ST. PETERSBURG-CLEARWATER INTERNATIONAL AIRPORT MASTER PLAN UPDATE

FINAL REPORT

PREPARED FOR:
ST. PETERSBURG-CLEARWATER
INTERNATIONAL AIRPORT

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FOREWARD

St. Petersburg-Clearwater International Airport

St. Petersburg-Clearwater International Airport (PIE) is a publicly owned and managed commercial service airport located in Pinellas County, Florida, and as such, is an integral part of the Pinellas County Economic Development Plan. The last Master Plan Update, however, was completed in 1978.

The last Master Plan Update was completed in 1978.

Other than Tampa International Airport (TPA), PIE is the only Tampa Bay Airport that offers precision instrument landing aids and can accommodate large aircraft. PIE's role is further defined by its use as a reliever airport to TPA, as a home base to the U.S. Coast Guard Air Service Station, as well as home to low-cost carriers and independent international charter services.

At the same time, in an attempt to manage the Airport's resources in a prudent, lawful, community-conscious, and fiscally responsible manner, the management of PIE is also actively seeking to attract both aviation and non-aviation business and industry to utilize the land, services, and facilities located at the Airport. This commitment on the part of PIE's management means improving their facilities and staying ahead of projected growth. For example, the Airport's most significant project currently is aimed at extending runway 17L/35R to 10,000 feet in order to provide the convenience of nonstop transatlantic service.

One unique advantage of the Airport is its central location between the metropolitan areas of Clearwater, St. Petersburg, Sarasota, and Tampa. Beautiful weather, gorgeous beaches, and exciting attractions make this area one of the most popular travel destinations in the country, drawing record-breaking amounts of visitors each year. In addition, Orlando's world-famous theme parks are just 90 minutes away.

In the year 2000, approximately 734,938 passengers passed through PIE. Total Cargo for the year was 24.9 percent, or 18,053 metric tons, and total operations increased by 1.1 percent to 235,332. According to the Airport Council International's (ACI's) list of Airport Operations, in 2000, PIE ranked 53 among the top 100 ACI Airports.

The business climate in Pinellas County offers a platform for favorable growth. According to a recent study by Deloite & Touche, 60 percent of Florida's fast growth technology companies are in the St. Petersburg, Clearwater, and Tampa metropolitan statistical area (MSA). It appears as though demand for convenient and low-fare air service for business and tourism will continue to rise into the future.

GOALS AND OBJECTIVES

St. Petersburg-Clearwater International Airport

1

1.1 GENERAL GUIDELINES

The goals and objectives will be used as general guidelines for development of the Master Plan.

This chapter will provide general direction for the study with respect to the development of concepts and plans for the St. Petersburg-Clearwater International Airport (PIE). The general approach is to consider alternative Airport development plans, which will provide a "balanced" Airport system within the Tampa Bay area. The proposed alternatives will address landside/airside facilities, commercial development, and the Airport's role in the greater metropolitan area.

Some of the key objectives include:

- Identify airside, landside, and airspace improvements and recommend options to further optimize the economic aspects of the Airport while enhancing safety and operational capacity.
- Establish an implementation schedule for short-, intermediate-, and long-term improvements and insure that they are financially feasible.
- Identify short-term requirements and recommend actions to optimize short-term funding opportunities.
- Ensure that short-term actions and recommendations do not preclude long-term planning options.
- Incorporate the interests of the public, Airport users, and government agencies in the planning process.
- Be sensitive to the overall environmental characteristics and needs of the area surrounding the Airport.
- Reflect current comprehensive land use (off and on Airport property) and make recommendations as to compatible land uses and the appropriate steps necessary to ensure proper zoning and minimal noise impacts.
- Enhance operational efficiency and safety of the Airport through the review of Airport maintenance, operating and security programs and procedures, and minimum operating standards.

Since the previous Airport Master Plan Update was conducted in 1978, the Airport has changed significantly in its role of serving the Greater Tampa Bay area. Thus, the following key conditions at the Airport will be evaluated with respect to changes that have occurred since the 1978 Master Plan Update.

Key conditions include:

- Aviation activity (international, domestic commercial/charter, military, and general aviation (GA) operations, cargo operations, design aircraft, Airport role, military, etc.)
- Condition of Airport buildings, equipment, and facilities
- Pavement condition
- Adequacy of apron space
- Terminal condition and use
- Environmental conditions
- Land use on and in the vicinity of the airfield

- Existence of new structures or development potentially affecting navigable airspace in the Airport's approaches and vicinity
- Flight training activities
- Potential Commerce/Industrial Park development
- Parking and access
- Ground transportation (limousines, taxis, shuttles, high-speed rail, etc.)
- Parking (rental, public, and employee)
- Feasibility of building terminal parking structure(s)
- Utility infrastructure (stormwater, sewer, electricity, etc)
- Inventory of permitted projects (in process and pending).

1.2 GOALS

The goal of this Master Plan is to provide PIE with more accurate planning guidance to ensure that Airport facilities, both landside and airside, will be adequate to meet both short- and long-term aviation demand. This document will serve as a management guide for the implementation of necessary improvements to meet the expected commercial and GA demand over a planning period of twenty years, ending in 2022.

The Federal Aviation Administration (FAA), Florida Department of Transportation (FDOT), and Pinellas County share the funding for the 2002 St. Petersburg-Clearwater International Airport Master Plan. Coordination of this study with appropriate local, regional, and national offices will be maintained throughout the preparation of this Master Plan. In addition, public input will be requested both formally and informally at public hearings before the Board of County Commissioners of Pinellas County at key milestones in the planning project. Input will also be provided continually by Airport administration and the participating consultants for the development of a complete analysis of the study.

This Master Plan is prepared in accordance with FAA Advisory Circulars *AC 150/5370-6A Airport Master Plans* and *AC 150-5300-13 Airport Design,* in conjunction with the FDOT's *Guidebook for Airport Master Planning* and other related standards. Furthermore, current guidance was incorporated from the FAA Airports District Office (Orlando), FDOT Aviation Office, PIE administration, and other local government agencies. Planning efforts of the city, county, region, state, and nation have been coordinated in the Master Plan to provide the most preeminent plan for the benefit of PIE and all of the participating organizations.

The Master Plan provides an effective written and graphic representation of the ultimate development of the Airport and anticipated land uses adjacent to the Airport, while establishing a schedule of priorities and phasing for the various improvements proposed. The planning document also presents a conceptual development plan, usually over a 20-year period, for the Airport. Realistic master planning is a continuing and evolutionary process due to the long lead times usually required for major Airport projects. Many changes are likely to take place before facilities are approved, designed, permitted and built to completion.

An approved Airport Master Plan provides long-range recommendations for development of an airport and is essential for an airport to qualify for federal and or state assistance for realization of the plan. Government assistance is provided in the form of financial grants to the airport sponsor, provided by the FAA through the Aviation Trust Fund, and by the FDOT budgetary processes via Joint Participation Agreements (JPA).

Due to significant changes at PIE, the Board of County Commissioners of Pinellas County has taken the initiative to plan for changes, which will impact not only the Airport, but Pinellas County, as well. In this way, Pinellas County will become more capable of meeting future challenges of the aviation industry. Through continuous and effective planning, the Board of County Commissioners of Pinellas County will both maintain and increase its role as an economic asset to both Pinellas County and the Tampa Bay Area.

In order to address a number of internal and external factors that could affect PIE, a list of goals and objectives have been identified in order to guide the study effort. These goals and objectives follow and are not in any order of priority.

1.2.1 Goal No. 1

Continue to meet and enhance the level of service provided to all Airport users.

Objectives:

- Promote passenger processing which is convenient for all segments of the traveling public through reduction of delays and promotion of a safe and pleasant air travel experience.
- Provide adequate runway capacity for estimated demand in terms of annual and hourly operations.
- Provide adequate runway length to meet existing and forecasted market and operations needs.
- Provide opportunities for development of services associated with air carrier, charter, corporate, GA, cargo, flight training, military and recreational flying operations.
- Affectively integrate commercial air carrier operations with commercial, military and non-commercial GA operations.
- Provide other aviation related support facilities needed to support a full range of aviation services.

1.2.2 Goal No. 2

Provide guidelines for future development, while satisfying anticipated demand.

Objectives:

- Develop currently owned land parcels to meet anticipated demand, while planning for future land development.
- Provide adequate airside and landside facilities to meet anticipated demand while meeting FAA Part 139 and SD1542 requirements
- Continue to market facilities to both international and domestic air carriers, charters, and integrated air cargo operators.
- Effectively market commercial and non-commercial GA operators and facilities.
- Continue developing synergies between the Airport and the adjacent industrial park, which will benefit the Airport and community as a whole.

1.2.3 Goal No. 3

Provide an Airport that is safe and reliable.

Objectives:

- Provide navigational aids, flight support services, and meteorological facilities, which enhance the safety and reliability of operations under all weather conditions.

- Protect FAA-mandated safety areas, runway protection zones, and other clear zones.
- Minimize obstructions to air navigation.
- Provide adequate Aircraft Rescue and Firefighting (ARFF), facilities, equipment, access roads, and personnel to maintain rapid response time under all conditions.
- Ensure that airside and landside operations and facilities meet all applicable security standards in the wake of September 11, 2001.
- Ensure that parking facilities are adequately sized and easy to access and use by the public.
- Develop facilities to meet the demands of the current and future critical aircraft.

1.2.4 Goal No. 4

Develop the Airport and its vicinity to minimize negative environmental impacts.

Objective:

- Identify the major environmental issues of concern.
- Provide alternatives to minimize potential environmental impacts, and provide special attention to minimizing residential dislocation, air and water pollution, and wetland impacts.
- Provide a facility, which minimizes adverse effects on other environmental concerns.
- Develop an efficient Airport layout to provide ease of air and ground access.

1.2.5 Goal No. 5

Promote the development of compatible land use in areas in the Airport's vicinity.

Objectives:

- Promote land use planning and development objectives for on- and off-Airport land use which is compatible with the anticipated long-range needs of the Airport and the community as a whole.
- Designate areas for future development (i.e., air cargo, heavy aircraft maintenance, flight training, etc.).
- Locate Airport and access facilities so that growth may be controlled through land use planning and zoning.

1.2.6 Goal No. 6

Develop an Airport that supports local and regional economic goals while accommodating new opportunities or shifts in development patterns.

Objectives:

- Achieve a level of service and user convenience such that the Airport is a positive factor in regional economic development decisions.
- Achieve capacities of the airfield, the terminal area systems, and the Industrial Park so that the Airport may be an attractive location for major airline maintenance, cargo, and other aviation-related hubs.
- Provide appropriate and achievable commercial opportunities on and around the Airport.

- Assure economic feasibility, through equitable distribution of user charges, capital investment, maintenance, and operating costs, while keeping overall costs within an acceptable level.
- Identify financial alternatives and funding sources available for the implementation of aviation and non-aviation projects.
- Quantify financial resources available for funding projects identified, and recommended, as well as identify project implementation.
- Develop an airport layout plan that easily integrates with existing and proposed transportation infrastructure, and encourages economic growth.

1.2.7 Goal No. 7

Minimize costs to all users (i.e., passengers, airlines, flight training facilities, employees, etc.) of the Airport.

Objectives:

- Develop alternatives to minimize airspace congestion and delays for air carrier and GA aircraft operations through procedural changes and/or provision of additional navigational aids.
- Develop alternatives to minimize airside congestion through construction of runways, taxiways, and aprons, when the costs of providing the additional capacity are less than the additional operating costs associated with aircraft delays.

1.2.8 Goal No. 8

Ensure adequate and convenient ground access to the Airport.

Objectives:

- Provide safe access and easy-to-follow signs to Airport roadways and facilities.
- Provide adequate lane capacity on roads leading to the Airport to serve existing and future activity.
- Provide adequate land capacity on internal circulation roadways serving functional areas (terminal, GA, cargo, flight academy, etc.).
- Provide parking facilities (for GA, cargo, terminal, etc.) that are conveniently located and easily accessible.
- Incorporate multi-modal opportunities into Airport development plans (e.g. commuter or high-speed rail).
- Maintain close coordination with Regional Planning Council, Metropolitan Planning Organizations (MPO), FDOT, and other transportation groups and governing bodies.

1.2.9 Goal No. 9

Minimize the impact of noise on neighboring residents and noise sensitive land uses through noise abatement and mitigation.

Objectives:

- Design and select noise abatement measures that minimize the number of people exposed to noise above Day-Night Noise Level (DNL) greater than 65 decibels.
- In selecting noise abatement actions, avoid actions that would adversely affect capacity, impose restrictions on Airport use that would be discriminatory, or that could erode prudent margins of safety.

- Design and select (if necessary) land use mitigation measures for noise sensitive land uses exposed to aircraft noise between 65 and 75 decibels.
- To the extent possible, maximize any mitigation projects that may be eligible for FAA funding assistance that reduce the impacts of noise upon the surrounding environment.

1.2.10 Goal No. 10

Develop an Airport that is consistent with federal, state, regional, and local plans.

Objectives:

- Develop the Airport as the region's alternative to Tampa International Airport (TPA) and make it consistent with national, state, and metropolitan system plans.
- Develop the Airport in accordance with local land use and transportation plans.

The above goals and objectives reflect policy goals to be reached through the master planning process. These goals include the ultimate development of self-supporting facilities to serve the existing and future aviation needs of the region; the achievement of compatible land uses in the vicinity of the Airport; and provisions for the type of development that will yield the most public benefit of the investment represented by the airfield. Finally, these goals must be manageable within existing limitations of funds and design principles.

The master plan will provide information and guidance to manage and develop facilities to meet the forecast growth for the next 20 years.

1.3 TASKS

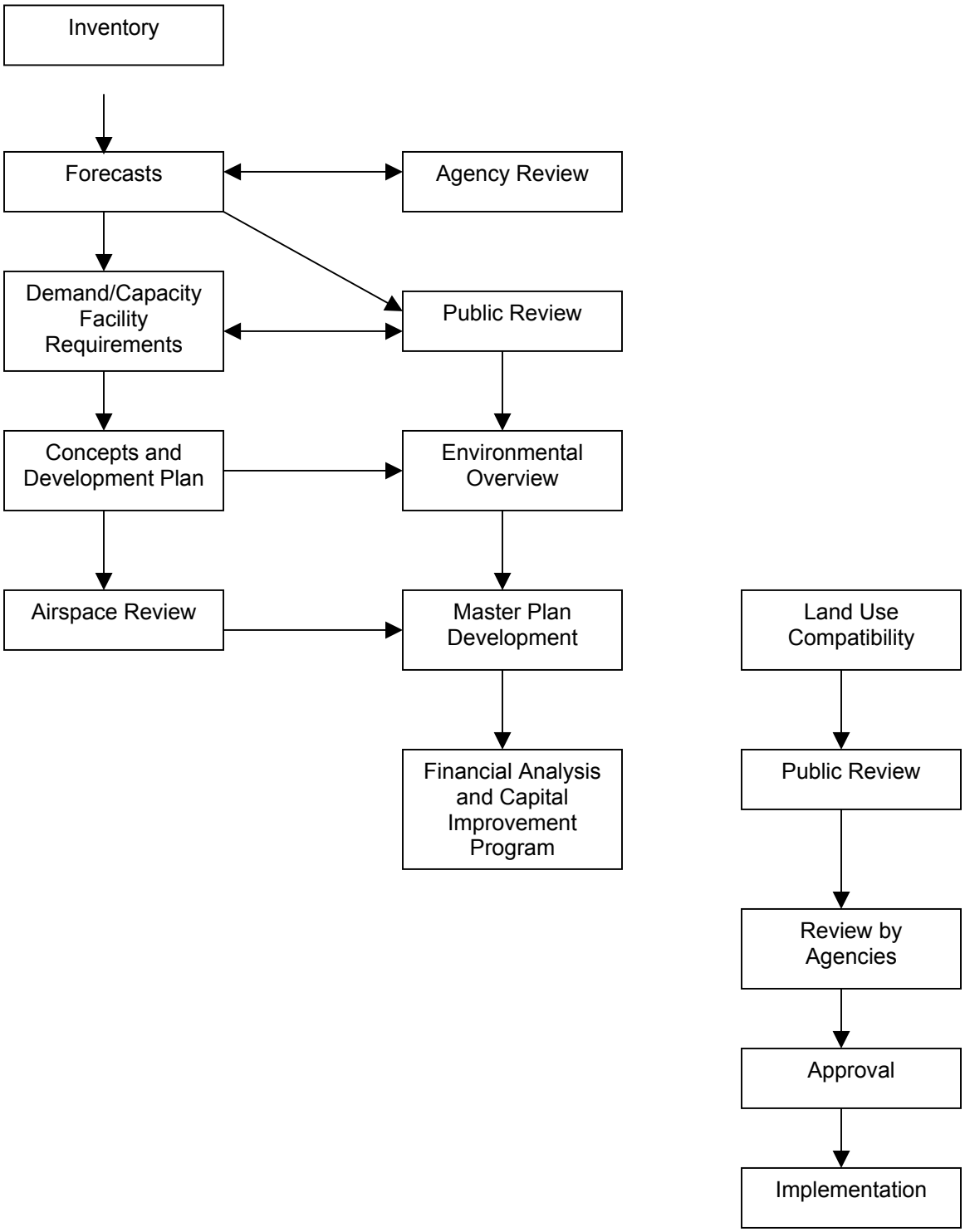
Some of the key tasks involved in the master planning process include: evaluating existing and anticipated aviation activity, existing and future facilities, environmental constraints, and the Airport's overall participation in the national and state aviation system plan. An important component of the Airport master plan process is the provision of a public forum for the development of the study, and includes the following steps:

- **Data Collection and Evaluation** – Inventory of existing Airport facilities.
- **Activity Projection** – Forecasts of future growth at PIE
- **Demand/Capacity Analysis** – Identifying constraints/impacts of forecasts on operational capacities.
- **Facility Requirements Development** – Identifying capacity enhancements/needs to airside and landside facilities.
- **Airport Layout Plan Development** – Graphic representation of existing and proposed development.
- **Cost Estimating and Financial Planning** – Develop a realistic revenue plan to implement the Capital Improvement Program.
- **Project Coordination** – Consensus participation to facilitate implementation of the Master Plan.
- **Public Involvement** – Public information processing to obtain input for the master planning process.

A graphic representation of this process is depicted in **Figure 1-1**, "Steps in the Master Planning Process".

Ultimately, this Master Plan will provide PIE, the Cities of St. Petersburg and Clearwater, Pinellas County, and federal and state officials, information and guidance to manage and develop facilities to meet the forecasted growth for the next 20 years.

Figure 1-1. Steps in the Master Planning Process



1.4 PRIOR PLANNING DOCUMENTATION

A major goal in the master planning process is the need to update information and plans at strategic intervals with recommended development concepts. This updating is necessary since prior Airport projects may have changed due to evolving conditions or policies in the political, social, and economic environment. The demand for scheduled services, GA services, or other aviation services may fluidly adjust in response to changes in the environment, and/or role of the Airport.

Highlights of the infrastructure development during the last ten+ years include the following:

- Terminal facility expansion
- Baggage claim area relocation and expansion
- Relocation of rental car kiosks
- Aircraft noise/operations procedures study
- Modification of terminal roadway
- Conversion and expansion of existing ATA hold rooms and departure areas
- Electronic Trace Detection (ETD)

Current and recently completed projects include:

- Automobile parking expansion
- Implementation of paid parking facilities
- Environmental assessment of Runway 17L/35R

This Master Plan document will identify and address new issues as well as address any unresolved or uncompleted projects from previous planning efforts. Some of the issues include the following:

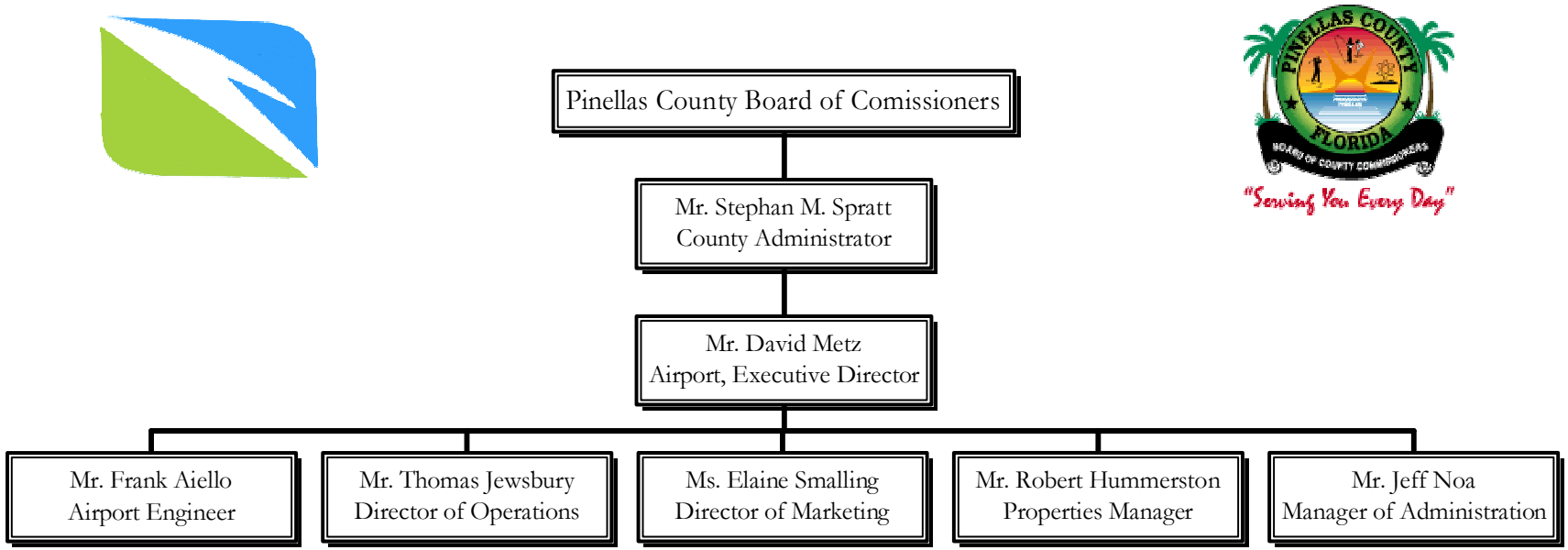
- Expansion of Runway 17L/35R to 10,000 feet.
- Expansion of all automobile-parking areas, including long- and short-term, employee and rental car facilities.
- Expansion of existing terminal and southwest aprons to accommodate newer and larger GA jet aircraft.
- Expansion of terminal concessions, passenger accommodation, baggage claim, etc.
- Improved access to the Airport facilities, etc.
- New demands on infrastructure due to September 11, 2001.
- The third fixed base operator (FBO) Air-1.
- Landings II T-hangar development.

1.5 AIRPORT MANAGEMENT

The Airport management of PIE is outlined in **Figure 1-2**.

Figure 1-2

St. Petersburg-Clearwater International Airport



EXISTING AIRPORT FACILITIES, STATISTICS, AND ENVIRONMENT

2

St. Petersburg-Clearwater International Airport

2.1 GENERAL

As outlined in the Federal Aviation Administration (FAA) Advisory Circular 150/5070-61 *Airport Master Plans*, and the Florida Department of Transportation (FDOT) *Guide to Airport Master Planning*, the initial step in the Master Plan for St. Petersburg-Clearwater International Airport (PIE) is the collection and evaluation of information about the Airport and the area it serves. This information includes:

- Physical inventories and descriptions of facilities and services now provided by the Airport.
- Background information about the St. Petersburg area and a description of development, which has recently taken place at the Airport.
- Population and socioeconomic information, which provides a sign of possible future development in the St. Petersburg area.
- A comprehensive review of the existing regional plans and studies to determine potential influence on the development and implementation of the Airport Master Plan.

An accurate and complete inventory is essential to the success of a Master Plan, the objective being to provide essential background information. The inventory task for PIE was accomplished through physical inspection of the facilities, field interviews, telephone interviews, and review of appropriate administrative records. Additional information was gained from documents and studies about the Airport and the St. Petersburg area. These documents include the 2000 Airport Layout Plan (ALP) Update, 1998 Terminal Area Master Plan, 1995 Terminal Area Master Plan Update, and various engineering plans.

Surveys were sent out to several Airport tenants, including airlines, cargo operators, fixed base operators (FBOs), military (Coast Guard), the National Aviation Academy (NAA), and rental car companies. Follow-up meetings were also performed in order to expedite this process.

This section provides a general description of PIE and its service area. It describes data relevant to the Airport's history, geographic locale, climate, and operational role in today's aviation environment.

2.2 OVERVIEW

The National Plan of Integrated Airport Systems (NPIAS) lists PIE as a Primary, Long-Haul Service Airport. In Calendar Year 2001, the Airport ranked 124th on the Airport Council International's (ACI) list of the busiest primary commercial service airports in North America, based upon enplaned passengers.

The Airport is located on 2,000 acres of designated Foreign Trade Zone land (FTZ 193). The area reserved for airside operations with required geometric setbacks comprises 750 acres, areas available for aviation or non-aviation use encompass approximately

1,850 acres, of which 8 acres include the terminal complex, and the Airport Industrial Park encompasses approximately 200 acres.

The existing airfield configuration consists of four active runways. Two parallel runways, 17L-35R (8,800' x 150') and 17R-35L (4,000' x 75' with 558' displaced threshold), which are oriented in a north-south direction and have a 500-foot (ft) centerline-to-centerline separation. Runway 09-27 (5,165' x 150') is oriented in an east-west direction, and Runway 04-22 (5,550' x 150') is oriented in a southwest-northeast direction. All runways are paved.

Runway 17L-35R is the Airport's primary air carrier runway and only precision instrument runway. Runways 17R-35L, 4-22, and 9-27 serve as general aviation (GA) runways, with Runway 4-22 used for a large percentage of flight training and touch-and-go operations.

Runway 4-22 serves as the secondary crosswind runway. Runway 9-27 accommodates a very small percentage of touch-and-go traffic due to the prevailing winds and air traffic control (ATC) operational requirements that favor operations in the 17L-35R direction.

Since the early 1980's, PIE has been home to both domestic and international commercial air carriers, and is designated as a commercial service small hub airport. In addition, it has a symbiotic relationship with the Tampa International Airport (TPA). PIE has four runways, including a main carrier runway. There is an FAA operated tower and a 24-hour on-airport FAA Flight Service Station. The Airport offers low-cost landing fees for commercial cargo and airlines, and no landing fees for corporate and GA aircraft. The terminal has also been newly renovated to include a U.S. Customs and Immigration facility and expanded baggage claim. Airport Sheriff's Deputies are available 24 hours per day.

PIE is home to several commercial carriers and cargo carriers. Passenger carriers serving PIE in 2001 included American Trans Air (ATA), Champion Air, Southeast Airlines, Pan American Airlines (Pan Am), Discover Air, and Air Transat. Air cargo operators include UPS and Airborne Express. Since then, Pan Am, Champion Air, and Discover Air have ceased service. The primary aircraft used by the current commercial carriers include B-737, B-757, DC-8, DC-9, and MD-80 aircraft.

According to the ALP update dated October 2000, the critical aircraft for PIE is the L-1011-500, based upon the previous design criteria model. As a result, PIE was designated as a C-IV small hub, long haul, Primary Commercial Service Airport.

The reference point coordinates of the Airport, based on the North American Datum, are latitude 27°54' 38.748" north and longitude 82°41'14.782" west, and the Airport's elevation is 11 ft above mean sea level (AMSL).

2.3 HISTORY

St. Petersburg and the Tampa Bay area are attributed with being the birthplace of the commercial air transport industry. Barely a decade after Wilbur and Orville Wright's pioneer flight in Kitty Hawk, North Carolina in 1903, the first ticket for air travel was sold by the St. Petersburg-Tampa Airboat Line. This historic event on January 1, 1914, marked the beginning of commercial air transportation. St. Petersburg visitors will find a commemorative plaque along with a replica of the Benoit amphibious airplane flown on the inaugural flight exhibited in the Airport's baggage claim area. Tony Jannus piloted the aircraft that carried former St. Petersburg Mayor A.C. Pheil, who paid $400 for his seat. The aircraft consumed ten gallons of gas and one gallon of oil during the 36-mile venture across Tampa Bay.

In March 1941, construction of PIE began at its current location. After the bombing Pearl Harbor in December 1941, the Airport was transformed into a military flight-training base, known as the Pinellas Army Airfield. For the duration of World War II (WWII), the 304th Fighter Squadron, a combat training unit of the 337th Fighter Group (Third Army Air Force), based P-40 Warhawk's and, later, P-51 Mustang's at the Airport. The P-51 Fighter Pilots Association and the late Brigadier General James H. Howard, the only fighter pilot in the European Theater to be awarded the Congressional Medal of Honor in WWII, recognized the Airport's vital role in the war with a commemorative plaque in 1994. A permanent exhibit honoring General Howard is located in the terminal today.

St. Petersburg is the leading destination on the Florida Gulf Coast.

Since WWII, the Airport has reverted to county ownership and operation and has been expanded and improved throughout the years. The director, who serves under the jurisdiction of the Board of County Commissioners of Pinellas County, manages the Airport. The Director oversees the Airport Rescue and Fire Fighting Department, as well as Facilities, Operations, Engineering, Services, and Administrative personnel.

In 1982, scheduled passenger service was instituted with the inauguration of service by People Express, Northeastern Airlines, and Nordair. In 1982, a total of 61,144 passengers were enplaned, compared to 319,416 enplaned passengers in 2001.

Today, PIE is home to a 200-acre Airport Industrial Park. This multi-faceted business complex showcases office space showrooms, research/development facilities, light manufacturing, and distribution centers for large and small businesses. PIE is also the home of the busiest Coast Guard Air Station in the world with its thirteen HH-60J Jayhawk helicopters, seven HC-130H Hercules airplanes, and over five hundred assigned personnel.

2.4 AIRPORT LOCATION

The City of St. Petersburg is located in Pinellas County on the west central Gulf coast of Florida, approximately 15 miles west of downtown Tampa, 12 miles south of Clearwater, and 30 miles north of Sarasota. The east and south sides of the county face Tampa Bay, while the west coast borders the Gulf of Mexico. Pinellas is a part of a four-county metropolitan statistical area (MSA) referred to as Tampa Bay, and includes Pinellas, Hillsborough, Pasco, and Hernando Counties. Three bridges connect Pinellas County with the Tampa metropolitan area: Courtney Campbell Causeway (State Highway 60), Howard Franklin Bridge (I-275), and Gandy Boulevard (State Highway 600).

St. Petersburg is convenient to major transportation networks including I-75, I-275, I-4, and the Port of Tampa, the 7th largest port in the United States. PIE is located five miles north of the City of St. Petersburg and six miles east of the City of Clearwater on the eastern shoreline of the peninsula bordering the Old Tampa Bay. The primary access road to the Airport is State Route 686, or Roosevelt Boulevard, just west of I-275.

PIE is an increasingly popular choice for air travel in the Tampa Bay area, since it is the closest commercial airport to the Gulf of Mexico, Clearwater Beach, Madeira Beach, Indian Rocks Beach, Redington Beach, Treasure Island, and St. Petersburg Beach. Centrally located between the metropolitan areas of Clearwater, St. Petersburg, Sarasota, and Tampa, the Airport is in an area that attracts a large number of domestic and international visitors every year. In 2000, there were 1,335,951 international visitors to the St. Petersburg Area, of which 934,032 were from Europe.

In 2000, St. Petersburg hosted 12.2 million visitors.

2.5 CLIMATE

The St. Petersburg area benefits from a relatively moderate climate. The mean minimum temperature is 67.6 degrees Fahrenheit (F) and the mean maximum temperature is 81.0 degrees F. On average, the hottest month is July, with a mean high temperature of 90.7 degrees F. Average rainfall for the area is 40.9 inches per year and there are no recorded snowfalls.

Weather conditions are an important consideration in the planning and development of an airport. For example, temperature is a critical factor in determining runway length, while wind speed and direction determine runway orientation. Also, the need for navigational aids and lighting is directly affected by the frequency that cloud cover limits local area visibility. These issues will be discussed in further detail in Chapter 6, Demand/Capacity Analysis and Facility Requirements.

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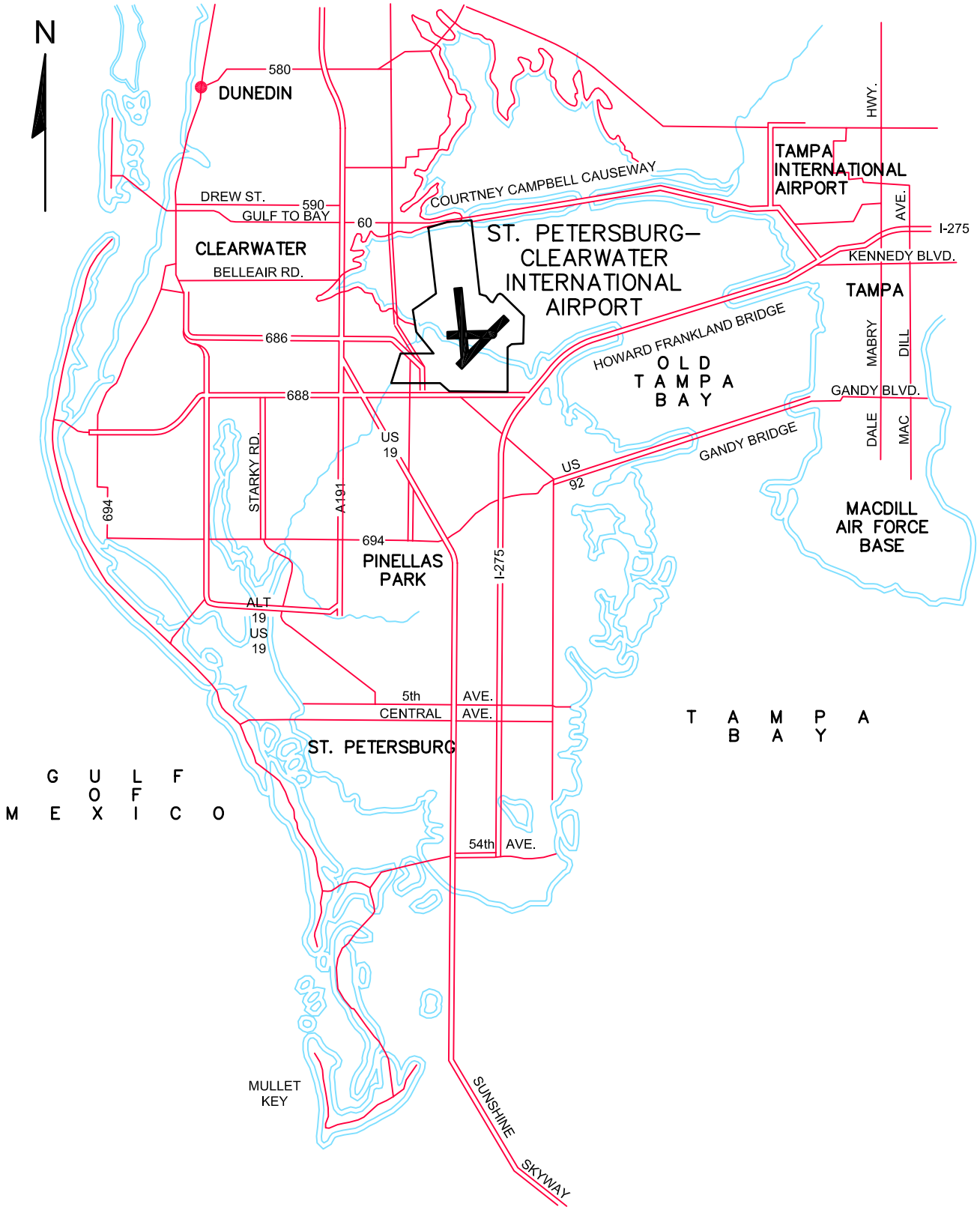
PBS&J	St. Petersburg - Clearwater International Airport	Location Map	Figure 2-1



PBS&J	St. Petersburg - Clearwater International Airport	Vicinity Map	Figure 2-2

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2.6 FACILITIES

The identification of existing aviation facilities, their location, and ability to meet the Airport's daily needs are essential elements of the master planning process. **Figure 2-3**, Existing Airport Layout Plan, and **Figure 2-4**, Airport Diagram, depict an overview of the existing airside and landside facilities at PIE.

