of a jurisdictional wetlands determination: hydrophytic vegetation, hydric soils, and evidence of hydrology. The State of Florida uses similar criteria for determination of jurisdictional wetlands.

The wetlands on the ECP site were altered by the industrial pine timber activities and have been previously impacted by associated management practices. Wetland communities comprising jurisdictional wetlands that are present within site include Coniferous Pine Plantation – Hydric (441W), Waterways and Ditches (510), Titi Dominated Wetland (614), Cypress Dominated Wetland (621), and Wetland Forested Mixed (630), and Vegetated Non-Forested Wetland (640). Titi Dominated Wetlands and Hydric Pine Plantations are the largest wetland community types within the ECP site. The majority of wetlands within the study area are low quality. Wetlands within the ECP site are largely unchanged since the initial environmental study since the proposed impact areas are not designated for restoration. Approximately 1,340 acres of jurisdictional wetlands are present within the remaining undeveloped portion of the ECP site. Potential impacts associated with future projects will be evaluated on a project specific basis, including appropriate NEPA documentation and permitting.

The off-site mitigation property for ECP consists of 9,609 acres and is located near ECP and adjacent to West Bay in southern Bay County, Florida. The purpose of the mitigation is to compensate for wetland functions lost associated with construction of the ECP site, through full build-out, which was initially planned over a 50-year period. The mitigation area was delineated as a contiguous parcel of land strategically located for maximum environmental benefit, and includes a mosaic of habitats including both wetland and upland ecosystems. All of the ecosystems were treated as a mitigation entity and will be managed as appropriate for that specific habitat in perpetuity. Restoration, enhancement, and preservation have been conducted with the commitment to fully implement the entire mitigation plan. The goal is to restore the site to pre-disturbance conditions, which consisted of a mosaic of natural habitats including pine flatwoods/savanna, depressional cypress and palustrine ecosystems. Restoration activities include prescribed fire, herbicide treatments, selective planting, mechanical brush reduction, and hydrologic enhancements. The mitigation site was a silviculture site managed for pulpwood production for approximately 60 years, with forest stands managed on a 25-year rotation through intensive forest management practices. Thirty-one (31) out of 42 management units are currently under full mitigation management, including two management units (2Y and 3A) with minimal management and two management units (2H and 2F) are under partial management due to areas of commercial timber still present due to age class. Currently, approximately 2,016 acres of pine stands remain to be harvested and all stands will be at least 25 years old by 2024.

6.14 ESSENTIAL FISH HABITAT

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297), requires that actions funded, permitted or carried out by federal agencies that may adversely affect Essential Fish

Habitat (EFH) are required to consult with National Oceanic and Atmospheric Administration (NOAA) Fisheries regarding the potential impacts of the proposed action(s). EFH is defined as those waters and substrate necessary for fish to spawn, breed, feed or grow to maturity. An adverse effect would be any impact that reduces the quality and/or quantity of EFH. Consultation for EFH is triggered when an action may adversely affect EFH, otherwise, no consultation is required. Previous NEPA evaluation and analysis determined that no EFH resources were present on the ECP site and that the project would result in minimal impacts to EFH. Future projects will be evaluated on a project specific basis.

6.15 SOCIAL IMPACTS

Social impacts that are typically considered include relocation of businesses and residences, alteration of surface transportation patterns, disruption of planned communities, disruption or division of established communities, and changes in employment patterns. Relocations of residences or businesses would require appropriate compensation under the Uniform Relocations Assistance and Real Property Acquisition Policies Act (1970) and the Surface Transportation and Uniform Relocation Act (1987) and the implementing polices of the Acts. Mitigation would be necessary if potentially impacted properties could not be acquired through a land acquisition program prior to the start of the projects. In addition, areas with concentrated populations of single race, national origin, or low income would require specific evaluation under Environmental Justice requirements to ensure that a disproportionate share of adverse impacts do not occur in relation to other areas.

The ECP site is located in a primarily rural setting. There are two small communities south of the Airport. One is located east of Burnt Mill Creek near and south of SR 388, and the other is located along Crooked Creek south of SR 388. Within the project area census block group, 84.5 percent of the housing units are occupied and of those 90.1 percent are owner-occupied. The percent of housing units occupied is slightly lower than the census tract percentage of occupied housing units (85.4), but the percentage of owner-occupied housing units is higher in the block group than in the census track (88.5). The percentage of housing units for rent is lower in the census block group (7.0 percent) than in the census tract (12.2 percent). A higher percentage of vacant housing units (56.1 percent) in the block group are for seasonal, recreational or occasional use as opposed to 47.6 percent in the census tract. Of the total of 238 housing units for seasonal, recreation, or occasional use in the census tract, 169 or 71.0 percent are located within the census block group.

The proposed developments associated the Master Plan are located within the ECP boundary and are undeveloped. The area of potential acquisition associated with the proposed cross wind runway is undeveloped. The ECP site is located in a rural setting and the surrounding property is appropriately zoned to accommodate land usage that is compatible with ECP. Further analysis regarding potential social impacts will be incorporated into future NEPA analysis for the specific projects.

6.16 INDUCED SOCIO-ECONOMIC IMPACTS

Potential socio-economic impacts can be induced by large-scale development projects, which can affect surrounding communities. These development projects can cause shifts in population movement and growth patterns, demand for public services, commercial activity and economic activity.

Data from the U.S. Census Bureau indicates that Bay County had an estimated population of 174,987 residents in 2013, which represents an approximate increase of 3.6% over the 2010 recorded census population of 168,852 residents. Bay County experienced an increase in residential population of approximately 13.9% between 2000 and 2010 (from 148,217 to 168,852), and an increase of 16.7% between the 1990 and 2000 census (from 126,994). The median age is 39.5 years and the median household income is $47,364, which is slightly higher than the state's median household income of $47,309. Approximately 15.9% of the population is 65 years and older and 21.5% is under 18. Based on census data between 2000 and 2010, the population of Bay County increased by 13.9% but was less that the state's increase of 17.6%. The largest percentage of the Bay County population lives within the unincorporated portions of the County and experienced a growth of 27%, resultant in an overall percentage increase from 39% to 43% of the population. Population projections for the State of Florida and respective counties are estimated by the University of Florida's Bureau of Economic and Business Research, which currently projects the estimated population for Bay County to range from 170,200 to 245,000 by 2035. The median estimate for 2035 Bay County is 207,611, which is an increase of 23.0% increase over the 2010 census documented population.

The annual per capita income for Bay County in 2010 was $24,859, which was less than the State per capita income at $26,451. The median household income in Bay County based on 2010 census data is $47,364, with an average of 2.4 persons per household. The State median household income based on 2010 census data is $47,309 with an average of 2.6 persons per household. Bay County currently has a working age population of 106,747. The average annual wage is $33,642, compared to the Florida average of $41,375 and the US average of $42,980.

In 2000, the unemployment rate in Bay County was 4.6% as compared to the state unemployment rate at 3.8%. In 2010, the county unemployment rate had increased to 10.0% but was less than the state rate of 11.3%. Bay County employment was 84,467 in 2013, an increase from 74,853 in 2004, which is an increase of 12.8% during the ten-year period. To date, the 2014 data indicates that county employment is 88,410 and the unemployment rate is 5.6% (BEBR 2014).

The economy of Bay County is primarily based on tourism and associated services, in addition to defense-related activities. Approximately 10% of the county employment sector is the military workforce supporting the Tyndall Air Force Base (TAFB) and the U.S. Navy's Naval support Activity. The TAFB has estimated its economic impact at $654 million for 2010 and the CSS economic impact is estimated at $336 million for a total economic impact in Bay County of $990 million.

Future development projects associated with the Master Plan will be evaluated within specific NEPA documents for the specific projects. The potential impact of the future development will be analyzed, including potential induced socio-economic impacts that may occur. These impacts could include increased demand for public services and employment shifts (direct and indirect) that could occur with the future projects.

6.17 SECTION 4(F) RESOURCES

Section 4(f) of the Department of Transportation Act of 1966 (49 USC 303(c)), provides protection for specially-designated properties. The properties include publicly owned parks and recreation areas, as well as wildlife or waterfowl refuges and historic sites. The use of a Section 4(f) property occurs when land is permanently incorporated into a transportation facility or temporarily used but considered an adverse impact under the regulation. The regulation prevents the approval of proposed federal actions that require use of the special properties unless no feasible and prudent alternative exists.

There are no publicly owned parks, recreation areas, wildlife/waterfowl refuges or historic sites within or adjacent to the study area. Pine Log State Forest is the closest park and is located over three miles northwest of ECP. One archaeological site (8BY1025) is located near Burnt Mill Creek outside the ECP boundary.

6.18 ENERGY SUPPLY AND NATURAL RESOURCES

Future projects associated with the master plan could affect energy supply and natural resources. Potential changes could occur with additional demand for electricity due to requirements from lighting, navigational equipment, tenant facilities, and similar aspects. Construction needs could have some small uses of energy and natural resources. Appropriate planning with county officials would limit or eliminate any potential impacts associated with demands from future projects.

6.19 LIGHT EMISSIONS

There are no standards for light emission impacts on residential and commercial areas. If light emissions affect these areas, then measures should be implemented to reduce impacts. Similarly, light emissions from residential, commercial, or other uses must be mitigated to minimize dangerous situations for aircraft. Due to the rural setting of ECP and the zoning regulations that have been implemented, issues related to light emissions are not anticipated for projects associated with the Master Plan.

6.20 CONSTRUCTION IMPACTS

Periods of extensive construction activities may occur with the future projects associated with the Master Plan. Construction may involve delivery of equipment and materials, earth moving activities, and debris removal. Construction related activities are more likely to impact adjacent communities than the airport, particularly during the initial phases of development.

Construction related activities could include increased traffic on area roads, construction noise, dust, and other effects due to heavy equipment. The effects associated with construction are temporary but Best Management Practices would be implemented to minimize impacts.

6.21 HAZARDOUS MATERIALS/HAZARDOUS WASTE

Hazardous materials are defined as any substance with special characteristics that could harm people, plants or animals when released. When transported, hazardous materials are substances in a form and quantity that pose an unreasonable risk to health and safety or property. There are numerous regulations, including Resource Conservation Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Occupational Safety and Health Act (OSHA), the Toxic Substance Control Act, the Hazardous Materials Transportation Act, Oil Pollution Act of 1990, PCB (Polychlorinated Biphenyl) Disposal (40 CFR 761), and the Emergency Planning and Community Right-to-Know Act. A wide range of topics is covered under hazardous materials regulations, including land and water contamination, hazardous substance storage, waste management, and petroleum products. The regulations also address the role of the FAA in reviewing airport actions related to the items. EPA has federal regulatory and FDEP has state regulatory oversight of hazardous material regulations.

There are seven sites on ECP which use and store hazardous materials. These sites are associated with the existing development (Phase I) and are located approximately within ¼ mile of the study area. The seven sites are listed in the FDEP TANKS database which tracks the location and status of underground storage tanks (USTs) and aboveground storage tanks (ASTs). Registered tanks at these seven sites are listed as ASTs. There are approximately 21 ASTs spread across the seven sites and range in size from 700 gallons to 50,000 gallons. Contents of these ASTs vary and include unleaded gasoline, diesel fuel, aviation fuel, jet fuel and waste oil. The majority of these ASTs were installed in late 2009 and early 2010. Only one these seven sites (Graham Brothers Construction) has reported a leaking AST. During construction of the initial development, two 10,000 gallon diesel ASTs were installed by Graham Brothers Construction in May 2008. One site had a discharge of diesel fuel on November 11, 2008. Soils around the AST were impacted by the fuel discharge but neither groundwater nor surface water were impacted. Contamination was removed by Graham Brothers Construction, with a Site Rehabilitation Completion Report submitted to FDEP on May 18, 2009 and approved on July 30, 2009.

One site, Transportation Security Administration at ECP, was listed in the US EPA Resource Conservation and Recovery Act Information System (RCRIS) as a conditionally exempt small quantity generator of hazardous waste but not a transporter of hazardous waste. To be conditionally exempt, the facility has to generate less than 100 kg of hazardous waste per month. There are no violations listed for this facility.

The undeveloped area of ECP includes industrial pine and wetlands and has been undeveloped for many years. There are no hazardous materials or hazardous waste sites known to occur or observed within the undeveloped property.

6.22 SOLID WASTE

Solid waste is usually defined as garbage or refuse. Solid waste includes sludge from a waste treatment plant, water supply treatment plant, or an air pollution control facility. The Solid Waste Disposal Act provides definitions for specific types of materials that are included as solid waste. Based on the Act, solid waste can include solid, liquid, semisolid or contained gaseous material that is produced or a by-product of industrial, commercial, mining, agricultural or community activity.

For future construction related activities, the solid waste generated during clearing would be considered land clearing debris (LCD) and disposal at a LCD landfill or construction and demolition (C&D) landfill would be necessary. In Bay County, there are nine active C&D debris landfills, which will take C&D debris or LCD, and five active LCD landfills.

ECP currently generates approximately 2,700 cubic feet of solid waste per week which is transported to Steelfield Landfill. The Steelfield Landfill qualifies as the only "Active" Class I landfill present in Bay County according to the FDEP's Solid Waste Facilities' database. Steelfield Landfill is the only landfill in Bay County which can receive municipal solid waste. Municipal solid waste from Bay County is currently processed and incinerated at the Bay County waste-to-energy facility. The ash from the incinerator is, then, transported to Steelfield Landfill for disposal. Steelfield Landfill is projected to accommodate current and future municipal solid waste disposal needs of Bay County through the year 2035. These projections take into account a 1.2% yearly increase in municipal solid waste which Bay County Solid Waste Administration applies to encompass future projects. In addition, Steelfield Landfill has acquired land for an expansion project which will increase the projected life of the Steelfield Landfill to 2087. The expansion is in the planning stages and there is no projected date of completion.

6.23 CUMULATIVE IMPACTS

NEPA requires evaluation of environmental consequences, which includes secondary and cumulative impacts. Secondary impacts are those that are caused by an action but occur later or are farther removed in distance, while cumulative impacts are those that result from incremental impacts of project when added to past and reasonably future projects. These potential impacts will be evaluated in further detail during the NEPA analysis for specific future projects associated with the Master Plan.

6.24 SUMMARY

This chapter provides an overview of the potential environmental impacts that could occur as a result of the implementation of future projects associated with the Master Plan. Detailed environmental analysis and studies will be conducted as part of the NEPA evaluation process. Specific impacts will be evaluated on a project by project basis and any mitigation measures that are necessary will be included in those environmental documents.

7 FINANCIAL PLAN

This chapter presents financial projections for ECP based on the Airport's Capital Improvement Program (CIP) and the aviation activity forecasts presented in **Chapter 3**. The Airport's Fiscal Year (FY) ends September 30. Financial projections were developed for the first two planning periods: *near-term* (1-5 years or FY 2015 through FY 2019) and *intermediate* (6-10 years or FY 2020 through FY 2024). The FY 2012 numbers included in this chapter are as presented in the in the 2013 Audited Financial Statements (2013 Audit) and the FY 2014 amounts are as presented in the budget approved on September 25, 2013 (2014 Budget).

7.1 DISTRICT'S FINANCIAL STRUCTURE

The Panama City–Bay County Airport and Industrial District (the Authority) is an independent special district created by an act of the Legislature of the State of Florida and is not considered a component unit of any other local governmental unit. The Authority operates ECP.

ECP's financial statements are reported using an accrual basis of accounting. This means that all assets and liabilities (whether current or noncurrent) are included on the balance sheet. Under this method, revenues are recorded when earned and expenses are recorded at the time liabilities are incurred. As an independent special district, the Authority must adopt a budget each fiscal year. This adopted budget must regulate expenditures of the special district. It is unlawful for the Authority to expend or contract for expenditures in any fiscal year except in pursuance of budgeted appropriations. The annual budget is adopted on a basis consistent with generally accepted accounting principles.

The Authority is accounted for as an enterprise fund. Enterprise funds distinguish operating revenues and expenses from non-operating items. Operating revenues and expenses generally result from providing services and producing and delivering goods in connection with an enterprise fund's principal ongoing operations. The principal operating revenues of the Authority are lease fees and related charges. Operating expenses of the Authority include personal services, contractual and professional services, supplies, repairs and maintenance, utilities, advertising and promotions, other expenses and depreciation on capital assets. All revenues and expenses not meeting this definition are reported as non-operating revenue and expenses. Capital grants are reported as non-operating revenue.

ECP develops its budget and accounts for expenses based on various functional areas of the organization. Those expenses along with revenues are subsequently categorized into Cost Centers. Cost Centers include those areas or functional activities of the Airport used for the purposes of accounting for Revenues, Operating Expenses, Debt Service, and required fund deposits. ECP's Airport-Airline Use and Lease Agreement (Airline Agreement) defines the cost center structure, as well as the basis for allocation of indirect costs to the direct cost centers.

7.2 CAPITAL IMPROVEMENT PROGRAM

All airports receiving federal AIP funding are required to maintain a current CIP with the FAA, which identifies projects to be undertaken at an airport over a specified period of time. This plan further estimates the order of implementation as well as total project costs and funding sources. It incorporates all projects recommended as part of this Master Plan Update from FY 2015 through FY 2024.

The recommended CIP, corresponding cost estimates, and estimated funding eligibility are based on a planning level of detail and are presented in **Table 7-1**. While accurate for master planning purposes, actual project costs will likely vary from these planning estimates once project design and engineering estimates are developed. The cost estimates presented in the table are in 2014 dollars inflated at 2.8% annually and also include contingencies, design costs, and construction management costs. As shown in the table, the CIP is estimated to cost approximately $117.3 million in 2014 dollars and approximately $142.1 million in inflated dollars. **Table 7-2** presents the CIP's estimated funding sources for the 10-year planning period. Potential funding sources for any proposed improvements at ECP can be found at a variety of agencies, both federal and state. Many of the available funds come in the form of grants, should the project meet eligibility requirements. Additional financing options are available such as passenger facility charges (PFCs), customer facility charges (CFCs), and ECP funds.

Table 7-1 – 10-Year CIP

Year	Description	Project Costs 2014 $	Inflated[1] Project Costs	Funding Sources[2]						
				Entitlement	Discretionary	TSA	State	PFC	CFC	Authority
2015	Environmental Assesment (5 Year Development)	$500,000	$514,000	$462,600	$0	$0	$25,700	$25,700	$0	$0
2015	Transient Apron - Design	418,320	430,000	387,000	0	0	21,500	21,500	0	0
2015	Expand Outbound Baggage Makeup - Design	524,880	539,600	0	0	0	269,800	269,800	0	0
2015	Public Access Road & Utilities to GA Area	8,000,000	8,224,000	0	0	0	4,112,000	0	0	4,112,000
2015	Update Airport Security System Ph 1	1,000,000	1,028,000	925,200	0	0	51,400	51,400	0	0
2015	Replacement ARFF Vehicle	163,000	167,600	150,840	0	0	8,380	8,380	0	0
2015	Purchase Security Vehicles	57,000	58,600	0	0	0	29,300	0	0	29,300
2015	Purchase Maintenance Equipment	257,200	264,400	0	0	0	132,200	0	0	132,200
2016	Transient Apron - Construction	4,229,680	4,469,900	4,022,910	0	0	223,495	223,495	0	0
2016	Install RVRs Rnwy 16 Approach	675,000	713,300	641,970	0	0	35,665	35,665	0	0
2016	Extend Airport Infrastructure	2,000,000	2,113,600	0	0	0	1,056,800	0	0	1,056,800
2017	Expand Outbound Baggage - Construction	5,307,120	5,765,500	0	0	0	2,882,750	2,882,750	0	0
2017	Expand/Reconfigure Pax Screening - Design	725,760	788,400	337,041	0	19,710	19,217	19,217	0	393,215
2017	Sustainable Management Plan	260,000	282,500	0	254,250	0	14,125	14,125	0	0
2017	Rehabilitate Vehicular Acess Road	2,075,000	2,254,200	0	0	0	1,127,100	0	0	1,127,100
2017	Rehabilitate Terminal Area Parking	1,200,000	1,303,600	0	0	0	651,800	0	0	651,800
2018	Expand/Reconfigure Pax Screening - Construction	7,338,240	8,195,300	3,503,491	0	204,883	194,638	194,638	0	4,097,650
2019	Acquire Property Runway 21 RPZ	400,000	459,200	413,280	0	0	22,960	22,960	0	0
2019	Expand Cell Phone Parking Lot	216,000	248,000	0	0	0	124,000	0	0	124,000
2019	Expand Airport Maintenance Building	888,000	1,019,500	0	0	0	0	0	0	1,019,500
2019	Environmental Assesment	750,000	861,000	619,920	0	0	120,540	120,540	0	0
2019	Master Plan Update Yr 5	500,000	574,000	516,600	0	0	28,700	28,700	0	0
2020	Commercial Apron Expansion - Design	346,000	408,400	367,560	0	0	20,420	20,420	0	0
2020	North Conc Expansion Ph 1& 2 - Design	1,795,900	2,119,500	1,046,459	0	0	105,975	692,884	0	274,183
2020	CBP International Screening Facility	2,058,700	2,429,700	1,093,365	0	0	607,425	121,485	0	607,425
2020	Acquire ARFF Vehicle	800,000	944,200	849,780	0	0	47,210	47,210	0	0
2020	Update Airport Security System Ph 2	1,000,000	1,180,200	1,062,180	0	0	59,010	59,010	0	0
2021	North Conc Expansion Ph 1 - Construction	7,862,400	9,539,100	2,575,557	0	0	620,042	3,958,727	0	2,384,775
2021	Automobile Parking Expansion Ph 1 - Design	274,000	332,400	0	0	0	108,030	0	116,340	108,030
2022	Runway 3/21 - Design	3,000,000	3,741,700	875,558	0	0	1,433,071	48,642	0	1,384,429
2022	Commerical Apron Expansion - Construction	3,504,800	4,371,300	0	3,934,170	0	218,565	218,565	0	0
2022	Automobile Parking Expansion Ph 1 - Constr	2,771,000	3,456,100	0	0	0	1,123,233	0	1,209,635	1,123,233
2023	Runway 3/21 - Construction Ph 1	20,014,000	25,660,900	0	6,004,651	0	9,828,125	333,592	0	9,494,533
2023	North Conc Expansion Ph 2 - Construction	10,296,300	13,201,400	8,773,357	0	0	500,236	3,427,571	0	500,236
2024	Runway 3/21 - Construction Ph 2	20,014,000	26,379,400	4,990,173	1,182,607	0	7,016,920	342,932	0	12,846,768
2024	Pave Internal Service Rd Ph 1 - Construction	5,369,000	7,076,600	0	6,368,940	0	353,830	353,830	0	0
2024	Master Plan Update Yr 10	750,000	988,500	0	889,650	0	49,425	49,425	0	0
	Total	$117,341,300	$142,103,600	$33,614,840	$18,634,267	$224,593	$33,243,587	$13,593,163	$1,325,975	$41,467,175

[1] Project costs were inflated at 2.8%, which reflects the 5-year average of *Engineering News-Record's* Construction Cost Index.

[2] Funding sources are based on eligiblity. The availability of these funding sources is discussed in Table 6-2 through Table 6-6.

Source: CHA Consulting, Inc.

Table 7-2 – Funding Sources of the CIP

	Project Costs 2014 $	Inflated1 Project Costs	Funding Sources				
			Federal[1]	State	PFC	CFC	Authority
2015	$10,920,400	$11,226,200	$1,925,640	$4,650,280	$376,780	$0	$4,273,500
2016	6,904,680	7,296,800	4,664,880	1,315,960	259,160	0	1,056,800
2017	9,567,880	10,394,200	611,001	4,694,992	2,916,092	0	2,172,115
2018	7,338,240	8,195,300	3,708,373	194,638	194,638	0	4,097,650
2019	2,754,000	3,161,700	1,549,800	296,200	172,200	0	1,143,500
2020	6,000,600	7,082,000	4,419,344	840,040	941,009	0	881,608
2021	8,136,400	9,871,500	2,575,557	728,072	3,958,727	116,340	2,492,805
2022	9,275,800	11,569,100	4,809,728	2,774,869	267,207	1,209,635	2,507,662
2023	30,310,300	38,862,300	14,778,007	10,328,361	3,761,163	0	9,994,769
2024	26,133,000	34,444,500	13,431,370	7,420,175	746,187	0	12,846,768
Total	$117,341,300	$142,103,600	$52,473,700	$33,243,587	$13,593,163	$1,325,975	$41,467,175

[1] Federal funds include funds from FAA AIP (entitlement, discretionary, and TSA).

Source: CHA Consulting

The following sections will list available sources and detail the eligibility requirements for each. The amount of funding available from these sources will depend primarily on future levels of aviation activity at ECP and future federal reauthorizations.

7.2.1 Federal Grants

Grants administered by the FAA through the AIP represent a critical capital funding source to implement the projects recommended in this Master Plan study. Although the future status of the AIP is currently uncertain, for the purpose of this evaluation, it is assumed that the AIP will continue to be authorized and appropriated at levels consistent with H.R. 658, the FAA Modernization and Reform Act of 2012.

The U.S. DOT classifies ECP as a non-hub primary airport; therefore, the AIP formula stipulates that ECP is entitled to receive 90% in federal funding for AIP-eligible projects. AIP funds can be used for most airport improvement needs but not operating costs. Note, however, that AIP funds are typically not available for revenue-generating projects, so it may be difficult, though not impossible, for the Authority to use these funds for projects designated to generate revenue.

As shown on **Table 7-2**, federal grants are estimated to be approximately $52.5 million from FY 2015 through FY 2024. Of this amount, approximately $33.6 million is assumed to be funded with entitlement grants, approximately $18.6 million with discretionary grants, and approximately $225,000 in Transportation Security Administration (TSA) grants, all of which are further described below.

Entitlement Grants: The FAA's AIP consists of entitlement funds and discretionary funds. Entitlement funds are distributed through grants by a formula currently based on the number of enplanements at individual airports. In cases where entitlement funds are not used during the current federal fiscal year, these funds are redistributed to other airport sponsors as discretionary funds and become "protected entitlement" funding in the next federal fiscal year. **Table 7-3** presents the AIP entitlement calculation for ECP. This calculation is based on the "baseline growth scenario" for enplanements as presented in **Chapter 3**. As shown in the table, it is estimated that ECP will receive approximately $33.6 million in entitlement AIP grants from FY 2015 through FY 2024.