The Airport itself has been certified under Federal Aviation Regulation (FAR) Part 139 to allow scheduled air carrier service. In addition, the Airport provides the following services: fuel (100LL, Jet A, and Jet A1+); hangars and tie-downs; major airframe and power plant maintenance; avionics service; air cargo; charter flights; flight instruction; aircraft rental and sales; customs services, and foreign trade zone. The airside and landside facilities as of December 2001 are discussed in the following sections.

2.6.1 Airside

Airside facilities at PIE (**Figure 2-3** and **Figure 2-4**) include: runways, taxiways, aprons, airfield lighting, navigational aids, commercial terminal area facilities, cargo facilities, flight training facilities, hangar and storage facilities, fuel storage areas, and roadways.

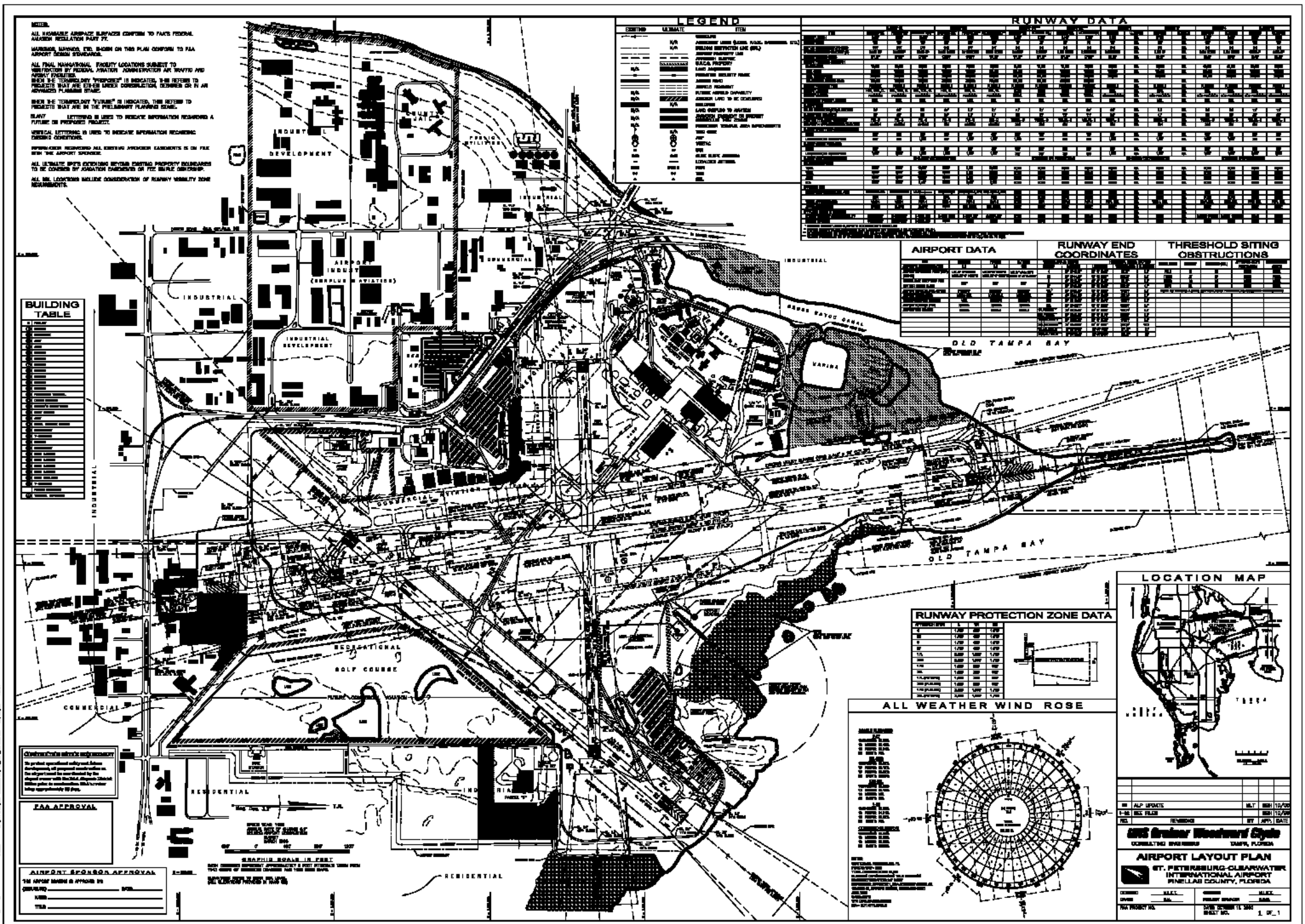
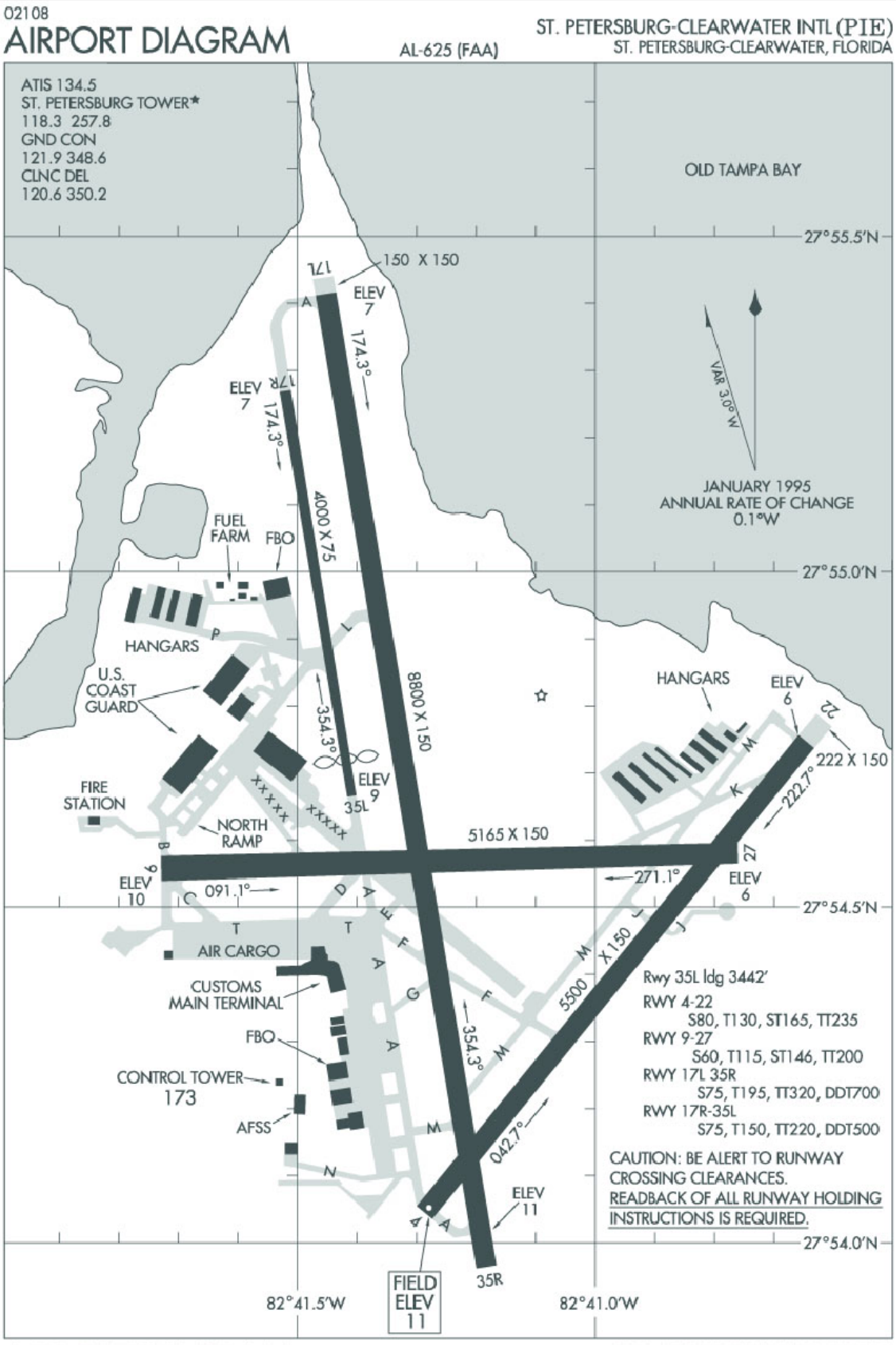

NOTES:
ALL HAZARDS AIRSPACE SURFACES CONFORM TO FAA'S FEDERAL AVIATION REGULATION PART 77.
MARKINGS, LIGHTING, ETC., SHOWN ON THIS PLAN CONFORM TO FAA AIRPORT DESIGN STANDARDS.
ALL FINAL NAVIGATIONAL FACILITY LOCATIONS SUBJECT TO VERIFICATION BY FEDERAL AVIATION ADMINISTRATION AIR TRAFFIC AND FLIGHT INSPECTION.
WHEN THE TERMINOLOGY "PROPOSED" IS INDICATED, THIS REFERS TO PROJECTS THAT ARE EITHER UNDER CONSTRUCTION, DESIGNED OR IN AN ADVANCED PLANNING STAGE.
WHEN THE TERMINOLOGY "FUTURE" IS INDICATED, THIS REFERS TO PROJECTS THAT ARE IN THE PRELIMINARY PLANNING STAGE.
SLANT LETTERING IS USED TO INDICATE INFORMATION REGARDING A FUTURE OR PROPOSED PROJECT.
VERTICAL LETTERING IS USED TO INDICATE INFORMATION REGARDING EXISTING CONDITIONS.
INFORMATION REGARDING ALL EXISTING AVIGATION EASEMENTS IS ON FILE WITH THE AIRPORT SPONSOR.
ALL ULTIMATE SITES EXCEPTIONS BEYOND EXISTING PROPERTY BOUNDARIES TO BE COVERED BY AVIATION EASEMENTS OR FEE SIMPLE OWNERSHIP.
ALL RPZ LOCATIONS INCLUDE CONSIDERATION OF RUNWAY VISIBILITY ZONE REQUIREMENTS.
LEGEND
EXISTING
ULTIMATE
ITEM
RUNWAY DATA
AIRPORT DATA
RUNWAY END COORDINATES
THRESHOLD SITING OBSTRUCTIONS
BUILDING TABLE
RUNWAY PROTECTION ZONE DATA
ALL WEATHER WIND ROSE
LOCATION MAP
AIRPORT LAYOUT PLAN
ST. PETERSBURG-CLEARWATER INTERNATIONAL AIRPORT
PINELLAS COUNTY, FLORIDA
AIRPORT SPONSOR APPROVAL
FAA APPROVAL
GRAPHIC SCALE IN FEET
OLD TAMPA BAY
INDUSTRIAL
COMMERCIAL
RESIDENTIAL
GOLF COURSE
MARINA

Figure 2-3



Source: The Federal Aviation Administration (FAA), National Aeronautical Charting Office (NACO), May 15, 2003

PBS&J	St. Petersburg - Clearwater International Airport	Airport Diagram	Figure 2-4

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2.6.1.1 Runways

Currently, there are four active runways at PIE. Runways 17L-35R and 17R-35L are parallel runways situated in a northwest-southeast orientation. The only runway designated for air carrier traffic is Runway 17L-35R. Runway 9-27 is situated in an east-west orientation and Runway 4-22 is situated in a southwest-northeast pattern. Both of the latter runways are used for crosswind operations. It is important to note that Runway 17R-35L is used under daylight visual flight rules (VFR) only. At night, Runway 17R-35L is used as lighted taxiway Alpha.

Pavement Strength/Condition

Runway 17L-35R is considered the primary runway for PIE and is the only one capable of accommodating commercial traffic. As a result, it has an airport reference code (ARC) of design category C-IV at both ends. The runway measures approximately 8,800 ft in length and 150 ft in width, and is constructed of asphalt and has a grooved surface with 25 ft paved shoulders on each side. The pavement has a strength rating of 75,000 pounds for single wheel load (SWL), 195,000 pounds for dual wheel load (DWL), 320,000 pounds for dual tandem wheel load (DTWL), and 700,000 pounds for double dual tandem wheel load (DDTWL). The full runway distance of 8,800 ft is available for both takeoffs and landings.

Parallel Runway 17R-35L lies west of the primary runway, and is designated as ARC category B-II. The runway measures 4,000 ft long by 75 ft wide and is constructed of asphalt with a grooved surface. The pavement has a strength rating of 75,000 lb SWL, 150,000 lb. DWL, and 500,000 lb DDTWL. Runways 17R-35L and 17L-35R are separated, centerline-to-centerline, by a distance of 500 ft.

Runway 4-22 intersects Runway 17L-35R and Runway 9-27 from south to north and is used primarily for GA operations. It is approximately 5,500 ft long and 150 ft wide, and is composed of asphalt, and has an 80,000 lb SWL bearing capacity. In addition, Runway 4-22 is capable of accepting aircraft with DDTWL up to 235,000 lb.

The east-west Runway 9-27, provides crosswind coverage, but has limited operational use due to wind direction and ATC procedures. In addition, Runway 9-27 intersects Runway 4-22 and Runway 17L-35R. This runway measures 5,165 x 150 ft, is constructed of asphalt, and has a grooved surface. The pavement has a load-strength of 60,000 lb SWL, 115,000 lb DWL, and 200,000 lb DTW. Runway data is presented in **Table 2-1**. Pavement strength data is presented in **Table 2-2**.

Table 2-1. Runway Specifications

	17L-35R	*17R-35L*	*09-27*	*04-22*
Dimensions				
Length (ft)	8,800	4,000	5,165	5,500
Width (ft)	150	75	150	150
Surface Material	Asphalt	Asphalt	Asphalt	Asphalt
Surface Treatment	Grooved	None	None	None
Load Bearing Capacity by Gear Type				
SWL (lb)	75,000	75,000	60,000	80,000
DWL (lb)	195,000	150,000	115,000	130,000
DTW (lb)	320,000	220,000	200,000	235,000
DDTW (lb)	700,000	500,000		
Approach Slope	50:1; 34:1	20:1; 20:1	20:1; 20:1	20:1; 20:1
Effective Gradient	0.041Up	0.049 Up	0.092 Down	0.094 Down
	0.041 Down	0.049 Down	0.092 Up	0.094 Up
Latitude	27’ 55” 24.293N	27’ 55” 16.22N	27’ 54” 33.37N	27’ 54” 02.97N
	27’ 54” 01.097N	27’ 54” 37.06N	27’ 54” 35.02N	27’ 54” 44.85N
Longitude	82’ 41” 26.543W	82’ 41”30.79W	82’ 41” 43.56W	82’ 41” 18.05W
	82’ 41” 12.234W	82’ 41”24.05W	82’ 40” 46.02W	82’ 40” 38.87W

Source: St. Petersburg-Clearwater Airport Layout Plan, 2000, and AirNav, 2001

Table 2-2. Runway Conditions

Runways	*Approximate Dimensions (Ft)*	*Pavement Type*	*Condition*	*Airplane Design Group*
17L-35R	8,800 x 150	Asphalt	Good	C-IV
17R-25L	4,000 x 75	Asphalt	Good	B-II
09/27	5,165 x 150	Asphalt	Good	B-II
04/22	5,500 x 150	Asphalt	Fair	B-II

Source: AirNav 2001

Safety Areas

The runway safety area (RSA) is a definable surface surrounding the runway and centered along the runway centerline and is intended to reduce the risk of damage to aircraft in the event of an overshoot, undershoot, or excursion from the runway. Its dimensional standards are based upon the Aircraft Design Group, which normally utilizes that runway.

In addition, the RSA has the following design requirements:

- Cleared and graded and with no potentially hazardous surface variations.
- Drained by grading or storm sewers to prevent water accumulation.
- Capable of supporting aircraft rescue and firefighting equipment and the occasional passage of aircraft without causing structural damage.
- Free of objects, except for those needing to be located in the RSA because of function. (Airport Design, FAA AC 150/5300-13, Change 6A.)

Since Runway 17L-35R is certified for air carrier operations, and the critical aircraft is a L-1011-500, which is categorized as a design group four (C-IV) aircraft, the RSA for this

runway falls under C-IV runway design standards - 500 feet wide and extending 1,000 feet beyond the runway ends. While Runway 17L-35R meets the safety area width requirement of 500 feet along the length of the runway, the current available RSA beyond the end of Runway 17L is 500 feet wide by 475 feet long, plus 250 feet wide by 525 feet long (per FAA Runway Safety Area Determination dated January 9, 2002). The Runway 35R end meets current RSA width standards beyond the runway end of 500 feet wide, but not in length, which is 830 feet versus the required 1,000 feet.

The RSAs designated for GA runways 17R-35L, 9-27, and 4-22 meet current ARC B-II standards for length and width for runways with visibility minimums no lower than one statute mile (1,200 meter). See **Table 2-3** below for a listing of the runway safety specifications.

Table 2-3. Runway Safety Area Specifications

Runways	*Airplane Design Group*	*Length (ft)*	*Width (ft)*
17L	C-IV	475	500
35R	C-IV	830	500
17R	B-II	300	150
35L	B-II	300	150
04	B-II	300	150
22	B-II	300	150
09	B-II	300	150
27	B-II	300	150

Source: St. Petersburg-Clearwater ALP, 2000, URS Corporation
Notes: The runway safety area lengths begin at each runway end when stopway is not provided. When a stopway is provided, these lengths begin at the stopway end.

Runway Protection Zone

The runway protection zone (RPZ) is a trapezoidal area, centered about the extended runway centerline, whose function is to enhance the protection of people and property on the ground. The RPZ consists of a portion of the runway object-free area (ROFA) and the controlled activity area. The RPZ begins 200 ft beyond the end of the area usable for takeoff or landing. The FAA recommends that all objects be cleared from the RPZ. However, some uses are permitted as long as they are not wildlife attractants, do not interfere with navigational aids, and are outside the runway object-free area (OFA).

RPZ dimensional standards depend on the specified approach visibility minimums at the runway end. The dimensions for Runways 17L-35R, 17R-35L, 09-27, and 04-22 are shown in **Table 2-4**.

It is highly recommended by the FAA that the Airport own in fee simple or control the area contained within the RPZ by avigation easements. This area should be free of land uses that create glare, smoke, or other hazards to air navigation. Also, the construction of residences, fuel-handling facilities, churches, schools, and offices is not recommended in the RPZ. Refer to the ALP, **Figure 2-3**, for a visual representation of the RPZs.

Table 2-4. Runway Protection Zone Specifications

Runways	Approach Visibility Minimums	Aircraft Approach Category	Length (ft)	Inner Width (ft)	Outer Width (ft)	RPZ Acres
17L	Precision <3/4 mile	All Aircraft	2,500	1,000	1,750	78.91
35R	< ¾ mile	All Aircraft	1700	1,000	1,510	48.98
17R	Visual, ≥ 1mile	A & B Aircraft	1,000	500	700	13.77
35L	Visual, , ≥ 1mile	A & B Aircraft	1,000	500	700	13.77
09	Visual, , ≥ 1mile	A & B Aircraft	1,000	500	700	13.77
27	Visual, , ≥ 1mile	A & B Aircraft	1,000	500	700	13.77
04	Visual, , ≥ 1 ¼ mile	A & B Aircraft	1,000	500	700	13.77
22	Visual, , ≥ 1mile	A & B Aircraft	1,000	500	700	13.77

Source: St. Petersburg-Clearwater ALP, 2000, URS Corporation, and FAA AC 150/5300-13, Chg.7

Object-Free Areas

The OFA is an area on the ground centered on the runway centerline provided to enhance the safety of aircraft operations by having the area free of objects except for objects that need to be located in the OFA for air navigation or ground maneuvering purposes. FAA standards require clearing the OFA of above ground objects protruding above the RSA edge elevation. OFA dimensions for Runways 17L-35R, 17R-35L, 4-22 and 9-27 are shown in **Table 2-5**.

Currently, there are no penetrations in the runway OFA zones.

Table 2-5. Runway Object-Free Area Specifications

Runways	Airplane Design Group	Length (ft)	Width (ft)
17L	C-IV, Precision	475	800
35R	C-IV, Non-precision	830	800
17R	B-II, Visual	300	500
35L	B-II, Visual	300	500
9	B-II, Visual	300	500
27	B-II, Visual	300	500
4	B-II, Non-precision > ¾ mile	300	500
22	B-II, Visual	300	500

Source: St. Petersburg-Clearwater ALP, 2000, URS Corporation, and FAA Advisory Circular part 130/5300-13 Change 7

2.6.1.2 Taxiways

PIE has several taxiways, ranging in width from 40 to 90 +/- ft. These taxiways, some of which have existed since WWII, are designed to meet the specifications of the runway they serve, as well as the critical aircraft associated with each runway.

The existing taxiway system at PIE is presented in **Figure 2-3**, Existing Airport Layout Plan and 2-4, Airport Diagram.

Pavement Strength/Condition

All taxiway pavement surfaces at PIE are asphalt. Taxiways range in width between 40 ft to approximately 90 +/- ft.

Taxiway A, a portion of which is designated Runway 17R-35L, serves as the parallel taxiway to Runway 17L-35R. The taxiway is situated 500 feet west of Runway 17L-35R.

Taxiway M is a full-length parallel taxiway serving Runway 4-22 and is separated from 4-22 by 350 ft.

Taxiway L connects the United States Coast Guard (USCG) Ramp to Runway17L-35R and Taxiway A/Runway 17R-35L. Taxiway P runs along the northwest part of the Airport property and connects the USCG Ramp and hangar areas to the fuel farm, which is located to the northwest of Runway 17R-35L. Taxiway T runs along the north edge of the West Ramp area and connects Taxiway A to Taxiways D, C, and B, which allow aircraft to access the end of Runway 9. Taxiway H connects Taxiway A to the US USCG and Pemco ramp areas and provides access to Taxiway L. Taxiway B connects Runway 9 and the West Ramp area to the USCG Ramp area facility. Taxiway C is a stub taxiway, which connects the West Ramp area via Taxiway T to Runway 9-27. Taxiway F connects Taxiway M to Runways 17L-35R and 17R-35L (or Taxiway A).

Taxiways M, west of Runway 17L-35R, G, and E are designated as stub taxiways. They connect Taxiway A to Runway 17L-35R. Stub Taxiway J connects parallel Taxiway M to Runway 4-22 as well as proving airside access to the Moog property southeast of Runway 4-22.

Taxiway pavement strength and condition are outlined in **Table 2-6**.

Table 2-6. Taxiway Pavement Conditions

Taxiways	*Approximate Dimensions (ft)*	*Pavement Type*	*Condition*	*Airplane Design Group*
A	8,475' x 75'	A	Good	IV
B	525' x 40'	A	Good	II
C	500' x 75'	A	Good	IV
D	460' x 75'	A	Good	IV
E	600' x 75'	A	Good	IV
F	1,750' x 50'	A	Fair	II
G	450' x 40'	A	Good	II
H	1,275' x 100'	CA	Good	IV
J	240' x 50'	A	Good	II
J1	400' x 40'	A	Good	II
K	1,400' x 50'	A	Good	II
L	1,575' x 75'	CA	Good	IV
M	4,150' x 50'	A	Good	II
M1	420' x 90'	A	Good	IV
N	630' x 50'	A	Good	II
P	1,400' x 50'	CA	Good	II
T	800' x 75'	CA	Good	IV
U	1,250' x 25'	A	Good	I

Pavement Type: C = Concrete; A = Asphalt; CA = Concrete with Asphalt Overlay

Source: Airport Layout Plan, October 2000, URS Companies, Inc. and visual inspections by PBS&J 2001.

Taxiway Safety Area (TSA)

The taxiway safety area (TSA) follows the same criteria as the RSA. It is centered on the taxiway centerline, and the airplane design group designates its dimensional standards. Based upon this information, the TSAs at PIE range in width from 79 ft to 171 ft and are centered on the taxiway centerline. See **Table 2-7** for the standard dimensions.

Taxiway Object-Free Area (TOFA)

The taxiway OFA (TOFA) clearing standards prohibit service vehicle roads, parked airplanes, and above ground objects, except for objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes. Vehicles may operate within the OFA provided they give right of way to oncoming aircraft by either maintaining a safe distance ahead or behind the aircraft or by exiting the OFA to let the aircraft pass. **Table 2-7** specifies the standard dimensions, based upon the Airplane Design Group, for the TOFAs.

Table 2-7. Taxiway Safety Area Specifications

Taxiway	*Airplane Design Group*	*TSA Width (ft)*	*TOFA Width (ft)*
A	IV	171	259
B	II	79	131
C	IV	171	259
D	IV	171	259
E	IV	171	259
F	II	79	131
G	II	79	131
H	IV	171	259
J	II	79	131
K	II	79	131
L	IV	171	259
M	II	79	131
M1	IV	171	259
N	II	79	131
P	II	79	131
T	IV	171	259
U	I	49	89

Source: FAA advisory circular part 150/5300-13, change 7

2.6.1.3 Lighting and Markings

A variety of lighting aids are available at PIE to facilitate identification, approach, landing, and taxiing operations at night and in adverse weather conditions. The systems, categorized by function, are further described below.

Identification Lighting

A rotating airport beacon light universally indicates the location and presence of an airport. The rotating beacon is equipped with an optical system that projects two beams of light (one green and one white) 180 degrees apart. At PIE, the airport beacon is located on the northeast quadrant of the airfield, just west of the mangrove fields near the coastline.

Obstruction Lighting

Existing obstructions that cannot be removed are lighted. Obstructions in the vicinity of the Airport are marked or lighted during both daylight hours and at nighttime, to warn

pilots of their presence. These obstructions may be identified for pilots on approach charts and on the official Airport Obstruction Chart, published by the National Oceanic and Atmospheric Administration.

Approach Lighting

There are three types of approach aids: electronic navigational aids, visual approach aids, and approach lighting. Approach lighting systems (ALS) are used in the approaches to runways as adjuncts to electronic navigational aids for the final portion of instrument flight rules (IFR) approaches, and visual guides for nighttime approaches under VFR conditions. The approach lighting system provides the pilot with visual clues concerning aircraft alignment, roll angle, height, and position relative to the runway threshold.

At PIE, only Runway 17L is equipped with a medium intensity approach lighting system with runway alignment indicator lights (MALSR). This system assists pilots transitioning from the cockpit instrument landing segment to the runway environment. The system provides a lighted approach path along the extended centerline of the runway. The runway alignment lights provide sequenced strobe lights moving toward the runway threshold. These lights brilliantly emphasize 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.

Visual Approach Aids

Like the ALS, the visual approach aids consist of a series of visual clues, which help the pilot with aircraft alignment and position relative to the runway. The primary visual approach aids at PIE are the precision approach path indicator (PAPI) and visual approach system indicator (VASI). The PAPI is a system of lights located near the runway end, which provides the pilot with visual descent guidance information during an visual approach to the runway. This type of installation has a visual range of approximately four miles. PAPIs are relatively newer and more efficient systems than their VASI predecessors. Runways 9, 4, and 22 are equipped with PAPI-4 system and Runway 35L is equipped with a PAPI-2 system. Runways 17L-35R and 27 are equipped with the four-box VASI-4 systems.

In addition to the PAPI and VASI systems, Runways 4-22, 9-27 and 35R are equipped with Runway End Identifier Lights (REILs). REILs are installed at many airfields to provide rapid and positive identification of the approach end of a particular runway. The system consists of a pair of synchronized flashing lights located laterally on each side of the runway threshold. REILs may either be omni-directional or unidirectional facing the approach area. They are primarily used to: identify a runway surrounded by a large amount of lights, identify a runway which lacks contrast compared to the terrain, and/or identify a runway during low visibility or at night.

Runway Threshold Lighting

The identification of runway ends or thresholds assists the approaching aircraft in much the same manner as other approach aids. The runway end/threshold is given special lighting consideration.

Threshold identification lights make use of a two-color lens: red/green. The green half of the lens faces the approaching aircraft and indicates the beginning of the usable runway. The red half of the lens faces the airplane on the rollout or takeoff, indicating the end of the usable runway. PIE has runway threshold lighting on Runways 4-22 and 9-27, which

complement the visual approach aids. The threshold lighting on Runway 35R is equipped with a continuous bar of light, augmenting the precision approaching lighting for the runway.

Runway Edge Lighting

Runway edge lighting is used to outline the edges of a runway during periods of darkness and/or restricted visibility. These systems are classified in accordance with their intensity or brightness. At PIE, two lighting systems are used: High Intensity Runway Lights (HIRL) and Medium Intensity Runway Lights (MIRL). Runway 17L-35R is equipped with HIRL. Runways 9-27 and 4-22 are equipped with MIRL. Runway 17R-35L is not equipped with runway edge lighting as it is not usable for nighttime operations.

Runway edge lights are white, and are visible through 360 degrees of the azimuth and can be seen several miles from an airport under good visibility conditions.

In-Runway Lighting

In-runway lighting is often utilized to facilitate landing under poor or adverse weather conditions. At PIE, Runways 17L and 35R are equipped with a runway centerline lighting system (RCLS), and Runway 17L is also equipped with touchdown zone lighting (TDZL).

Runway Centerline Lighting System (RCLS): A RCLSs is installed on Runway 17L-35R in conjunction with the precision ILS approach to Runways 17L to facilitate landing under adverse visibility conditions. They are located along the runway centerline and are spaced at 50-ft intervals. When viewed from the landing threshold, the runway centerline lights are white until the last 3,000 ft of the runway. The white lights begin to alternate with red for the next 2,000 ft, and for the last 1,000 ft of the runway, all centerline lights are red.

Touchdown Zone Lights (TDZL): TDZL are also installed on the Runway 17L approach end in conjunction with the precision ILS approach to Runways 17L to indicate the touchdown zone when landing under adverse visibility conditions. They consist of two rows of transverse light bars disposed symmetrically about the runway centerline. The system consists of steady-burning white lights that start 100 ft beyond the landing threshold and extend to approximately 3,000 ft beyond the landing threshold.

Taxiway Lighting

The final segment of flight commences with the aircraft maneuvering on the taxiways to either the terminal gates, parking aprons, or hangars. Taxiway lighting, which delineates the taxiway edges or centerline, provides guidance to pilots during periods of low visibility and at night. Taxiway lighting consists of a series of blue lighting fixtures located at a minimum of 200 ft intervals along the taxiway edges. These lights provide taxiway alignment up to the apron. All taxiways at PIE are equipped with medium intensity taxiway lighting (MITL).

Apron Lighting

At PIE, some apron and ramp areas are equipped with floodlight lighting systems. The South Ramp area, West (Terminal) Ramp area, USCG Ramp, and cargo loading ramp areas are all lighted via floodlighting lighting systems.

2.6.1.4 Navigational Aids

Navigational aids (NAVAIDS) include any visual or electronic device, either airborne or on the ground, that provides point-to-point guidance information or position data of an aircraft in flight. Various types of NAVAIDS are utilized at PIE. Ground-based electronic

NAVAIDS that are located on or near the Airport are classified as en route navigational aids, terminal area navigational aids, and landing aids.

Terminal Area Navigational Aids and Landing Aids

Included in this group are NAVAIDS, located at or near the airfield, for the purpose of providing aircraft guidance information while arriving, departing, or overflying the area under any weather condition. Landing aids provide either precision or non-precision approaches to an airport or runway.

Both precision and non-precision approaches provide runway alignment course guidance to the aircraft, while precision approaches also provide glide slope information for descent purposes.

Instrument landing systems (ILSs) provide an approach path for alignment and descent of an aircraft on final approach to a runway. The system provides three functions: guidance, range, and alignment. Guidance is provided vertically by a glide slope antenna and horizontally by a localizer. Marker beacons or distance measuring equipment (DME) furnishes range. The ALS and runway edge lights supply visual alignment.

PIE has a Category I ILS established for Runway 17L. The ILS approach to this runway uses a standard 3.0-degree glide slope with a runway threshold crossing height of 50 ft. These can be flown whenever the ceiling is 200 ft or greater and visibility is a least one-half mile.

A complete summary of airside facilities is listed in **Table 2-8**.

Table 2-8. Airside Facilities

Pavement	*Approach Aids*	*Lighting*	*Markings*
Runways:			
17L	GPS, VOR/DME, ILS (CAT-I), RVR, MALSR, NDB, VASI-4	HIRL, TDZL, CL	Precision
35R	GPS VOR, LOC-BC, GS, RVR, VASI-4, REIL	HIRL, CL	Non-Precision
17R	None	None	Visual
35L	PAPI-2 Box	None	Visual
9	PAPI, REIL	MIRL	Visual
27	VASI-4, REIL	MIRL	Visual
4	VOR, PAPI, REIL	MIRL	Non-Precision
22	PAPI, REIL	MIRL	Non-Precision
Taxiways:			
A	NA	MITL	Standard
B	NA	MITL	Standard
C	NA	MITL	Standard
D	NA	MITL	Standard
E	NA	MITL	Standard
F	NA	MITL	Standard
G	NA	MITL	Standard
H	NA	MITL	Standard
J	NA	MITL	Standard
K	NA	MITL	Standard
L	NA	MITL	Standard
M	NA	MITL	Standard
M1	NA	MITL	Standard
N	NA	MITL	Standard
P	NA	MITL	Standard
T	NA	MITL	Standard
U	NA	LITL	Standard

Source: 2000 Airport Layout Plan, PIE and PBS&J, 2001

Building Areas

In early 1997, the Airport completed expansion and remodeling of the terminal in response to increases in passenger and airline activity.

As shown on **Figure 2-3**, Existing Airport Layout Plan, there are four defined development areas (NW, SW, NE, and SE) on the Airport. The southwest portion is subdivided by Roosevelt Boulevard and consists of commercial aviation functions (terminal area, cargo operators, and fixed based operators) east of Roosevelt and non-aviation functions to the west, which includes the Airport Industrial Park. The southeast portion of the Airport contains the Airco Golf Course, which is slated for redevelopment. The northwest section contains the USCG Air Station, PEMCO (commercial aviation function), Jet Executive Center (FBO), fuel storage area, Pinellas County Sheriff's hangar facilities, aircraft rescue and firefighting (ARFF), and U.S. Navy Reserve Facilities. The Northeast portion, adjacent to Runway 22, contains the GA facilities of the Landings of Clearwater and PIE in the Sky (DELTA) Aircraft Owners Association hangars.

2.6.1.5 Airline Terminal Facilities

The terminal buildings at PIE are located on the southwest side of the field, adjacent to Roosevelt Blvd. In early 1997, the Airport completed expansion and remodeling of the terminal in response to increases in passenger and airline activity. The terminal building is approximately 143,980 sq ft.