Table 7-3 – AIP Entitlement Calculation

	2015	2016	2017	2018	2019	2020- 2024
Enplanements for Entitlement	486,100	502,800	520,200	538,200	556,800	3,087,400
FAA Formula[1]						
$7.80 for 1st 50,000 Enplanements	390,000	390,000	390,000	390,000	390,000	1,950,000
$5.20 for next 50,000 Enplanements	260,000	260,000	260,000	260,000	260,000	1,300,000
$2.60 for next 400,000 Enplanements	1,004,000	1,040,000	1,040,000	1,040,000	1,040,000	5,200,000
$0.65 for next 500,000 Enplanements	0	1,820	13,130	24,830	36,920	381,810
$0.50 for the remaining Enplanements	0	0	0	0	0	0
Total Calculated Entitlements	$1,654,000	$1,691,820	$1,703,130	$1,714,830	$1,726,920	$8,831,810
Total Calculated Entitlements x 2	$3,308,000	$3,383,640	$3,406,260	$3,429,660	$3,453,840	$17,663,620
2 Year Lag in Receipt of Grants [2]	$2,940,000	$3,178,000	$3,308,000	$3,383,640	$3,406,260	$17,398,940
Cumulative AIP Entitlement Grants	$2,940,000	$6,118,000	$9,426,000	$12,809,640	$16,215,900	$33,614,840

[1] The FAA formula is defined in 49 United States Code § 47114.

Discretionary Grants: At the beginning of each federal fiscal year, the FAA sets aside the amount of discretionary funds to cover the Letter-of-Intent (LOI) payment schedules. The total of discretionary funds in all LOIs subject to future obligation is limited to approximately 50% of the forecast discretionary funds available for that purpose. The authorizing statute directs the FAA to allocate certain discretionary funding to specific airport types and "set-aside" categories such as noise, reliever airports, military airport program, and projects relating to capacity, safety, security, and noise. However, the FAA has some discretion in funding specific projects within these discretionary funding "set-aside" categories. The FAA approves discretionary funds for use on specific projects after consideration of project priority and other selection criteria. The recommended CIP projects include sustainable management plan, commercial apron expansion, construction of Runway 3/21, construction of an internal services road, and a master plan update, all of which meet the eligibility requirements for discretionary funding. As previously mentioned, ECP currently estimates receiving approximately $18.6 million in discretionary funding.

TSA Grants: The TSA was created as part of the Aviation and Transportation Security Act passed by the U.S. Congress and signed into law by President George W. Bush on November 19, 2001. The TSA is responsible for security in all modes of transportation in the United States and provides for the security screening of passengers and baggage at the Airport. The TSA collects certain security fees to pay for the cost of the capital, operating, and maintenance expenses associated with providing aviation security for the national aviation transportation system. These fees include the September 11 Security Fee and the Aviation Security Infrastructure Fee. The CIP projects include the expansion of ECP's passenger screening.

Table 7-4 presents the federal grants that are assumed to fund the eligible portions of the CIP. As shown in the table, available entitlement and discretionary are sufficient to fund the eligible portions of the CIP through 2019; however, annual grant collections from 2020 through 2024 may not be sufficient to fund certain project costs requiring short-term funding until the project costs can be reimbursed.

Table 7-4 – Application of Federal Grants

	2015	2016	2017	2018	2019	2020- 2024	Total
Available Federal Grants							
Entitlement	$2,940,000	$3,178,000	$3,308,000	$3,383,640	$3,406,260	$17,398,940	$33,614,840
Discretionary	0	0	254,250	0	0	18,380,017	18,634,267
TSA	0	0	19,710	204,883	0	0	224,593
Total Available Federal Grants	$2,940,000	$3,178,000	$3,581,960	$3,588,523	$3,406,260	$35,778,957	$52,473,700
Federally Eligible Portion of CIP[1]	($1,925,640)	($4,664,880)	($611,001)	($3,708,373)	($1,549,800)	($40,014,006)	($52,473,700)
Difference	$1,014,360	($1,486,880)	$2,970,959	($119,851)	$1,856,460	($4,235,048)	$0
Cumulative		($472,520)	$2,498,439	$2,378,588	$4,235,048	($0)	

[1] Represents federally eligible portion of the CIP as presented in Table 7.1

7.2.2 State Grants

The Florida Department of Transportation (FDOT), Aviation Office, maintains a grant program to assist in providing a safe, cost-effective, and efficient statewide aviation system. FDOT grant funds help airports build and maintain runways and taxiways, eliminate airport hazards, protect airspace, develop plans, acquire land, and build terminals and other facilities. The state aviation grant program is funded from the State Transportation Trust Fund. The aviation industry is a major contributor to this fund through Florida's aviation fuel tax. All publicly owned Florida airports that are open for public use and that are under public operational and developmental control are eligible for state funding.

FDOT funds any capital project on airport property and any services that lead to capital projects, such as planning and design services. The only off-airport projects allowed are the purchase of mitigation lands and avigation easements, noise mitigation, and access projects for intercontinental airports. Airport capital equipment is eligible for funding, if it is not too closely

related to day-to-day operations. In general, operational costs such as maintenance services, equipment, and supplies are not eligible for aviation grants.

To be eligible for the Florida Aviation Grant Program, airport projects must be consistent with the airport's role as defined in the Florida Aviation System Plan and, to the maximum extent feasible with the approved local government comprehensive plan. In addition, capital projects must be part of a department-approved airport master plan and/or Airport Layout Plan.

FDOT provides up to one-half of the local share of commercial service airport project costs when federal funding is available. For example, the department provides up to 5% of project costs when the FAA provides 90% funding. When no federal funding is available, FDOT provides up to 50% of project costs.

As shown on **Table 7-2**, approximately $33.2 million of the CIP is anticipated to be funded with FDOT grants.

7.2.3 Passenger Facility Charges

PFCs are authorized by Title 14 of the Code of Federal Regulations, Part 158 and are administered by the FAA. PFCs collected from qualified enplaned passengers are used to fund eligible projects. An airport operator can impose a PFC of $1.00, $2.00, $3.00, $4.00, or $4.50 per eligible enplaned passenger. Once a PFC is imposed, it is included as part of the ticket price paid by passengers enplaning at the airport, collected by the airlines, and remitted to the airport operator, less an allowance for airline processing expenses. The PFC legislation stipulates that if a medium- to large-hub airport institutes a PFC of $1.00, $2,00, or $3.00, they must forego 50% of their AIP entitlement funds. This increases to 75% if they charge a $4.00 or $4.50 PFC. Since ECP is classified as a non-hub airport, it does not have to forego any of its annual AIP entitlement funds.

Projects that are eligible for PFC funding are those that preserve or enhance the capacity, safety, or security of the air transportation system; reduce noise or mitigate noise effects; directly related to the movement of passengers and baggage; or furnish opportunities for enhanced competition between or among air carriers. PFCs cannot be used for revenue-generating facilities at airports, such as restaurants and other concession space, rental car facilities, public parking facilities, or construction of exclusively leased space or facilities.

In March 2007, the FAA approved the Authority's only outstanding PFC Application to collect a $4.50 per enplaned passenger charge to pay for the eligible portions of the debt service associated with the bonds issued to fund the 1993 expansion of the Airport, which were retired during the relocation of the Airport, and the bonds issued to fund the relocation and expansion of the Airport. In June 2011, the FAA approved an amendment to this application to extend the expiration date, increase the approval amount, and change the debt service being funded from General Airport Revenue Bonds to SIB loans. The amended application is approved to collect $41,968,640 in PFC revenues and has an expiration date of March 1, 2038, which occurs after the 10-year projection period of this analysis. As a result, additional PFC applications are not assumed to occur within the 10-year projection period. **Table 7-5** presents the PFC calculation

for the Authority based on the approved "preferred forecast scenario" for enplanement projections presented in **Chapter 3**.

Table 7-5 – Application of PFCs

	2015	2016	2017	2018	2019	2020- 2024	Total
Enplanements	486,100	502,800	520,200	538,200	556,800	3,087,400	
Enplanements for PFC (85.8%)	417,100	431,400	446,300	461,800	477,700	2,649,000	
$4.50 per Enplanement[1]	$4.50	$4.50	$4.50	$4.50	$4.50	$4.50	
Annual PFCs	$1,876,950	$1,941,300	$2,008,350	$2,078,100	$2,149,650	$11,920,500	
LESS: Carrier Compensation	($45,900)	($47,500)	($49,100)	($50,800)	($52,500)	($291,400)	
PLUS: Investment Earnings	22,900	23,700	24,500	25,300	26,200	$145,400	
Total PFC Revenue	$1,853,950	$1,917,500	$1,983,750	$2,052,600	$2,123,350	$11,774,500	$21,705,650
PFC Eligible Portion of CIP[2]	($376,780)	($259,160)	($2,916,092)	($194,638)	($172,200)	($9,674,293)	($13,593,163)
PFC Applied to SIB Loans	($1,606,578)	($1,606,578)	($1,606,578)	($1,606,578)	($1,606,578)	($8,032,892)	($16,065,785)
Annual Difference	($129,408)	$51,762	($2,538,921)	$251,383	$344,572	($5,932,685)	($7,953,298)
Cumulative Difference		($77,647)	($2,616,568)	($2,365,185)	($2,020,613)	($7,953,298)	

[1] The PFC formula is defined in 49 United States Code § 40117.

[2] Represents PFC eligible portion of the CIP as presented in Table 8.1

As shown in the table, ECP is estimated to collect approximately $21.7 million in PFCs from FY 2015 through FY 2024, which is sufficient to fund the PFC-eligible portions of the debt service associated with the SIB loans but not the PFC-eligible portions of the CIP. As a result, other funding sources will need to be determined for these projects such as discretionary grants or Authority funds.

7.2.4 Customer Facility Charges

Section 3.10 of the Concession and License Agreement between the Authority and the rental car companies (the Rental Car Lease) details the terms of the CFC at ECP. According to Section 3.10, the rental car companies are required to collect a CFC of $4.50 per day from each customer at the time payment was first made under any rental agreement with a customer. The CFC revenue funds the operating expenses and debt service associated with the rental car facilities at ECP. According to the Rental Car Lease, the Authority intends, but does not guarantee, to end CFC collections at the end of FY 2030 or sooner.

Table 7-6 presents the CFC calculation for ECP based on the terms in the lease agreement with the rental cars. CFCs are used to fund certain projects in the CIP related to the rental cars totaling approximately $21.3 million. As shown in the table, CFCs are sufficient to fund the eligible portions of the CIP.

Table 7-6 – Application of CFCs

	2015	2016	2017	2018	2019	2020- 2024	Total
Enplanements	486,100	502,800	520,200	538,200	556,800	3,087,400	
Rental Car Customers[1]	404,155	418,039	432,506	447,472	462,936	2,566,935	
Rate per Transaction	$4.50	$4.50	$4.50	$4.50	$4.50	$4.50	
Annual CFCs	$1,819,000	$1,881,000	$1,946,000	$2,014,000	$2,083,000	$11,551,000	
Cumulative CFC Revenue		$3,700,000	$5,646,000	$7,660,000	$9,743,000	$15,251,000	
CFC Revenue[1]	$1,819,000	$1,881,000	$1,946,000	$2,014,000	$2,083,000	$11,551,000	$21,294,000
CFC Eligible Portion of CIP[2]	$0	$0	$0	$0	$0	($1,325,975)	($1,325,975)
CFC Applied to Debt Service	($1,119,960)	($1,119,960)	($1,119,960)	($1,119,960)	($1,119,960)	($5,599,800)	($11,199,600)
Difference	$699,040	$761,040	$826,040	$894,040	$963,040	$4,625,225	$8,768,425
Cumulative		$1,460,080	$2,286,120	$3,180,160	$4,143,200	$8,768,425	

[1] Calculated based on historical number of rental car customers as a percentage of enplanements.

[2] Represents CFC eligible portion of the CIP as presented in Table 7.1

7.2.5 Authority Funds

The Authority generates revenue through airline revenues, terminal concessions, ground and facility leases, fuel flowage fees, landing fees, ramp fees, and parking revenue. Typically, such revenues are used to cover operations and maintenance expenses along with debt service obligations. However, any surplus revenues can be applied directly to the CIP. As shown on **Table 7-2**, approximately $41.5 million in Authority funding is required to fund the CIP.

7.3 FINANCIAL FEASIBILITY

This section of the financial analysis presents the existing debt service, projected operating expenses, and projected revenues resulting from the daily operation of the Authority. In addition, the expense and revenue increases resulting from the implementation of the CIP are layered into the projections to determine if it is feasible for the Authority to undertake the program within the FY 2015 through FY 2024 planning period.

7.3.1 Outstanding Long-Term Debt

The Authority currently has two SIB loans with the State of Florida backed by PFCs and airport net revenues. SIB Loan 1 is dated December 21, 2007 for a total principal amount of $25,000,000 with interest payable at 4.6% beginning in October 1, 2011 and maturing in 2036. SIB Loan 2 is dated April 27, 2009 for a total principal amount of $20,000,000 with interest payable at 4.6% beginning in October 1, 2011 and maturing in 2036. **Table 7-7** presents the Authority's debt service requirements.

Table 7-7 – Outstanding Long-Term Debt

	SIB Loan 1	SIB Loan 2	Total	Less: PFCs	Non-PFC Debt Service
2013	$1,668,074	$1,421,500	$3,089,574	($1,482,204)	$1,607,370
2014	$1,668,100	$1,421,500	$3,089,600	($1,606,592)	1,483,008
2015	$1,668,074	$1,421,500	$3,089,574	($1,606,578)	1,482,996
2016	$1,668,074	$1,421,500	$3,089,574	($1,606,578)	1,482,996
2017	$1,668,074	$1,421,500	$3,089,574	($1,606,578)	1,482,996
2018	$1,668,074	$1,421,500	$3,089,574	($1,606,578)	1,482,996
2019	$1,668,074	$1,421,500	$3,089,574	($1,606,578)	1,482,996
2020- 2024	$8,340,370	$7,107,500	$15,447,870	($8,032,892)	7,414,978

Source: 2013 Audit

7.3.2 Operating Expenses

Operating expenses of the Authority include the cost of sales and services and administrative expenses. These include items such as salary and wages, professional services, travel and training, communications and freight, insurance, utility services, repairs and maintenance, marketing and promotional activities, operating supplies, dues, memberships, publications, and other charges and obligations.

The FY 2013 operating expenses reflect the actual expenses presented in the 2013 Audit and the FY 2014 operating expenses reflect the amounts presented in the 2014 Budget. **Table 7-8** presents operating expenses by line item for FY 2013 through FY 2024.

Table 7-8 – Operating Expenses

	Actual 2013	Budgeted 2014	Projected 2015	Projected 2016	Projected 2017	Projected 2018	Projected 2019	Projected 2020- 2024
By Line Item								
Personnel	$2,873,027	$3,206,784	$3,283,800	$3,362,600	$3,443,300	$3,525,900	$3,610,500	$19,433,200
Purchased Services	3,782,981	3,159,080	3,234,900	3,312,600	3,392,200	3,473,600	3,556,800	19,237,100
Supplies & Materials	353,328	467,500	478,800	490,300	502,100	514,200	526,600	2,829,100
Promotion & Sundry	40,541	79,850	81,700	83,600	85,500	87,500	89,500	480,400
Travel	15,650	32,300	33,100	34,000	34,900	35,800	36,700	197,300
Utilities	825,223	830,800	850,800	871,200	892,000	913,300	935,200	5,023,700
Insurance	237,825	247,593	253,600	259,700	266,000	272,500	279,100	1,499,900
Total	$8,128,575	$8,023,907	$8,216,700	$8,414,000	$8,616,000	$8,822,800	$9,034,400	$48,700,700
By Department								
Administration	$2,046,976	$932,070	$954,400	$977,300	$1,000,700	$1,024,600	$1,049,100	$5,807,100
Executive	901,085	1,141,161	1,168,500	1,196,600	1,225,400	1,254,700	1,284,700	6,900,400
Operations	1,068,705	1,348,209	1,380,700	1,413,900	1,447,900	1,482,700	1,518,300	8,155,700
General Maintenance	2,055,485	2,304,045	2,359,400	2,416,000	2,474,000	2,533,400	2,594,300	13,936,600
ARFF	848,499	904,835	926,600	948,800	971,600	995,100	1,019,000	5,473,300
Police	1,207,825	1,393,587	1,427,100	1,461,400	1,496,400	1,532,300	1,569,000	8,427,600
Total	$8,128,575	$8,023,907	$8,216,700	$8,414,000	$8,616,000	$8,822,800	$9,034,400	$48,700,700
By Cost Center								
Airfield	$1,900,508	$2,179,047	$2,212,415	$2,265,526	$2,319,957	$2,375,739	$2,432,742	$13,088,478
Terminal	3,476,327	4,091,258	4,151,231	4,250,956	4,353,043	4,457,465	4,564,401	24,557,770
Ground Transportation	1,226,964	1,433,672	1,468,094	1,503,313	1,539,327	1,576,233	1,613,976	8,777,101
Other	1,524,776	319,930	384,960	394,205	403,673	413,363	423,281	2,277,351
Total	$8,128,575	$8,023,907	$8,216,700	$8,414,000	$8,616,000	$8,822,800	$9,034,400	$48,700,700
Percent Increase		-1.3%	2.4%	2.4%	2.4%	2.4%	2.4%	
CAGR FY 2014 - FY 2019							2.4%	

Sources: Authority FY 2013 and FY 2014, MAC Consulting, LLC, FY 2015-FY 2024

As shown in the table, operating expenses were approximately $8.1 million in FY 2013 and are budgeted to decrease by -1.3% to approximately $8.0 million in FY 2014. This decrease is primarily the result of the legal fees related to the BP settlement. In 2010, BP Oil was responsible for the Deepwater Horizon incident and the resulting BP Oil Spill. ECP suffered lost revenue as a result of tourists cancelling their trips to Panama City and subsequently sued BP for damages. FY 2013 operating expenses include approximately $1.2 million in legal fees related to this settlement, and are considered a one-time expense.

Operating expenses are forecast to be approximately $9.0 million in FY 2019, reflecting a compound annual growth rate of 2.4% from FY 2014 through FY 2019. Operating expenses are projected based on a review of historical trends and the anticipated effects of inflation assumed at 2.4% annually, reflecting a 10-year average of the Consumer Price Index. Terminal expenses are forecast to increase an additional 5% in FY 2022 to account for the completion of the north concourse expansion included in the CIP.

7.3.3 Operating Revenues

Major sources of operating revenue at ECP are derived from non-airline and airline sources. Non-airline revenues account for 59% of total revenue in the 2014 Budget and include items such as parking, fuel sales, building and land leases, rental car, restaurant, ground handling, and hangar rentals. A summary of major non-airline tenant leases is presented in **Table 7-9**.

Table 7-9 – Major Non-airline Tenants

Lessee	Approximate Area	Monthly Rental Rate ($)	Notes
Car Rentals			
Terminal Counter Space	2,227 sf	10,905.99	
Fleet Service Facility	14,505 sf	5,112.89	
Land and Ready/Return Lot	361,548 sf	13,558.03	
Auto Parking	745 spaces	Varies	Management agreement
Ground Transportation	Terminal kiosk	1,000.00	
Food & Beverage Concession	3,688 sf	9% -12%	On both floors of terminal
Retail Merchandise Concession	1,213 sf	12%	On both floors of terminal
Advertising	n/a	23% or 30%	Ad space in terminal
Other Terminal Revenue	Varies	10,800.76	Includes TSA
Fixed Base Operator Rents	401,623 sf	14,686.30	
Hangar Rental	41,110 sf/building 82,542 sf/land	12,520.95	Incudes 33 leases

Source: ECP 2014 Budget

Airline revenues account for 41% of total FY 2014 budgeted revenues and include revenues generated from the airlines for landing fees and terminal rentals (i.e., ticket counter, bag room, office, and hold room). The following is a summary of the business arrangement included in the Airline Agreement:

- A "cost center residual" landing fee rate for the airfield cost center using total landed weight as the divisor.
- A "compensatory" average terminal rental rate for the terminal cost center using total rentable square feet as the divisor.
- A "revenue sharing" component that serves to reduce the costs to the airlines over the agreement term. Revenue sharing is defined in the airline agreement as total revenues less operating expenses, capital equipment, non-PFC debt service, and capital reserve. Fifty percent of the resulting net revenues are then shared with the airlines.

The Authority has entered into signatory leases with Delta Air Lines and Southwest Airlines. The airline agreements expire on September 30, 2015, which occurs during the projection period. The methodologies outlined in the current airline agreements are assumed to be in place throughout the projection period. **Table 7-10** presents a summary of the airline rates and charges at ECP for FY 2014 through FY 2019 and for FY 2024.

Table 7-10 – Airline Rates and Charges

	Budgeted 2014	Projected 2015	Projected 2016	Projected 2017	Projected 2018	Projected 2019	Projected 2024
Terminal Rental Rate	$58.76	$58.84	$60.40	$62.25	$68.87	$70.29	$66.54
Landing Fee[1]	$5.11	$5.12	$5.19	$5.22	$5.05	$5.09	$8.31
Airline Cost per Enplanement	$7.88	$7.25	$7.11	$6.95	$6.82	$6.65	$7.79

[1] The landed weight used to calculate the landing fee was projected by applying the same growth rate used for aircraft operations presented in Table 3-35.

Source: Authority FY 2014, MAC Consulting, LLC FY 2015 through FY 2024

Table 7-11 presents operating revenues for FY 2013 through FY 2024. As shown in the table, operating revenues were approximately $9.7 million in FY 2013 and are forecast to be approximately $13.4 million in FY 2019, reflecting a compound annual growth rate of 2.5%.

Table 7-11 – Revenues

	Actual 2013	Budgeted 2014	Projected 2015	Projected 2016	Projected 2017	Projected 2018	Projected 2019	Projected 2020- 2024
Airline								
Passenger airline landing fees	$1,848,997	$2,999,629	$3,007,083	$3,070,918	$3,117,949	$3,035,731	$3,085,035	$19,117,439
Cargo airline landing fees	22,053	16,200	16,500	16,800	17,100	17,400	17,700	94,500
Terminal rentals and common use	938,952	1,802,041	1,777,583	1,824,763	1,880,805	2,080,663	2,123,474	13,013,453
Subtotal	$2,810,002	$4,817,870	$4,801,166	$4,912,481	$5,015,855	$5,133,795	$5,226,209	$32,225,393
Percent Increase		71.5%	-0.3%	2.3%	2.1%	2.4%	1.8%	
Car rentals								
Concession fee	$1,810,797	$1,800,000	$1,836,000	$1,872,700	$1,910,200	$1,948,400	$1,987,400	$10,549,100
Customer facility charge	1,739,179	1,725,000	1,818,696	1,881,177	1,946,278	2,013,623	2,083,213	11,551,207
Subtotal	$3,549,976	$3,525,000	$3,654,696	$3,753,877	$3,856,478	$3,962,023	$4,070,613	$22,100,307
Percent Increase		-0.7%	3.7%	2.7%	2.7%	2.7%	2.7%	
Terminal complex								
Public and employee parking	$2,089,264	$2,200,000	$2,319,496	$2,399,183	$2,482,209	$2,568,099	$2,656,852	$14,731,975
Ground transportation fees	70,075	45,000	45,900	46,800	47,700	48,700	49,700	263,800
Food & beverage concession	221,412	215,000	226,678	234,466	242,580	250,973	259,647	1,439,716
Retail merchandise concession	77,324	80,000	84,345	87,243	90,262	93,385	96,613	535,708
Advertising	135,151	135,000	137,700	140,500	143,300	146,200	149,100	791,400
Other terminal revenue	107,235	116,700	119,000	121,400	123,800	126,300	128,800	683,700
Subtotal	$2,700,461	$2,791,700	$2,933,120	$3,029,591	$3,129,851	$3,233,658	$3,340,711	$18,446,298
Percent Increase		3.4%	5.1%	3.3%	3.3%	3.3%	3.3%	
General aviation								
Fixed base operatior rents	$171,105	$175,000	$178,500	$182,100	$185,700	$189,400	$193,200	$1,025,500
Fuel flowage fees	31,453	30,000	30,600	31,200	31,800	32,400	33,000	175,500
Hangar rentals	248,044	220,000	224,400	228,900	233,500	238,200	243,000	1,290,500
Subtotal	$450,602	$425,000	$433,500	$442,200	$451,000	$460,000	$469,200	$2,491,500
Percent Increase		-5.7%	2.0%	2.0%	2.0%	2.0%	2.0%	
Other revenue								
Other tenants/miscellaneous	$68,391	$65,000	$66,300	$67,600	$69,000	$70,400	$71,800	$381,100
Fuel farm	139,714	140,000	142,800	145,700	148,600	151,600	154,600	820,800
Cargo building rental	18,297	15,800	16,100	16,400	16,700	17,000	17,300	92,000
Non-aviation income	5,916	6,000	6,100	6,200	6,300	6,400	6,500	34,000
Subtotal	$232,318	$226,800	$231,300	$235,900	$240,600	$245,400	$250,200	$1,327,900
Percent Increase		-2.4%	2.0%	2.0%	2.0%	2.0%	2.0%	
Total	**$9,743,359**	**$11,786,370**	**$12,053,782**	**$12,374,050**	**$12,693,784**	**$13,034,875**	**$13,356,933**	**$76,591,398**
Percent Increase		21.0%	2.3%	2.7%	2.6%	2.7%	2.5%	
CAGR FY 2014 - FY 2019							2.5%	

Sources: Authority FY 2013 and FY 2014, MAC Consulting, LLC, FY 2015-FY 2024

FY 2014 operating revenues are budgeted to increase 21% over FY 2013 actuals primarily as a result of the revenue sharing with the airlines. FY 2013 includes the credit to airline revenues for revenue sharing. Since revenue sharing is a year-end settlement procedure, ECP does not include it in budgeted airline revenues.

FY 2015 through FY 2024 operating revenues are projected based on the following:

- Historical trends and lease provisions.
- Revenues from terminal concessions are projected to increase with prospective enplanement growth. Revenues from rental car concessions are projected to increase with prospective originating passenger growth. CFC revenue projections are described in Table 7-6. Airline revenues are forecast based on the rates and charges methodology previously described.
- Remaining operating revenues were inflated at 2.0% annually to reflect a more conservative growth rate than that used for operating expenses.
- The parking expansion project included in the CIP is not scheduled to begin until 2021. Therefore, additional revenues resulting from this expansion will not be realized until after the projection period of this analysis. As a result, parking revenues are projected to increase solely with prospective enplanement growth.
- Currently, the rental car concession leases expire on September 30, 2014. This analysis assumes these leases are renegotiated with similar terms as the existing lease.
- It was assumed that the Authority would renegotiate the remaining leases that expire during the planning period with terms and conditions that would implement changes in rate structures and business practices, as necessary, to maintain positive financial performance.