The existing terminal building contains airline ticketing, offices, operations, passenger lounges, restrooms, and baggage claim areas. The first floor also contains public waiting areas, rental car counters, and a customs area. See **Figure 2-6**, Terminal Floor Plan. The second floor contains a restaurant, Airport management offices, public space, various tenant offices, and restrooms.

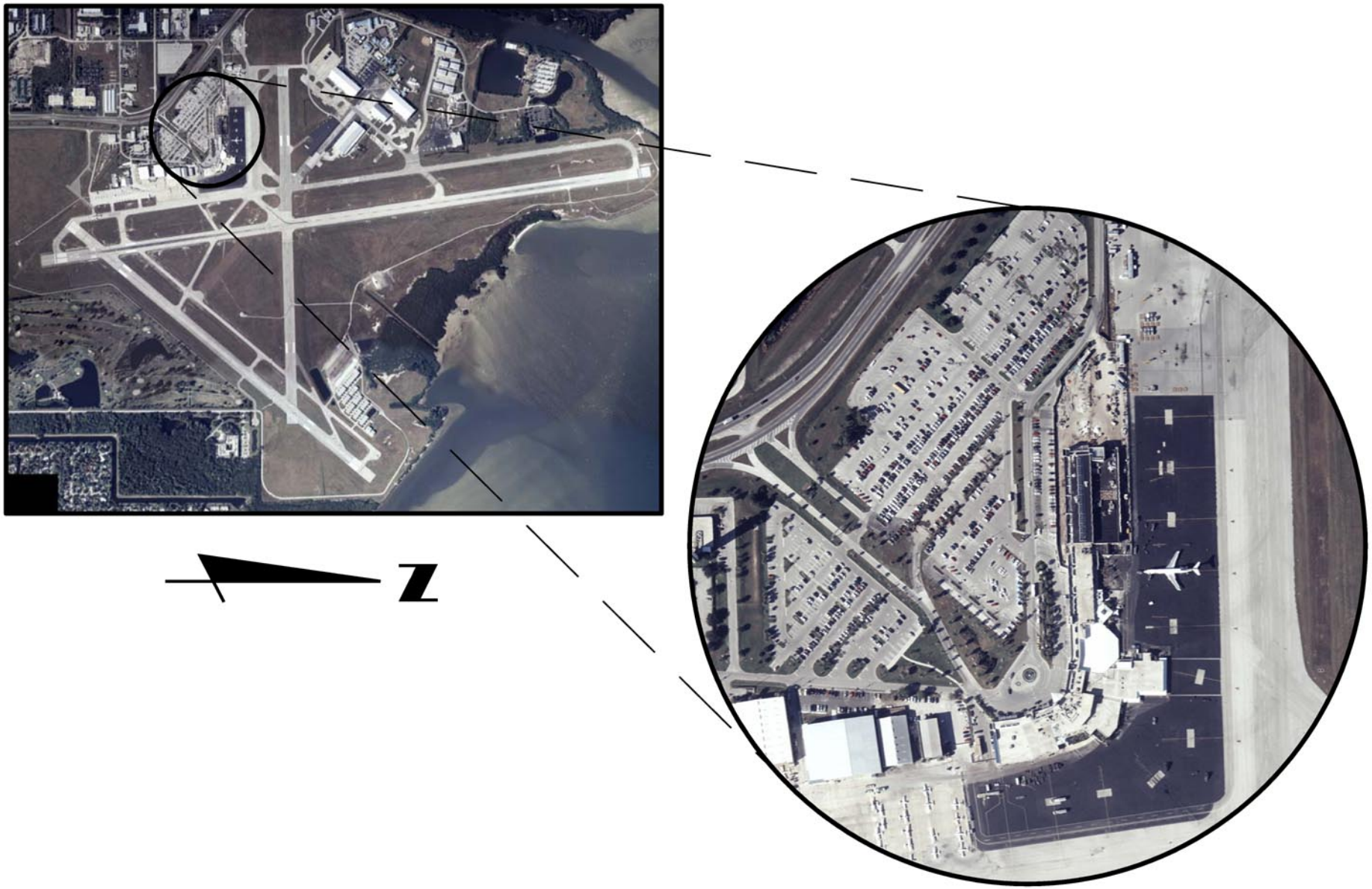
In 1997, the terminal building was extended approximately 250 ft to the west into the existing rent-a-car ready return lot for a new terminal baggage area. The new baggage claim area provides four baggage claim devices, four rent-a-car positions with customer queuing space, public circulation and seating, airline baggage storage offices, ground transportation center, and tourist center. The building was designed to accommodate a second level passenger concourse with holdrooms, concessions, and passenger service facilities. The terminal expansion required modification of the terminal roadways and rental car ready return lot. The construction of the baggage claim facility required the relocation of 170 existing rental car ready return spaces to the main parking lot immediately southwest of the new baggage claim area, and expanded the remote parking area by 469 spaces. Rental car operators currently located in this area include Avis, Hertz, National/Alamo, and Enterprise.

Relocation of the baggage claim, rental car, and ground transportation area to the expanded terminal building allowed additional space to be made for meters and greeters of international flights, as well as for domestic passengers departing through gates 9-12. In addition, 400 square ft of the former bag claim area in the west wing of the terminal building were reconfigured as a specialty concession area.

Within the terminal there is a gift shop, newsstand, and duty free shop, all operated by Stellar Partners. Additional concessions include Suncoast Attractions Store, offering souvenirs from the Tampa Bay Area attractions and museums.

The Palm Terrace Restaurant and Ponce de Leon Lounge, operated by Jerry's Caterers, offer views of Tampa Bay and the Airport. The restaurant and lounge facilities were modernized and expanded in 1998 to 6,800 sq ft. As a result, adjoining offices were converted to expanded food and beverage public areas, and an atrium was constructed connecting the first floor lobby with the second floor level. Additional space was also gained when the Airport's in-flight concessionaire relocated its facilities from the terminal building to a site west of Roosevelt Blvd.

Commercial passenger airlines servicing PIE in 2001 included: ATA, AirTransat, Southeast Airlines, Discover Air, Champion Air, and Pan American Airways.



PBS&J

St. Petersburg - Clearwater International Airport

Terminal Building (Not to Scale)

Figure 2-5

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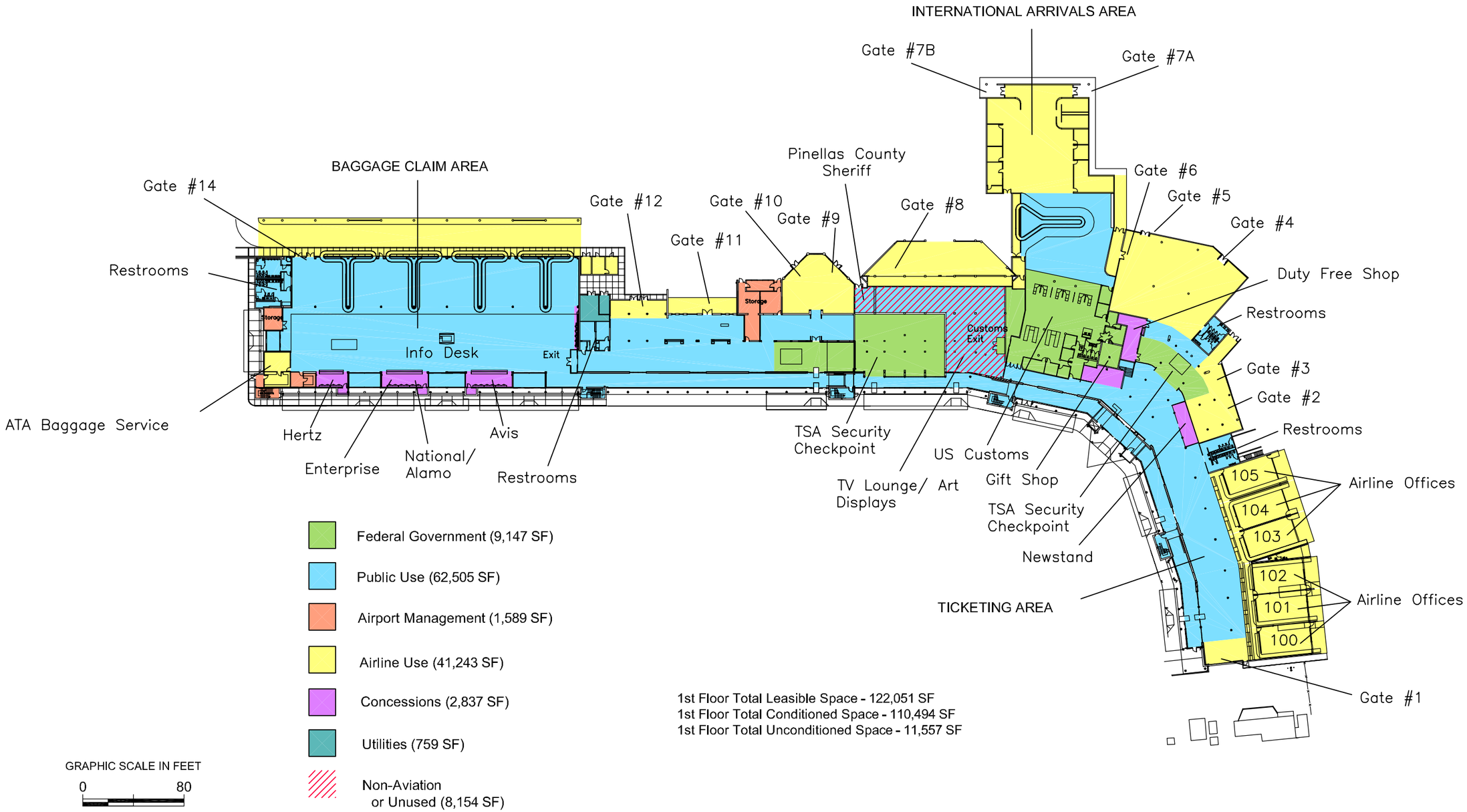

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PBS&J

St. Petersburg - Clearwater International Airport

Existing Airport Terminal Floorplan

Figure 2-6

Terminal Apron Area

The terminal building has 13 domestic and international gates in the terminal apron area. This area spans approximately 374,000 sq ft (41,600 sq yd) providing space for aircraft parking positions, aircraft movement areas, aircraft servicing activities, and ground service vehicle movement areas.

Terminal Area Automobile Parking

The Airport in 2002 converted its former free public parking area to a paid parking facility. There are currently 714 public spaces (563 long-term and 151 short-term spaces) in the main terminal area parking lot plus another 469 spaces located in a remote lot south of Roosevelt Blvd, all totaling 1,183 public parking spaces. As a result of the September 11th attacks, the short-term parking was closed by the Transportation Security Administration (TSA) for security reasons due to its location near the terminal. To facilitate public parking needs, the short term and rental car parking lots exchanged locations. The rental cars are allowed to be closer to the terminal as all vehicles are searched prior to entering the rental car lot, complying with the new stringent security provisions instituted by the TSA. The rental car lot has 191 parking spaces.

Currently, there are 153 spaces dedicated to employee parking located on the northwest side of the parking area. Airport employees are required to have identification access cards to access employee parking facilities

Terminal Building Curb Frontage

The airline terminal building curb provides space for passenger and baggage drop-off and pick-up. Current curb frontage available directly in front of the terminal building is approximately 1,377 linear ft (ln ft), which is roughly the equivalent of 55 midsize vehicles.

The terminal curb road consists of three traffic lanes; one for parking while loading and unloading baggage and one for maneuvering into a parking position. A third one-way traffic loop was designed to aid the flow of through-traffic as well as for additional taxi parking spaces (approximately 300 ln ft). A breakdown of terminal facilities is shown in **Table 2-9**.

Table 2-9. Existing Terminal Facilities

Terminal Facilities	Area
Gates	
Total Number of Gates	14
Total Linear Feet of Apron	1,320 ln ft
Terminal Building:	
Airline Space	27,369sq ft
Concessions	8,965 sq ft
Departure Lounges	21,736 sq ft
Building Support Space	15,398 sq ft
Customs	28,472 sq ft
Public Space	33,616sq ft
Airport Offices	13,408 sq ft
TSA Security Checkpoints	2,782 sq ft
Total Area	**143,980* sq ft**
Parking:	
Public Spaces	1,183
Rental Car Ready Return	191
Employee Spaces	153
Terminal Curb:	
Curb Length	1,377 ln ft
Number of Curb Spaces	55
Taxi Waiting Area	300 ln ft

**Includes terminal space not listed*
Source: St. Petersburg-Clearwater International Airport Records and PBS&J, 2001

2.6.1.6 General Aviation Facilities

GA at PIE consists primarily of military, cargo, corporate, flight training, and recreational flying operations.

GA facilities consist primarily of heavy aircraft storage buildings (T-hangars and conventional), hangar apron, based and transient aircraft tie-down ramps, and GA automobile parking. As of December 2001, there were 327 based aircraft at PIE, consisting of 191 single-engine, 52 multi-engine, 54 jet aircraft, 12 helicopters, and 18 military aircraft.

Out of the 327 total aircraft, including 12-helicopters, based at PIE in 2001, approximately 122 aircraft are stored in T-hangars and at least 89 are stored in conventional type hangars.

Aircraft Storage Buildings

Storage needs for GA aircraft reflect local climatic conditions. In addition, the size and sophistication of the Airport's based aircraft fleet reflects the type of hangar storage needs on the Airport. In general, aircraft with higher values are more likely to be stored in larger, more secure facilities.

There are two types of hangar space available at PIE: T-hangars and conventional hangars. Out of the 327 total aircraft, including 12-helicopters, based at PIE in 2001,

approximately 122 aircraft are stored in T-hangars and at least 89 are stored in conventional type hangars. The remaining based aircraft (116) are stored on the aircraft tie-down apron.

T-Hangars

T-Hangar Storage: T-hangar facilities at PIE consist of 14 buildings of various sizes, which contain between 6 to 15 aircraft stalls each. Of these 14 hangars, members of the PIE in the Sky (Delta) Aircraft Association own three, while the remaining 11 hangars are owned by the Landings of Clearwater Association. These T-hangars are located in the northeast quadrant of the Airport, adjacent to Runway 22 (see **Figure 2-7**, Aircraft Storage Facilities, East Side).

Of the 122 stalls, six are built for larger twin-engine aircraft or helicopters (approximately 1,450 sq ft per unit), five are built for typical twin-engine aircraft (1,250 sq ft per unit), and the remaining 110 are built for single-engine aircraft (1,130 sq ft per unit). All T-hangars are currently occupied, and there is significant demand for additional hangars.

Approximately 37 percent of based aircraft are stored in T-hangars. Total T-hangar area is approximately 160,100 sq ft, of which 122,300 sq ft is associated with single-engine aircraft, and 37,800 sq ft associated with multi-engine aircraft.

Conventional Hangars

Conventional Hangar Storage: A review of the Airport's existing conventional hangars shows that there are 17 hangars of various sizes, shown in **Figures 2-8 and 2-9** (Aircraft Storage Facilities North and South Sides), used by aircraft-operating tenants on the field. Conventional hangars provide approximately 525,100 sq ft of aircraft storage and maintenance space.

Paved Airport Apron Area

The primary apron areas on the airfield are located in the southwest (south of Runway 9-27 and West of Runway 17L-35R) quadrant of the airfield (see **Figure 2-8**). The West Apron located on the north side of the terminal building is primarily associated with the terminal building, and air cargo operations. The West Apron is approximately 535,490 sq ft (59,499 sq yd) in area. The West Ramp is in fair condition, due to parking and maneuvering of heavy commercial aircraft adjacent to the gates. Reinforcement of the pavement is programmed to accommodate existing and future heavier aircraft

The South Ramp is primarily designated for the FBOs and related airfield tenants, although a portion supports terminal operations. The South Ramp is adjacent to the large commercial hangars utilized by Air 1, Signature Flight Support, Clearwater Aviation, etc. This bituminous pavement apron is approximately 409,554 sq ft (45,506 sq yd) in area.

PBS&J

St. Petersburg - Clearwater
International Airport

Aircraft Storage Facilities
Northeast Quadrant (1'=300')

Figure
2-7

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PBS&J

St. Petersburg - Clearwater
International Airport

Aircraft Storage Facilities
Northeast Quadrant (1'=300')

Figure
2-7

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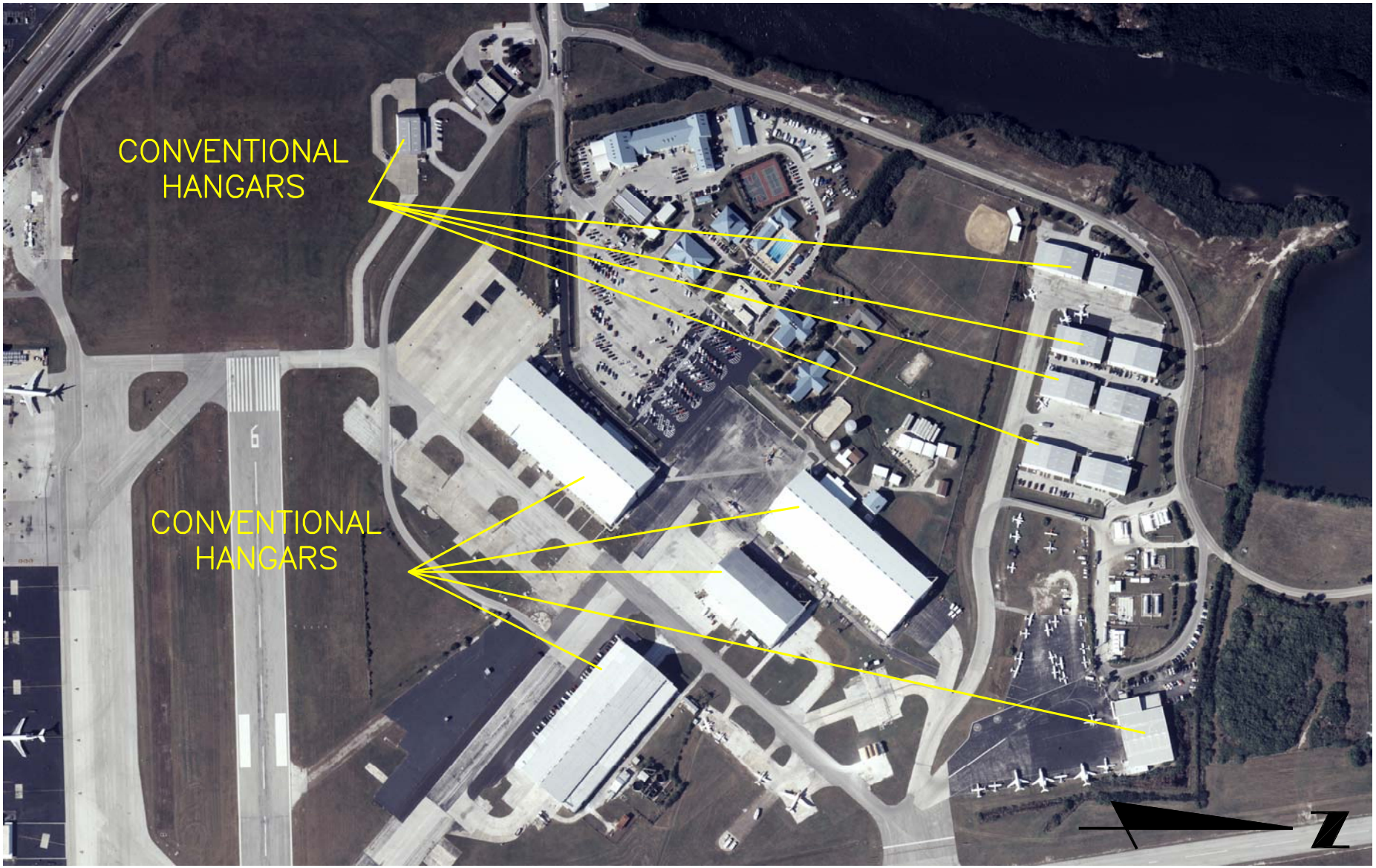

PBS&J

St. Petersburg - Clearwater
International Airport

Aircraft Storage Facilities
Northwest Quadrant (1"=400')

Figure
2-9

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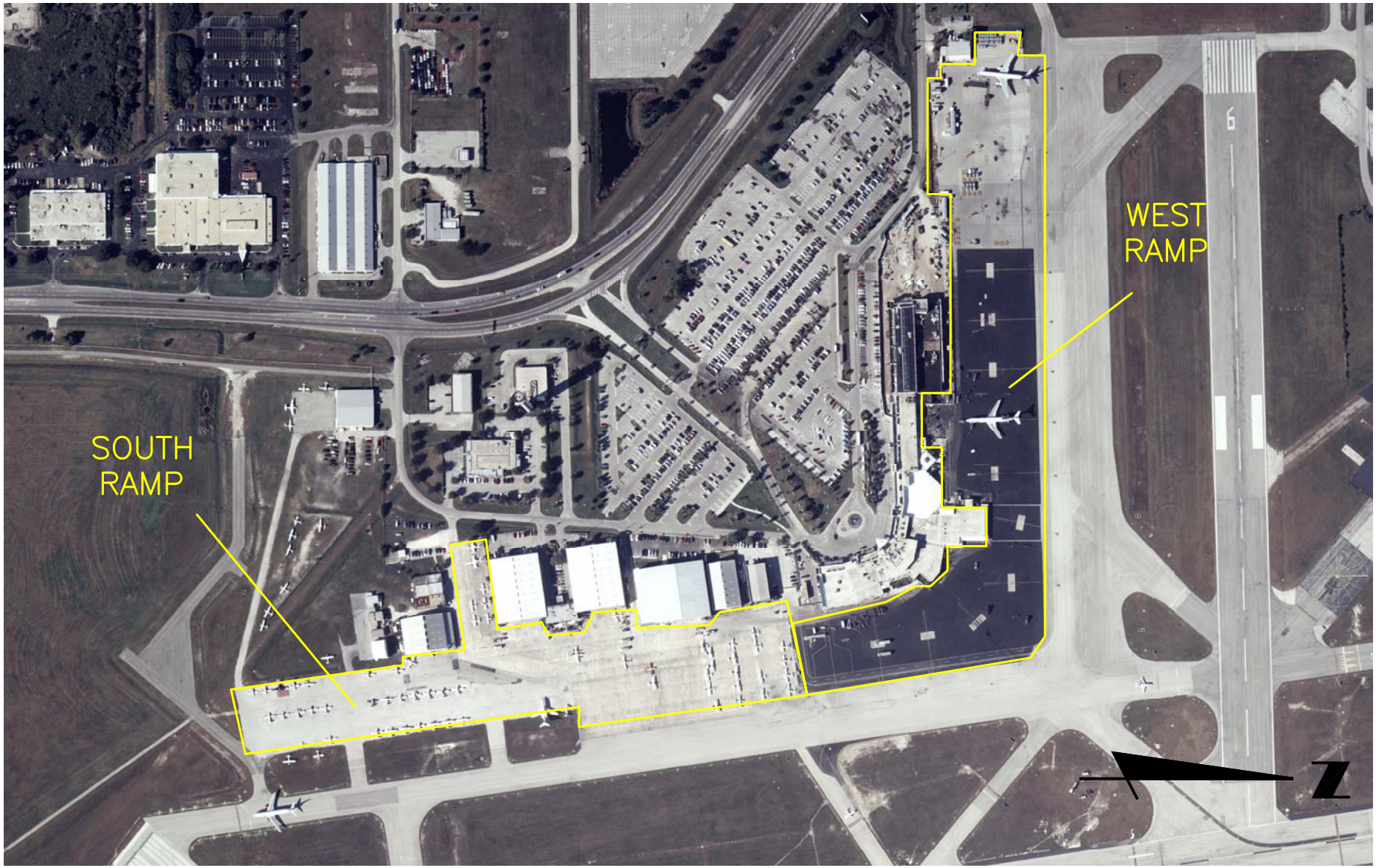

PBS&J

St. Petersburg - Clearwater
International Airport

Paved Aircraft Apron Areas
Southwest Quadrant (1"=400')

Figure
2-10

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In addition to the South and West Ramps, there is additional apron associated with the conventional hangar utilized by the NAA. This apron is bituminous concrete in fair condition and is approximately 13,183 sq ft (1,464 sq yd). It is used for GA operations only, primarily for aircraft taxing and maintenance.

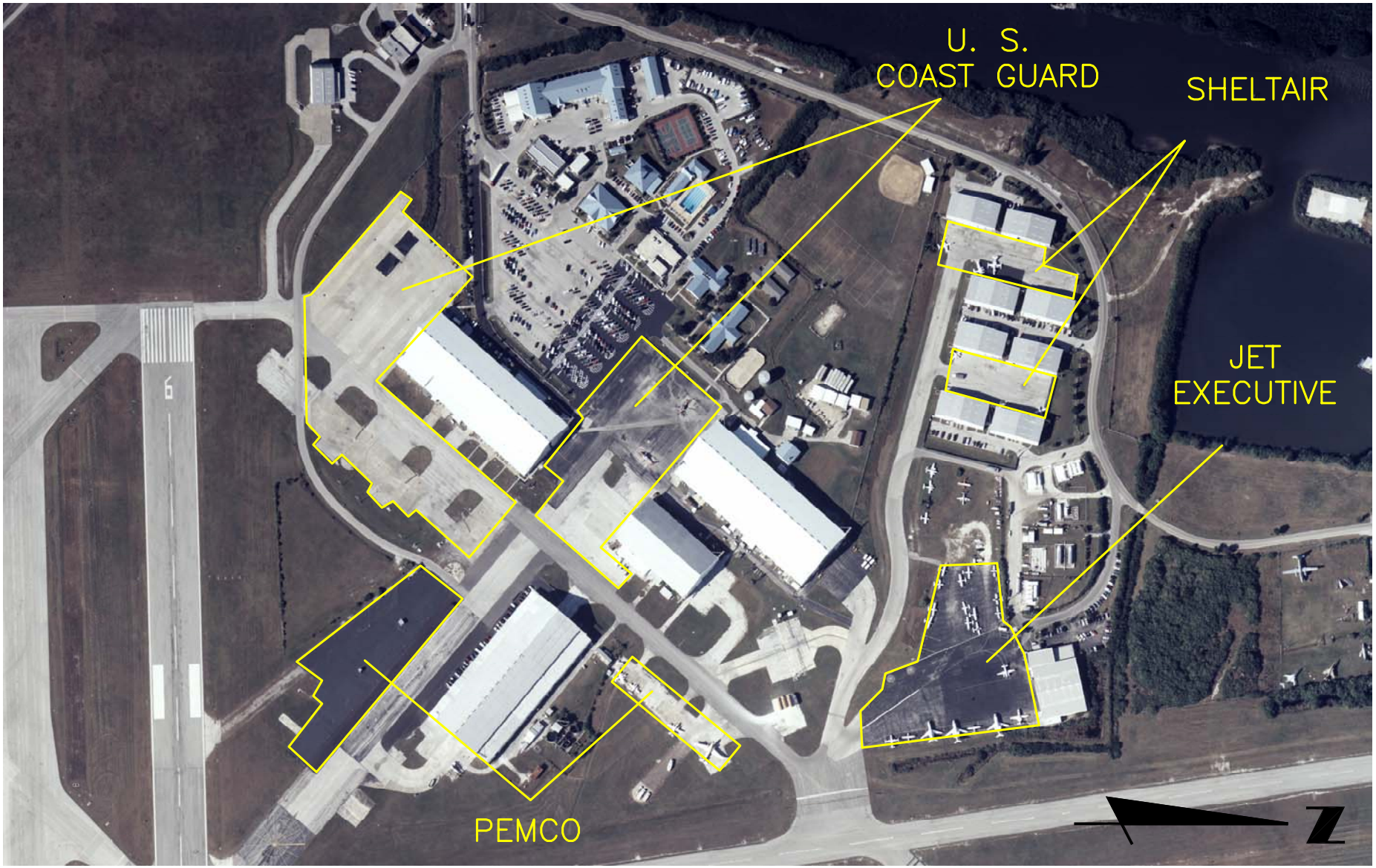
On the northwest portion of the airfield, there are four designated apron/ramp areas. Three of these aprons are located to the north of Runway 9 (see **Figure 2-11**). This area is designated for USCG operations and PEMCO operations. The primary USCG Ramp is bituminous pavement and is approximately 401,181 sq ft (44,571 sq yd). The apron is located adjacent to the designated USCG Ramp, which is also concrete and is approximately 155,127 sq ft (17,236 sq yd). This area is shared to some degree between PEMCO's operations and those of the USCG.

In addition to the ramp areas associated with the USCG and PEMCO operations, there is an additional apron space located to the east and west of the fuel farm. To the west, SheltAir utilizes approximately 79,886 sq ft (8,876 sq yd) for apron space. To the east, Jet Executive Center utilizes approximately 152,141 sq ft (16,905 sq yd) for apron space. This apron is in good shape and provides tie-down space and access to Jet Executive's Maintenance operations. The apron is designed to accommodate GA, corporate, and charter operations. See **Figure 2-11**.

According to the 2000 ALP Update, **Figure 2-3**, there is an additional 50 x 50 sq ft (277.75 sq yd) of apron pavement located on the southeast portion of the airfield perimeter. This apron is part of the industrial development segment labeled as Parcel F. This apron is accessed via Runway 4-22 and Taxiway J.

Conventional Hangar Apron Ramp

Conventional hangar apron is required to allow aircraft room to taxi in and out of hangar facilities. Currently, conventional hangar apron area is minimal and, as a result, restrictive. The total amount of conventional hangar space is approximately 358,886 sq ft (39,876 sq yd). Typically, the FAA recommends that the amount of hangar apron equal the amount of storage space inside the hangar. Based upon this criterion, 359,000 sq ft, (39,889 sq yd) of apron space should be designated as conventional hangar apron, not including military facilities. It is important to note that while the areas mentioned may seem comparable in size, this is an overall view of conventional space and not a case-by-case study. Also, close proximity of apron space to the hangar it serves is necessary, but is not considered in the calculation.



PBS&J

St. Petersburg - Clearwater
International Airport

Paved Aircraft Apron Areas
Northwest Quadrant (1"=400')

Figure
2-11

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Based/Transient Tie-Down Ramp

At PIE, there are several paved and turf areas designated for aircraft tie-down parking, on both the southwest and the northwest portions of the airfield. On the southwest side the largest paved tie-down area is located along the South Ramp. This area is designated for commercial, corporate and GA operations. This South Ramp encompasses approximately 409,554 sq ft (45,506 sq yd) of pavement, though tie-downs are limited due to operational requirements of the FBOs. As a result, a grassy area adjacent to the South Ramp on the south side is often used for light aircraft tie-downs. Based upon information obtained from the local FBOs, there are 72 designated paved tie-down spaces and approximately 15 turf tie-down spaces. Additionally, the apron area adjacent to NAA hangar space is used for based aircraft tie-down. Based upon information obtained from the NAA, there are approximately 11 paved tie-down spaces along the perimeter of the paved ramp, which is approximately 2,000 sq yd.

On the northwest portion of the airfield are the ramps/aprons associated with PEMCO Nacelle Services' operations, the USCG, and Jet Executive Center, one of the three FBOs on the Airport, though there are no designated tie-downs listed for the areas surrounding PEMCO and the USCG. However, the apron adjacent to the Jet Executive complex located near the fuel farm facility does offer limited tie-down space of approximately 127,141 sq ft (14,127 sq yd) to its customers.

It is important to note that most tie-down spaces located in the GA ramp area are not designated for based or transient aircraft, but are multi-purpose.

Based Aircraft Tie-down Ramp

FAA guidelines recommend tie-down space for all based aircraft not stored in hangar facilities. Currently, 116 aircraft require tie-down storage. Based upon the ratio of 300 sq yd per aircraft, approximately 299,700 sq ft (33,300 sq yd) of pavement should be designated for aircraft tie-down storage. However, currently there is approximately 284,434 sq ft (31,604 sq yd) available for based aircraft tie-down.

Transient Aircraft Tie-Down Ramp

Tourist activities, area businesses and industries, and the availability of maintenance and FBO services attract transient aircraft to the Airport. The transient ramp is used for the loading and unloading of passengers, or for short-term parking by aircraft utilizing the Airport's FBOs or maintenance facilities. Total transient apron parking requirements are based upon the maximum number of aircraft anticipated to be parked at the Airport at a given time. As a result, 381,348 sq ft, or 42,372 sq yd (approximately 141 aircraft per day) of apron space should be designated for transient apron/ramp parking. There is only 153,388 sq ft (17,043 sq yd) of transient aircraft tie-down ramp available.

Fixed Based Operators

PIE is home to three large FBOs: Jet Executive Center, Signature Flight Support, and Air 1, who provide fueling, maintenance, and terminal facilities to GA and corporate users. In addition, Jet Executive Center and Signature Flight Support provide fueling and ground service to based commercial air carriers.

Jet Executive Center

Jet Executive Center's facilities are located at 15875 Fairchild Drive in the northwest quadrant of the airfield, adjacent to the fuel farm facilities (see **Figure 2-12**, Fixed Base Operators, North Side). Jet Executive Center offers aviation fuel (100LL and Jet A), aircraft parking (ramp and tiedown), hangars, a passenger terminal and lounge, aircraft

charters, catering, a flying club, rental cars, courtesy cars, public telephones, a pilot lounge, restrooms, and showers. Its facilities consist of a 152,141 sq ft (16,905 sq yd) of apron, and approximately 25,000 sq ft of hangar space.

Current hangar facilities consist of a main hangar, approximately 25,000 sq ft, which houses the offices, lounge, and other amenities. In addition, Jet Executive Center leases two 20,000 sq ft hangars from SheltAir. These hangars are capable of accommodating aircraft up to G-V. Jet Executive Center is the only FBO with facilities capable of accommodating airliner-style aircraft, such as the B-727. Jet Executive Center currently provides storage for several local and transient jet aircraft at PIE. A current list of Jet Executive's facilities is shown in **Table 2-10**.

Table 2-10. Jet Executive Center Facilities

Facility	*Use*	*Location*	*Area/Amount*
Main Facility	Office/Maintenance	15875 Fairchild Drive	25,000 sq ft
Hangar	Storage	15875 Fairchild Drive	20,000 sq ft
Hangar	Storage	15875 Fairchild Drive	20,000 sq ft
Main Facility Apron	Ramp/Tie-downs	15875 Fairchild Drive	16,905 sq yd
Auto Parking	Parking for Facility	15875 Fairchild Drive	~60 total spaces
Hangar Apron	Aircraft Movement	15875 Fairchild Drive	~4,444 sq yd
Fuel			
Tank 1	Jet A	Fuel Farm	15,000 gal.
Tank 2	Jet A	Fuel Farm	15,000 gal.
Tank 3	Jet A	Fuel Farm	20,000 gal.
Tank 4	100LL	Fuel Farm	15,000 gal.
Truck 1	Jet A	15875 Fairchild Drive	
Truck 2	100 LL	15875 Fairchild Drive	

Source: Jet Executive Center Meeting, PBS&J, January 2001 and AIRNAV, 2002

In addition to providing complete services, catering, rental car, limousine, hotel reservations, etc. to its corporate clients, Jet Executive Center currently provides underwing ground handling and airline fueling to several of the current airlines. Both Signature Flight Support and Jet Executive Center have the right to bid on current airline contracts. Pan Am is one of Jet Executive Centers' current contracts.

Jet Executive management has indicated that there are plans to move into a new corporate complex designed and built by SheltAir in the near future. This move was prompted by poor access in and out of their facility, especially during rush hour, due to high traffic on Fairchild Drive.

PBS&J

St. Petersburg - Clearwater
International Airport

Fixed Base Operators
Northwest Quadrant (1"=400')

Figure
2-12

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Signature Flight Support

Signature Flight Support is the world's largest flight support operation (FSO) and distribution network for business and commercial aviation services, and provides fixed base operator (FBO), charter operations, and ground handling services. Signature subleases a portion of their facility to six tenants: one charter, two flight departments, two schools, and one security firm. Signature employs 32 full-time and 33 part-time employees.

Signature's main facility, located at 14525 Airport Parkway, is approximately 25,000 sq ft. It features glass walls, opera ceilings and tile floor, a passenger terminal and lounge, a pilots lounge and snooze room, and a weather/flight planning room.

Limited hangar facilities are available, and are capable of accommodating an aircraft up to G-II. The main hangar has approximately 24,200 sq yd of adjacent ramp space, providing approximately 61 paved universal tie-down spaces in addition to 15 turf tie-down spaces. The hangar is utilized primarily for office, terminal facilities, and aircraft maintenance. Signature also provides two additional hangar and office facilities on the other side of the Air 1 Facility on Airport Parkway, to six of its lessees.

In addition to these two hangar facilities, Signature owns three other conventional hangars, which are used for storage and equipment maintenance. Currently, Signature provides storage for 61 of the 242 aircraft based at PIE. See **Figure 2-13**, Fixed Base Operators, South Side. A current list of Signature's facilities is shown in **Table 2-11**.

Services currently provided by Signature include: aircraft fueling, ground handling, airline passenger services, baggage transfer, cargo handling, aircraft parking, limited hangars, catering, pilot supplies, car rentals, and courtesy transportation. Signature Flight Support management has indicated a critical need for additional aircraft ramp parking as well as hangar space.

Table 2-11. Signature Flight Support Facilities

Facility	*Use*	*Location*	*Area/Amount*
Main Facility	Office/Maintenance	14525 Airport Parkway	25,000 sq ft
Hangar	Sub-Let	16525 Airport Parkway	23,000 sq ft
Apron	Tie-downs/Ramp	14525 Airport Parkway	24,200 sq yd
Office Facilities	Office/Administration	14525 Airport Parkway	6,000 sq ft
Auto Parking	Parking for Facility	14525 Airport Parkway	60 total spaces
Based Aircraft	Storage	14525 Airport Parkway	65
Paved Tie-Downs		14525 Airport Parkway	61
Turf Tie-Downs		14525 Airport Parkway	15
Hangar	Storage		16,000 sq ft
Hangar	Storage		13,000 sq ft
Hangar	Equipment Storage		8,000 sq ft
Fuel			
Truck 1	Jet A	Airport Parkway	7,000 gal
Truck 2	Jet A	Airport Parkway	25,000 gal
Truck 3	Jet A	Airport Parkway	13,000 gal
Truck 4	100LL	Airport Parkway	750 gal
Truck 5	100LL	Airport Parkway	750 gal
Tank 1	Jet A	Fuel Farm	80,000 gal
Tank 2	100LL	Fuel Farm	10,000 gal

Source: Signature Flight Support Survey, PBS&J, January 2002

AIR 1

Air 1 is located on the southwest quadrant of the airfield on the South Ramp area at PIE. Its current facilities consist of an 8,000 sq ft office and lounge facility, an 18,000 sq ft conventional hangar facility, 11 paved tie-down spaces, approximately 5,324 sq yd of apron space, and 40 paved automobile parking spaces. See **Figure 2-13**, Fixed Base Operators, South Side.

Services include: aviation fuel, aircraft parking (ramp or tiedown), hangars, passenger terminal and lounge, flight school/flight training, aircraft rental, Cessna aircraft sales, aircraft maintenance, aircraft modifications, aircraft parts, aviation accessories, catering, pilot supplies, rental cars, public telephones, pilots' lounge/snooze room, restrooms, and showers.

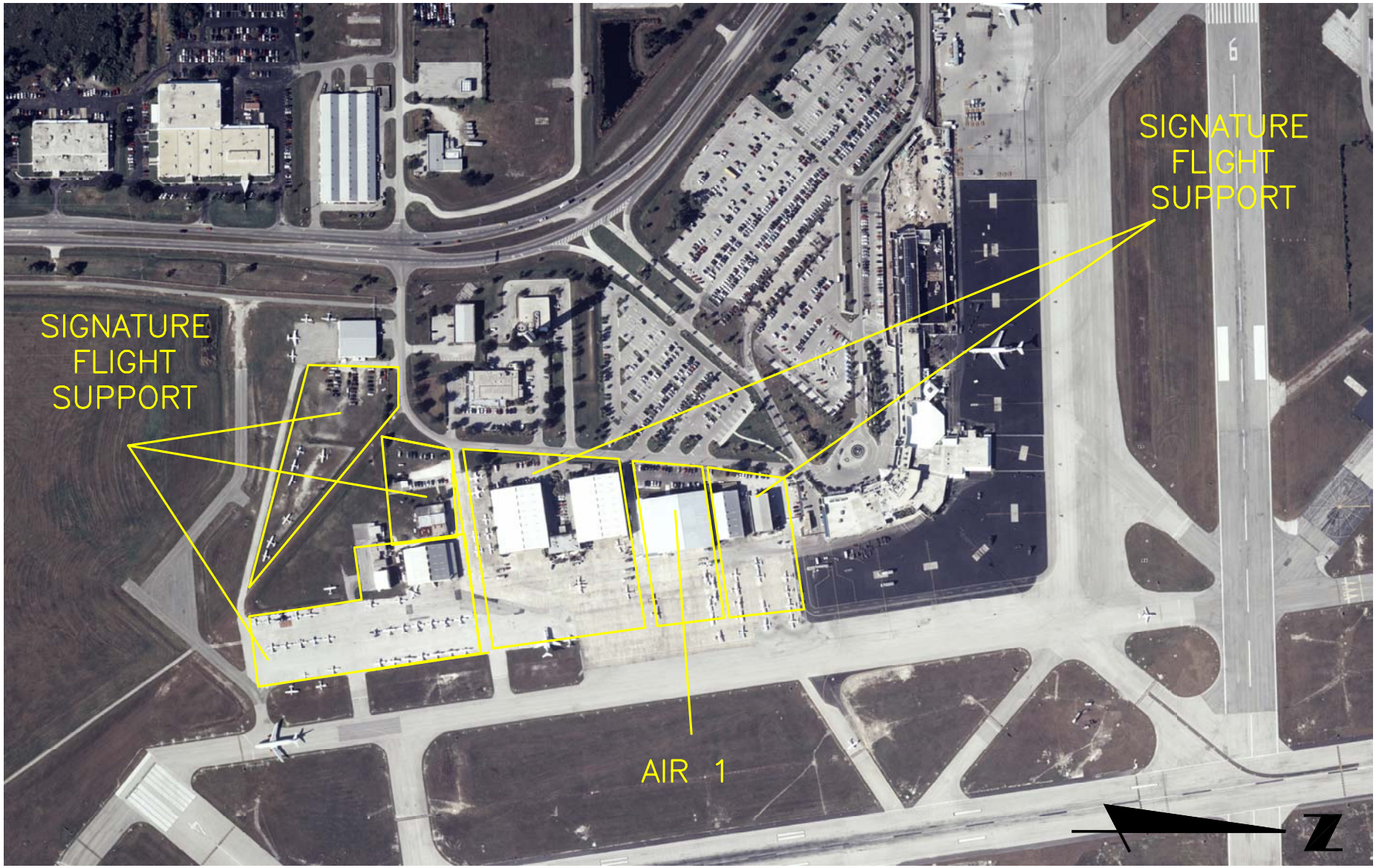
A list of Air 1's current facilities is shown in **Table 2-12**.

Table 2-12. Air 1 Aircraft Facilities

Facility	*Use*	*Location*	*Area/Amount*
Main Facility	Office/Maintenance/Storage	14609 Airport Parkway	18,000 sq ft
Apron	Tie-downs/ Movement	14609 Airport Parkway	5,324 sq yd
Office	Office/Administration	14609 Airport Parkway	8,000 sq ft
Auto Parking	Parking for Facility	14609 Airport Parkway	40 Spaces
Tie-downs	Aircraft Parking	14609 Airport Parkway	11 Spaces
Fuel			
Truck 1	Jet A	14609 Airport Parkway	3,000 gal
Truck 2	100 LL	14609 Airport Parkway	3,000 gal
Truck 3	Jet A	14609 Airport Parkway	1,500 gal
Tank 1	Jet A	Fuel Farm	
Tank 2	100LL	Fuel Farm	

Source: AIR 1 Aviation Survey, PBS&J, January 2002

The owner of Air 1 is one of the principals in the development of the Clearwater Jet Center complex (CJC), which is being designed as the largest, most modern and only full-service FBO at PIE. The CJC facility is being constructed on the southwest end of the Airport on Roosevelt Boulevard, north of the Ulmerton Road intersection. CJC is located on a parcel that is clearly visible from the approach end of Runway 35R, adjacent to Taxiway N.



PBS&J

St. Petersburg - Clearwater
International Airport

Fixed Base Operators
Southwest Quadrant (1"=400')

Figure
2-13

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The 9.45-acre campus is planned to include:

- 6.5 acres of ramp space
- 39,900 sq ft of aircraft hangar storage space
- 10,000 sq ft of maintenance hangar space
- 23,000 sq ft of FBO space with a two-story lobby.

It is expected that the 80,200 sq ft facility will be completed by late summer of 2002. The CJC office building will include:

- A 5,000 sq ft FBO with 8,400 sq ft of outside canopy
- 4,200 sq ft of office/storage space with hangar access
- A 1,800 sq ft area designated for Part 141 Flight Academy
- An avionics and repair shop
- An airframe and powerplant repair facility
- 8,800 sq ft of leasable premium office space.

Flight and Aircraft Maintenance Training

Flight training at PIE is provided by a variety of operators: American Flying Adventures, TSR, and National Aviation. William Krusen, one of the original pioneers of commercial aviation founded National Aviation and National Aviation Academy, an A&P training school, in 1968. The two schools were separated in the 1970s.

National Aviation

National Aviation is one of the oldest and most highly regarded flight training schools in Florida, training thousands of pilots since its inception.

Operating out of the Air 1 FBO, National became a Cessna Pilot Center after it was acquired in 1999, and offers an exceptional fleet of rental aircraft.

It is expected that in early 2002, National will become an FAA Part 141 flight-training center.

National Aviation Academy

NAA is an Aviation Maintenance Technology training school that leads to the FAA Airframe and Powerplant (A&P) Certification. The A&P certificate is required to perform maintenance on most aircraft in the United States.

NAA began training students in 1969. The school is located at 5770 Roosevelt Blvd, and the hangar facility is located a mile and a half east of that address.

NAA has a 15,000 sq ft classroom and office facility in addition to its 12,000 sq ft hangar and shop area (see **Figure 2-14**, National Aviation Academy). The Academy trains between 250 to 300 students annually, and employs 22 people. All fuel is purchased through Signature Flight Support.

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St. Petersburg - Clearwater International Airport

National Aviation Academy (1"=300')

Figure 2-14

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Currently, NAA is suffering from a shortage of hangar maintenance space, apron space, automobile parking and academic space. NAA personnel indicate that there are plans to develop a new and larger facility along Ulmerton Road if proper ground access could be developed. A current list of NAA's facilities is shown in **Table 2-13**.

Table 2-13. National Aviation Academy Facilities

Facility	*Use*	*Location*	*Area*	*Other*
Buildings:				
Admin. /Academics	Offices/Classes	5770 Roosevelt Blvd.	15,000 sq ft	
Hangar/Shop Area	Training	Airport Service Road	12,000 sq ft	
Compressor Shed	Training	Shop Area	8 sq yd	
Paint Booth	Training	Shop Area	8 sq yd	
Apron	Training	Shop Area		
Paved	Parking	Shop Area	2,000 sq yd	
Turf	Parking	Shop Area	2,000 sq yd	
Tie-Downs	Training	Shop Area		6
Auto Parking				
Paved		Shop Area	270 sq yd	
Turf		Shop Area	1,575 sq yd	

Source: National Aviation Academy Survey, PBS&J, January 2002

Clearwater Aviation Academy

The Clearwater Aviation Academy is a Part 141 Flight School located at 14695 Airport Parkway at PIE. The Academy offers flight training, ground school, aircraft rental, and aircraft sales. The Academy markets a fresh approach of one-on-one flight instruction for obtaining an FAA Airman's certificate for private pilot, instrument rating, single-/multi-engine rating, commercial pilot, certified flight instructor, and/or air transport pilot. The Academy's fleet includes C152, C172, PA-44-180, PA-28-181, and PA-34-200.

Royal Flying Club

Royal Air Flying Club and Royal Air, Incorporated are located at 15875 Fairchild Drive at PIE within the leasehold of the Jet Executive Center. Royal Flying Club offers flight instruction for CFI and CFII, as well as, recurrent training and aircraft rental. Royal has approximately 15-20 aircraft on the field comprised of single-, complex-, and twin-engine aircraft. Royal has expressed interest in expanding the existing operation in the near future. Expansion plans would include an increase in hangar and apron space at PIE.

Air Cargo Facilities

Air Cargo at PIE consists of two designated all-cargo air carriers, Airborne Express and United Parcel Services (UPS) and limited belly freight from local airlines. Cargo operations are relegated to the southwest quadrant of the airfield on the westernmost portion of the West Ramp Area (see ALP, **Figure 2-3**).

United Parcel Service (UPS)

UPS' offices are located adjacent to the West Ramp area near the Roosevelt Blvd entrance on the western side of the landside parking area, (see **Figure 2-15**, Air Cargo Facilities) and handles an average of 2 million packages each day. To accommodate this volume, UPS uses a system of "air hubs" located around the world (Louisville, KY; Philadelphia, PA; Dallas, TX; Ontario, CA; Rockford, IL; Columbia, SC; and Hartford,

CT). The UPS fleet of 238 jet aircraft consists of Boeing 727, 747, 757, 767, and DC-8 aircraft and 7 Airbus A300F4-620R. In addition, the company charters 384 aircraft.

At PIE, UPS currently operates two B757 freighters and one DC-8 freighter. It is anticipated that a future fleet mix could include one B757 and three A300. However, currently there is limited ramp space of approximately 183,000 sq ft (20,333 sq yd). There are only four aircraft parking spaces on the ramp, with room for two B757s and one A300 only. Typically, one space is utilized for storing ramp equipment.

At present, UPS employs six full-time aircraft mechanics and 11 general UPS employees, consisting of primarily operations and drivers. Quantum Aviation provides ground support with 58 part-time ground handlers for loading and unloading operations. In addition, Signature Flight Services provides fueling, pushback, and lavatory services.

Typical cargo loads carried through PIE include computer components, electrical goods, and tropical fish. UPS' current flight schedule is shown in **Table 2-14**.

Table 2-14. United Parcel Service 2001 Flight Schedule

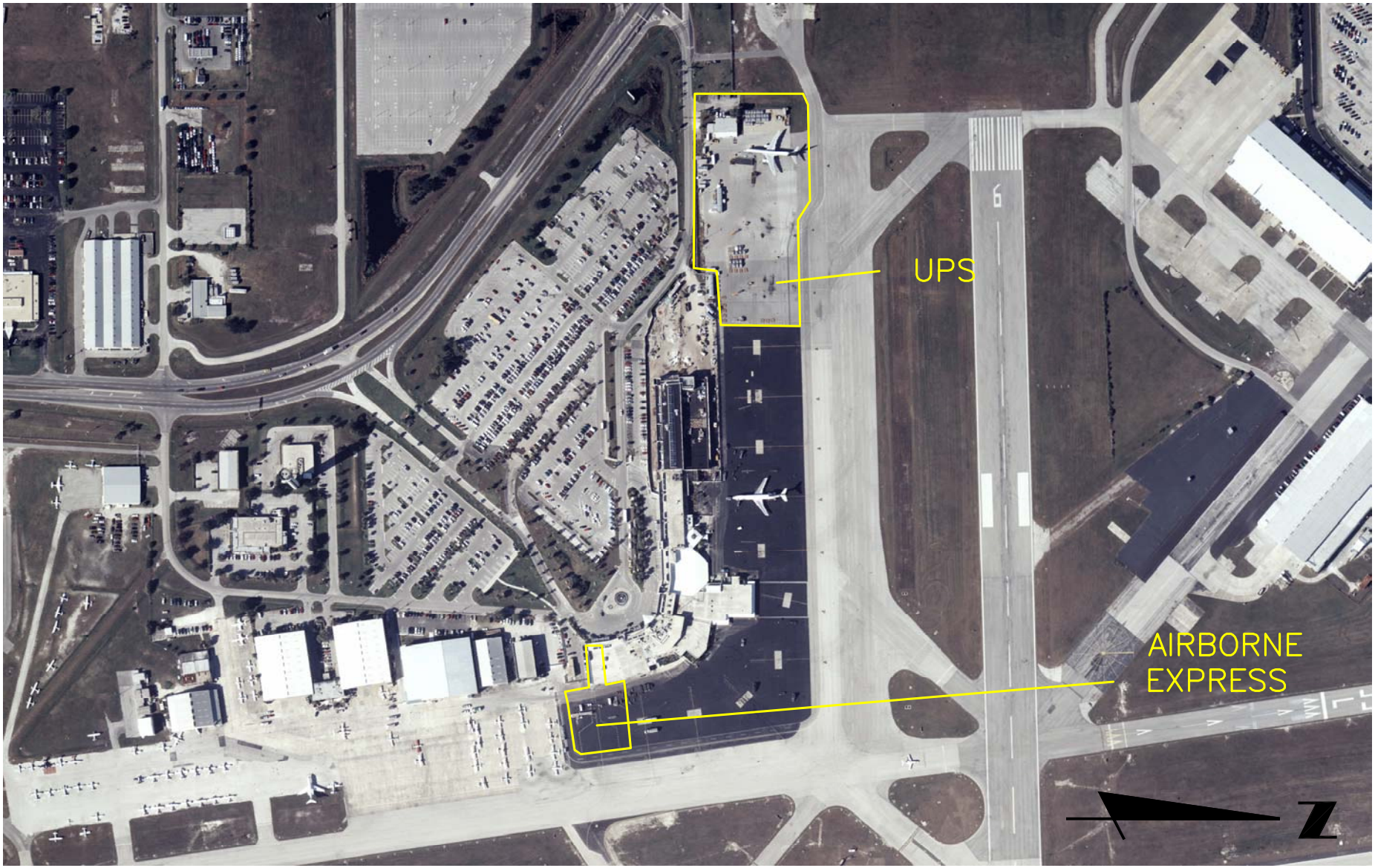
Flights	Origin	Aircraft	Time	Origin	Time
Into PIE	CAE/ABY	B-757	05:44	MIA	20:56
	PHL/ABY	B-757	06:21	MIA	20:11
	SDF	DC-8	06:05	MCO	19:39
	Destination	**Aircraft**	**Time**	**Destination**	**Time**
From PIE	UIO	DC-8	06:44	CAE	22:15
	MIA	B-757	07:45	PHL	21:45
	SDF	B-757	09:00	SDF	21:35

Source: UPS Meeting and Survey, PBS&J, December 2001
Note: Arrival and departure times are listed in military format.

Airborne Express

Airborne Express is a full-service global transportation and logistics partner to businesses and government agencies around the globe. Airborne Express-PIE serves portions of Pinellas, Manatee, Sarasota, and Lee Counties. Airborne currently operates a DC-9-40 at the Airport. The DC-9 holds approximately 50 containers and has a typical load of 28,000 to 30,000 lb per outbound flight.

Currently, Airborne operates out of Gate 1 on the West Ramp; however, space becomes limited when Gates 2 and 3 are in use. A minimum of 3,500 sq ft of apron space is needed to accommodate the current DC-9 fleet. If, as is planned for the near future, this station is upgraded to a B-767, then, a minimum of 10,000 sq ft of apron space will be required. Another 3,000 sq ft would be required for loading apparatus. See **Figure 2-15**, Air Cargo Facilities.



PBS&J

St. Petersburg - Clearwater
International Airport

Air Cargo Facilities
(1"=400')

Figure
2-15

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Airborne Express-PIE's current operations consist of a DC-9 arriving from Wilmington, Ohio (Airborne's main sort center) to PIE at 7:28 a.m. for outbound delivery. Approximately 30 minutes later, this same DC-9 leaves for Ft. Myers where it remains until it returns to PIE at approximately 8:35 p.m. At that time freight is loaded and the plane departs for Wilmington. Signature Flight Support handles fueling services.

Airborne-PIE's main operations and sort facilities are located off the Airport property due to limited space and access. Airborne has a small office in the terminal, second floor. However, Airborne would be interested in moving its facilities to the Airport if adequate space and access were made available. Currently, Airborne needs room for three trucks for inbound flights and four for outbound flights, 20-ft belt platforms, office space near the ramp, a small to medium size warehouse with the ability to accommodate the DC-9 or B767, and approximately 6,500 sq yd of apron space.

At present, Airborne Express-PIE employs four full-time and three part-time personnel, and over 100 contract drivers and ground personnel. Primary outbound cargo consists of eyeglasses (Reflections) and healthcare (Baxter) products. First and second quarter freight is primarily associated with winter residents sending household goods to Florida, while third and fourth quarters are dominated by Christmas freight.

Military Tenants

US Coast Guard Facilities

The PIE USCG Station is the largest and busiest Air Station in the Coast Guard. In addition to the local area, the Clearwater Air Station area of operations includes the Gulf of Mexico, the Caribbean basin, and the Bahamas. The USCG constantly maintains four deployed H-60s for Operation Bahamas Turks and Caicos (OPBAT), a joint DEA, Coast Guard, Bahamian, and Turks and Caicos anti-drug and migrant smuggling operation in the Bahamas. The USCG also deploys one C-130 for the Joint Interagency Task Forece – East (JIATFE) operations in the Caribbean. This is all done while maintaining a constant Bravo Zero Search and Rescue response at home.

The USCG Air Station owns 41 acres of land adjacent to the airfield and with the operational and maintenance facilities consisting of two 72,000 sq ft hangars. (See **Figure 2-16**, Military Facilities.)

Prior to 1976, the USCG Air Station was located at Albert Whited Airport. However, with the addition of four HC-130s airplanes, the USCG moved to PIE.

USCG Clearwater (Clearwater) became the USCG's largest air station in 1987 with the expansion of the drug interdiction mission OPBAT. This large ongoing mission resulted in the assignment of 12 HH-60J helicopters, the newest in the USCG fleet, and boosted personnel strength to its current level of over 500 men and women. Also during this period, three additional HC-130s were stationed at Clearwater to support the increased law enforcement efforts.

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St. Petersburg - Clearwater
International Airport

Military Facilities
(1"=500')

Figure
2-16

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The 12 Sikorsky HH-60J "JAYHAWK" helicopters assigned to the air station to support USCG ships on law enforcement patrols, deliver dewatering pumps to sinking ships, evacuate injured crewmembers from vessels at sea, etc. Clearwater helicopter aircrews fly an average of over 400 search and rescue cases each year along the coasts of Florida, the Bahamas, and beyond.

Other Aviation Tenants

In addition to Signature Flight Support, Air 1, Jet Executive Center, National Aviation Academy and the USCG, PIE is home to a number of other aviation tenants. Tenant businesses include: helicopter training and charter operations, a limited FAA repair station, aircraft sales and rentals, and private aircraft owner communities. Current aviation tenants are listed in **Table 2-15**.

Table 2-15. 2001 Aviation Tenants

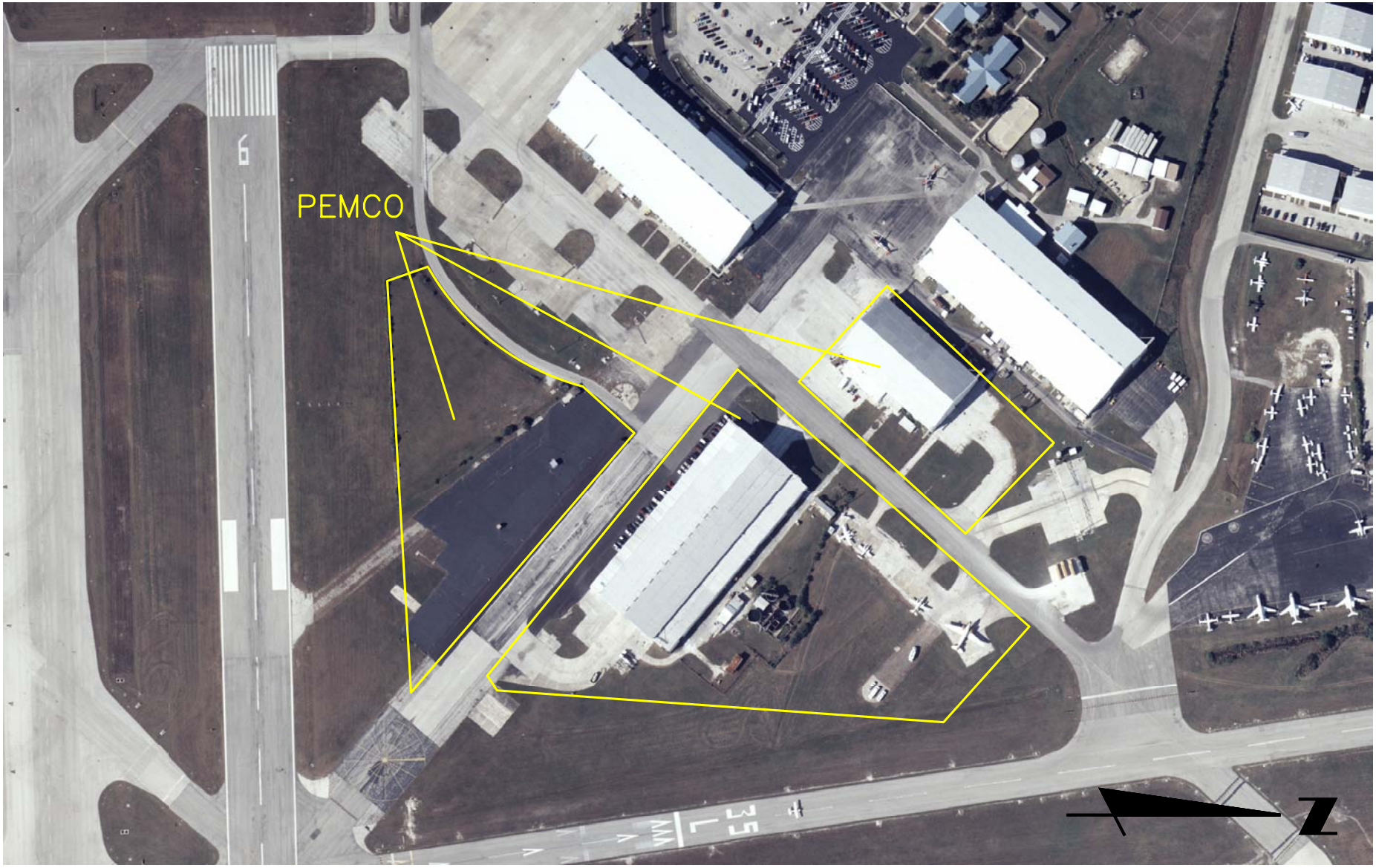
Name	Location	Operation
PEMCO Nacelle Services	3800 Roosevelt Blvd	FAA Repair Station
PEMCO Air Support Services	3800 Roosevelt Blvd	Inventory Service
Landings Aircraft Association	Northeast Airfield	Private Owners
PIE in the SKY (DELTA)	Northeast Airfield	Private Owners
TRS Helicopters	Airport Parkway	Helicopter Training and Charter Operations
Jet Executive Center	15875 Fairchild Drive	FBO
Air 1	14609 Airport Parkway	FBO
Signature Flight Support	14525 Airport Parkway	FBO
National Aviation	14609 Airport Parkway	Flight School
National Aviation Academy	5770 Roosevelt Blvd	A&P School
Care Flight	14609 Airport Parkway	Medical Operations
U.S. Coast Guard	Northwest Airfield	Military
Quantum Aviation	Northwest Airfield	Ground Handling
United Parcel Services	West Ramp	Cargo Operator
Airborne Express	Terminal Building	Cargo Operator
Freight Management	Northwest Airfield	Freight Forwarder
Southeast Airlines	Terminal Building	Commercial Airline
ATA	Terminal Building	Commercial Airline
Air Transat	Terminal Building	Commercial Airline
Pan Am	Terminal Building	Commercial Airline
Clearwater Aviation		Flight School
American Flying Adventures	14695 Airport Parkway	Flight School
Royal Flying Club		Flight School

Source: St. Petersburg-Clearwater International Airport, 2001
Note: Pan Am ceased service in September 2002, and CanJet and Skyservice Airlines are new terminal tenants

PEMCO Nacelle Services

PEMCO Nacelle Services (PEMCO) is an FAA approved limited airframe, power plant, and accessory repair station, and is located adjacent to PIE in Clearwater, Florida. (See **Figure 2-17**, Aircraft Maintenance Facilities.)

PEMCO specializes in the repair and overhaul of thrust reversers and nacelle related components for GE, IAE, Pratt & Whitney, CFM, and Rolls Royce Engines. PEMCO also offers flight control surface repair services, covering a variety of airframe, as well as AOG assistance.



St. Petersburg - Clearwater International Airport

Pemco Aircraft Maintenance Facilities (1"=300')

Figure 2-17

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In addition, the PEMCO Clearwater Complex is home to PEMCO Air Support Services (PASS), which provides specialized parts and inventory to their customers. PASS specializes in the manufacture, repair, and overhaul of cargo conversion parts, including hydraulic power units, latching cylinders, crossover valves, etc.

The 100,000 sq ft facility houses two clean rooms, complete with vacuum systems, and heat lamps and heat blankets for bonding and composite repairs. Additional back shops include machines, welding, sheet metal, composite repair, bonding, and accessory shops. PEMCO also has a nitrogen-charged, computer-controlled autoclave available for repairs requiring higher temperatures and pressure bonding up to 650 degrees and 150 psi.

Currently, the PEMCO facility at PIE is leased to Southeast Airlines in its entirety. No PEMCO staff or services are currently being performed at this facility.

TSA Helicopters

TSA Helicopters is a full-service helicopter company offering charters, helicopter tours, demonstration flights, aerial surveys, exhibition flights, and flight training.

TSA Helicopters is located at the FlightShop Complex on Airport Parkway. TSA offers flight training from private pilot through certified flight instructor. TSA utilizes the Robinson R22 and Robison R44 helicopters for all their services.

American Flying Adventures

American Flying Adventures is located on the southeast side of the airfield at the 14695 Airport Parkway. American Flying Adventures offers flight training, aircraft rental and sales, leasing and brokerage. Their fleet includes a Cessna 152, Cessna 172P, Piper Warrior, C172SP, Piper Arrow, Piper Seneca, and Piper Seneca 1 “Deluxe”.

Private Aircraft Tenants

PIE is also home to two T-hangar condominium associations, The Landings Association and PIE in the SKY (DELTA). See **Figure 2-18**, General Aviation, East Side. Both the Landings and PIE in the SKY Associations have leased property along the northeastern portion of the airfield, adjacent to Runway 22, from the County. Both of these associations have erected T-hangar facilities for the storage of their aircraft. These facilities are utilized exclusively for storage.

The Landings is the older association on the airfield, owning approximately 11 T-hangars of various sizes. These hangars primarily house single- and twin-piston aircraft, a few experimental aircraft, and some small helicopters.

PIE in the SKY (DELTA) has been at the Airport for two years and has built three large T-hangars to the south of the existing Landings Association facilities. These T-hangars house 20 units per building, and are broken down into six large hangars (approximately 1,459 sq ft each), five medium units (approximately 1,250 sq ft each), and 49 small units (approximately 1,130 sq ft each).

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St. Petersburg - Clearwater International Airport

General Aviation
Northeast Quadrant (1"=300')

Figure 2-18

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Currently, all 60 units are filled, and there is a waiting list. The PIE in the SKY hangars house 46 single-engine piston aircraft, four multi-engine piston aircraft, four helicopters and six home-built aircraft.

PIE in the SKY representatives have voiced concern over the limited automobile parking in the vicinity of the hangars, and the significant waiting list for space. They have indicated a desire for more space for transient aircraft parking and fuel facilities.

General Aviation Automobile Parking

GA automobile parking is limited to designated areas along the front or side of the each main facility. Parking facilities range from two spaces to more than 100, as in the case of the USCG and PEMCO facilities. Tenants have voiced concern that the scarcity of GA parking, especially for businesses located along the southwest apron area (South Ramp) and private T-hangar owners, is a detriment to business operations.

Currently, the Airport is looking at providing additional parking. The new parking area layout will have a leased lot where tenants can rent additional parking stalls.

Support Facilities

Several other airfield support facilities serve important roles in ensuring the efficiency of aircraft ground operations. These services include Airport maintenance, ARFF, ATC, fuel facilities, Airport utilities, and Airport police. These services all play key roles in the support of aviation operations at PIE.

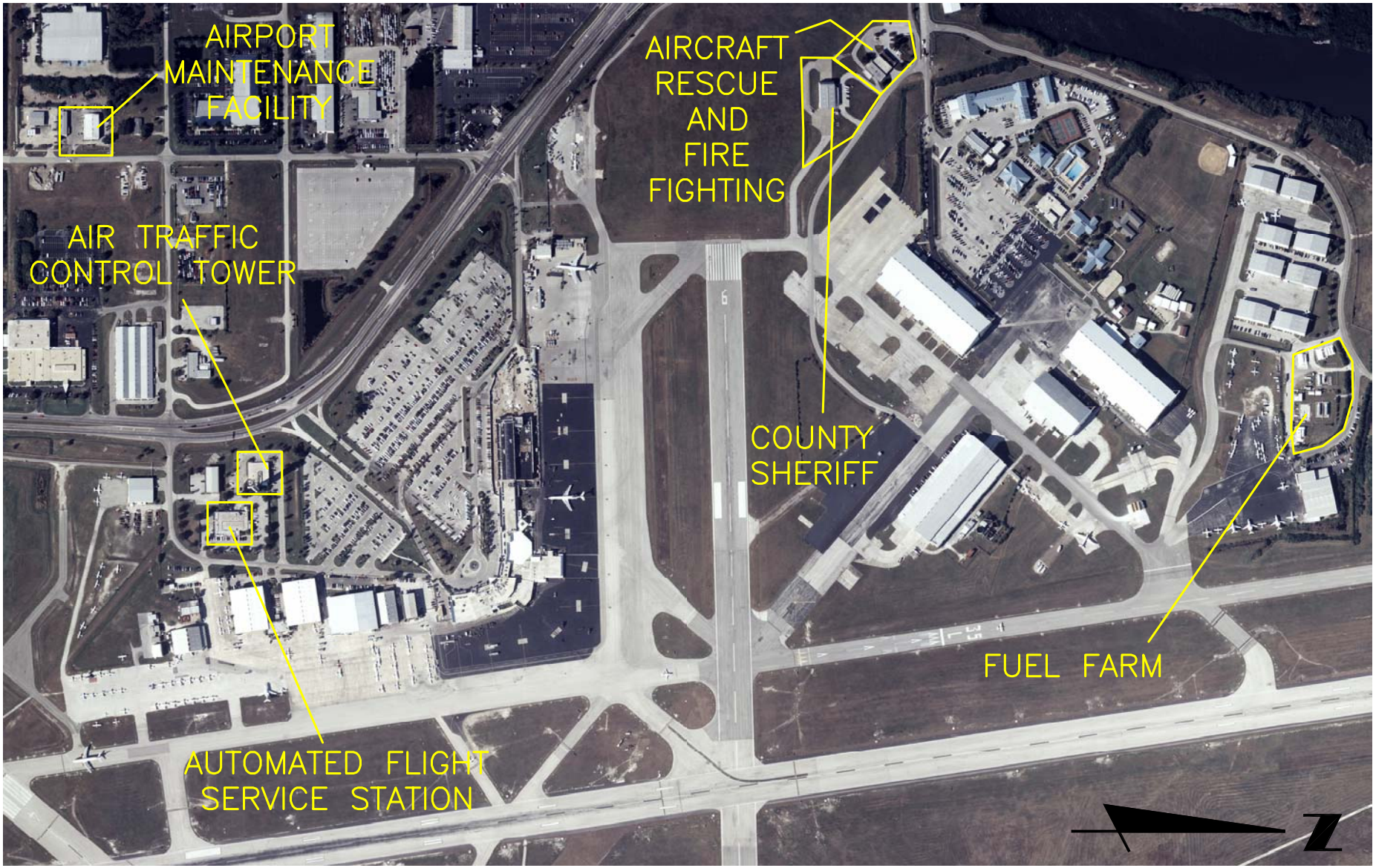
Airport Maintenance

Maintenance equipment for the Airport is stored in several buildings located around the airfield. These buildings are used to store lawn mowers and other shop and maintenance equipment. FAA guidelines indicate maintenance-building needs are related to the amount of paved areas and activity levels. For instance, increases in runway, taxiway, and apron pavement, combined with increasing activity levels, will result in the need to provided additional maintenance building space.