7.3.4 Pro Forma Cash Flow

Table 7-12 presents the pro forma cash flow of the Authority for the 10-year planning period based on the projection of operating revenues, operating expenses, and outstanding long-term debt discussed above. As a result of the analysis discussed herein, net income remains positive during the planning period.

Table 7-12 – Net Income

	Actual 2013	Budgeted 2014	Projected 2015	Projected 2016	Projected 2017	Projected 2018	Projected 2019	Projected 2020- 2024
Operating Revenue	$9,743,359	$11,786,370	$12,053,782	$12,374,050	$12,693,784	$13,034,875	$13,356,933	$76,591,398
Less: Operating Expenses	(8,128,575)	(8,023,907)	(8,216,700)	(8,414,000)	(8,616,000)	(8,822,800)	(9,034,400)	(48,700,700)
Net Revenues	$1,614,784	$3,762,463	$3,837,082	$3,960,050	$4,077,784	$4,212,075	$4,322,533	$27,890,698
Less: Non-PFC Funded Debt Service	($1,607,370)	($1,483,008)	($1,482,996)	($1,482,996)	($1,482,996)	($1,482,996)	($1,482,996)	($7,414,978)
Net Income	$7,414	$2,279,455	$2,354,086	$2,477,054	$2,594,788	$2,729,080	$2,839,538	$20,475,721
Beginning Balance		$10,541,002	$9,151,240	$6,981,826	$8,152,080	$8,324,754	$6,706,184	$8,152,222
Plus: Contribution from Operating		$2,279,455	$2,354,086	$2,477,054	$2,594,788	$2,729,080	$2,839,538	$20,475,721
Plus: Proceeds from Litigation		$0	$0	$0	$0	$0	$0	$0
Less: Local Contribution to CIP		($3,433,111)	($4,273,500)	($1,056,800)	($2,172,115)	($4,097,650)	($1,143,500)	($28,723,611)
Less: Capital Equipment		($236,106)	($250,000)	($250,000)	($250,000)	($250,000)	($250,000)	($1,250,000)
Ending Balance		$9,151,240	$6,981,826	$8,152,080	$8,324,754	$6,706,184	$8,152,222	($1,345,668)
Debt Service Coverage								
Net Revenues	$1,614,784	$3,762,463	$3,837,082	$3,960,050	$4,077,784	$4,212,075	$4,322,533	
Plus: PFCs Applied to Debt Service	1,482,204	1,606,592	1,606,578	1,606,578	1,606,578	1,606,578	1,606,578	
PLUS: Revenue Sharing	1,702,037	1,166,945	1,261,393	1,322,727	1,381,444	1,448,440	1,503,519	
PLUS: BP Legal Fees [1]	1,246,436	0	0	0	0	0	0	
Adjusted Net Revenues	$6,045,461	$6,536,000	$6,705,053	$6,889,356	$7,065,806	$7,267,094	$7,432,630	
Debt Service	$3,089,574	$3,089,600	$3,089,574	$3,089,574	$3,089,574	$3,089,574	$3,089,574	
Debt Service Coverage	1.96	2.12	2.17	2.23	2.29	2.35	2.41	

[1] In 2013, legal fees related to the BP settlement are included in operating expenses; however, the revenues related to the settlement are included in non-operating revenues. For purposes of calculating debt service coverage, both the expense and the revenue should be considered non-operating. As a result, the amount included in operating expenses is included in the numerator for the debt service coverage calculation.

According to **Table 7-2**, the Authority is responsible for funding approximately $41.5 million in project costs. As of September 30, 2013, the Authority had an operating fund balance of $10.5 million. With the combination of a healthy operating fund balance and a positive net cash flow, ECP has the cash on hand to fund its portion of the CIP through 2019. However, the construction of runway 3/21 requires ECP to commit approximately $22.3 million in FY 2023 and FY 2024 straining the financial health of the Airport. The Authority would need to either identify another funding source or issue bonds to fund that project.

The table also presents the estimated debt service coverage ratio. According to the rate covenant included in the SIB loan documentation, the Authority is obligated to fix, revise, maintain, and collect fees, rentals, and other charges for the use of the facilities and services of ECP sufficient to produce revenues after deducting operating expenses (net revenue), which, together with other available funds (revenue sharing), will at least equal 125% of debt service on all outstanding debt service. As shown on the table, the debt service coverage ratio exceeds the requirements of the rate covenant.

7.4 SUMMARY

The financial feasibility of future projects will be determined by the provisions of existing and future leases, funding levels and participation rates of federal grant programs, the availability of PFC and CFC revenues and other funding sources, bonding capacity, and the ability to generate internal cash flow from operations at ECP.

The financial projections were prepared on the basis of available information and assumptions set forth in this chapter. It is believed that such information and assumptions provide a reasonable basis for the projections to the level of detail appropriate for an airport Master Plan. Some of the assumptions used to develop the projections may not be realized, and unanticipated events or circumstances may occur. Therefore, the actual results will vary from those projected, and such variations could be material.

Based on these assumptions, the CIP as it is presented can be financed through 2019 by the Authority and through 2024 with the assistance of additional grant, PFC, or bond funding. As the Authority has done in the past, it needs to continue to monitor its financial situation to determine which projects should be undertaken and when. In addition, the Authority should review and evaluate current leases and service incentives to enhance revenues and provide financial solvency while improving the facilities.

8 AIRPORT LAYOUT PLAN

This master planning process has resulted in a comprehensive long term development plan for the Northwest Florida Beaches International Airport. The Airport Layout Plan (ALP) drawing set is a graphical representation of the findings of this process. The drawing set is an invaluable tool for the Authority, airport staff, FAA, other state and federal agencies, and the general public for understanding the airport facilities, the design standards which the Airport is subject to, and the future and potential ultimate "build-out" plans for the Airport.

Additionally, the ALP serves as the Airport's official set of record drawings, in compliance with the FAA's "Sponsor Assurances" under the Airport Improvement Program (AIP). In order for improvement projects to be eligible for federal AIP funding, the projects must appear on a FAA-approved ALP. Pending FAA approval of the proposed projects, this ALP will serve as the guide for the ongoing airport development program.

The ALP drawing set prepared for this Master Plan is comprised of six sheets, each of which is briefly described in the subsequent sections. Other sheets that are commonly included in ALP sets were not included in the scope of work for this project, but may be pursued at a later date. The drawings were prepared in accordance with federal guidelines as defined in FAA Advisory Circular 150/5070-6B, *Airport Master Plans*, and Advisory Circular 150/5300-13, *Airport Design*. Additionally, the FAA Standard Operating Procedure (SOP) No. 2.00 ALP Checklist (effective October 1, 2013) served as a guide during the development of the ALP to ensure the inclusion of all required elements. Below is the list of drawings included in the ECP ALP set:

- Title Sheet
- Airport Data Sheet
- Airport Layout Plan
- Terminal Area Plan – North
- Terminal Area Plan – South
- Land Use Plan

The following paragraphs describe the specific elements found on each sheet within the ALP drawing set. A reduced size drawing set of the ALP is also provided in this chapter.

8.1.1 Title Sheet

This introductory sheet provides basic information about the Airport and serves as the front cover of the ALP drawing set. Provided information consists of a drawing set index, FAA disclaimers and approval signature, location and vicinity maps, and other general project related information such as federal grant numbers, and revision dates. The Title Sheet is identified as Sheet 1.

8.1.2 Airport Data Sheet

The Airport Data Sheet includes general Airport data and detailed runway, taxiway, and instrument approach system data. The data include the Airport Reference Code, which identifies the largest group of aircraft expected to operate at the Airport, and therefore establishes the appropriate facility design standards. Also included are meteorological data including wind roses for all weather, visual flight rule (VFR) and instrument flight rule (IFR) weather conditions. All data tables provide information on existing and future conditions. Future information is based on the assumption that development described in the previous chapters will be implemented. The Airport Data Sheet is identified as Sheet 2.

8.1.3 Airport Layout Plan

The Airport Layout Plan sheet depicts existing, proposed and potential ultimate airport facilities as identified during this master planning process. Existing conditions include airfield pavements and associated clearances; critical areas; property line; terminal, support, and ancillary facilities; and ground access infrastructure. Also identified are all existing buildings and, if available, the heights of these buildings as determined from aerial surveys.

Proposed airport improvements, generally anticipated to occur in the *near-term* and *intermediate* planning horizons are depicted in greater detail than those improvements identified for the *long-term* and potential *ultimate* planning horizons. Future developments included in the plan are: proposed airfield improvements with associated clearances, critical areas and dimensions; proposed terminal improvements with support and ancillary facilities identified; and recommend ground access infrastructure improvements. The Airport Layout Plan is identified as Sheet 3.

8.1.4 Terminal Area Plans (North and South)

Because the scale of the ALP sheets makes it difficult to clearly illustrate all of the proposed improvements within the terminal area, these sheets depict the existing and proposed terminal area development at a larger scale. The sheets focus on the air carrier passenger facilities, general aviation facilities, and other facilities in the terminal area, including existing and future building data tables, known elevations of structures, and taxiway details. The Terminal Area Plans are identified as Sheets 4 and 5.

8.1.5 Land Use Plan

The existing and future land uses associated with ECP are identified on this sheet. The on-airport land uses include all aeronautical and non-aeronautical areas within the Airport's property line. Depicted off-airport land uses are those designated by the Bay County Planning Commission. The Land Use Plan is identified as Sheet 6.

Northwest Florida Beaches International Airport (ECP)

Panama City, Florida

AIRPORT LAYOUT PLAN

FAA AIP PROJECT 3-12-0159-005-2011

July 2015

F I N A L D R A W I N G S E T

LOCATION MAP
SCALE: 1 inch = 20 miles

VICINITY MAP
SCALE: 1 inch = 3 miles

REVISION	DESCRIPTION	DATE	BY

PANAMA CITY-BAY COUNTY AIRPORT AND INDUSTRIAL DISTRICT

APPROVED _____ DATE _____
TILL BRUETT, CHAIRMAN

APPROVED _____ DATE _____
PARKER W. MCCLELLAN, JR., EXECUTIVE DIRECTOR

FEDERAL AVIATION ADMINISTRATION ORLANDO AIRPORTS DISTRICT OFFICE

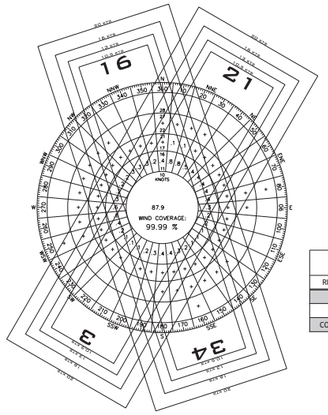
APPROVED _____ DATE _____
MARISOL ELLIOTT, DISTRICT WIDE COMMUNITY PLANNER

PLANS PREPARED BY:

CHA
4080 Lafeyette Center Dr. / Suite 210 A / Chantilly, VA 20151
PH 703.230.0300 // FX 703.230.0299
chacompanies.com

DRAWN BY: LSB / CAS
REVIEWED BY: KSC / AJL
APPROVED BY: PSP

File Name: W:\Projects\Panama City (ECP)\2011\9415-000 ECP-Master Plan\CAD\DALP\1-TITLE SHEET.dwg - 1TTL
Worked By: August 5, 2015 11:29:04 AM / ESL
Plotted By: August 5, 2015 12:10:52 PM / Loftamo, Aaron



ALL WEATHER WIND ROSE

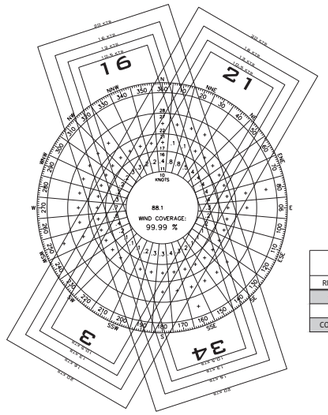
SOURCE: NOAA National Climatic Center Asheville, NC

OBSERVATIONS: 81,269 Observations 2000-2009

STATION: Panama City, FL

ALL WEATHER WIND COVERAGE

RUNWAY	10.5 KNOTS	13 KNOTS	16 KNOTS	20 KNOTS
16-34	94.58%	97.17%	99.58%	99.94%
3-21	95.84%	98.18%	99.68%	99.94%
COMBINED	97.82%	99.33%	99.91%	99.99%



VFR WIND ROSE

SOURCE: NOAA National Climatic Center Asheville, NC

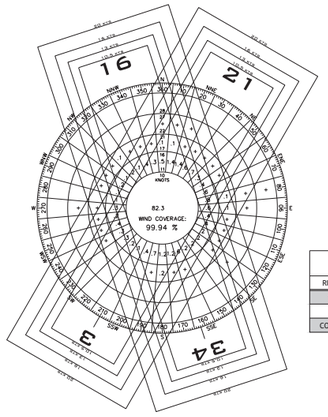
OBSERVATIONS: 75,928 Observations 2000-2009

STATION: Panama City, FL

NOTE
VFR: CEILING >=1000 FT. AND VISIBILITY >=3 MI.

VFR WIND COVERAGE

RUNWAY	10.5 KNOTS	13 KNOTS	16 KNOTS	20 KNOTS
16-34	94.6%	97.18%	99.59%	99.95%
3-21	95.86%	98.19%	99.7%	99.94%
COMBINED	97.82%	99.34%	99.91%	99.99%



IFR WIND ROSE

SOURCE: NOAA National Climatic Center Asheville, NC

OBSERVATIONS: 4,515 Observations 2000-2009

STATION: Panama City, FL

NOTE
IFR: CEILING <1000 FT. AND/OR
VISIBILITY <3 MI. BUT >200 FT. AND 1/2 MI.

IFR WIND COVERAGE

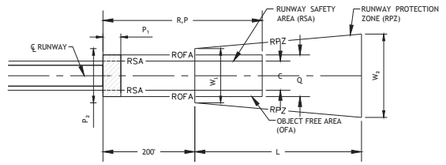
RUNWAY	10.5 KNOTS	13 KNOTS	16 KNOTS	20 KNOTS
16-34	93.32%	96.51%	99.31%	99.82%
3-21	94.84%	97.65%	99.42%	99.86%
COMBINED	97.34%	99.09%	99.79%	99.94%

MODIFICATIONS TO FAA DESIGN STANDARDS

APPROVAL DATE	AIRSPACE CASE NO.	STANDARD TO BE MODIFIED	DESCRIPTION
		NONE REQUIRED	

RUNWAY DATA

		RUNWAY 16-34						RUNWAY 3-21				RUNWAY 16R-34L	
		EXISTING		FUTURE		ULTIMATE		FUTURE		ULTIMATE		ULTIMATE	
		16	34	16	34	16L	34R	3	21	3	21	16R	34L
RUNWAY DESIGN CODE (RDC)		D-III-2400		D-III-1600		D-V-1600		D-III-4000		D-III-2400		D-V-2400	
RUNWAY REFERENCE CODE (RRC)		D-III-2400	D-III-4000	D-III-1600	D-III-4000	D-V-1600	D-V-2400	D-III-4000	D-III-4000	D-III-2400	D-III-2400	D-V-2400	D-V-2400
PAVEMENT DESIGN STRENGTH													
	PCN	NOT CALCULATED AT THIS TIME		TBD		TBD		TBD		TBD		TBD	
	SINGLE	100,000 LBS.		SAME		TBD		100,000 LBS.		SAME		100,000 LBS.	
	DOUBLE	155,000 LBS.		SAME		TBD		155,000 LBS.		SAME		155,000 LBS.	
	DOUBLE TANDEM	400,000 LBS.		SAME		TBD		400,000 LBS.		SAME		400,000 LBS.	
	DUAL DOUBLE TANDEM	750,000 LBS.		SAME		TBD		N/A		N/A		750,000 LBS.	
PAVEMENT MATERIAL		CONCRETE		SAME		SAME		CONCRETE		SAME		CONCRETE	
PAVEMENT SURFACE TREATMENT		GROOVED		SAME		SAME		GROOVED		SAME		GROOVED	
EFFECTIVE RUNWAY GRADIENT		.15%		SAME		SAME		TBD		SAME		TBD	
MAXIMUM GRADE WITHIN RUNWAY LENGTH		1.5%		SAME		SAME		1.5%		SAME		1.5%	
MEETS LINE OF SITE REQUIREMENTS		YES		SAME		SAME		TBD		SAME		YES	
RUNWAY LENGTH		10,000 FT.		SAME		12,000 FT.		6,800 FT.		7,500 FT.		8,400 FT.	
RUNWAY WIDTH		150 FT.		SAME		SAME		150 FT.		SAME		150 FT.	
DISPLACED THRESHOLD		N/A	N/A	SAME		SAME		N/A	N/A	N/A	N/A	N/A	N/A
RUNWAY END COORDINATES (NAD 83) AND ELEVATIONS	LATITUDE	30°22'15.98"N	30°20'43.35"N	SAME		30°22'34.50"N	SAME	30°20'43.13"N	30°21'41.80"N	SAME	30°21'47.85"N	30°22'05.43"N	30°20'47.63"N
	LONGITUDE	85°48'04.30"W	85°47'24.04"W	SAME		85°48'12.35"W	SAME	85°47'09.04"W	85°46'31.00"W	SAME	85°46'27.07"W	85°49'00.71"W	85°48'26.89"W
	ELEVATION (MSL)	68.8 FT.	53.7 FT.	SAME		68 FT	SAME	55 FT.	62 FT.	SAME	SAME	68.0 FT	41.0 FT.
RUNWAY LIGHTING TYPE		HIRL		SAME		SAME		HIRL		SAME		HIRL	
RUNWAY MARKING TYPE		PRECISION		SAME		SAME		NON-PRECISION		PRECISION		PRECISION	
PART 77 APPROACH SLOPE		50:1	34:1	SAME	SAME	SAME	50:1	34:1	34:1	50:1	50:1	50:1	50:1
APPROACH TYPE		PRECISION	NONPRECISION	SAME	SAME	SAME	PRECISION	NON-PRECISION	NON-PRECISION	PRECISION	PRECISION	PRECISION	PRECISION
VISIBILITY MINIMUMS		1/2-MILE	3/4-MILE	1/4-MILE	SAME	SAME	1/2-MILE	3/4-MILE	3/4-MILE	1/2-MILE	1/2-MILE	1/2-MILE	1/2-MILE
TYPE OF AERONAUTICAL SURVEY REQUIRED		VERTICALLY-GUIDED	VERTICALLY-GUIDED	SAME	SAME	SAME	SAME	VERTICALLY- GUIDED	VERTICALLY- GUIDED	SAME	SAME	VERTICALLY-GUIDED	VERTICALLY-GUIDED
DEPARTURE SURFACE		N/A	N/A	SAME	SAME	SAME	SAME	N/A	N/A	SAME	SAME	N/A	N/A
THRESHOLD SITING SURFACE		NO TSS PENS.	NO TSS PENS.	SAME		SAME		TBD	TBD	SAME	SAME	TBD	TBD
VISUAL APPROACH AIDS		PAPI-4	PAPI-4, REILS	SAME		SAME		PAPI-4	PAPI-4	SAME	SAME	PAPI-4	PAPI-4
INSTRUMENT APPROACH AIDS		ILS CAT-1, LOC, GS, MALSR, RNAV/LPV	RNAV/LPV	ILS CAT-II, LOC, GS, MALSR, RNAV/LPV	SAME	SAME	ILS CAT-1, LOC, GS, MALSR, RNAV/LPV	N/A	N/A	ILS CAT-1, LOG, GS, MALSR	ILS CAT-1, LOC, GS, MALSR	ILS CAT-1, LOC, GS, MALSR	ILS CAT-1, LOC, GS, MALSR
RUNWAY SAFETY AREA (RSA)	(P) LENGTH BEYOND RUNWAY END	1,000 FT.	1,000 FT.	SAME		SAME		1,000 FT.	1,000 FT.	SAME	SAME	1,000 FT.	1,000 FT.
	(C) WIDTH	500 FT.	500 FT.	SAME		SAME		500 FT.	500 FT.	SAME	SAME	500 FT.	500 FT.
RUNWAY PROTECTION ZONE (RPZ)	(L) LENGTH	2,500 FT.	1,700 FT.	SAME	SAME	SAME	2,500 FT.	1,700 FT.	1,700 FT.	2,500 FT.	2,500 FT.	2,500 FT.	2,500 FT.
	(W1) INNER WIDTH	1,000 FT.	1,000 FT.	SAME	SAME	SAME	1,000 FT.	1,000 FT.	1,000 FT.	1,000 FT.	1,000 FT.	1,000 FT.	1,000 FT.
	(W2) OUTER WIDTH	1,750 FT.	1,510 FT.	SAME	SAME	SAME	1,750 FT.	1,510 FT.	1,510 FT.	1,750 FT.	1,750 FT.	1,750 FT.	1,750 FT.
RUNWAY OBJECT FREE AREA (ROFA)	(R) LENGTH BEYOND RUNWAY END	1,000 FT.	1,000 FT.	SAME	SAME	SAME	1,000 FT.	1,000 FT.	1,000 FT.	SAME	SAME	1,000 FT.	1,000 FT.
	(Q) WIDTH	800 FT.	800 FT.	SAME	SAME	SAME	800 FT.	800 FT.	800 FT.	SAME	SAME	800 FT.	800 FT.
PRECISION OBJECT FREE ZONE (POFZ)	(P1) LENGTH	200	N/A	SAME	SAME	SAME	200	N/A	N/A	200	200	200	200
	(P2) WIDTH	800	N/A	SAME	SAME	SAME	800	N/A	N/A	800	800	800	800



AIRPORT DATA TABLE

NORTHWEST FLORIDA BEACHES INTERNATIONAL AIRPORT
6300 WEST BAY PARKWAY
PANAMA CITY, FL 32409
BAY COUNTY

ITEM	EXISTING	FUTURE	ULTIMATE
AIRPORT REFERENCE CODE (ARC)	D-III	D-III	D-V
CRITICAL AIRCRAFT	MD88 / B737-800	B737-800	B777-300
NPIAS SERVICE LEVEL	SMALL-HUB PRIMARY	SMALL HUB PRIMARY	MEDIUM HUB PRIMARY
STATE SERVICE LEVEL	PRIMARY COMMERCIAL	PRIMARY COMMERCIAL	PRIMARY COMMERCIAL
AIRPORT OWNER	PANAMA CITY-BAY COUNTY AIRPORT & INDUSTRIAL DISTRICT		
AIRPORT ELEVATION (MSL) NAD 83 STANDARDS	68.8 FT.		
AIRPORT REFERENCE POINT (ARP) NAD 83 STANDARDS	LAT. 30°21'29.66"N LONG.85°47'44.20"W	LAT. 30°21'28.88"N LONG.85°47'22.42"W	LAT. 30°21'28.12"N LONG.85°47'48.81"W
MEAN DAILY MAXIMUM TEMPERATURE	90.6° F (JULY)		
AIRPORT & TERMINAL NAVIGATIONAL AIDS	ATCT, ASR, ILS, GPS, VOR, ROTATING BEACON, LIGHTED WINDCONE		
MAGNETIC DECLINATION	6°5' W		
DATE OF MAGNETIC VARIATION	NOVEMBER 2013		
SOURCE OF MAGNETIC VARIATION	NOAA DATA CENTER		

ABBREVIATIONS

ABB.	DESCRIPTION	ABB.	DESCRIPTION
ALSF-2	HIGH INTESITY APPROACH LIGHTING SYSTEM WITH SEQUENCED FLASHERS CATEGORY II	MALSR	MEDIUM INTENSITY APPROACH LIGHTING SYSTEM WITH RUNWAY ALIGNMENT INDICATOR LIGHTS
ARC	AIRPORT REFERENCE CODE	OFA	OBJECT FREE AREA
ARP	AIRPORT REFERENCE POINT	OFZ	OBSTACLE FREE ZONE
ASR-3	AIRPORT SURVEILLANCE RADAR	PAPI-4	PRECISION APPROACH PATH INDICATION (4 BOX)
ASOS	AUTOMATIC SURFACE OBSERVING SYSTEM	PIR	PRECISION INSTRUMENT RUNWAY
ATCT	AIR TRAFFIC CONTROL TOWER	POFZ	PRECISION OBSTACLE FREE ZONE
AWOS	AUTOMATED WEATHER OBSERVING SYSTEM	REIL	RUNWAY END IDENTIFIER LIGHTS
BRL	BUILDING RESTRICTION LINE	ROFA	RUNWAY OBJECT FREE AREA
EX	EXISTING	RPZ	RUNWAY PROTECTION ZONE
FUT	FUTURE	RSA	RUNWAY SAFETY AREA
ULT	ULTIMATE	RTR	REMOTE TRANSMITTER / RECEIVER
GPS	GLOBAL POSITIONING SYSTEM	RVR	RUNWAY VISUAL RANGE
GS	GLIDE SLOPE ANTENNA CRITICAL AREA	R/W	RUNWAY
HIRL	HIGH INTENSITY RUNWAY LIGHTS	TSA	TAXIWAY SAFETY AREA
IFR	INSTRUMENT FLIGHT RULES	TOFA	TAXIWAY OBJECT FREE AREA
ILS	INSTRUMENT LANDING SYSTEM	T/W	TAXIWAY
LOC	LOCALIZER	TDZE	TOUCHDOWN ZONE ELEVATION
MIRL	MEDIUM INTENSITY RUNWAY LIGHTS	VHF	VERY HIGH FREQUENCY
NDB	NONDIRECTIONAL BEACON	VOR	VHF OMNIDIRECTIONAL RANGE