Airport Rescue and Firefighting Facilities

Commercial service Airports must have an ARFF. See **Figure 2-19**, Other Facilities. FAR Part 139.315 establishes an ARFF index letter that categorizes the facility. The index for an ARFF facility is dependent upon the longest aircraft operated by an air carrier that operates an average of more than five flights a day from that airport. For example, airports that average more than five flights a day for an aircraft with a length between 91 and 126 ft would be an index B. In the case of PIE, the ARFF facility is classified as an Index C facility.

In addition to the Airport's own ARFF equipment, the Airport has an agreement with the Pinellas County Fire Department and USCG to provide additional equipment and coverage in the event backup support is needed.



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St. Petersburg - Clearwater International Airport

Other Facilities (1"=600')

Figure 2-19

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Air Traffic Control Tower

PIE's Air Traffic Control Tower (ATCT) is the agency responsible for controlling aircraft operations within the PIE terminal area. The PIE ATCT controls an area approximately 5 nm from the Airport reference point. The bulk of this area is centered over the Airport from the surface up to 1,600 ft mean sea level (MSL).

The PIE ATCT provides ATC for the Airport itself, while TPA provides terminal radar approach control (TRACON) for the rest of the terminal area surrounding PIE.

The PIE ATCT exercises control over aircraft operations on the ground and in the Airport traffic control area (Class D) at PIE. The PIE ATCT is an FAA control tower headed by the tower manager. PIE ATCT is open from 6:00 a.m. to 11:00 p.m., seven days per week. (See **Figure 2-19**.)

The ATCT at PIE is responsible for control of traffic that extends to both VFR and IFR operations, but only those within the vicinity of the Airport. Responsibility for traffic control extends to a five-mile radius from the Airport, from ground level up to 3,000 ft, plus routes to and from any terminal air NAVAIDS used in instrument approaches and departures at the Airport. Control of traffic is principally directed to aircraft arriving/departing the traffic pattern and ground movement on the airfield.

Automated Flight Service Station

The St. Petersburg Automated Flight Service Station is located on the west side of PIE, south of the main terminal adjacent to the ATCT. (See **Figure 2-19**.)

Automated flight service stations are air traffic facilities which provide pilot briefing, en route communications and VFR search and rescue services, assist lost aircraft and aircraft in emergency situations, relay ATCT clearances, originate Notices to Airmen, broadcast aviation weather and NAS information, receive and process IFR flight plans, and monitor NAVAIDs. In addition, at selected locations, AFSSs provide En Route Flight Advisory Service (Flight Watch), take weather observations, issue airport advisories, and advise Customs and Immigration of transborder flights.

The PIE AFSS operates 24 hours a day every day of the year. The AFSS controls airfield lighting and provides non-visual traffic advisories for pilots between 11:00 p.m. and 6:00 a.m. The periods of heaviest activity are 5:00 a.m. to 9:00 p.m. and 3:00 p.m. to 5:00 p.m.

Fuel Storage

The fuel storage area for the FBOs and USCG is located on about one acre of land next to the JetExec property. USCG runs their fuel storage facility.

Fuel storage facilities range in size from 10,000 gallons to 80,000 gallons. Tanks owned by Jet Executive Center, Signature Flight Support, Air 1, and the USCG are located in the fuel farm along Fairchild Avenue. Expansion of the fuel farm facilities is expected in the near future (see **Figure 2-19**). **Table 2-16** lists the existing fuel facilities as of January 2002.

Table 2-16. Existing Fuel Tank Facilities

Facility	*Owner/Lessee*	*Size (gal)*	*Content*
Tank 1	Jet Executive Center	20,000	Jet A
Tank 2	Jet Executive Center	15,000	Jet A
Tank 3	Jet Executive Center	15,000	Jet A
Tank 4	Jet Executive Center	10,000	100 LL
Tank 5	Signature Flight Support	20,000	Jet A
Tank 6	Signature Flight Support	20,000	Jet A
Tank 7	Signature Flight Support	10,000	Jet A
Tank 8	Signature Flight Support	10,000	Jet A
Tank 9	Signature Flight Support	10,000	Jet A
Tank 10	Signature Flight Support	10,000	100 LL
Tank 11	Air 1	20,000	100 LL
Tank 12	Air 1	20,000	Jet A
Tank 13	Air 1	10,000	Jet A
Tank 14	U.S. Coast Guard	30,000	100 LL
Tank 15	U.S. Coast Guard	30,000	JP8
Tank 16	U.S. Coast Guard	20,000	JP8
Tank 17	U.S. Coast Guard	20,000	JP8
Tank 18	U.S. Coast Guard	20,000	JP8

Source: St. Petersburg-Clearwater International Airport Records and Tenant Surveys, PBS&J, December 2001

Signature Flight Support and Jet Executive Center, at present, provide the fuel handling services for the majority of air carrier operations at the Airport.

Pinellas County Sheriffs Office

The Pinellas County Sheriff's Office provides law enforcement services to the Airport required under SD 1542. The Department's helicopter hangar facilities are located on the northwest side of the airfield adjacent to the USCG property. The facility is approximately 6,100 sq ft and consists of aircraft storage, office space, crew quarters, and a parts storage area. In addition, the Sheriff's Department as well as USCG personnel provide assistance to the Airport in times of emergency.

Ground Access System

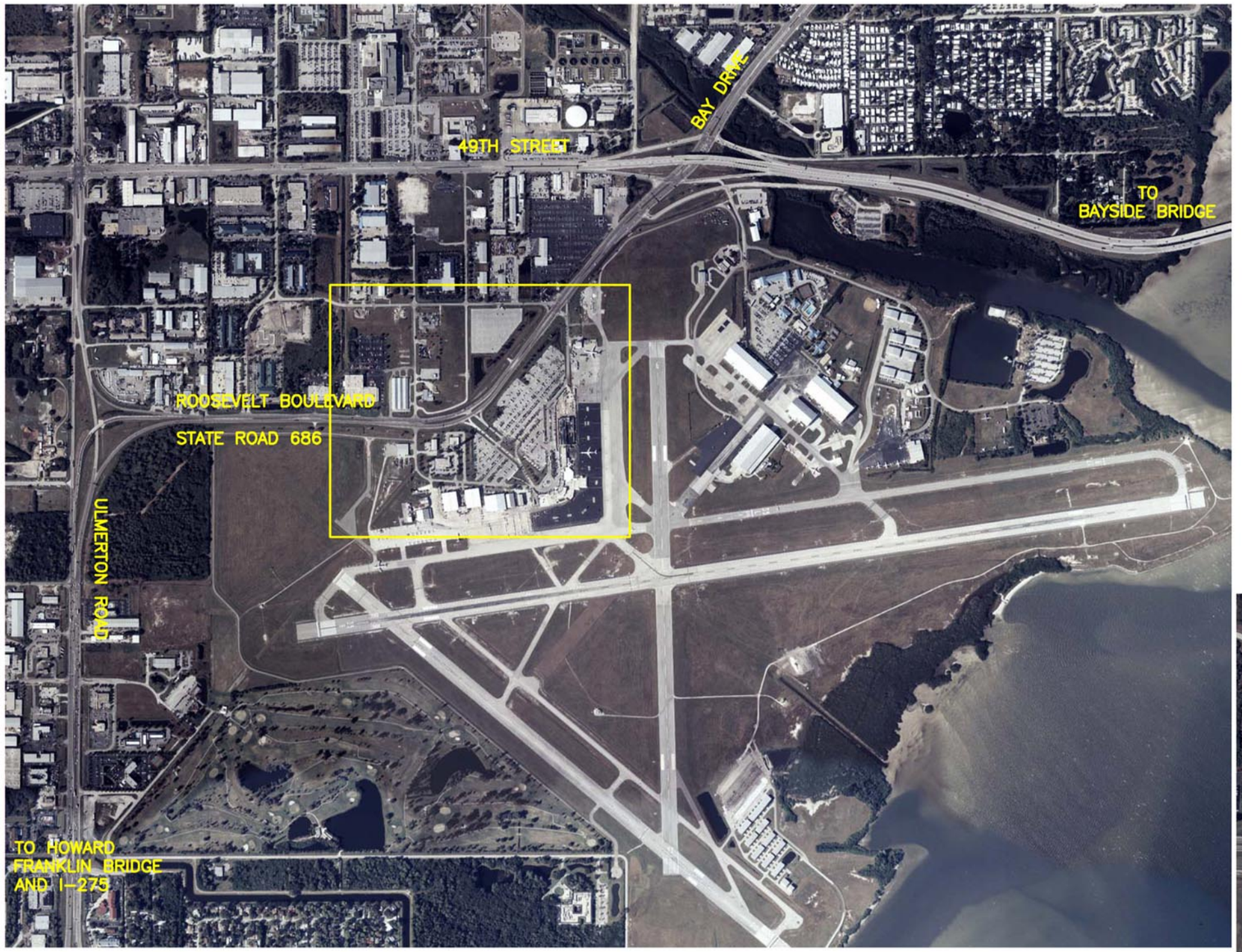
The existing transportation network, i.e., roads, high-speed rail, etc., will be important in assessing the future development of the Airport. The highway system is rather well developed in the St. Petersburg and Clearwater areas. Major highways in the Airport area consist of Roosevelt Blvd. (State Road 686), Ulmerton Road, (S.R. 688), U.S. Highway 19, and U.S. Highway 92. Interstate 275 is the nearest interstate to PIE, and it is located approximately three miles east of the Airport (see **Figure 2-20**, Airport Access and Roadway System).

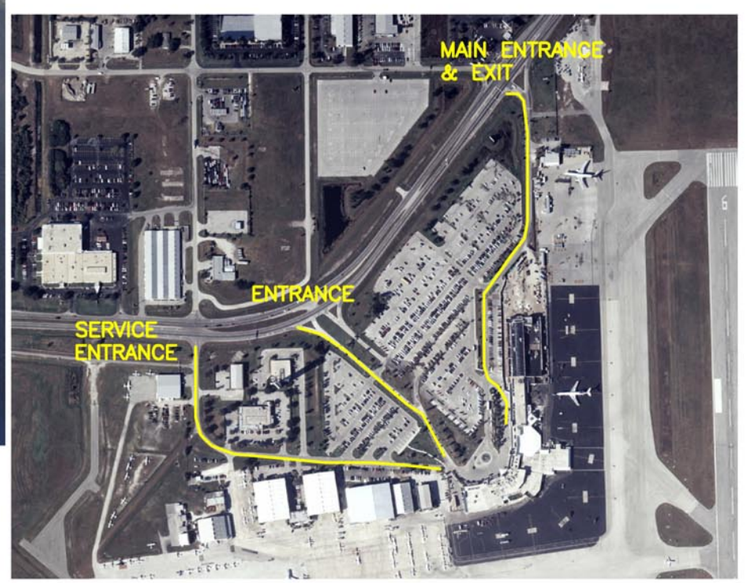
Airport Access

Regional access to the Airport is provided via Interstate 275, US 19, SR 688, and SR 686. Interstate 275 runs east and west connecting St. Petersburg and Clearwater to Downtown Tampa Bay. US 19 provides north and south access to the Airport connecting the cities of Clearwater and St. Petersburg. State Roads 686 and 688 provide access from Clearwater and St. Petersburg beaches to the Airport. Each of these routes provides easy access to the Airport's facilities.

Local access onto the Airport can be accomplished via a variety of different routes. Ulmerton Road (S.R. 688) provides access to the Airport from the south. Diston Road (S.R. 691), also known as 49th Street provides access to the Airport's Industrial Park, while Roosevelt Blvd (S.R. 686), provides access from the east and west to the Airport's facilities. **Figure 2-20** illustrates area roadways in proximity to the Airport.

The terminal roadway system was programmed to meet the needs of the expanded terminal building through realignment, lane widening, and modification to traffic patterns within the terminal complex. The primary terminal roadway entrance was modified to meet the changes to Roosevelt Blvd. These improvements included a signalized intersection serving the Airport entrance/exit roadway at Roosevelt Blvd., which greatly facilitates traffic entering and leaving the terminal complex.





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PBS&J

St. Petersburg - Clearwater
International Airport

Airport Access
and Roadway System

Figure
2-20

2.6.2 Landside

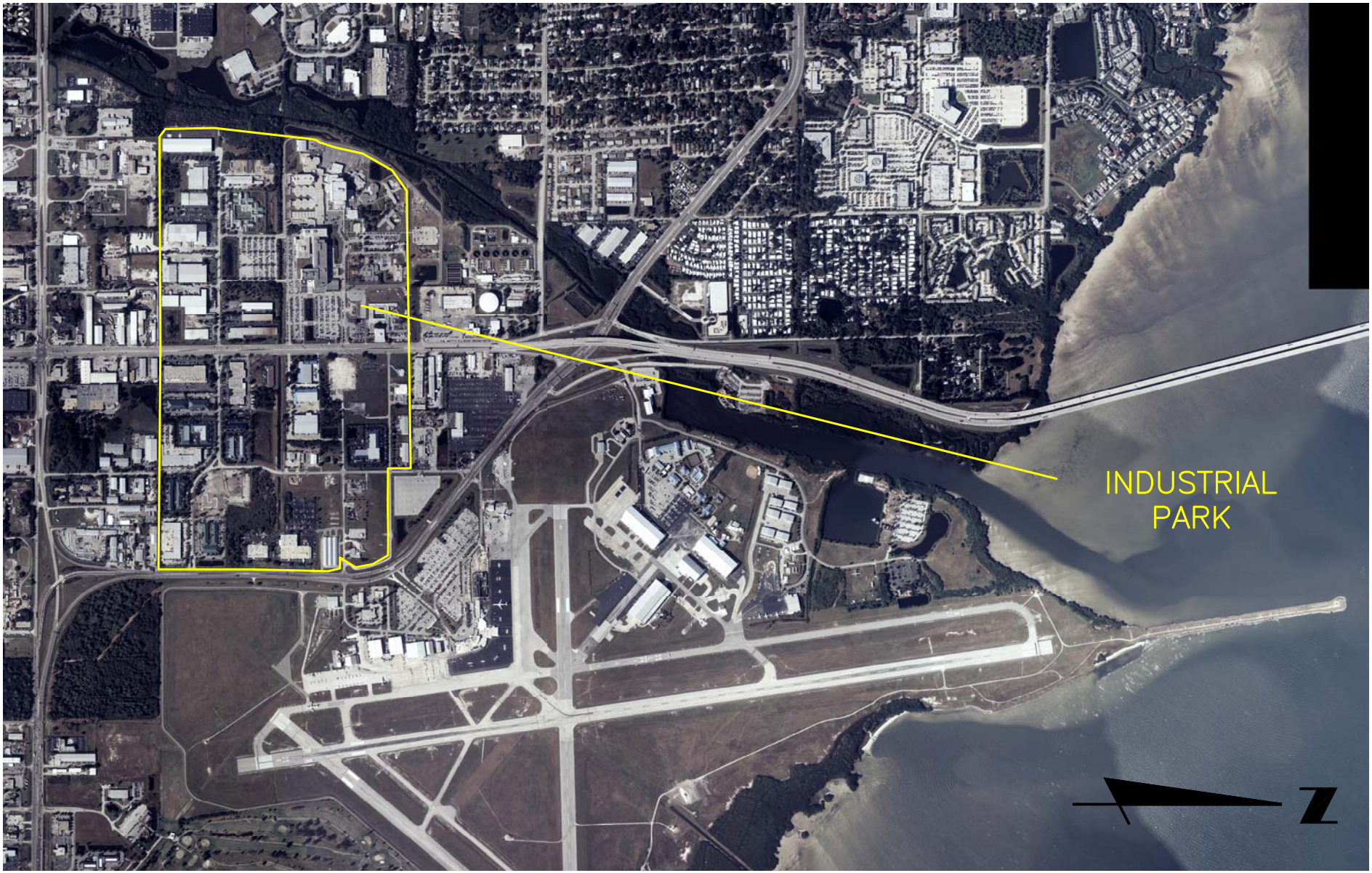
Landside facilities at PIE consist of primarily, with the exception of the commercial terminal building, the Pilot Shop facility, rental car, National Aviation Academy facilities, ATCT, AFSS, UPS, and one FBO.

2.6.2.1 Rental Car Companies

Four rental car companies currently provide services at PIE. They are Avis, Hertz, National and Enterprise. Each of these companies has a rental counter in the new baggage claim area on the western portion of the airfield.

The rental car ready lot is located in the former 187 space short-term parking lot nearest to the terminal building. The rental car parking area is divided between the four rental companies. Contracts are available for renewal every 5 years. Ready lot stalls are re-allocated every year and are based on the percent of on-Airport rental car business. The storage lots and cleaning facilities are located across from the main Airport property in the industrial park.

The rental car counters are typically opened from 7:30 a.m. to 9:30 p.m., or until the last flight arrives, in the terminal building. A small percentage of each company's rentals come from the local community and Airport personnel. However, the majority of the operations are based upon airline traffic.



PBS&J

St. Petersburg - Clearwater
International Airport

Industrial Park
(1"=1500')

Figure
2-21

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2.6.2.2 Airport Business Center and Foreign Trade Zone

The Airport Business Center is a 42-acre high tech business park with office suites ranging in size from 200 sq ft to 32,540 sq ft, boasting state-of-the-art technology and premium services.

Some of the current tenants include:

- Tampa Bay Business Journal
- Tourist Development Council
- Lanier Worldwide
- Lincare
- Pinellas County Police Benevolent Society
- Synergistic Computer Systems
- WorkNet Pinellas
- AFLAC
- All American Semiconductor
- Publix
- Pinellas County Supervisor of Elections
- University of Sarasota
- Pinellas County Employee Credit Union
- IBM
- Mary Kay Training Center
- Senior Health Care Management
- HearX

2.7 AIRSPACE STRUCTURE

2.7.1 Airspace Management and Approach Procedures

The FAA controls all airspace over the United States. Congress, via the Federal Aviation Act of 1958, granted this authority. The FAA established the National Airspace System (NAS) to protect persons and property on the ground, and to establish a safe and efficient airspace environment for civil, commercial, and military aviation. The NAS is defined as the common network of U.S. Airspace, including air navigation facilities, airports, and landing areas, aeronautical charts and information, associated rules, regulations and procedures, technical information, personnel, and material. System components shared jointly with the military are also included.

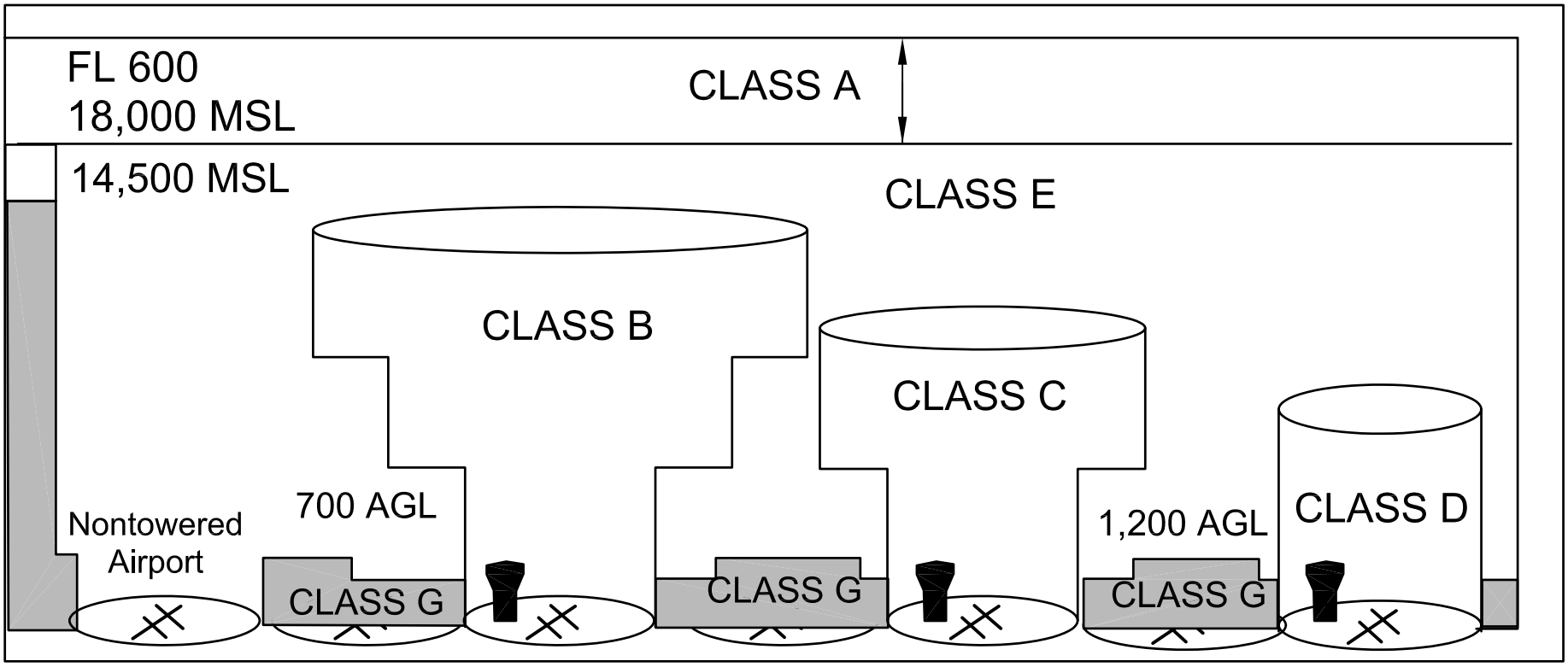
2.7.2 Airspace Structure

Airspace is classified as controlled or uncontrolled. Controlled airspace is supported by ground-to-air communications, NAVAIDS, and air traffic services. In September 1993, the FAA reclassified major airspace. The new classifications are graphically depicted in **Figure 2-22**, U.S Airspace Classifications, with airspace requirements listed in **Figure 2-23**.

The types of controlled airspace in the St. Petersburg-Clearwater area are:

- Class A airspace, which includes all airspace between 18,000 ft MSL and 60,000 ft MSL (as well as waters within 12 nautical miles ((nm)) of the coast of the 48 contiguous states).
- Tampa Class B Airspace (formerly referred to as the Terminal Control Area) includes all airspace in the Tampa Bay area at varying altitudes, and consists of four layers.
- Class D airspace for airports with ATCTs normally extends from the surface to 2,500 ft above an airport's established elevation (charted in MSL). The Class D airspace surrounding the airports in the Tampa Bay area is individually configured.
- Class E airspace, which includes all controlled airspace other than Class A, B, C, or D. Class E airspace extends upward from either the surface of the designated altitude to overlying or adjacent controlled airspace. Class E airspace includes transition areas and control zones for airports without ATCTs.
- Class G airspace, which is uncontrolled airspace.

Only those airspace classifications that pertain to PIE (Class B and D) are described further. The Miami Air Route Traffic Control Center (ARTCC) is responsible for en route control of all aircraft operating in an IFR flight into the St. Petersburg/Clearwater area. See **Figure 2-24**, Tampa Bay Regional Airspace.



MSL- Mean Sea Level
AGL - Above Ground Level
FL - Flight Level

Source: FAA

PBS&J

St. Petersburg - Clearwater International Airport

U.S. Airspace Classifications

Figure 2-22

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Airspace Classes	Communication	Entry Requirements	Separation	Special VFR in Surface Area
A	Required	ATC Clearance	All	N/A
B	Required	ATC Clearance	All	Yes
C	Required	Two-way communications prior to entry	VFR/IFR	Yes
D	Required	Two-way communications prior to entry	Runway Operations	Yes
E	Not required for VFR	None for VFR	None for VFR	Yes
G	Not Required	None	None	N/A

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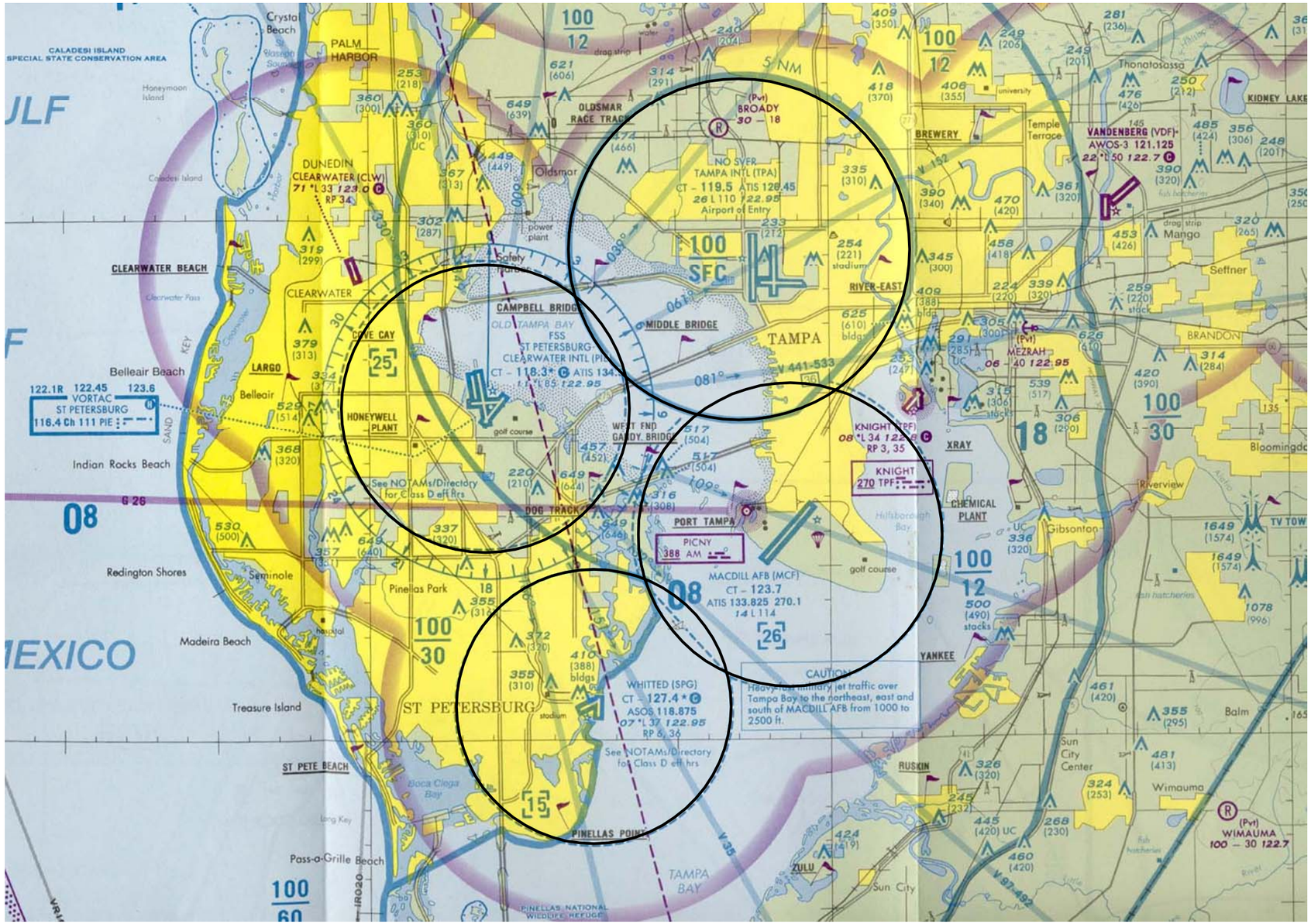
St. Petersburg - Clearwater International Airport

Airspace Classification Details

Figure 2-23



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St. Petersburg - Clearwater International Airport

Tampa Bay Regional Airspace

Figure 2-24

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2.7.2.1 Class B Airspace

Class B Airspace is referred to as Terminal and En Route Airspace. The primary purpose of Class B airspace is to reduce the potential for midair collisions in the airspace surrounding airports with high-density air traffic operations. Aircraft operating in these areas are subject to certain operating rules and equipment requirements. Additionally, Class B airspace areas are designed to enhance the management of air traffic operations to and from the airports therein and throughout the airspace area.

TPA's airspace, which is located approximately 5 nm from PIE, is designated as Class B airspace. As a result, aircraft transitioning to or from PIE must meet the designated equipment requirements or deviate from entering TPA's airspace.

Due to the proximity of TPA, about half of PIE's Class D airspace is located underneath a Tampa Class B shelf of 3,000 to 10,000 ft, while the other half is located underneath a Class B shelf of 1,200 to 10,000 ft. As a result, the two ATC facilities have a letter of agreement, which designates which facility controls the overlapping airspace. According to ATC, whenever you are above the 1,200 ft altitude, pilots are effectively in both Class B and Class D airspace. According to FAR Citation 71.9, the more restrictive Class B rules apply. Therefore, pilots must obtain Class B clearance. Controllers at PIE can issue a Class B clearance to allow for landings and takeoffs that will utilize the airspace immediately surrounding the airport, but clearance is handled through TPA Control.

2.7.2.2 Class D Airspace

The airspace under the jurisdiction of a local ATCT is called Class D airspace. Class D airspace provides airspace within which a tower can control aircraft in the vicinity of an airport. Its configuration is typically designed to encompass the published airspace procedures associated with the airport. Aircraft operating within this area are required to maintain radio communication with the control tower.

The class B airspace associated with TPA encompasses and intersects portions of the PIE's Class D airspace. The Class D airspace at PIE is active between 6:00 a.m. and 11:00 p.m. local time. Between 11:00 p.m. and 6:00 a.m., PIE Class D changes to Class E and converts to Tampa International Airport (TPA) Air Traffic Control.

2.7.2.3 Military Airspace

Airspace and traffic patterns over the Tampa Bay Area represent a very complex structure due to the number of airports in close proximity to each other and the related volumes of traffic. The ability to conduct and control aircraft activity in the region safely and efficiently depends upon the extent of airspace compatibility between airports in the area.

Both PIE Class D and TPA's Class B terminal airspace are located tangential to MacDill Air Force Base's (MCF) Class D terminal airspace. See **Figure 2-24**, Tampa Bay Regional Airspace. The location of MCF in relation to the other public use airports in the vicinity requires special ATC procedures in order to avoid any possible conflicts between high-speed military jet aircraft and commercial aircraft operations. Currently, heavy and fast military jet traffic operates from 1,000 to 2,500 ft in the northeastern, eastern, and southern regions of Tampa Bay.

TPA uses terminal radar approach control (TRACON) to control aircraft and monitor the 20 airports within the Tampa Bay Region.

2.7.3 Delegation of Air Traffic Control Responsibilities

The FAA operates 21 ARTCC's, which control aircraft operating under IFR, within controlled airspace, while in the en route phase of flight. PIE is within the area controlled by the Miami center, which includes airspace that encompasses 500,000 square miles from Houston, Jacksonville, New York City, and San Juan, Puerto Rico. Miami ARTCC exercises their control of activity into and out of PIE through remote radar and radio facilities located throughout the region.

2.7.4 En Route Navigational Aids

En route NAVAIDS are established to maintain accurate en route air navigation. They use ground-based transmission facilities and onboard receiving instruments. Several en route NAVAIDS operate in the Tampa, St. Petersburg, Clearwater operating area.

The non-directional beacon (NDB) is a general purpose, low frequency radio beacon that a pilot can use to determine a bearing. PIE is served by one NDB. The NDB serves as a compass locator (LOM) for the outer markers in the ILS.

Another important NAVAID is the very high frequency (VHF) omni-directional radio (VOR) range station. The VOR is a ground-based NAVAID that transmits high frequency radio signals 360 degrees in azimuth from the station. These radio signals enable pilots to turn at a given point above the ground or fly along a radial and home in on the station. VOR's are often combined with DME or tactical air navigation equipment (TACAN). These emit signals enabling pilots to determine their line-of-sight distance from the facility. The TACAN also provides azimuth information for military aircraft.

VOR's are also used to define low altitude (Victor) and high altitude (Jet Route) airways through the area. Victor airways are designated from 1,200 ft AGL, up to, but not including, 18,000 ft MSL (Class E airspace). They are generally used to accommodate lower-speed, non-jet aircraft. They are also used to vector jet traffic into and out of airports.

The jet routes are defined at and above 18,000 ft MSL, and are used by high-speed, pressurized jet aircraft. The jet route airways are not of concern to the objectives of this study. All of the NAVAIDS associated with PIE are shown in **Table 2-17**.

Table 2-17. Navigational Aids

Approach Aids	*17R-35L*		*17L-35R*		*4-22*		*9-27*	
GPS	No	No	Yes	Yes				
ILS (CAT-1)	No	No	Yes	No	No	No	No	No
VOR	No	No	Yes	Yes	Yes	No	No	No
LOC	No	No	Yes	Yes	No	No	No	No
NDB	No	No	Yes	No	No	No	No	No
MALSR	No	No	Yes	No	No	No	No	No
VASI	No	No	Yes	Yes	No	No	No	Yes
PAPI	No	Yes	No	No	Yes	Yes	No	No
REIL	No	No	No	Yes	Yes	Yes	Yes	Yes
Lighting	None	None	HIRL, TDZL & CL	HIRL & CL	MIRL	MIRL	MIRL	MIRL
Marking	Visual	Visual	Preci-sion	Non-Preci-sion	Non-Preci-sion	Non-Preci-sion	Non-Preci-sion	Non-Preci-sion

Source: St. Petersburg-Clearwater International Airport, 2001

Airports in the Area

It is important to note the location and operating characteristics of other airports in the region served by the airport under study. These airports compete for the demand for GA and/or air carrier services in the region, and, thereby, affect the amount of air traffic as a whole. In addition, airports compete for federal or state resources in terms of development grant funding and ATC staff services, which also influences system planning. Traffic from airports in close proximity may also affect the interaction of traffic to and from neighbors outside of the region.