TAXIWAY DATA

EXISTING TAXIWAY	AIRPLANE DESIGN GROUP (ADG)		TAXIWAY DESIGN GROUP (TDG)		TAXIWAY WIDTH (FT.)		TAXIWAY SAFETY AREA (FT.)		TAXIWAY OBJECT FREE AREA (FT.)		TAXIWAY SEPARATION: CENTERLINE TO FIXED OR MOVABLE OBJECT				TAXIWAY LIGHTING	
	EXISTING	ULTIMATE	EXISTING	ULTIMATE	EXISTING	ULTIMATE	EXISTING	ULTIMATE	EXISTING	ULTIMATE	NEAREST OBJECT	DISTANCE FROM CL	WITHIN ULT. TSA?	WITHIN ULT. TOFA?	EXISTING	ULTIMATE
D	III	V	5	6	75	SAME	118	214	186	320	Ex. Windcone	297'	NO	NO	MITL	SAME
											Ex. Windcone Seg. Cir.	83'	YES	YES		
											Ex. RW 34 PAPI-4	373'	NO	NO		
											Ult. RW 34R GS	206'	NO	NO		
E1	N/A	V	N/A	6	N/A	75	N/A	214	N/A	320	None	N/A	N/A	N/A	N/A	MITL
E2	II	SAME	2	SAME	35	SAME	79	SAME	131	131	None	N/A	N/A	N/A	MITL	SAME
E3	II	SAME	2	SAME	35	SAME	79	SAME	131	131	Air Cargo Building	183'	NO	NO	MITL	SAME
F	II	SAME	2	SAME	35	SAME	79	SAME	131	131	Air Cargo Building	183'	NO	NO	MITL	SAME
											Public Safety Building	179'	NO	NO		
											Corporate Hangar	92'	NO	NO		
											T-Hangar	90'	NO	NO		
											T-Hangar	90'	NO	NO		
											T-Hangar	90'	NO	NO		
J	II / III	II / V	2 / 5	2 / 6	35 / 75	SAME	79 / 118	79 / 214	131 / 186	131 / 320	None	N/A	N/A	N/A	MITL	SAME
K	II / III	II / V	2 / 5	3 / 6	35 / 75	50 / 75	79 / 118	118 / 214	131 / 186	186 / 320	None	N/A	N/A	N/A	MITL	SAME
M	II / III	II / V	2 / 5	2 / 6	35 / 75	SAME	79 / 118	79 / 214	131 / 186	131 / 320	None	N/A	N/A	N/A	MITL	SAME
P	III	V	5	6	75	SAME	118	214	186	320	None	N/A	N/A	N/A	MITL	SAME
Q	III	V	5	6	108	SAME	118	214	186	320	Terminal	365'	NO	NO	MITL	SAME
S	III	V	5	6	75	SAME	118	214	186	320	None	N/A	N/A	N/A	MITL	SAME
T	III	V	5	6	75	SAME	118	214	186	320	None	N/A	N/A	N/A	MITL	SAME
U	III	V	5	6	75	SAME	118	214	186	320	None	N/A	N/A	N/A	MITL	SAME

NOTES: THERE ARE NO KNOWN OBJECTS LOCATED INSIDE THE EXISTING TAXIWAY SAFETY AREAS (TSA) OR TAXIWAY OBJECT FREE AREAS (TOFA).
FUTURE AND ULTIMATE TAXIWAYS SUPPORTING:
ULTIMATE RUNWAY 16R-34L WILL BE 75 FT.
FUTURE / ULTIMATE RUNWAY 3-21 WILL BE 50 FT.

DECLARED DISTANCES

	RUNWAY 16-34						RUNWAY 3-21				RUNWAY 16R-34L	
	EXISTING		FUTURE		ULTIMATE		FUTURE		ULTIMATE		ULTIMATE	
	16	34	16	34	16	34	3	21	3	21	16R	34L
TAKE OFF RUN AVAILABLE (TORA)	10,000 FT.	10,000 FT.	10,000 FT.	10,000 FT.	12,000 FT.	12,000 FT.	6,800 FT.	6,800 FT.	7,500 FT.	7,500 FT.	8,400 FT.	8,400 FT.
TAKE OFF DISTANCE AVAILABLE (TODA)	10,000 FT.	10,000 FT.	10,000 FT.	10,000 FT.	12,000 FT.	12,000 FT.	6,800 FT.	6,800 FT.	7,500 FT.	7,500 FT.	8,400 FT.	8,400 FT.
ACCELERATE STOP DISTANCE AVAILABLE (ASDA)	10,000 FT.	10,000 FT.	10,000 FT.	10,000 FT.	12,000 FT.	12,000 FT.	6,800 FT.	6,800 FT.	7,500 FT.	7,500 FT.	8,400 FT.	8,400 FT.
LANDING DISTANCE AVAILABLE (LDA)	10,000 FT.	10,000 FT.	10,000 FT.	10,000 FT.	12,000 FT.	12,000 FT.	6,800 FT.	6,800 FT.	7,500 FT.	7,500 FT.	8,400 FT.	8,400 FT.

NORTHWEST FLORIDA BEACHES INTERNATIONAL AIRPORT

Prepared for:

Northwest Florida Beaches International Airport

6300 West Bay Parkway
Panama City, FL 32409
1-850-763-6751

Project Title:

Airport Layout Plan

Prepared by:

CHA
4080 Lafayette Center Dr. / Suite 210 A
Chantilly, VA 20151 / 703.230.0300

Managed by: Kevin Clarke
QA/QC by: Aaron Lofurno

Project Number: 26164
Date: July 2015

No.	Revision Discription	Date

Sheet Title:

Airport Data Sheet

Sheet Number:
2 of 6

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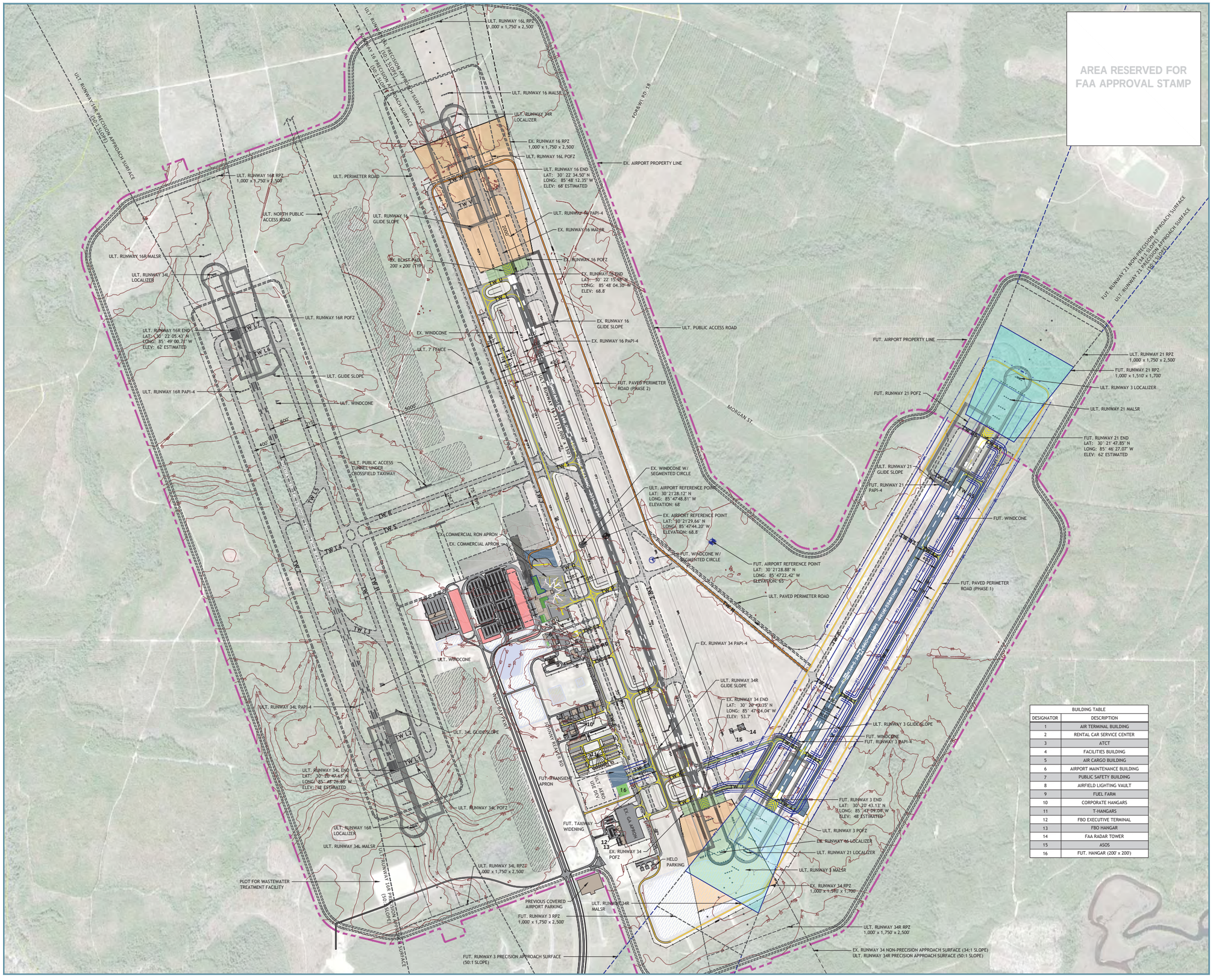

BUILDING TABLE	
DESIGNATOR	DESCRIPTION
1	AIR TERMINAL BUILDING
2	RENTAL CAR SERVICE CENTER
3	ATCT
4	FACILITIES BUILDING
5	AIR CARGO BUILDING
6	AIRPORT MAINTENANCE BUILDING
7	PUBLIC SAFETY BUILDING
8	AIRFIELD LIGHTING VAULT
9	FUEL FARM
10	CORPORATE HANGARS
11	T-HANGARS
12	FBO EXECUTIVE TERMINAL
13	FBO HANGAR
14	FAA RADAR TOWER
15	ASOS
16	FUT. HANGAR (200' x 200')

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Date: July 2015

GRAPHIC SCALE (FEET)
0 300 600 1200

MAGNETIC DECLINATION 3° 17'34" W
ANNUALLY 6' S W - 2013

Legend

- EX. BUILDING
- EX. RUNWAY PAVEMENT
- EX. TAXIWAY/ROADWAY PAVEMENT
- EX. WATER/DETENTION AREA
- EX. DRY POND/STORMWATER DETENTION AREA
- EX. NAVAID CRITICAL AREAS
- RPZ EX. RUNWAY PROTECTION ZONE
- RSA EX. RUNWAY SAFETY AREA
- ROFA EX. RUNWAY OBJECT FREE AREA
- TSA EX. TAXIWAY SAFETY AREA
- TOFA EX. TAXIWAY OBJECT FREE AREA
- BRL EX. 35' BUILDING RESTRICTION LINE
- EX. PROPERTY LINE
- EX. AIRPORT REFERENCE POINT
- EX. ANCILLARY FACILITIES COLOR
- X EX. 7' FENCE
- FUT. BUILDING
- FUT. AIRFIELD PAVEMENT
- FUT. AUTOMOBILE PARKING
- FUT. PAVED ROAD (PHASE 1)
- FUT. PAVED ROAD (PHASE 2)
- POTENTIAL FUT. STORMWATER MANAGEMENT AREA
- FUT. NAVAID CRITICAL AREAS
- RPZ FUT. RUNWAY PROTECTION ZONE
- RSA FUT. RUNWAY SAFETY AREA
- ROFA FUT. RUNWAY OBJECT FREE AREA
- TSA FUT. TAXIWAY SAFETY AREA
- TOFA FUT. TAXIWAY OBJECT FREE AREA
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- FUT. PROPERTY LINE
- FUT. AIRPORT REFERENCE POINT
- FUT. ANCILLARY FACILITIES COLOR
- X FUT. 7' FENCE
- ULT. BUILDING
- ULT. AIRFIELD PAVEMENT
- ULT. ROADWAYS
- ULT. NAVAID CRITICAL AREAS

No.	Revision Discription	Date

Sheet Title:

Airport Layout Plan

Sheet Number:
3 of 6

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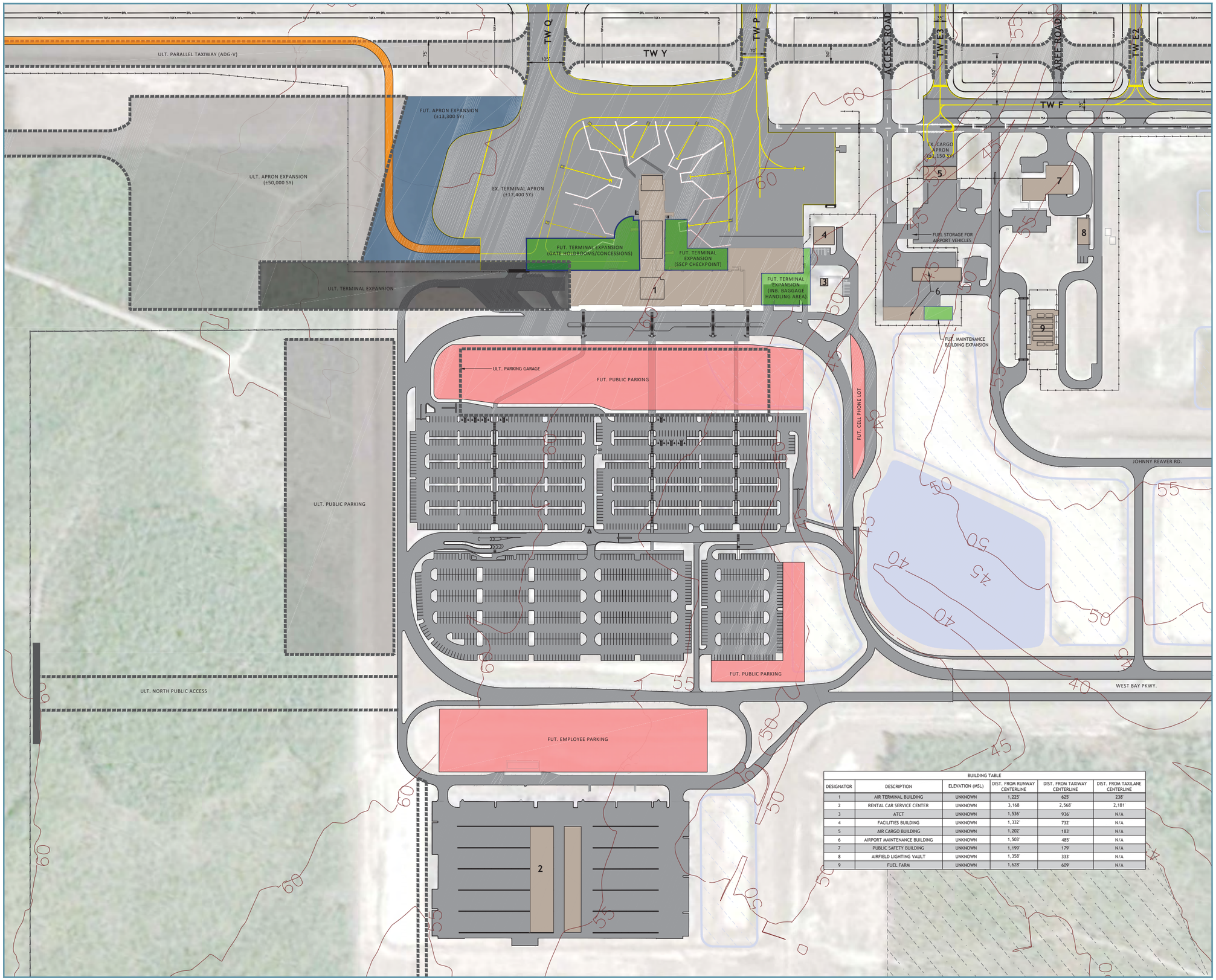
Plotted / By: Lofurno, Aaron



BUILDING TABLE

DESIGNATOR	DESCRIPTION	ELEVATION (MSL)	DIST. FROM RUNWAY CENTERLINE	DIST. FROM TAXIWAY CENTERLINE	DIST. FROM TAXILANE CENTERLINE
1	AIR TERMINAL BUILDING	UNKNOWN	1,225'	625'	238'
2	RENTAL CAR SERVICE CENTER	UNKNOWN	3,168	2,568'	2,181'
3	ATCT	UNKNOWN	1,536'	936'	N/A
4	FACILITIES BUILDING	UNKNOWN	1,332'	732'	N/A
5	AIR CARGO BUILDING	UNKNOWN	1,202'	183'	N/A
6	AIRPORT MAINTENANCE BUILDING	UNKNOWN	1,503'	485'	N/A
7	PUBLIC SAFETY BUILDING	UNKNOWN	1,199'	179'	N/A
8	AIRFIELD LIGHTING VAULT	UNKNOWN	1,358'	333'	N/A
9	FUEL FARM	UNKNOWN	1,628'	609'	N/A

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Panama City, FL 32409
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GRAPHIC SCALE (FEET)
0 50 100 200

MAGNETIC DECLINATION 3° 17'34" W
ANNUALLY 6' S W - 2013

Legend

- EX. BUILDING
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- X — EX. 7' FENCE
- FUT. BUILDING
- FUT. PAVEMENT
- FUT. AUTOMOBILE PARKING
- FUT. PAVED ROAD (PHASE 2)
- POTENTIAL FUT. STORMWATER MANAGEMENT AREA
- ULT. BUILDING
- ULT. AIRFIELD PAVEMENT
- ULT. ROADWAYS

No.	Revision Description	Date

Sheet Title:

Terminal Area Plan - North

Sheet Number:
4 of 6

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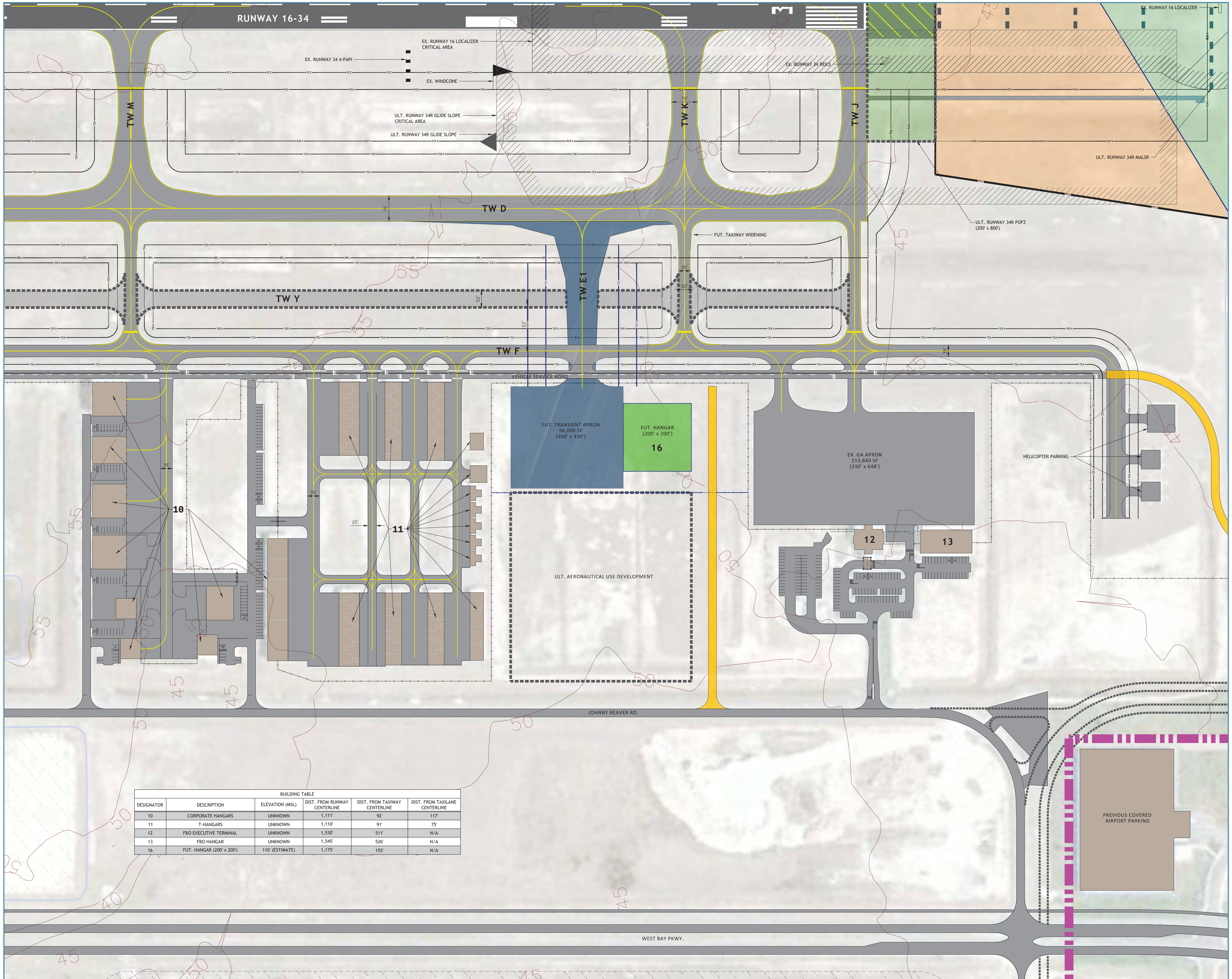

BUILDING TABLE					
DESIGNATOR	DESCRIPTION	ELEVATION (MSL)	DIST. FROM RUNWAY CENTERLINE	DIST. FROM TAXIWAY CENTERLINE	DIST. FROM TAXILANE CENTERLINE
10	CORPORATE HANGARS	UNKNOWN	1,111'	92'	117'
11	T-HANGARS	UNKNOWN	1,110'	91'	75'
12	FBO EXECUTIVE TERMINAL	UNKNOWN	1,530'	511'	N/A
13	FBO HANGAR	UNKNOWN	1,545'	526'	N/A
16	FUT. HANGAR (200' x 200')	110' (ESTIMATE)	1,175'	155'	N/A

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Plotted / By: July 2, 2015 2:37:51 PM / Lofurno, Aaron

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GRAPHIC SCALE (FEET)
0 50 100 200

MAGNETIC DECLINATION 3°17'34" W
ANNUALLY 6°5' W - 2013

Legend

- EX. BUILDING
- EX. RUNWAY PAVEMENT
- EX. TAXIWAY/ROADWAY PAVEMENT
- EX. WATER/DETENTION AREA
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- EX. ANCILLARY FACILITIES COLOR
- X — EX. 7' FENCE
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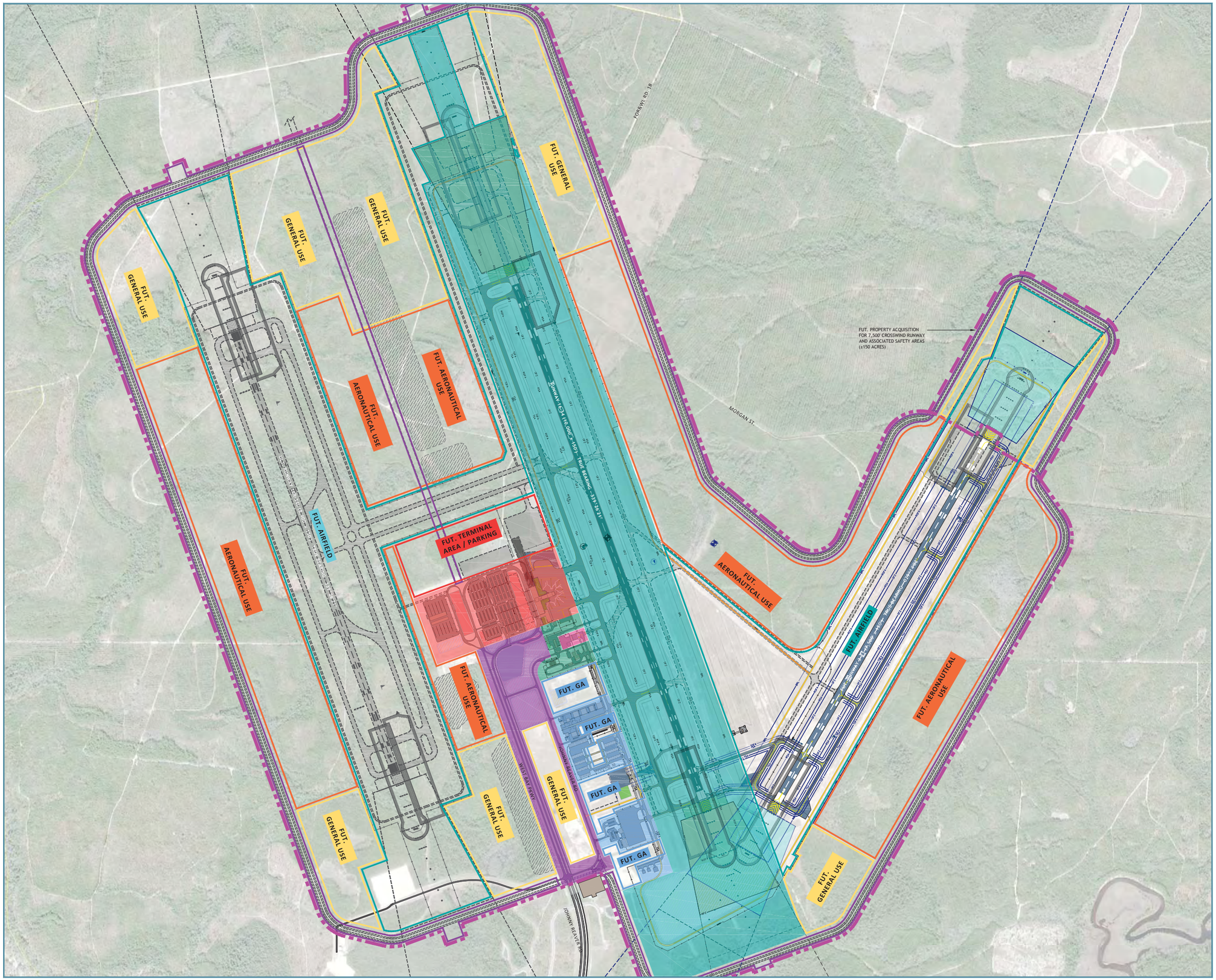
- ULT. BUILDING
- ULT. AIRFIELD PAVEMENT
- ULT. ROADWAYS
- ULT. ANCILLARY FACILITIES COLOR

No.	Revision Discription	Date

Sheet Title:

Terminal Area Plan - South

Sheet Number:



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QA/QC by: Aaron Lofurno

Project Number: 26164
Date: July 2015

GRAPHIC SCALE (FEET)

0 300 600 1200

MAGNETIC DECLINATION 3° 17'34" W
ANNUALLY 6' 5" W - 2013

Legend

- EX. AIRFIELD
- EX. TERMINAL AREA / PARKING
- EX. GENERAL AVIATION
- EX. CARGO
- EX. AGENCY / SUPPORT
- EX. PUBLIC ACCESS
- EX. PROPERTY LINE
- FUT. AIRFIELD
- FUT. TERMINAL AREA / PARKING
- FUT. GENERAL AVIATION
- FUT PUBLIC ACCESS
- FUT. AERONAUTICAL USE
- FUT. GENERAL USE
- FUT. PROPERTY LINE - ACQUISITION
- POTENTIAL FUT. STORMWATER MANAGEMENT AREA

NOTE: OFF-AIRPORT LAND USE MAP RETRIEVED FROM BAY COUNTY PLANNING COMMISSION WEBSITE.

No.	Revision Discription	Date

Sheet Title:

On-Airport Land Use Plan

Sheet Number:
6 of 6

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