Airspace interaction is defined as the potential for conflicts among aircraft on approach or departure to other airfields and may require the defining or adjustments of operating procedures at the affected airports. PIE is located in the most densely populated county in Florida, and is directly affected by high performance air traffic and ATC procedures from one commercial service airport and one military airport within a 16-mile radius. Several GA airports also affect the market and congestion of air traffic in the region. See **Figure 2-25**, Airports in the Region.

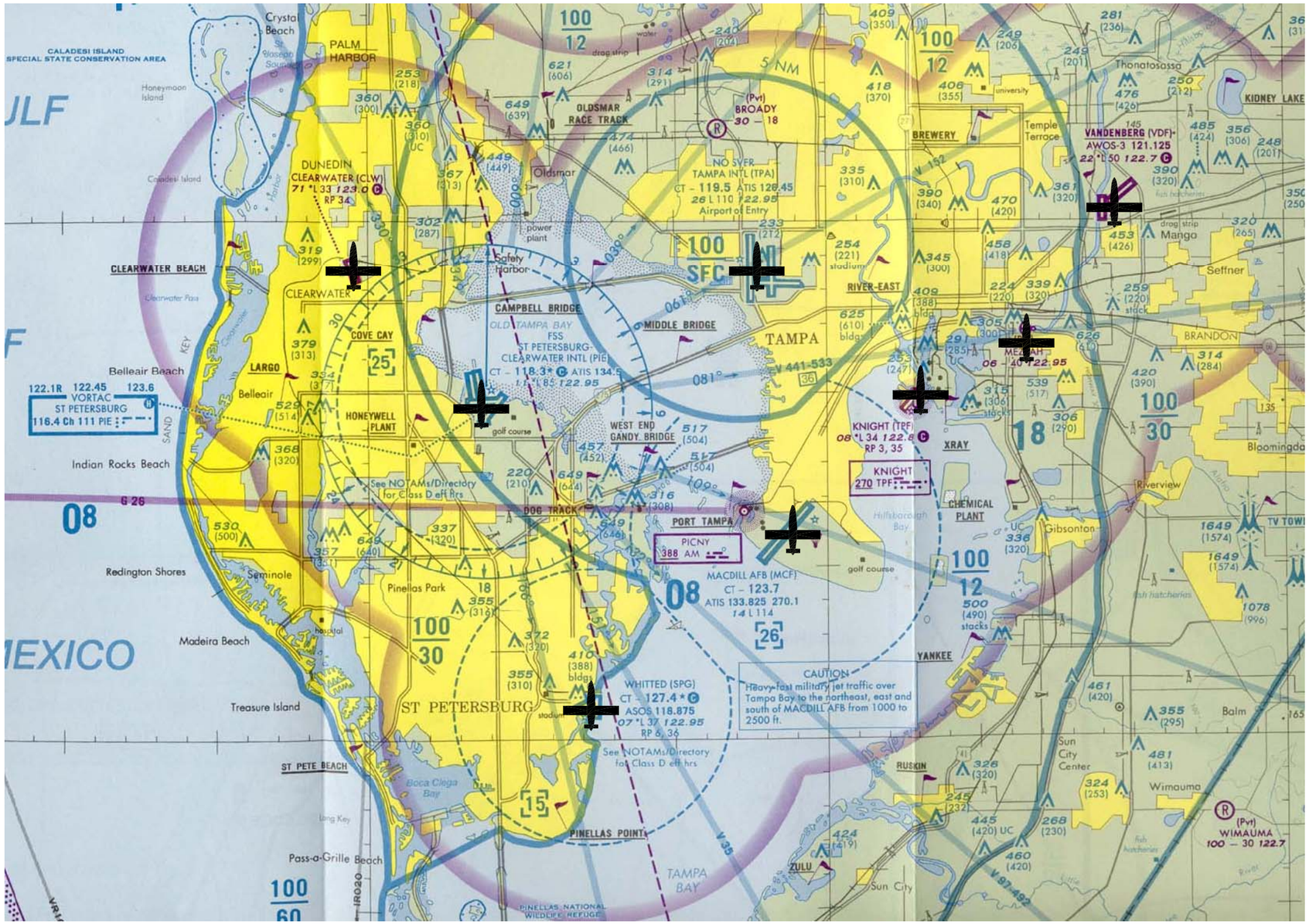
PIE is located in the most densely populated county in Florida, and is directly affected by high performance air traffic and ATC procedures from one commercial service airport and one military airport within a 16-mile radius.

2.7.5 Tampa International Airport (TPA)

TPA is the principal commercial airport in the Tampa Bay region, and is located approximately five miles west of the center of Tampa, approximately 15 statute miles east of PIE. Owned and operated by the Hillsborough County Aviation Authority, the Airport has three runways that support commercial service, GA, and some military operations.

Runway 18L-36R is 8,300 ft by 150 ft and is comprised of asphalt-concrete grooved pavement in good condition. The load bearing weight for the runway is 60,000-pound single-wheel, 210,000-pound dual-wheel, 358,000-pound dual-tandem, and 810,000-

pound double dual-tandem. Runway 18L-36R is equipped with HIRL, ILS, and NDB. This runway is configured in a north-south orientation.



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PBS&J

St. Petersburg - Clearwater International Airport

Airports in the Region

Figure 2-25

Parallel Runway 18R-36L is 11,002 ft by 150 ft and is comprised of concrete-grooved pavement in good condition. The load bearing weight for the runway is 60,000 lb SWL, 210,000 lb DWL, 358,000 lb DTWL, and 850,000 lb DDTWL. Runway 18R-/36L is equipped with HIRL, ILS, and NDB.

Runway 9-27 is 6,998 ft by 150 ft and is comprised of asphalt-concrete grooved pavement in good condition. The load bearing weight for the runway is 60,000 lb SWL, 85,000 lb DWL, 140,000 lb DTWL, and 380,000 lb DDTWL. Runway 9-27 is equipped with HIRL and NDB and is configured in an east-west orientation.

TPA handled 16,043,383 passengers in the year 2000, of which three percent had international destinations. TPA also handles in excess of 180 million tons of cargo and 40 million tons of airmail, annually. Total aircraft operations for year 2000 were 277,863, of which 82 percent were commercial. The majority of the 63-based aircraft on the field are jet airplanes.

2.7.6 Clearwater Airpark (CLW)

The Clearwater Airpark (CLW) is located in Pinellas County on the west central Gulf coast of the peninsula and is owned and operated by the City of Clearwater.

The Airpark serves as a GA airport in the community and consists of one asphalt runway in good condition. Runway 16-34 is approximately 3,300 ft long (3,000 usable) and 75 ft wide. The runway and its taxiways are rated at a weight bearing capacity of 12,500 lb SWL. The runway is equipped with MIRL, four-light VASI, and GPS.

The Airpark hosts approximately 37,000 operations per year, 94 percent of which is attributed to local GA. Currently, the Airpark bases 132 aircraft on the field, the majority of which are single engine. The Airpark also has 100LL and Jet-A fueling services available.

2.7.7 Albert Whitted Municipal Airport (SPG)

Albert Whitted Municipal Airport (SPG) is also located in the City of St. Petersburg. The airport is owned and operated by the City and serves as a GA airport for the community.

SPG consists of two asphalt runways, both in good condition. Runway 6-24 is 3,677 ft long and 75 ft wide. Runway 18-36 is 2,864 ft long and 75 ft wide. Both runways are rated at 60,000-pound single-wheel, 105,000 dual-wheel, and 190,000-pound dual-tandem wheel loading. Both runways are equipped with MIRL and have non-precision approach markings and a published GPS and VOR approach.

SPG hosts approximately 80,000 aircraft operations each year, which are evenly classified into local and transient traffic. There are 173 aircraft based on the field and the majority of aircraft are single-engine classification. The Airport operates Class D airspace.

2.7.8 Peter O. Knight Airport (TPF)

Peter O. Knight Airport (TPF) is located four miles south of the center of Tampa. The Airport is owned and operated by the Hillsborough County Aviation Authority and serves as a GA airport for the community.

TPF consists of two asphalt runways, both in good condition. Runway 3-21 is 3,405 ft long and 100 ft wide. Runway 17-35 is 2,688 ft long and 75 ft wide. Both runways are rated at 20,000 lb SWL and are equipped with MIRL. Both runways have non-precision

approach markings, published GPS and NDB approach, and an Airport Surveillance Radar (ASR) approach utilizing the TPA radar.

There are 100 based aircraft on the field, most of which are single-engine airplanes. SPF has approximately 65,000 aircraft operations per year; the majority of which is local GA.

2.7.9 Sarasota-Bradenton International Airport (SRQ)

Sarasota-Bradenton International Airport (SRQ) is located six miles north of the city of Sarasota, ten miles south of the city of Bradenton, and 45 miles south of PIE. The 1,100 acres of airport property lie within the borders of Manatee and Sarasota Counties. The airport is jointly owned by the Counties of Manatee and Sarasota and is operated by the Sarasota Manatee Airport Authority.

SRQ consists of two crossing runways, which are composed of asphalt and are in good condition. Runway 4-22 is 5,009 ft long and 150 ft wide and is oriented in a northeast-southwest configuration. Primarily used for GA, Runway 4-22 is rated at 62,000 lb SWL, 110,000 lb DWL, and 190,000 lb DTWL. The runway is equipped with non-precision approach markings, HIRL, and a four-light PAPI.

Runway 14-32 is 7,001 ft long and 150 ft wide and is oriented in a southeast-northwest configuration. Primarily used for commercial traffic, Runway 14-32 is rated at 110,000 lb SWL, 150,000 lb DWL, and 270,000 lb DTWL. The runway is equipped with HIRL, ILS, and Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR). Currently, SRQ is in the process of extending Runway 14-32 to a total length of 9,000 ft.

SRQ has approximately 300 based aircraft on the field, most of which are single engine airplanes. The airport has approximately 185,000 operations per year; the majority of which is transient GA.

2.7.10 Vandenberg Airport (X16)

Vandenberg Airport (X16) is located seven miles northeast of the City of Tampa. The airport is owned and operated by the Hillsborough County Aviation Authority and serves as a GA airport for the community.

X16 consists of two asphalt runways, both in good condition. Runway 18-36, which is oriented in a north-south configuration, is 3,260 ft long and 75 ft wide and is rated at 12,500 lb SWL. Runway 5-23, which is oriented in a southwest-northeast configuration, is 5,000 ft long and 100 ft wide and is limited to aircraft weighing less than 30,000 lb Runway 23 has a displaced threshold of 800 ft. Both runways are equipped with MEIL, REIL, and PAPI.

X16 has approximately 112 based aircraft, the majority of which are single-engine aircraft. The Airport has approximately 95,000 operations per year and the traffic is evenly distributed between local and transient GA.

A list of airports in the region of PIE is shown in **Table 2-18** and **Figure 2-25**.

Table 2-18. Airports in the Region

Name of Airport	*Identification*	*Approximate Distance from PIE (miles)*	*Public or Private*
Tampa International	TPA	5	Public
Sarasota	SRQ	45	Public
Peter O'Knight	TPF	20	Public
Albert Whitted	SPG	1	Public
Vandenberg	X16	20	Public
Clearwater Airpark	CLW	2	Public

Source: PBS&J, 2001

2.7.11 MacDill Air Force Base (MCF)

MCF is located approximately ten miles southeast of PIE on the Tampa Bay Peninsula. The Base is owned and operated by the United States Air Force, and is home to a variety of military aircraft, including transports, bombers, and fighters.

MCF's one runway, 4-22, is oriented in a northwest-southeast configuration, and is approximately 11,400 ft long and 300 ft wide. Civilian aircraft flying in proximity to the Base should exercise caution, due to heavy and high-speed military aircraft traversing the northeast, east, and south Tampa Bay Region from 1000 to 2500 ft.

A list of airports in the region of PIE is shown in **Table 2-18** and **Figure 2-25**.

2.7.12 Operating Procedures

The FAA Act of 1958 established the FAA as the responsible agency for the control and use of navigable airspace within the United States. An analysis of airspace use is critical in determining the capacity of the airfield and the operational interaction of PIE and surrounding airports. Flights into the Airport are conducted using both IFR and VFR. IFR's are those that govern procedures for conducting instrument flight during adverse weather conditions. VFR's govern the procedures for flight under visual conditions. Most air carrier operations are conducted under IFR, whether or not weather conditions dictate such procedures. Published procedures for instrument approaches outline the aircraft's required flight path and altitude. The Miami ARTCC is responsible for en route control of all aircraft operating on an IFR flight into the St. Petersburg/Clearwater Area.

Aircraft can enter or exit the St. Petersburg-Clearwater area via federal airways. Many aircraft use Victor Airways, which are generated by VOR stations, providing air navigation orientation to pilots.

An airport such as the PIE, which has an operating ATCT, has an air traffic area (ATA) around it. Aircraft within the ATA must be in contact with the tower controllers to receive approval for takeoffs, landings, and overflights of the Airport. Standard ATA's are designed to include all airspace within 5 nm of the Airport, up to but not including 3,000 ft above ground level.

There are ATC services at PIE via the St. Petersburg-Clearwater ATCT. FAA personnel operate the control tower. Currently, there are a total of 17 FAA personnel operating the tower. St. Petersburg's Tower is a Level II tower that operates between the hours of 6:00 a.m. and 11:00 p.m.

NAVAIDS include any visual or electronic device, either airborne or on the ground, which provides point-to-point guidance information or position data of an aircraft in flight. Various types of NAVAIDS are utilized at PIE. Ground based electronic NAVAIDS located on or near an airport may be classified as en route NAVAIDS, terminal area NAVAIDS, and landing aids.

En route NAVAIDS are locational aids that permit aircraft in flight to navigate accurately using only instruments. These use ground-based transmitting facilities and on-board receiving instruments.

An NDB is a general purpose, low frequency radio beacon that a pilot of a properly equipped aircraft can use to determine a bearing. In the location of PIE, there are five NDB locaters operating at varying frequencies. The beacons transmit continuous three-letter identifier codes.

Table 2-19. Nearby Radio Navigation Aids

NDB Name	*Heading/Distance*	*Frequency*	*Variation*	*ID*
PICNY	294/8.1	388	02W	AM
KNIGHT	273/12.4	270	02W	TPF
PLANT CITY	261/28.7	346	02W	PCM
ZEPHYRHILLS	239/33.6	253	03W	RHZ
BROOKSVILLE	204/36.0	278	04W	BKV

Source: AIRNAV, 2001

2.8 LAND USE

2.8.1 Current Land Use Designations

Current land uses surrounding the Airport fall into four major categories: residential, industrial, recreational, and commercial. Lands to the southwest of the Airport, business, and industrial park, are zoned as commercial and industrial. Lands to the east of the Airport are a mix of recreational, AirCo Golf Course, industrial, and residential. The remaining property to the north side of the Airfield is zoned industrial. See **Figure 2-26**, Future Development Areas.

2.8.2 Vacant and Underutilized Land Areas

Future county and city land use policy should consider existing, as well as future Airport land uses and activities. There are several remaining undeveloped land parcels or land parcels available on Airport property for re-development for aviation and non-aviation uses.

Northwest Quadrant

In the northwest quadrant of the Airport several parcels are under or proposed for development. These include the land parcel on the extreme north end of the field, the site of the former Boatyard Village. This parcel is under development for the new U.S. Army Reserve helicopter unit, A Company 158th Aviation Regiment (“Ghost Squadron”). Just south of the Army facility and adjacent to Taxiway A, an 8 to 10-unit corporate hangar complex is proposed for the former Florida Aviation Military Museum. In addition, the former Turtle Club property is proposed for redevelopment for non-aviation commercial use.

Southwest Quadrant

A highly visible parcel for aviation use is located on the southwest end of the Airport adjacent to the approach end of Runway 4 and Roosevelt Blvd.

Airport Business Center

The Aviation Business Center and Industrial Park is located on the southwest border of the main Airport property and is separated from the main property by Roosevelt Blvd. The Airport Business Center is designated a High-Tech Business Park and is approximately 42 acres. Office suites range from 200 to 32,540 sq ft with frontage along 49th Street.

The Aviation Business Center is well positioned for future growth, and increased air service is anticipated to bring related job growth. In addition, the high tech employers in the St. Petersburg/Clearwater area can benefit from the availability of low-cost office or warehouse space located near air transportation support. Furthermore, the Airport and the area along US 19 and Roosevelt Blvd. could provide the support areas necessary for a successful executive and high technology center.

AirCo Golf Course

In 2001, the AirCo Golf Course reverted to control of the Airport. Based upon discussions with Airport Management, a mix of aviation and non-aviation development is planned for the AirCo Golf Course property. The portion of the golf course adjacent to Runways 35R and 4-22 are proposed to be used for aviation development, whereas the remaining portions are slated for commercial development. (See **Figure 2-26**). Furthermore, this area can affectively be accessed via Ulmerton Road and 34th Street North.

PBS&J

St. Petersburg - Clearwater
International Airport

Future Development Areas
(1"=1000')

Figure
2-26

J:\AVServ\071068.02 St. Pete\MPU Graphics\Ch. 2\Air_Exhibit.dwg Sep 17, 2003 - 6:08pm

2.9 AREA WIDE PLANS

Throughout the master planning process, it is extremely important to coordinate the goals of the Master Plan with the goals of area wide plans. Planning occurs at the national, state, and local levels; therefore, these plans must be included in the documentation of the Airport Master Plan.

2.9.1 National Plan of Integrated Airport Systems (NPIAS)

The NPIAS was submitted to Congress in accordance with Section 47103 of Title 49 of United States Code. The plan identifies 3,344 existing airports that are significant to national air transportation, and contains estimates that $35.1 billion in infrastructure development, that is eligible for Federal aid, will be needed over the next 5 years to meet the needs of all segments of civil aviation. A primary purpose of the NPIAS is to determine eligibility of the significant airports to receive grants under the Airport Improvement Program (AIP). The NPIAS is composed of all commercial service airports, all reliever airports, and selected GA airports.

The NPIAS includes a section on the condition and performance of the airport system, highlighting six topics: safety, capacity, pavement condition, financial performance, accessibility, and noise. The findings are generally favorable, indicating that the system is safe, convenient, well maintained, and largely supported by rents, fees, and taxes paid by users. Problems are apparent in specific areas, with a large number of people exposed to high noise levels and delays due to airfield and ground access congestion at some of the busiest airports.

The NPIAS classifies PIE as a primary commercial service airport.

The NPIAS classifies PIE as a primary commercial service airport. Commercial service airports are defined as public airports receiving scheduled passenger service and having 2,500 or more enplaned passengers per year. There are 540 commercial service airports recognized by the NPIAS. Of these, 413 have more than 10,000 enplanements per year, which classifies them as primary airports. Primary airports receive an annual apportionment of at least $500,000 in AIP funds, with the actual amount determined by the number of enplaned passengers. In 2001, PIE recorded 319,416 enplanements and 326 based aircraft. International passengers represent approximately 30 percent of the total passengers.

PIE supports business jets, transport type aircraft, and GA aircraft. The Airport can also serve as a reliever to TPA, by accommodating a large amount of GA, as necessary. PIE is very attractive to business jet/turboprop traffic due to its runway length, proximity within the Tampa Bay region, its fixed based operations and support facilities, and its precision instrument approaches. In addition to accommodating a significant amount of itinerant GA traffic, the Airport supports the local flight training activity generated by the National Aviation Academy. PIE is also the home of the world's busiest Coast Guard Air Station.

2.9.2 Florida Airports System Plan (FASP)

The Florida Aviation System Plan (FASP) is the FDOT 20-year aviation system plan for development at Florida's publicly owned airports. The FASP is a continuing planning process supported by multiple databases that provide current data on Florida's aviation industry. Because the plan must reflect and keep pace with Florida's dynamic aviation industry, the plan addresses new and challenging areas of study in addition to the well-established aviation planning disciplines. The plan incorporates such topics as intermodal transportation networking, economic impact of airports on the local community and the state of Florida, and development of long-range visions and

strategies through strategic planning. FASP further enhances FDOT's primary goal for aviation, which is providing a quality system that meets the current and future growth needs of Florida.

PIE is classified within the CFASPP West Central Region, which consists of nine other airports. The other airports categorized within the West Central Region are:

- Hernando County Airport (Brooksville)
- Pilot County Airport (Brooksville)
- Clearwater Airpark (Clearwater)
- Albert Whitted Municipal Airport (St. Petersburg)
- Peter O. Knight Airport (Tampa)
- Tampa International Airport (Tampa)
- Tampa North Aero Park (Tampa)
- Vandenburg Airport (Tampa)
- Zephyrhills Municipal Airport (Zephyrhills)

PIE accommodates over 30 percent of total GA aircraft operations and 22 percent of based aircraft recorded for the West Central Region. The FASP encourages that growth rates in the area and an increase in aircraft operations will help bring more commercial service to the Airport. In fact the FASP forecasts suggest that in the next decade, enplanements will experience an annual growth rate of 3.9 percent and aircraft operations are expected to reach an annual growth rate of 3.0 percent in preparation for this new level of activity, the study recommends that primary development concerns should be directed towards expansion of the runways, taxiways, apron areas, and terminal complex.

2.9.3 Tampa Bay Strategic Regional Policy Plan

The Tampa Bay Regional Planning Council (TBRPC) in conjunction with a number of smaller committees and task forces created the Tampa Bay Strategic Regional Policy Plan to create a shared vision of the future for the Tampa Bay region. This shared vision includes establishing goals, identifying resources, and obtaining the commitment of the regional communities to assure success. The Tampa Bay Region includes the counties of Hillsborough, Manatee, Pasco, and Pinellas. In developing the Regional Plan, the TBRPC has identified the need to address issues associated with affordable housing, economic development, emergency preparedness, natural resources, and regional transportation.

It is import for this Master Plan to comply with the regional transportation goals set forth by the TBRPC in the regional plan to further enhance the development of the Tampa Bay region. The regional transportation goals are as follows:

- Development of a regional transportation system, which is coordinated with land use patterns and planning and minimizes negative impacts on the environment, especially air quality.
- Development, maintenance, and protection of transportation corridors for multi-modal use.
- Planning, funding, building, and maintaining a balanced and integrated transportation system, which ensures long-term movement of goods and people by increasing the emphasis on the development of mass transportation, and bicycle and pedestrian facilities.

- Development of a safe and efficient regional intermodal system of seaports, waterways, airports, railways, transmission pipelines, and roadways, which serves the movement of goods, passengers, and recreational water transportation needs.
- Support of the development of the Florida High Speed Rail system and its extension into the Tampa Bay region.

2.9.4 County Comprehensive Plan for Pinellas County

The County Comprehensive Plan for Pinellas County was originally adopted in 1979, but has been updated throughout the last decade. The County Plan focuses on land use, capital improvements, traffic circulation, infrastructure, housing, conservation, recreation, coastal, and intergovernmental coordination. The Countywide Plan has goals, policies, and economic assumptions in a general format to serve as a basis for rational decisions and review of plans submitted by local governments.

The goal of the transportation element is to develop a transportation system that provides for all the movement needs of people and goods such that the system is compatible with the travel desires for all trips by both purpose and mode. The plan maintains that the transportation system should be adequate to serve growth of the County and its socioeconomic function, while serving all segments of the County's population. Another goal is to maximize use of existing facilities and minimize negative environmental impacts on the ecosystem and neighborhoods. The plan mandates the coordination of the transportation system with other public facilities as a major source of support in the recognition of the role of tourism. The plan also mandates provision of safety standards and movement of industrial and commercial goods with minimal interference.

A recent law signed in to law by Governor Bush, allows airports whose airport master plans are amended to their local community comprehensive plans to be exempt from the Development of Regional Impact (DRI) requirements. The Airport is strongly urged to amend this master plan to Pinellas Counties Comprehensive plan at the completion of this study.

2.9.5 Pinellas County Metropolitan Planning Organization

The purpose of the Pinellas County Metropolitan Planning Organization (MPO) is to provide a form for cooperative decision-making concerning transportation issues throughout the County. The MPO was established in 1977 to develop plans, policies, and priorities to guide local decision making on transportation issues. The MPO consists of officials from municipal governments, the Pinellas County Board of Commissioners, the Pinellas Suncoast Transit Authority, and the FDOT. The principal responsibilities of the MPO include the development of a 20-year Long Range Transportation Plan, a Congestion Management System, the Transportation Improvement Program, and other studies. The MPO also prioritizes capital improvements to address the County's travel needs and allocates federal funding to implement transportation projects.

2.9.6 St. Petersburg Comprehensive Plan

The City of St. Petersburg Planning Programs Division is responsible for the City's Comprehensive Plan, environmental enhancement, demographic research, annexation, and developments of regional impact. Specific areas of responsibility include land use planning, plan amendments and rezoning, preservation area administration, habitat restoration, long-range transportation planning, concurrency management, transportation fee interpretations, and population data and research. The Planning

Programs Division serves as a staff to the City's Planning Commission, and also coordinates with the Pinellas Planning Council, MPO, and the Tampa Bay Regional Planning Council.

The St. Petersburg Comprehensive Plan sets goals, policies, and objectives for many aspects of development and redevelopment in the city. The City Plan contains several elements including future land use, transportation, recreation, housing, historic preservation, coastal management, conservation, utilities, intergovernmental coordination, and capital improvements. The goal of the transportation element is to provide a safe, efficient, and cost-effective multimodal system. The system should be accessible to all residents and visitors, preserve neighborhoods, protect natural resources, and promote economic development. In addition, the system should be compatible with and supportive of the City's future Land Use Plan.

2.10 HISTORICAL AIRPORT ACTIVITY STATISTICS

Activity at an airport drives development. Historical data will provide the information necessary to evaluate existing facilities, determine future demand, and thus, required facilities through the 20-year planning period. **Tables 2-20 through 2-25** and related **Figures 2-27 through 2-32** show historical demand for the various users of PIE.

Table 2-20. Total Operations

Year	*Air Carrier*	*Air Taxi*	*GA*	*Military*	*Total*
1990	2,689	818	133,792	23,778	161,077
1991	3,013	1,829	162,792	23,679	191,313
1992	3,686	3,241	159,144	23,825	189,896
1993	5,869	2,475	162,127	23,715	194,186
1994	7,655	4,605	153,045	19,651	184,956
1995	13,514	6,370	145,981	20,835	186,700
1996	11,247	5,104	137,325	21,403	175,079
1997	7,947	4,053	140,332	22,496	174,828
1998	8,200	4,449	170,508	23,816	206,973
1999	7,627	8,120	181,950	28,955	226,652
2000	7,480	8,024	195,356	18,355	229,215
2001*	6,730	7,564	190,556	17,622	222,472

Source: 1996-2001: St. Petersburg-Clearwater International Airport, Summary of Aircraft Operations, 1996-2001 (Provided by PIE)
1990-1995: Federal Aviation Administration, 2001 Terminal Area Forecasts
2001

Figure 2-27. Historic Aircraft Operations

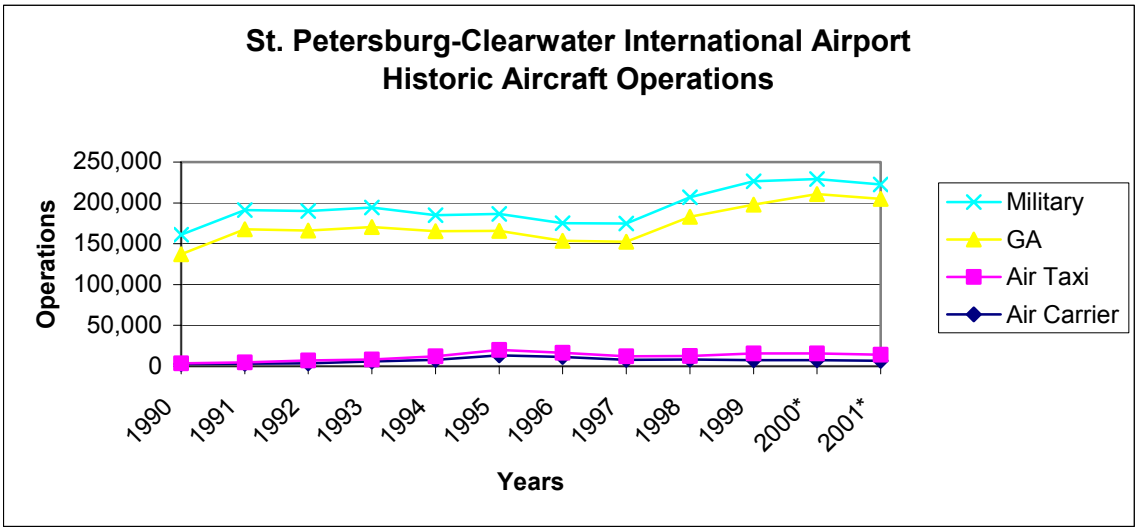


Table 2-21. Commercial Passenger Enplanements 1991-2001

Year	*Air Carrier*	*Commuter*	*Total Enplanements*
1991	143,092	0	143,092
1992	197,770	1,753	199,523
1993	281,854	200	282,054
1994	355,101	6,233	361,334
1995	533,704	14,771	548,475
1996	518,833	5,481	524,314
1997	442,603	697	443,300
1998	456,852	0	456,852
1999	399,070	0	399,070
2000	368,709	0	368,709
2001*	319,416	0	319,416

Source: FAA, Terminal Area Forecast, 2001

Figure 2-28. Commercial Enplanements

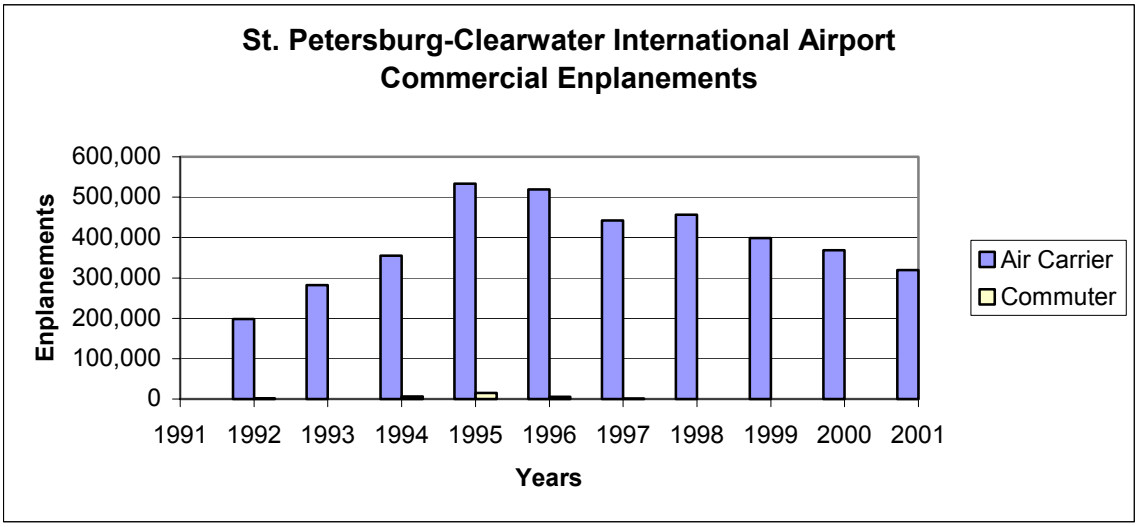


Table 2-22. Historical General Aviation Operations 1980-2000

Year	*Itinerant GA*	*Local GA*	*Total*
1990	54,483	79,309	133,792
1991	59,213	103,579	162,792
1992	60,657	98,487	159,144
1993	62,629	99,498	162,127
1994	68,561	84,484	153,045
1995	72,387	73,594	145,981
1996	76,624	60,701	137,325
1997	80,139	60,193	140,332
1998	94,282	76,226	170,508
1999	100,565	81,385	181,950
2000*	98,530	96,826	195,356
2001*	94,668	95,888	190,556

Source: St. Petersburg-Clearwater International Airport, Terminal Area Forecast, Federal Aviation Administration, 2001
*Note: * Forecast information from Terminal Area Forecast*

Figure 2-29. Historical GA Operations

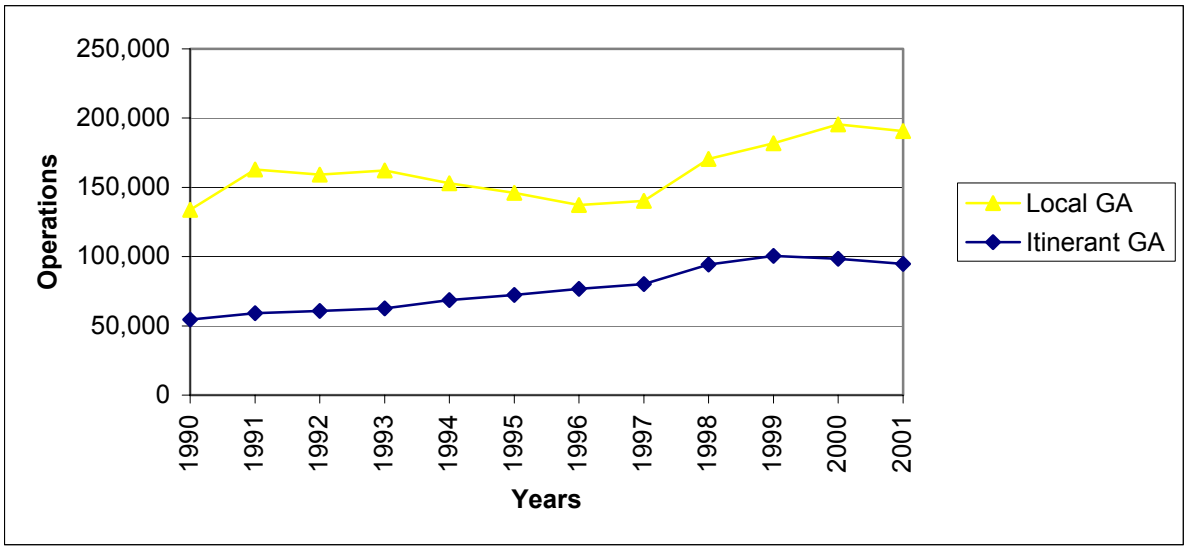


Table 2-23. Historical Fleet Mix

Year	Piston Aircraft		Jet Engine	Helicopter	Military	Total Based Aircraft
	Single Engine	Multi-Engine				
1997	197	39	26	17	20	299
1998	133	70	28	15	20	266
1999	136	68	38	17	20	279
2000	191	52	54	12	18	327

Source: St. Petersburg Clearwater International Airport, 2001 and AIRNAV December 2001

Figure 2-30. Historical Fleet Mix Analysis

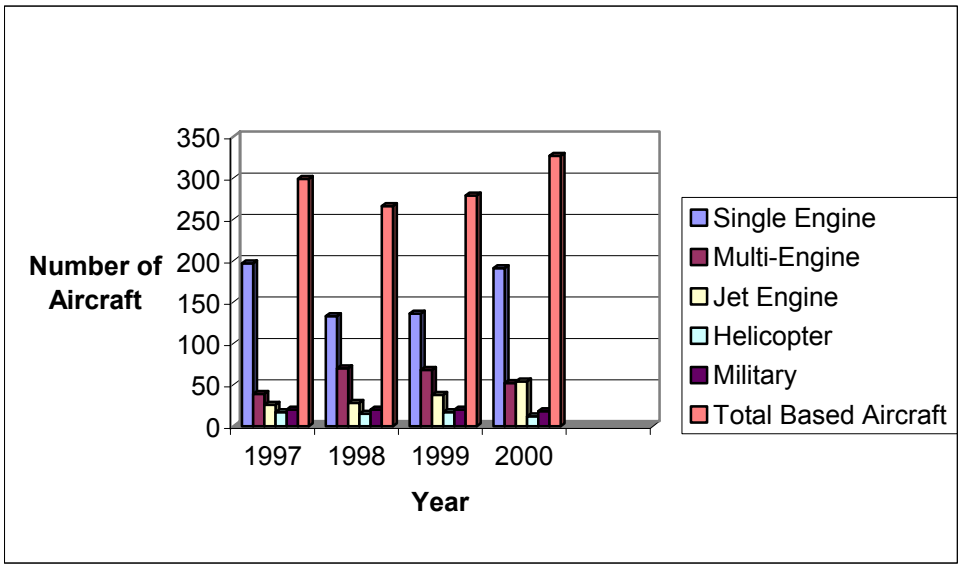


Table 2-24. Average Aircraft Operations Per Day

Year	*Transient GA*	*Local GA*	*Military*	*Air Taxi*	*Commercial*	*Total*
1991	231	204	52	16	16	524
1992	229	203	52	16	16	520
1993	234	207	53	16	16	532
1994	223	198	51	15	15	507
1995	225	199	51	15	15	512
1996	215	191	49	15	15	489
1997	213	189	48	15	15	484
1998	226	201	51	15	15	514
1999	271	240	62	18	18	615
2000	274	243	62	19	19	623
2001	282	250	64	19	19	642

Source: St. Petersburg-Clearwater International Airport, AIRNAV, December 2001, and PBS&J
Note: Aircraft Operations average 642 per day
Percentage by Aircraft Type:
Local GA: 39%
Transient GA: 44%
Military: 10%
Air Taxi: 3%
Commercial: 3%

Figure 2-31. Average Operations Per Day

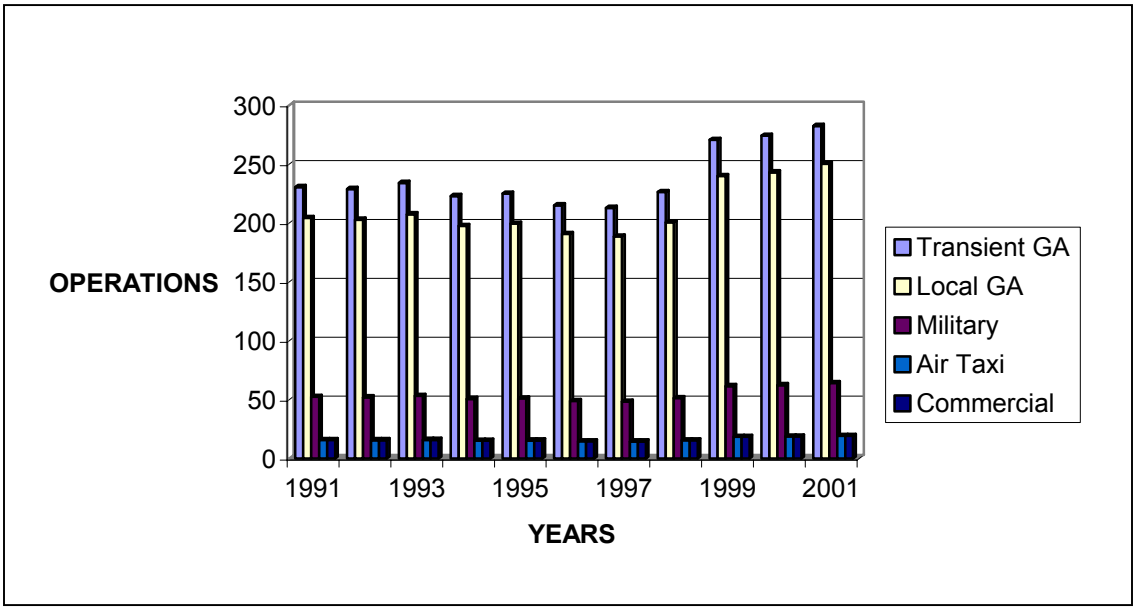
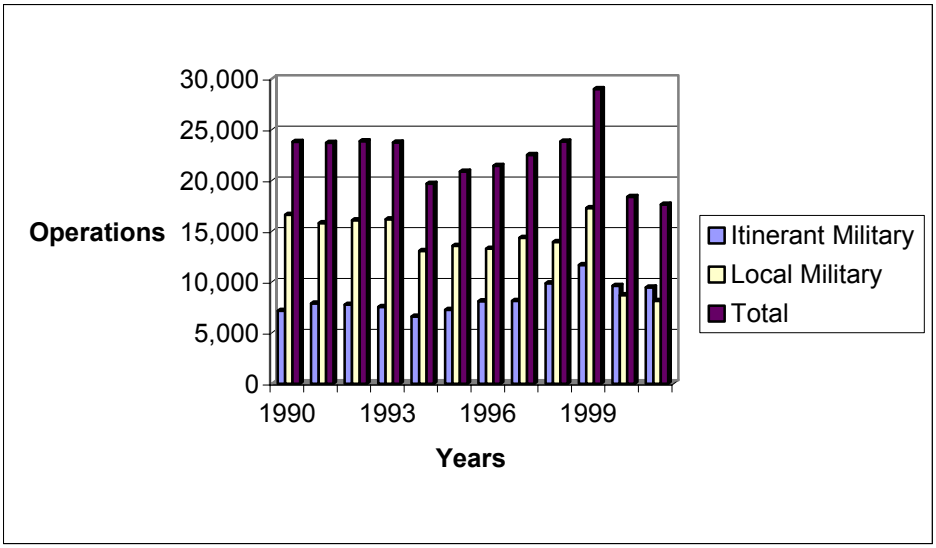


Table 2-25. Historical Military Operations 1990-2000

Year	*Itinerant Military*	*Local Military*	*Total*
1990	7,182	16,596	23,778
1991	7,899	15,780	23,679
1992	7,763	16,062	23,825
1993	7,551	16,164	23,715
1994	6,613	13,038	19,651
1995	7,272	13,563	20,835
1996	8,121	13,282	21,403
1997	8,146	14,350	22,496
1998	9,878	13,938	23,816
1999	11,675	17,280	28,955
2000*	9,636	8,719	18,355
2001*	9,468	8,154	17,622

Source: St. Petersburg-Clearwater International Airport, Terminal Area

Figure 2-32. Historical Military Operations



2.11 SUMMARY

The information discussed in this section provides the foundation upon which the remaining elements of the Master Plan process will be developed. Information on current infrastructure and operations will serve as a basis for the development of forecasts of aviation activity and facility requirements.

This information will, in turn, provide guidance to assess potential changes to facilities and/or procedures necessary to meet the goals of the Airport planning process. The inventory of Airport facilities allows the determination of the needs presented by the Airport users in both the short, intermediate, and long-term, and the preparation of plans to meet those needs. Thus, the inventory of existing conditions is the first step in the complex process to determine those steps, which are needed to meet projected aviation demands in the community. The information collected as a basis for the analysis and forecasting of future Airport activity and facilities is based upon year 2001 data.

EXISTING SOCIO-ECONOMIC INFLUENCES

3

St. Petersburg-Clearwater International Airport

3.1 GENERAL OVERVIEW

The purpose of this section is to identify and define key social and economic characteristics in the Pinellas County region from which forecasts of aviation activity are developed.

Levels of aviation activity at local and regional airports can generally be predicted from the size and wealth of the surrounding community. These characteristics can be defined for a region from a variety of statistical sources. Such information is published regularly in Florida by professional demographers at the University of Florida's (UF) Bureau of Economic and Business Research (BEBR). The purpose of this section is to identify and define key social and economic characteristics in the Pinellas County region from which forecasts of aviation activity are developed.

Communities surrounding an airport closely influence demand for a wide range of aviation services that airports can and should provide. The better equipped the airport is to provide these services, the stronger the demand. Local and regional populations are the primary drivers of demand for aviation services, but demand for these services may extend well beyond definable regional, state, or even national boundaries.

The demand for aviation services can generally be related to key characteristics (i.e., population, employment, household income, etc.), which are combined to profile the larger community served by the local airport. Aviation services include commercial air carrier, flight training, maintenance, cargo, and storage of private aircraft. Usually the level of demand is directly related to the size and composition of the regional population, which may be described in terms of earnings (the ability to pay for services) and the employment that provides such earnings.

Therefore, the existing data and characteristics (i.e., population, income, employment, etc.) are used as a basis upon which future aviation activity is forecast. Any necessary airport facilities can then be planned accordingly. The following sections describe key population, demographic, employment, income, socio-economic, and transportation trends, in Pinellas County, as they relate to aviation activity.

3.2 POPULATION

When using socioeconomic factors to develop aviation forecasts, it is important to define the catchments or service area correctly. St. Petersburg-Clearwater International Airport (PIE) is located on the east coast of the Pinellas County peninsula, about five miles north of St. Petersburg and six miles east of Clearwater, and encompasses approximately 608 square miles (sq mi) of total area. Of that total, approximately 280 sq mi consist of land areas and approximately 328 sq mi consist of water areas, including territorial, coastal, and inland properties.

With an approximate population of 898,794, Pinellas County ranks fifth in the state of Florida. **Table 3-1** provides a listing of community populations within the county, including Clearwater, the county seat, and several other communities that are incorporated. Sharing Pinellas County's borders are Pasco, Hillsborough, and Manatee Counties.

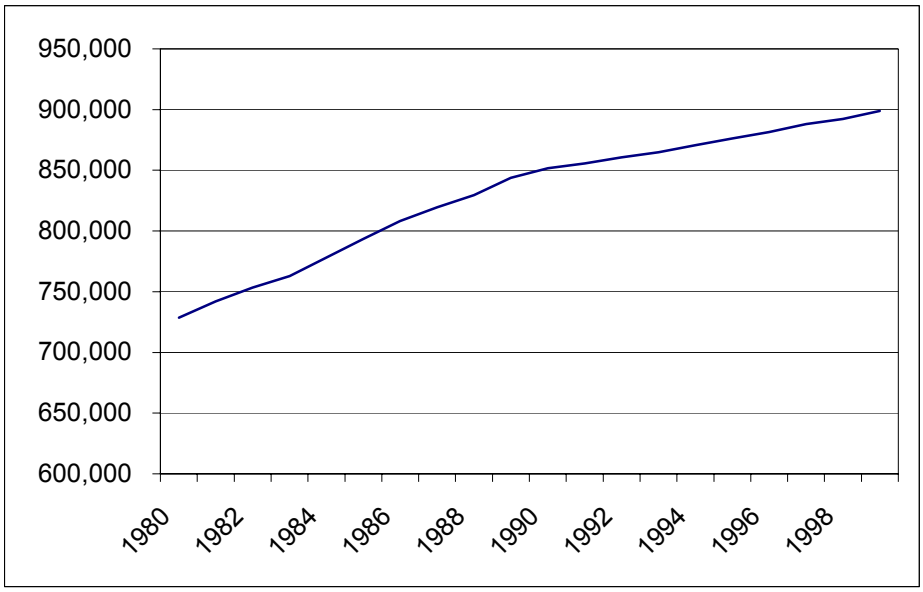
Table 3-1. 1999 Pinellas County Population

Pinellas	898,784	Unincorporated	280,509
Belleair	4,114	North Redington Beach	1,195
Belleair Beach	2,158	Oldsmar	11,658
Belleair Bluffs	2,190	Pinellas Park	45,059
Belleair Shore	62	Redington Beach	1,622
Clearwater	104,281	Redington Shores	2,360
Dunedin	35,781	Safety Harbor	17,232
Gulfport	11,967	St. Petersburg	242,690
Indian Rocks Beach	4,253	St. Pete Beach	9,718
Indian Shores	1,457	Seminole	9,723
Kenneth City	4,375	South Pasadena	5,870
Largo	68,372	Tarpon Springs	20,588
Madeira Beach	4,195	Treasure Island	7,355

Source: University of Florida, Bureau of Economic and Business Research, Florida Statistical Abstract, 2000

Throughout the past 20 years the entire population of Pinellas County has gradually increased. **Figure 3-1** illustrates the high level of growth in the 1980s, in comparison to the lower levels recorded in the 1990s. The historically increasing population appears to be leveling out.

Figure 3-1. Pinellas County Historical Population



Source: University of Florida, BEBR, Florida County Perspectives, 2000

Located in close vicinity to two other commercial service airports with international designation, in addition to two other local general aviation (GA) airports, PIE serves as both a primary reliever to TPA, and as a GA airport. PIE is a major gateway for

international charter passenger traffic to the Tampa Bay Area and the Gulf of Mexico, and is well positioned to meet the demand for non-stop trans-Atlantic service.

An analysis of the service area includes both the county immediately served by the Airport and the Tampa Bay MSA. The U.S. Department of Commerce has deemed Pinellas County as a part of a four-county metropolitan statistical area (MSA) referred to as Tampa Bay, which includes Hernando, Hillsborough, Pasco, and Pinellas Counties, all of which are included in the following socioeconomic discussion.

3.2.1 Distribution and Size

As mentioned previously, Pinellas County covers approximately 608 sq mi of land, 328 of which are water areas. All but one of the counties in Florida have a greater landmass than Pinellas County; however, the County currently ranks fifth in the state for total population, with over 898,000 people. Consequently, the population density of the County equals 3,208 persons per sq mi, ranking number one in the state. Approximately, 70 percent of the County's population, or 618,000 people, live in the incorporated portions of the County, with the remaining 30 percent living in unincorporated areas.

Although there is a positive population growth percentile for Pinellas County, the growth rate is comparatively lower than the rest of the Tampa Bay MSA and the average for Florida, as seen in **Table 3-2**.

Table 3-2. Tampa Bay MSA-Population, Growth, and Property

	Population (1990)	Population (1999)	% Growth Rate (1990-1999)	Property (sq mi
Florida	**12,938,071**	**15,322,040**	**18.4%**	**65,758.1**
Total MSA	**2,067,959**	**2,320,181**	**12.2%**	**3,331.3**
Pinellas	**851,659**	**898,784**	**5.5%**	**280**
Hernando	101,115	127,392	26.0%	589.1
Hillsborough	834,054	967,511	16.0%	1,266.4
Pasco	281,131	326,494	16.1%	868.0

Source: University of Florida, BEBR, Florida Statistical Abstract, 2000

3.2.2 Recent Changes

Throughout the past 20 years Pinellas County has experienced a positive growth rate of 1.1 percent per year (see **Table 3-3** and **Figure 3-2**), only slightly lower than that of the State of Florida, which was 2.4 percent. Over the past ten year period and five year period Pinellas County has seen a constant .6 percent annual growth rate, while Florida's rate has improved from 1.9 percent over a 10 year average, to 2.0 percent over a five year average. The county's growth rate seems to be remaining steady.

Table 3-3. Population and Growth Rate

Pinellas County vs. Florida

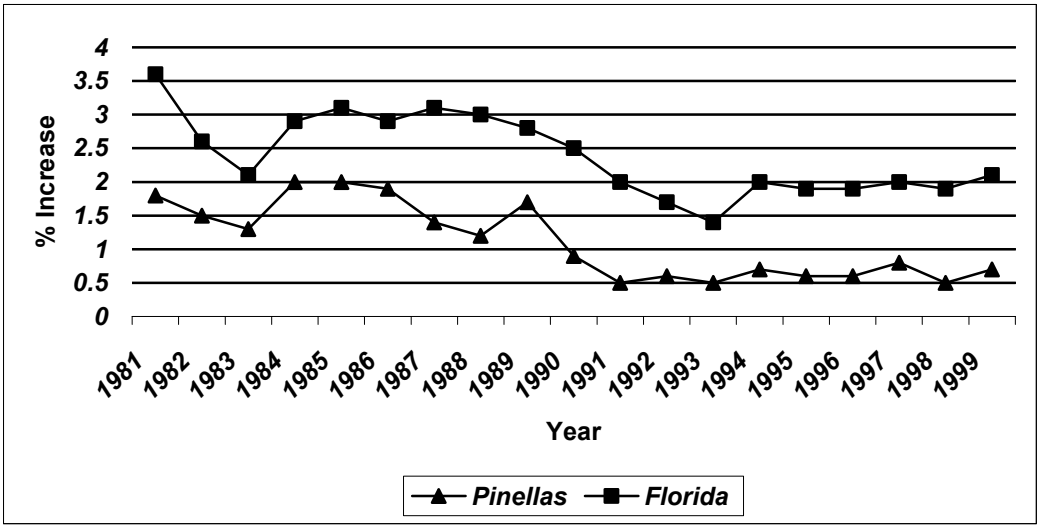
	Pinellas		Florida	
	Population	**Growth Rate**	**Population**	**Growth Rate**
1980	728,531		9,747,411	
1981	742,004	1.8%	10,102,000	3.5%
1982	753,343	1.5%	10,361,520	2.5%
1983	762,918	1.3%	10,575,340	2.0%
1984	778,077	1.9%	10,881,570	2.8%
1985	793,449	1.9%	11,219,460	3.0%
1986	808,234	1.8%	11,545,720	2.8%
1987	819,622	1.4%	11,907,840	3.0%
1988	829,516	1.2%	12,270,410	3.0%
1989	843,755	1.7%	12,617,110	2.7%
1990	851,659	0.9%	12,937,930	2.5%
1991	855,763	0.5%	13,195,950	2.0%
1992	860,736	0.6%	13,424,420	1.7%
1993	864,953	0.5%	13,608,630	1.4%
1994	870,722	0.7%	13,878,900	1.9%
1995	876,200	0.6%	14,149,317	1.9%
1996	881,383	0.6%	14,411,563	1.8%
1997	888,141	0.8%	14,712,922	2.0%
1998	892,178	0.5%	15,000,475	1.9%
1999	898,784	0.7%	15,322,040	2.1%

Average change over past 20 years	1.1%		2.4%
Average change over past 10 years	0.6%		1.9%
Average change over past 5 years	0.6%		2.0%

Source: University of Florida, BEBR, Florida County Perspectives, 2000

Figure 3-2. Annual Population Growth Rates

Pinellas County vs. Florida



Source: University of Florida, BEBR, Florida County Perspectives, 2000

3.2.3 Population Projections

The numbers illustrated by **Table 3-4** show a significant annual increase in population, 3.3 percent on average, in Pinellas County for the next 20 years. Forecasts for the state of Florida also indicate that the state population will continue to increase over the next two decades. This is significant considering that the growth trends of Pinellas County have mirrored the growth trends in the state during past decades.

Forecasts for the state of Florida indicate that the state population will continue to increase over the next two decades.

Table 3-4. Estimated Population and Growth Rates

Pinellas County vs. Florida

	Population Projections (in thousands)			
	Pinellas	**%Change**	**Florida**	**%Change**
1999	898.8	0.70%	15,322,040	2.00%
2000	905.1	0.70%	15,551,871	1.50%
2005	930.6	2.74%	15,708,700	1.01%
2010	955.9	2.65%	16,373,400	4.23%
2020	1,009.4	5.30%	17,901,200	9.33%
2025	1,036.0	2.57%	18,697,400	4.45%

Source: University of Florida, BEBR, Florida Statistical Abstract, 2000

It is also important to take into account the population projections for the surrounding counties. Each of the counties in Tampa Bay MSA is projected to experience significant growth over the next 20 years. **Table 3-5** provides a breakdown of these predictions.

Table 3-5. Projected Population Growth for the Tampa Bay MSA

	1999	2005	2010	2020	2025	% change
Pinellas	**898,800**	**951,187**	**986,199**	**1,041,209**	**1,069,668**	**15.3**
Hernando	127,400	146,300	161,700	194,200	210,400	65.1
Hillsborough	967,500	1,054,300	1,124,000	1,270,800	1,342,800	38.8
Pasco	326,500	357,200	381,900	434,000	459,600	46.8

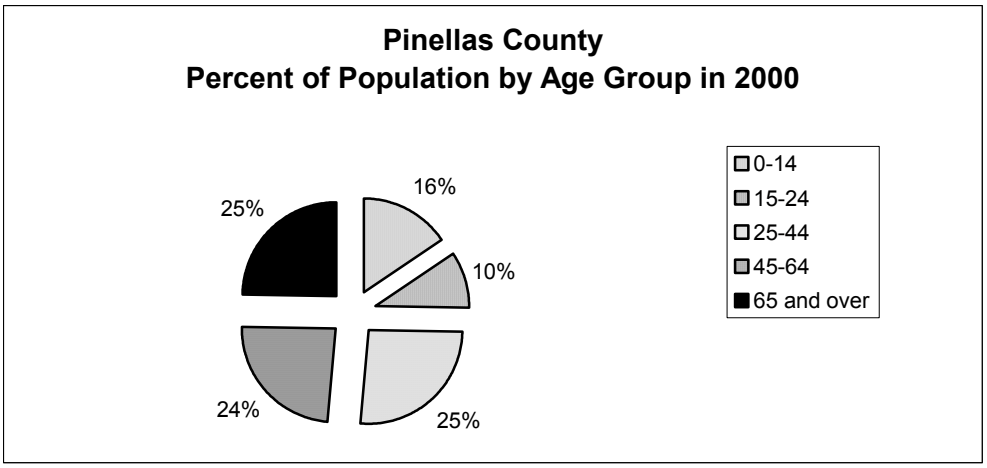
Source: University of Florida, BEBR, Florida Statistical Abstract, 2000

3.3 DEMOGRAPHICS

3.3.1 Age

Economic activity, especially in relation to demand for aviation services, is closely linked to the age demographics of a regional population group. In Pinellas County, the population is fairly diverse, distributed almost equally among different age groups. **Figure 3-3** illustrates the percent of population categorized by age group in the year 2000.

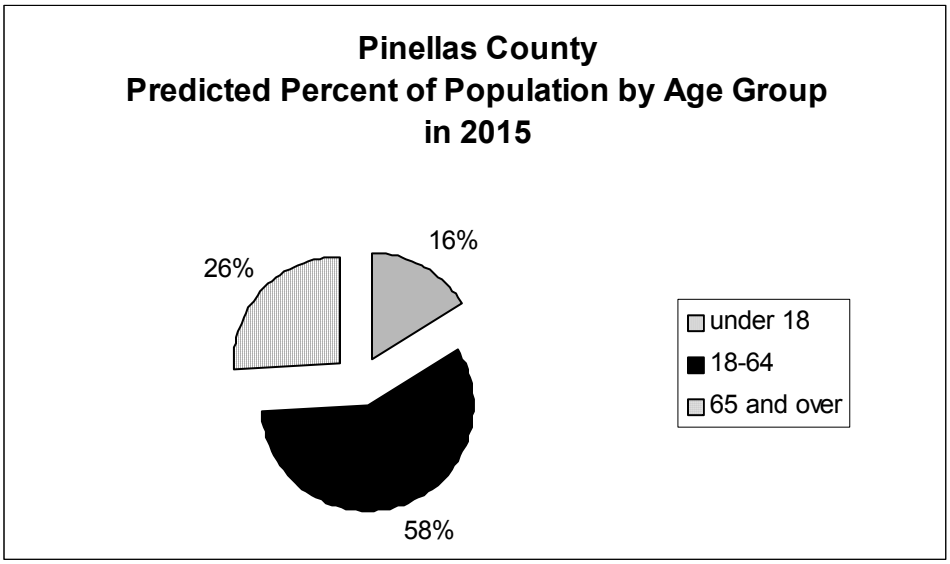
Figure 3-3. Pinellas County Percent of Population by Age Group in 2000



Source: University of Florida, BEBR, Florida County Perspectives, 2000

In 2000, the majority of the population, 59 percent, fell within the 15-64 age groups. Population age projections for the year 2015 indicate very little change, as 58 percent of the population is categorized in the 18-64 age bracket (see **Figure 3-4**).

Figure 3-4. Predicted Percent of Population by Age Group in 2015



Source: University of Florida, BEBR, Florida County Perspectives, 2000

The median age for Pinellas County has dropped three years in the past two decades to 43.0 years old. Although the number is slightly higher than the median age for Florida, which is 38.7, it still falls in the predominant age group, also known as the prime working age group. This means that most members of this category are capable of active employment and have not yet approached retirement. This category of people usually has more disposable income than other age groups and is probably more likely to use air transportation travel for business and for leisure ventures. In addition, this age group is often more inclined to support the Airport and the progress of aviation technology.

3.3.2 Education

Perhaps nowhere in the U.S. is the partnership between the government, the educational system, and the business community so effective as it is in the St. Petersburg-Clearwater area. The public school system, along with vocational and technical programs, helps the area to maintain a very skilled and talented work force.

The Pinellas County School System is acknowledged for extremely high standards in education excellence, and was the first school system to receive the Florida Governor's Sterling Award for quality in education, based on the Malcolm Baldrige National Quality Award (source: Pinellas County Economic Development Brochure). This Quality Award is the highest level of recognition for quality that a U.S. company can receive. Currently, according to the Florida County Perspectives (Pinellas County) there are 151 public schools and 90 private schools in Pinellas County, and a school-aged population of 121,322. In 1999, the County had more of these schools graded at the "A" level than any other county in the state.

Statistics found in the Florida County Perspectives (Pinellas County) prove the success of the Pinellas County School System. The high school graduation rate is 65 percent, which is 5 percent higher than the state average, and the high school drop out rate is 3.7 percent, which is 1.7 percent lower than the state average. In 1999, 4,765 people graduated from high school and over 68 percent of graduates participated in continuing

their education in the year 2000 through universities, community colleges, and other schools. In the County overall, approximately 11,553 people enrolled in the state university system. Thirteen colleges and universities are located in the Tampa Bay area with an enrollment of 78,000 students. Approximately 117,805 of the area's workers have a four-year degree.

The University of South Florida (USF) has built a dynamic, national reputation in less than 50 years of existence. USF is the 2nd largest university in the southeast, the 13th largest university in the nation, and ranks as one of the top 50 public research universities in the country. USF's world-renowned researchers generate more than $171 million annually in sponsored research contracts and grants, specializing in fields such as oceanography, genetics, neurology, aging and public health, alternative fuel polymers, and advanced materials. The area has become the state's high-tech leader, encompassing some 60 percent of Florida's high-tech industries. More than 90,000 of 175,000 graduates since the first commencement in 1964 still live in the Tampa Bay area. Campuses are located in St. Petersburg, Tampa, Sarasota, and Lakeland [1].

For more than 74 years, the students, alumni, faculty, and staff of St. Petersburg College (SPC) have demonstrated a commitment to the highest of standards. This manifests itself in academic success, honors, awards, graduation rates, and community service. Recently, the college received honors recognizing the number of degrees awarded in health professions, nursing, and related sciences. The institution also became Florida's first community college to be accorded four-year status. Approximately 17,000 persons enroll and 3,000 degrees and certificates are awarded each year [2].

Through affiliation with a dozen premier four-year colleges and universities, SPC's University Partnership Center (UPC) affords students the opportunity to earn baccalaureate and postgraduate degrees without leaving the Pinellas County area. Campuses are located in St. Petersburg, Clearwater, Seminole, and Tarpon Springs, but are linked to programs at USF, Florida State University, Eckerd College, Florida A & M, Embry-Riddle Aeronautical University, etc. The UPC is a complete education and training system that few competing areas can match. The Center is the first of its kind in Florida and one of a handful nationwide, which allows students to gain high-level education close to home and close to St. Petersburg-Clearwater employers [3].

Eckerd College, located on a beautiful waterfront setting in St. Petersburg, was founded in 1958 as Florida Presbyterian College. Its first freshman class entered in 1960. Related by covenant to the Presbyterian Church (U.S.A.), it is governed by a self-perpetuating Board of Trustees. Dedicated to excellence, Eckerd College has, in its short history, established a national reputation as a leading innovative liberal arts college of distinctive quality, and the only private national liberal arts college in Florida. Its student body, faculty, and programs attest to the high expectations of its founders and to a remarkable degree of fulfillment [4].

Eckerd College currently enrolls 1,538 students (662 men and 876 women) from 49 states and 62 countries. Seventy percent of the student body comes from out-of-state. Eckerd students are engaged in their education through small classes, independent and collaborative research, internships, study abroad, volunteer service, and campus activities. The mission of the College is to assist students to develop a disciplined intellect, trained imagination, and a motivation to lead [5].

Stetson University College of Law, founded in 1900, is Florida's first law school. Originally located on the campus of Stetson University in DeLand, Florida, the College of Law is an integral part of this private and highly selective University. The College moved

to the Town of Gulfport, contiguous to St. Petersburg, on Florida's West Coast in 1954, but has maintained close ties and parallel goals and objectives with the rest of the University. The College of Law is set on a 21-acre Spanish Revival campus in Gulfport and has the entire Tampa Bay region--one of the nation's top 25 metropolitan areas--as a learning and recreational resource [6].

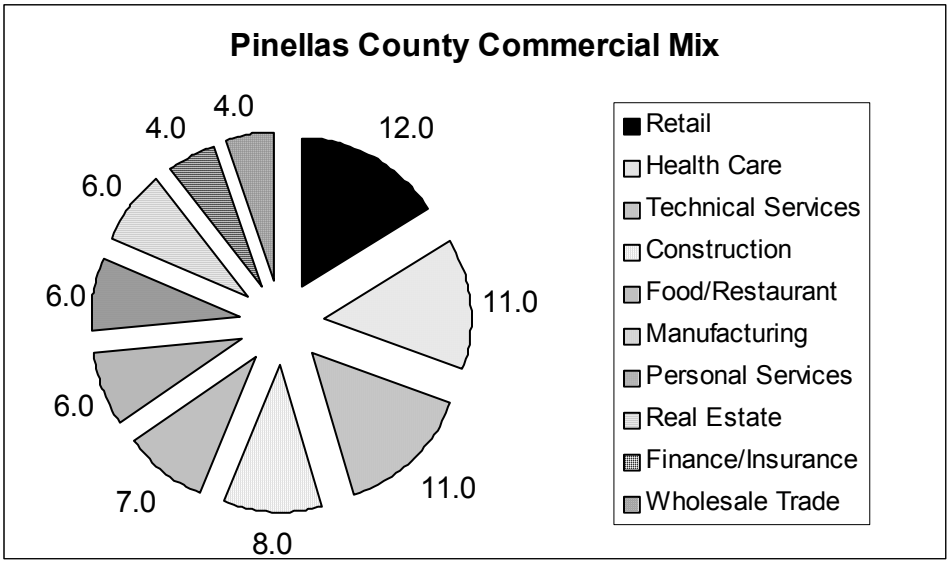
Stetson College of Law is a diverse and selective private College of Law that prepares students to competently, professionally, ethically, and compassionately engage in the practice of law, serve in related professions, and pursue public service. The College of Law recognizes that the education of well-trained professionals requires distinction in faculty, students and staff. Faculty members of the College are dedicated to teaching excellence, legal scholarship, law reform and service to the legal profession. The College of Law is accredited by the American Bar Association and has been a member of the American Association of Law Schools since 1931. Currently, enrollment is approximately 650 full-time students [7].

Also in the realm of technical training and coordination are the Pinellas Technical Education Centers and Critical Jobs Summits. The Pinellas Technical Education Centers offer over 50 technical programs to meet the rapidly changing needs of businesses and industries in the area. The on-going Critical Jobs Summits bring together employers, educators, and policy makers to quickly identify and meet the educational/training needs of today's businesses. The Pinellas County area is constantly striving to provide a whole spectrum of training and education, to rapidly meet the critical workforce requirements of high-tech, high-demand industries [8].

3.4 EMPLOYMENT

The Pinellas County economy is tied to a variety of industries. The following Commercial Mix for Pinellas County was organized from data published in the *2000 Business Assistance Survey for Pinellas County, Executive Summary.*

Figure 3-5. Pinellas County Commercial Mix



Source: 2000 Business Assistance Survey for Pinellas County, Executive Summary

Careful time management, detailed planning, and changing attitudes are responsible for Pinellas County's emergence as a mecca of high-tech and manufacturing businesses. The resources have always existed, but the strategic positioning of the resources has become the engine, which drives the growth of the area. These resources include an available labor pool of engineers and skilled technical people, attractive tax structure, and high quality of life. The area has become an attractant for manufacturers, research facilities, medical related facilities, health services, high-tech corporations, and of course, tourists.

With an unemployment rate of 2.6 percent, according to the Florida County Perspectives (Pinellas County), Pinellas County has a workforce of approximately 460,000 people in the local vicinity, over 1 million in the MSA, and approximately 1.63 million in the region. In addition to the counties designated in the Tampa MSA, the region includes the counties of Manatee, Polk, and Sarasota. It is encouraging to note that within the regional workforce, 27 percent of the workforce is categorized in the 25-44 age group. Also, in the last ten years the region has experienced a 10 percent increase in the number of professionals and has enjoyed a 16 percent job growth rate from 1990-1997. Between 1998-2005, the Tampa Region is predicted to have the 10th largest increase in employment in the U.S, with nearly 1 million new jobs. Furthermore, according to the U.S. Bureau of Labor Statistics, in 1999 the Tampa Bay MSA lead the nation in Job Growth, with 64,000 additional jobs and a 4.7 percent growth rate.

Between 1998-2005, the Tampa Region is predicted to have the 10th largest increase in employment in the U.S, with nearly 1 million new jobs.

According to the Florida Department of Labor and Employment Security, the workers are as productive as any in the country, adding an average of $2.54 to the value of manufactured goods for every $1.00 spent on payroll. Since St. Petersburg's median age has dropped ten years over the past two decades, it is no surprise that the area provides a younger and more energetic workforce to a growing number of companies, as well. Almost one-third (450,000) of the Tampa MSA labor force (1.6 million) resides in Pinellas County, adding 30,000 new workers to the labor force annually, with an estimated 10,000 college graduates. Within the Tampa Bay MSA, over 110,000 college students are available for part-time work.

More than 1,200 manufacturing firms are located in Pinellas County, 130 or more in the biomedical field, which is an area that ranks second in the state in manufacturing employees. Manufacturers employ approximately 47,000 persons in Pinellas County alone. Health service employment in 1994 was 46,556 and is estimated to grow by 63,457 by the year 2005, a 37 percent increase. These facilities are usually located on quiet boulevards, in modern business parks supporting corporate campuses, in technology-related research areas, in smart parks, or in metropolitan districts offering attractive incentives. **Table 3-6** lists the major employers in the area.

Table 3-6. Pinellas County Major Employers

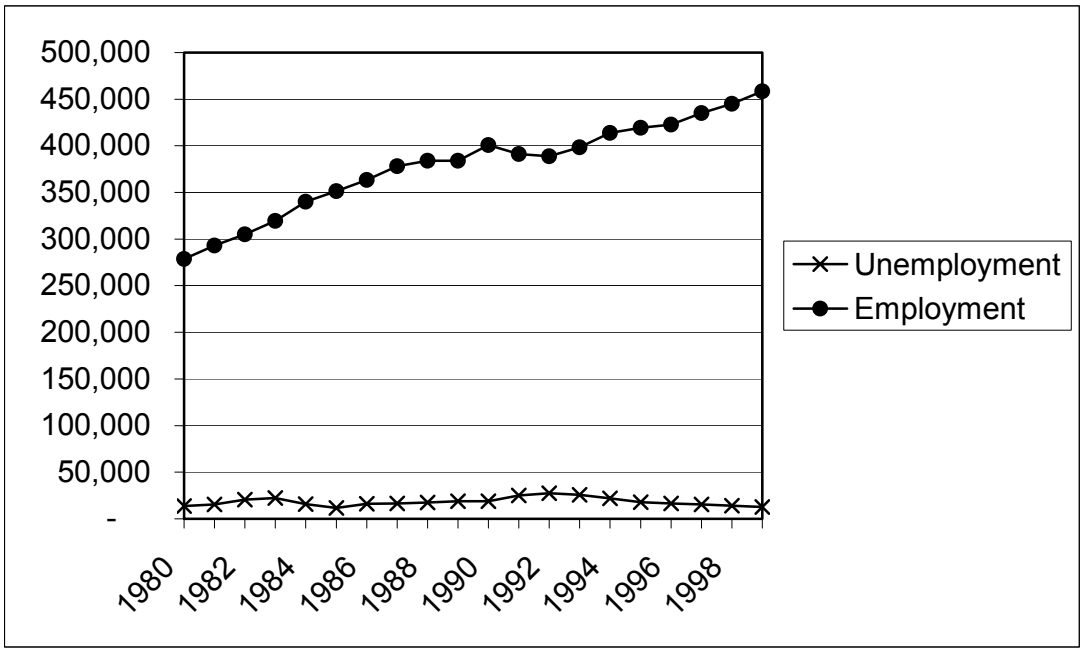
Company	Description	Employees
Home Shopping Network	Retail	4,000
Times Publishing	Publishing	3,300
Certegy	Credit Card Services	3,000
Raymond James & Assoc.	Financial Services	2,200
Bayfront Medical Center	Hospital	2,100
Essilor of America	Optical Manufacturer	1,800
Jabil Circuit	Electronics	1,700
Raytheon E-System	Electronics	1,600
All Children's Hospital	Hospital	1,600
Danka Business Systems	Office Systems	1,480
Verizon	Communications	1,300
Florida Power Corporation	Utility	1,200
St. Anthony's Hospital	Hospital	1,200
Franklin Templeton	Financial Services	1,200
Bankers Insurance Group	Insurance	1,000
America II Corporation	Electronics	1,000
Allstate	Insurance	800
Accenture	Software Developer	800
Aegeon/Western Reserve	Insurance	600
Xerox	Office Systems	500
Compulink	Electronics	500
GE Financial	Credit Card Services	450
Tampa Bay Devil Rays	Major League Baseball Team	300
Catalina Marketing	Information Based Marketing	300
Avaya	Communications	300

Source: www.ci.saint-petersburg.fl.us/majimp.html
City of St. Petersburg-Major Employers

3.4.1 Potential Employment Trends

Despite the steady increase in population, unemployment has actually decreased significantly for the past 7 years at an average rate of 2,091 persons per year. Employment has increased an average of 9,470 persons in the last 20 years. See **Figure 3-6** for details.

Figure 3-6. Pinellas County Employment vs. Unemployment



Source: University of Florida, BEBR, Florida County Perspectives, 2000

3.4.2 Employment Projections

To reiterate, employment in Pinellas County has steadily increased throughout the past decade, while unemployment has decreased. Projections for Pinellas County and the Tampa Bay MSA also show that both employment and unemployment will increase steadily over the next decade. This is based upon the presumption that high-technology industries such as aerospace, electronics and medicine will continue to grow while hospitality industries and other lower end positions will decrease. Despite this fact, the unemployment rates for the County and MSA will remain significantly lower than the State's unemployment rate. **Table 3-7** illustrates employment projections in the County, MSA, and State according to the University of Florida's Bureau of Economic and Business Research.

Table 3-7. Employment Projections

Pinellas County, Tampa Bay MSA, and Florida

	1999	2000	2001	2005	2010
Pinellas County					
Nonagricultural wage/salary jobs	446,400	458,900	463,800	499,300	541,900
Unemployment Rate (%)	2.7	2.7	3	3.1	3.3
Tampa Bay MSA					
Nonagricultural wage/salary jobs	1,167,000	1,207,200	1,227,700	1,332,300	1,464,100
Unemployment Rate (%)	2.7	2.8	3.3	3.4	3.7
Florida					
Nonagricultural wage/salary jobs	6,876,800	7,074,800	7,205,600	7,838,100	8,597,200
Unemployment Rate (%)	3.9	3.8	4.2	4.2	4.6

Source: University of Florida, BEBR, Florida Long-term Forecast 2000, Volume 1 and 2

3.5 INCOME

Per capita income is the most direct indicator of prosperity. **Table 3-8** compares historical per capita income (PCPI) in Pinellas County to PCPI for the state of Florida. Pinellas County ranks eighth in the state for PCPI, adjusted and non-farm, consistently performing moderately better than the state average. The County ranks fourth in the state for its high total personal income and seventh in the state for total earnings and non-farm earnings, with a median household income of $30,088. In 1998, Pinellas County recorded total earnings of $15.4 billion, in comparison to the State's reported earnings of $248.4 billion. The majority of earnings stem from wage and salary disbursements (81.7 percent), while portions also stem from proprietors' income (8.5 percent) and other labor income (9.8 percent).

Table 3-8. Historical Income

Pinellas County vs. Florida

Income	1980	1985	1990	1995	1999
Pinellas					
Total Personal Income ($1,000)	8,147,064	13,116,769	18,306,493	22,386,913	28,432,341
Per Capita Personal Income	11,183	16,531	21,495	25,550	31,634
Florida					
Total Personal Income ($1,000)	98,881,848	166,949,255	258,479,049	333,525,354	423,755,500
Per Capita Personal Income	10,144	14,878	19,978	23,572	27,657

Source: University of Florida, BEBR, Florida County Perspectives, 2000

3.5.1 Income Projections

Consistent with the population and employment projections, the University of Florida forecasts project income to grow steadily until 2005 and project a substantial increase by the year 2010. Total Pinellas County income is projected to increase from $30.4 million in 2000 to $50.9 million by 2010, an average annual increase of 5.9 percent per year. The Tampa Bay MSA expects an annual increase of 5.8 percent over the next decade. Both of these growth factors surpass the state's predictions at 5.5 percent. **Table 3-9** illustrates the income projections for Pinellas County, Tampa Bay MSA, and Florida.

Table 3-9. Projected Income

Pinellas County, Tampa Bay MSA, and Florida

Projected Income	2000	2001	2005	2010
Pinellas				
Total Personal Income (millions)	30,401	32,231	38,955	50,965
Per Capita Personal Income	29,714	30,839	33,446	38,072
Tampa Bay MSA				
Total Personal Income (millions)	70,264	74,236	91,461	121,370
Per Capita Personal Income	26,282	26,973	29,025	32,534
Florida				
Total Personal Income (millions)	452,982	478,685	598,193	801,941
Per Capita Personal Income	25,426	25,992	28,054	31,426

Source: University of Florida, BEBR, Long-term Economic Forecast 2000, Volume 1 and 2

3.6 SOCIO-ECONOMIC ACTIVITY

An area's socio-economic profile can have a direct relationship to the demand for aviation related services. The following sections describe the characteristics of the St. Petersburg-Clearwater and Pinellas County areas.

3.6.1 Agriculture

According to the University of Florida Bureau of Economic and Business Research data contained in the *Florida Statistical Abstract 2000*, there are only 1,895 acres of farmland with approximately 129 farms within Pinellas County. Use of farms consists of cropland, woodland, pastureland, integrated land, and miscellaneous other farmland uses. The average size of a farm in the area is 15 acres with an average market value of approximately $284,000.

Considering that Pinellas County has a landmass of approximately 170,000 acres, and farmland only utilizes approximately 2,000, it is obvious that agriculture is not a significant industry within the borders of Pinellas County. Agriculture only comprises 0.9 percent of employment by major industry group. In fact, 99.8 percent of wage and salary jobs are categorized as non-farm. The market value of agricultural products sold in the year 2000 was approximately $12 million. Some farmers do raise small amounts of miscellaneous crops, but there is very little production of cattle, livestock, or citrus products.

3.6.2 Tourism

Each year, more than 12 million visitors vacation in the St. Petersburg-Clearwater area, also known as Florida's Beach, making it a popular vacation destination on Florida's west coast. More than 4.7 million visitors stay overnight and the length of stay in the area averages nearly eight nights, almost twice as much as the national average (source: Florida Statistical Abstract, 2000). With the extended stay, visitors to the area have the same impact as 18 million visitors to a typical metropolitan destination. Visitors to the St. Petersburg-Clearwater area generate approximately $2.5 billion in direct revenue, making tourism the area's #1 industry [9].

Pinellas County has 38 licensed hotels and 362 licensed motels, which combined, provide approximately 19,000 units available for visitors. Rental condominiums and transient apartment buildings combine for approximately 6,000 available units. In addition, there are approximately 32 designated camping grounds and approximately 5,000 licensed recreational vehicle (RV) parking spaces for visitors. Also, visitors can choose from 2,336 licensed food establishments with a total seating capacity of 202,501 people [10].

Florida's Beach is famous for its 35 miles of powder-white barrier island beaches on Florida's Gulf of Mexico. From undeveloped, isolated island hideaways to wide, soft city beaches that offer all the amenities a beach-lover could imagine, St. Petersburg/Clearwater area beaches are unmatched among U.S. visitor destinations. The area is one of the few destinations in the world to have beaches receive the Blue Wave Award and to be named among the top beaches in the United States [11].

Area beaches have won numerous awards for everything from sand quality to environmental management. Coastal geologist Dr. Stephen Leatherman, also known as "Dr. Beach," ranked Caladesi Island State Park #5 and Fort De Soto Park #6 among the best beaches in the entire United States in his latest annual survey. He also named Clearwater Beach as the #1 City Beach in the Gulf region. Those three beaches, plus

Honeymoon Island, Sand Key Park, Clearwater Beach, St. Pete Beach, Treasure Island, and Fred Howard Park have also received the Blue Wave Award for environmental management from the Clean Beaches Council. The area's 345 miles of shoreline around the peninsula also encompass the resort communities of Dunedin, Indian Rocks Beach, Indian Shores, Redington Beach, Madeira Beach, Safety Harbor, and Tarpon Springs [12].

The St. Petersburg/Clearwater area features more than 20 barrier islands, also known as keys, buffering the Pinellas Peninsula from the Gulf of Mexico. The gentle slope and calm surf make area beaches perfect for family water activities. The Gulf and intercostals waterways offer areas for practically every water activity imaginable, including: deep-sea fishing, backwater salt flats fishing (rated among the best in Florida), boating, sailing, canoeing and sea kayaking, SCUBA diving (dive shops offer trips to artificial reefs, wrecks, and area springs and rivers), wind surfing, and shelling. More than 300 species of fish can be caught in the area waters. With over 7,720 acres of parks, 96 marina and dock facilities, and 9 yacht clubs, the Tampa Bay area has something for everyone.

Professional sports fans have Major League Baseball's Tampa Bay Devil Rays, who play in St. Petersburg's Tropicana Field, and the National Football League's Tampa Bay Buccaneers, National Hockey League's Tampa Bay Lightning, and Area Football's Tampa Bay Storm in nearby Tampa. The Tampa Bay area is also baseball's spring training capital with nine teams training within an hour's drive. Area teams include the Devil Rays in St. Petersburg, Philadelphia Phillies in Clearwater, the Toronto Blue Jays in Dunedin, and the New York Yankees in nearby Tampa. In addition, racing enthusiasts can enjoy a day at the track at nearby greyhound and thoroughbred racing facilities.

As golf and tennis are played year-round, there are 46 local golf courses and 54 tennis facilities from which to choose. Top golfers from around the world compete in the Tampa Bay Classic, a Professional Golfers Association tour event, in September. St. Petersburg and the Renaissance Vinoy Resort are home to yacht races throughout the year. Tropicana Field was home to the 1999 NCAA Basketball Final Four and the greater Tampa Bay area also hosted the 2001 NFL Super Bowl and the annual NCAA Outback Bowl [13].

Entertainment in the form of world-class museums, symphony performances, Broadway shows, rock concerts, ballet, and art festivals are presented throughout the year. St. Petersburg's Bayfront Center, with the 2,000-seat Mahaffey Theater, and the 8,250-seat Times Bayfront Arena, is the scene for many of these activities. Ruth Eckerd Hall, the 2,000-seat theater in Clearwater's Richard Baumgardner Center for the Performing Arts, offers a wide array of cultural activities. County and community parks are regular sites for art shows and open-air concerts like the Clearwater Jazz Holiday in October, acclaimed as one of the South's premier jazz festivals. There are 15 community theaters, 4 professional theaters, and more than 15 museums throughout Florida's Beach. Families can enjoy local dinner cruises, aquariums, dolphin watches, nature walks, zoos, mini-theme parks, and some of the best shopping in the state. In addition, St. Petersburg is only 90 miles away from Disney, Universal Studios, and Sea World in Orlando and only 15 miles from Busch Gardens in Tampa [14].

These tourist attractions, in addition to the average 361 days of sunshine per year and superior quality of life, have transformed the Tampa-St. Petersburg-Clearwater area into a vacation hot spot. In fact, according to the 1999 "Places Rated Almanac", this area ranked fourth in the nation's metropolitan areas. No other Florida area was ranked in the top ten. The book ranks areas in the U.S. and Canada on nine factors, including: cost of

living, transportation, crime, the arts, recreation, and climate. The St. Petersburg-Clearwater area also ranked as the #1 metropolitan county in Florida, in a study by *Florida Trend* magazine. The 2000 Best of Florida rankings evaluated quality-of-life factors including crime rate, traffic congestion, and health care [15].

3.6.3 OTHER

St. Petersburg is the gateway to Florida's High Tech Corridor, which extends from St. Petersburg, east across central Florida to Cape Canaveral. The High Tech Corridor can be seen across the center of the state and is home for over 1,650 information technology companies. It is the fifth largest high tech labor force in the U.S. with 120,000 workers. Sixty percent of Florida's high tech companies and a third of the state's manufacturing companies are in St. Petersburg and Tampa Bay. In fact, of the 50 fastest growing technology companies in the Tampa Bay region, 24 are based in the St. Petersburg-Clearwater area [16].

St. Petersburg has also established a growing national reputation for marine science industries. St. Petersburg's Bayfront Harbor is now home to a U.S. Geological Survey field office, and the U.S. Coast Guard Group Station is an air station located in Clearwater. The University of South Florida's Center for Ocean Technology and the Florida Department of Environmental Protection has become nationally renowned for its contributions in the field of marine science and oceanography. Opportunities abound for private enterprise to utilize the wealth of knowledge and equipment available at the USF Marine Sciences Department [17].

3.7 TRANSPORTATION

The existing transportation network of the region is another factor that is important in the assessment of the development potential of an Airport. As one of the busiest regions on the Gulf Coast, Pinellas County takes full advantage of the state's transportation systems. U.S. Highway 19, State Road 60, and Interstate 275 cross Pinellas County providing ready access to Interstate 75 and Interstate 4. In fact, the County's location on the interstate highway system puts it an overnight truck shipment away from 60 percent of the U.S. population, with its direct links to major metropolitan areas in the Northeast, Midwest, South, Southwest, America's Heartland, and the Great Lakes industrial region.

The major highway in St. Petersburg is I-275, which connects the area with Hillsborough County (Tampa) to the northeast and Manatee County (Sarasota) to the south. I-275 extends to I-75 providing access north to Georgia, and to I-4 providing access to Orlando and Florida's east coast. I-275 also provides easy access to PIE and Tampa International Airport from downtown locations, transportation hubs, and the City's business parks.

Pinellas County is well served by other modes of transportation, as well. In addition to an emerging aviation system, the county also has convenient commercial rail service provided by CSX. The railroad moves freight between north and south Atlantic points and connects with all major U.S. rail lines. For maritime operations, businesses will find three local deepwater ports: Port of Tampa, Port of Manatee, and Port of St. Petersburg. These ports provide cargo handling, ship repair and building, fishing operations, and maritime recreation, and are efficiently integrated with the rail and highway systems [18].

In addition to an emerging aviation system, the county also has convenient commercial rail service provided by CSX.

The Long Range Transportation Plan (LRTP) is the focal point of the Pinellas County Metropolitan Planning Organization's planning programs and activities. In accordance with federal requirements, the plan assesses the transportation needs of Pinellas County and sets forth improvements necessary to address those needs over a 20-year period.

Planning for the transportation system includes analysis of roadways for vehicular traffic, trails and sidewalks for bikers and pedestrians, and the integration of rail, maritime, and air transportation. The ease of accessibility in St. Petersburg and Pinellas County assures that the Tampa Bay region has one of the best transportation systems in the country.

3.8 OTHER FACTORS

St. Petersburg is strategically located at the heart of one of the most desirable business location in the country. According to *Southern Business & Development* Magazine (June, 1998), the Tampa Bay area ranks first for expansion and relocation (replacing Dallas/Ft. Worth). *Business Facilities* magazine ranks Florida second overall among the fastest growing high tech areas in the country. In short, the cradle of retirement has become a center of opportunity. The laid-back beach atmosphere has "embraced the energetic drive of East Coast savvy and West Coast entrepreneurialism" according to the St. Petersburg Chamber of Commerce [19].

The transformation has been unusually challenging because of the area's uniqueness. Tourism is still predominant, but the sandy beaches have also attracted high tech and marine sciences. The vibrancy of a growing, highly educated workforce has drawn medical manufacturing and health care services. The Chamber of Commerce insists "it is the lure of a lifestyle that built St. Petersburg, but it is the fruits of that lifestyle that will drive it vigorously into the millennium" [20].

This new Florida lifestyle is reflected in St. Petersburg's downtown – a downtown whose revitalization received a major jump-start in 1998 when professional baseball moved into Tropicana Field. The entire "Dome District" has undergone a transformation. Similarly, St. Petersburg's waterfront is undergoing rapid growth with the planned BayWalk complex, new space in an expanded McNulty Station office building, and three major condominium high-rise projects: the Florencia (21 stories), the Cloisters (14 stories), and a $65 million dollar expansion to the Renaissance Vinoy Resort, which will ultimately add four condominium towers (11 stories plus) [21].

3.8.1 Business Climate

Businesses are following the trends of progress, thanks to an incentive program designating a 9.4 sq mi section, roughly 16 percent of the city including all of downtown St. Petersburg, as an Enterprise Zone. Business owners within the area are eligible for valuable state tax credits when they add new jobs, expand their businesses, make building improvements, or hire employees who live in the immediate area. Additional incentives are available throughout the St. Petersburg area for new and expanding businesses [22].

It is no surprise that Florida ranks fourth in the nation in the number of expanding or relocating businesses. Besides a low 5.5 percent corporate income tax, the following bolsters the free enterprise system:

- No personal state income tax or sales tax on food or medicine.
- No annual franchise tax on stock or other equity.
- No unitary tax or property tax on inventory or goods-in-transit.
- No sales and use tax on goods made in the state for export.
- No sales tax on boiler fuels or the cogeneration of electricity.

- No sales or use tax on production machinery or equipment, raw materials, non-reusable containers or packaging, or building materials used in commercial construction or professional services.
- Exemptions on sales and use tax for the labor portion of research and development costs.

Incentives such as employee preference, an available labor pool of engineers and skilled technical people, and these attractive tax benefits, help attract a number of industries to the area. For example, Rockwell Semiconductor chose Pinellas County for its first U.S. research center outside California. Also, Plasma-Therm, another semiconductor manufacturer, relocated to Pinellas County from New Jersey. Biomedical manufacturer's like R.P. Scherer, Maxxim Medical and Essilor chose Pinellas County because of state and local incentive programs, attractive tax rates, and superior employee training programs [23].

The St. Petersburg-Clearwater area is conducive to business because of the climate, cost of living, vendors, and suppliers. The City also provides a variety of office space, waterfront settings, and highly skilled labor. Other attractants include government support and availability, commercial development potential, and a variety of small business programs.

3.8.2 Industrial Parks

Technology-based companies are blossoming left and right within the “Silicon Bay”. As the portal to the High Tech Corridor, the area has attracted so much business that strong manufacturing clusters have formed in such disciplines as microelectronics, information technology, aerospace/aviation, plastics, marine science, and medical technology. The downtown area has recently begun to attract Internet and web-based companies, becoming a mini web-alley.

Pinellas County, as a whole, has resisted current trends to gain its business reputation on a single industry, remaining flexible within the definable limits of its employment base capabilities. The resulting natural diversity of manufacturing, research, financial, and service industries has provided stable growth with even more stable projections for the future. Major business facilities within Pinellas County have developed along a broad corridor spanning throughout the northern sections of the county, down the eastern portion of the peninsula into the metropolitan St. Petersburg area. Clearwater, for example, is home to Honeywell Space Systems Group, Tech Data, Bic Corporation, Unisys, Alliant Technologies, and Aerosonic Corp., to name a few [24].

Largo, situated mid-county, is home to Lockheed Martin, Linvatech, and the corporate headquarters of Eckerd Drugs. Largo's Star Center, formerly a Department of Energy plant, has been revitalized as a high technology and research park. Raytheon E-Systems has recently joined 20 other high-tech firms at the 96-acre center.

A number of major business parks in northern St. Petersburg, including the Gateway Centre, Carillon, and ICOT, are home to Jabil Circuit, E-Systems, Geonex Corp., Frankin Templeton Investor Services, Inc., and Raymond James & Associates, Inc. ABR Information Services, Inc., (benefits administration) is in the process of relocating from Palm Harbor, in northern Pinellas County, to an existing 51-acre campus in South St. Petersburg, formerly occupied by Florida Power, known as the Pinellas STAR (Science, Technology, and Research) Center. Despite the county's limited available acreage, new and existing office space continues to be at an adequate level to ensure continued growth and expansion [25].

The Airport Business Center is a 42-acre high-tech business park strategically located across from PIE. This sight offers approximately 386,000 square feet (sq ft) of building space and has land available for custom building. The Center is also equipped with conference rooms, secretarial support, office equipment, SMART PARK with redundant fiber optics, and high speed Internet access [26].

3.8.3 Foreign Trade Zones

A survey conducted by the International Trade Commission, found that the presence of a foreign trade zone (FTZ) was the fourth most identifiable factor in plant site location decisions. FTZ's provide customs cost savings and encourage improved inventory control. Through the use of FTZ's, U.S.-based production is placed on more equal footing with production in a foreign country. In addition, FTZ's have had a significant impact in retaining U.S. production and employment, as well as, stimulation of new activity.

One such development is Foreign Trade Zone #193, which includes the properties of PIE, the Airport Business Center, the Pinellas STAR Center, and the Port of St. Petersburg. In addition to the tax incentives mentioned in earlier sections, the FTZ eliminates quota restrictions on merchandise admitted into zones, allow goods to be delivered directly, and allows for transfer of goods among multiple zones. The Airport even offers low-cost landing fees for commercial cargo and airlines, and no landing fees for corporate and GA aircraft [27].

3.9 AVIATION INDUSTRY FACTORS

PIE services go the extra mile. The Fixed Based Operators (FBOs) are trained and ready to provide ticketing, commercial ground support, fueling, and cargo handling. The Airport is equipped with excellent ground transportation resources, including car rentals, hotel shuttles, limousine services, and bus services. Parking exceeds normal standards, as well, with an abundance of low-cost parking located in close vicinity of the Airport, offering convenience that passengers may not find at other airports.

Passenger amenities are also present inside the terminal building. For the weary traveler, there is a restaurant with an airside view and comfortable cocktail lounge. For souvenir seekers and leisure passengers, the Airport hosts fully stocked news and gift shops, a duty-free shop, and an on-site golf course. And for the business traveler, the Airport has nearby hotels and meeting facilities, as well as crucial on-site car rental agencies.

The Airport can accommodate various sized aircraft, from jumbo jets, to charter planes, to private aircraft. PIE is also home to the busiest Coast Guard Air Station in the world. The Airport also serves as a hub for UPS and Airborne Express. Therefore, it is necessary that the FAA monitor the airspace in the local Air Traffic Control Tower (ATCT), and provide flight support via the local Automated Flight Service Station.

3.10 SUMMARY

A variety of historical and forecast socioeconomic information related to the City of St. Petersburg, Pinellas County, and the Tampa Bay MSA has been collected for use in various elements of the Master Plan Update. This combined information plays an integral role in determining air transportation service level requirements, as well as forecasting the number of based aircraft and operations at the Airport. These forecasts are normally linked to the economic strength of the region and its ability to sustain a strong economic base over an extended period of time. This type of data provides valuable insight into the trends and character of the community, in addition to highlighting market opportunities for the Airport itself.

AVIATION ACTIVITY FORECAST

St. Petersburg-Clearwater International Airport

4

4.1 INTRODUCTION

This chapter presents the development of the forecast of aviation activity at the St. Petersburg-Clearwater International Airport (PIE). As presented, this forecasts was developed by URS Corporation as part of the Environmental Assessment (EA) for the proposed extension of Runway 17L/35R at PIE and to provide projections of aviation activity for the 20-year planning period 2000 through 2020. Although developed as part of the EA, the forecast addresses data and informational topics that were subsequently used for the Airport Master Plan Study conducted by PBS&J. This forecast was also used as important input to the Benefit-Cost Analysis associated with the proposed extension of Runway 17L/35R. The Federal Aviation Administration approved the URS forecasts in July of 2002.

PBS&J adjusted the URS 20-year planning period of the EA, 2000–2020, to fit the timeline of the Master Plan, 2002–2022. The tables and graphs presented herein were adjusted accordingly through interpolation (i.e., 2000 to 2002, 2005 to 2007, 2010 to 2012, and 2015 to 2017) and extrapolation (2020 to 2022). The remaining text of this chapter remains unchanged.

As prescribed in FAA Order 5090.3C, *Field Formulation of the National Plan of Integrated Airport Systems (NPIAS),* it is the expressed goal of this aviation activity forecasting effort to:

- Develop a realistic approach regarding the methodology, formulation, and derivation of the various elements of the aviation activity forecast.
- Utilize the latest available relevant information and data.
- Reflect the current and anticipated conditions at PIE.
- Provide an adequate justification for airport planning and development.

Applying each of the above stated goals, the objective of this forecasting effort is to:

- Collect and review all pertinent historical and forecast data and information.
- Select viable and prudent forecast methodologies.
- Apply selected forecast methods and evaluate the results.
- Compare the selected forecast results with the latest Federal Aviation Administration (FAA) Terminal Area Forecast for PIE.

This aviation activity forecast assumes that terminal and airfield capacity will be available at time of actualized demand.

The chapter begins with a discussion of the Airport's service area, historical passenger enplanement levels, activity levels of commercial aircraft, general aviation (GA) aircraft and military aircraft, GA based aircraft levels, and cargo tonnage movements. The chapter then proceeds with presentations of commercial GA and military activity forecasts, including passenger enplanements, aircraft operations, projected aircraft mix, and peaking activity for the four future planning years 2005, 2010, 2015, and 2020.

It is important to note that forecasting is an inexact science. Departures from forecast levels in the local and national economy and in the airline business environment would have a significant effect on the projections presented herein. These uncertainties

increase towards the end of the forecast period. That said, new technologies and changes in work and recreational practices may have an unpredictable impact on aviation activity. For these reasons, the aviation activity forecasts presented should be periodically compared with actual PIE activity levels, and Airport plans and policies should be adjusted accordingly.

The aviation activity projections reflect careful consideration of the recent economic downturn at the local and national levels as well as the economy of Canada, a principal international origination and destination market for the Airport. The effects of the September 11, 2001, terrorist attacks on the World Trade Center in New York City were also considered when reviewing similar aviation activity projections previously prepared by others for PIE, the State of Florida, and the national aviation system as a whole. It was fully acknowledged that all other previously developed aviation activity projections reviewed for this forecasting effort did not reflect the events of September 11. Therefore, the localized effect of those events on the operational and passenger enplanement activity levels at PIE and within the national aviation system of airports was also carefully weighed and considered.

Lastly, as prescribed by the FAA Office of Aviation Policy and Plans (APO), certain projections of aviation activity developed within this chapter will be compared to the FAA's 2001 Terminal Area Forecast (TAF) as published for PIE, the State of Florida, and the United States aviation system as a whole. The FAA-APO develops policies, goals and priorities, forecasts future aviation technology and demand, and analyzes the economic impact of regulations. The FAA 2001 TAF is the official forecast of aviation activity at FAA facilities that include FAA-towered airports, federally contracted towered airports, non-federal towered airports, and many non-towered airports. Detailed forecasts are developed for the following major users of the national aviation system, including large air carriers, air taxi/commuters, GA, and military. The TAF forecasts have been prepared by the FAA to meet the budget and planning needs of the constituent units of the FAA, and to provide information, which can be used by state and local authorities, the aviation industry, and the general public. It should be noted, however, that the aviation forecasts contained in the TAF for Fiscal Years 2001-2015 do not incorporate any impact of the September 11 terrorist attacks. The forecasts do, however, provide government and aviation planners with a valuable benchmark to measure the impact of the September 11 events.

In situations where the derived aviation activity forecasts differ from the FAA's 2001 TAF by 10 percent, further explanative discussions and documentation may be required for consideration of the variances between the respective forecasts. It is further recognized that certain TAF projections may not fully reflect or consider localized changes or paradigm shifts in aviation activity at a particular airport.

Other notable and important FAA-APO publications were also referenced and consulted to develop projections of aviation activity at PIE over the 20-year forecast period 2000 through 2020. These included the FAA Aerospace Forecasts FY 2002 through 2013 (March 2002), which do account for the impact of the September 11 terrorist attacks, and Long Range Aerospace Forecasts FY 2015 through 2025 (June 2001).

PIE serves as one of nation's 70 Small-Hub Primary Airports and one of the Nation's 538 Commercial Service Airports.

4.2 AIRPORT SERVICE AREA

PIE serves as one of nation's 70 Small-Hub Primary Airports and one of the Nation's 538 Commercial Service Airports. Of these airports, 413 have more than 10,000 annual enplanements and are classified as Primary Airports. Commercial Service Airports are defined as public airports receiving scheduled passenger service and having 2,500 or

more enplaned passengers per year. The Airport is defined in the NPIAS as a "Small-Hub Primary" airport that by definition enplanes between 0.05 and 0.25 percent of the nation's total passenger enplanements. Small-Hub Primary Airports typically use less than 25 percent of the runway capacity for commercial service operations, have a predominance of GA activity, and base on average 130 aircraft.

Within the Tampa/St. Petersburg-Clearwater metropolitan area, there are a total of five public use airports. PIE has traditionally served the public commercial air transport needs within an air service market shared by Tampa International Airport (TPA), which is 11 miles to the east, and Sarasota-Bradenton International Airport (SRQ), which is 36 miles to the south. Prior to 1962, both TPA and PIE shared the local air service market. In 1962, the decision was made to move all air carrier service to TPA. Since 1962, however, the Airport has developed and maintained a unique mix of air service to domestic and international (primarily Canadian) markets. Passenger enplanements primarily originate from the surrounding counties of Hillsborough, Manatee, Sarasota, Pasco, and Hernando. The Airport also serves, to a lesser extent, the more distant outlying counties of Citrus, Sumter, Polk, and Hardee.

4.3 HISTORICAL AIRLINE ACTIVITY AT PIE

4.3.1 History of Commercial Air Service

Throughout the 60's and 70's, the Airport developed a niche market catering primarily to weekend chartered flights to and from Canada. In the early to mid-80's, the Airport experienced large increases in commercial activity and passenger enplanements with the entry of scheduled service by a number of domestic and international air carriers. Over that past 20-year period, a variety of air carriers and charter operators have provided scheduled service to PIE. Many, however, are no longer in operation, reflecting the dynamics and turmoil of the deregulated air service market.

In the 80's and 90's, the following air carrier and charter operators offered varying levels of scheduled service at PIE that included:

- People's Express Airlines (1983 - 1985)
- Northeast Airlines (1983 - 1985)
- Atlantic Gulf (1983 - 1984)
- Florida Express (1984 - 1985)
- American Airlines (1984 - 1989)
- Braniff Airlines (1988 - 1989)
- Air Transat Airlines (1993 - present)
- Royal Airlines (1993 - 2001)
- Canada 3000 (1989 - 2001)
- American Trans Air Airlines (1991-present). Conducted hubbing operations at PIE until 1998
- USAir (Ceased operations in 2001)
- Sun Jet Airlines (1993 - 1998)
- Southeast Airlines (1999 - present)

A review of the historical success or failure of each commercial airline or charter operator at PIE indicates that the Airport has experienced a wide range of passenger enplanement and commercial aircraft operational levels. The history of the success and longevity of scheduled and chartered air carrier service at PIE further indicates that the role and function of the Airport has been to primarily serve unique markets between the west central Florida region and certain under-served northern markets. Further analysis

indicates that when properly initiated, maintained, and developed, these city-pair offerings to the northeast, southwest, and Canada markets are profitable and sustainable. This said, however, the removal or loss of scheduled domestic or international flights to and from PIE appear to be more directly related to the internal business decisions of each airline or charter operator. Past examples include decisions by the airlines to either abandon well-established and successful routes to and from PIE, or to transfer those operations to TPA. The success of these actions is not apparent as the newly relocated operations faced competitive forces at TPA that ultimately culminated in the demise of the route or the airline as a whole.

Because the Airport primarily serves the needs of the non-business or leisure/vacation traveler, the economic elasticity of demand for air travel is much more pronounced at PIE than for TPA, and to a lesser degree, SRQ.

All things considered, it would appear that PIE has the potential to maintain and develop additional service to various markets that are either: 1) underserved by airlines currently operating from TPA or SRQ, or 2) found to be viable by new low-cost carriers that consider PIE a unique opportunity to establish new air service markets.

The continued success of the routes to and from the Canadian markets demonstrates that the Airport is capable of maintaining a relatively consistent base-line level of scheduled and chartered international flights. That said however, the recent (2000 - 2001) multi-year downturns of the global and national economies of the United States and Canada have had a direct and measurable affect on the year-over-year levels of commercial aircraft operations and associated passenger enplanement levels at PIE. The ever-changing gap in the relative international monetary exchange rates of the U.S. and Canadian dollar appear to place additional pressures on PIE's ability to sustain a consistent level air carrier and international passenger enplanement levels.

4.3.2 Commercial Air Service - 2002

As of the start of the calendar year 2002, six air carriers offered scheduled service to and from PIE. Four air carriers serve domestic and international passenger demand; two serve dedicated overnight express cargo demand.

Southeast Airlines offers scheduled non-stop service to Gulfport, Mississippi and Newark, New Jersey. Air Transat offers scheduled non-stop Canadian flights to Toronto and St. John's. American Trans Air Airlines offers scheduled non-stop service to Chicago Illinois, and Indianapolis, Indiana. In December 2001, Pan American Airlines (PAA) initiated service to PIE with non-stop service to Portsmouth, New Hampshire and Gary Indiana. PAA also serves direct flights to Bangor, Maine, Worchester, Maine, Allentown, Pennsylvania, and Baltimore, Maryland through its hub in Sanford, Florida. (Note: Pan Am ceased service in September 2002.) United Parcel Service offers domestic and international scheduled dedicated overnight express cargo services. Airborne Express offers domestic scheduled dedicated overnight express cargo services.

4.3.3 Historical Passenger Enplanements

4.3.3.1 Twenty-Year Passenger Enplanement Levels

In reviewing the historical levels of passenger enplanements at PIE, the evidence of volatility in the year-over-year changes in passenger activity is readily apparent. Over the 20-year period 1982 through 2001, the passenger enplanements increased from 61,144 in 1982 to 319,416 in 2001. As shown in **Table 4-1** and **Figure 4-1**, the rise and

fall of annual passenger enplanement levels at PIE has been very dynamic. As previously discussed, the obvious reason for these variations reflect the entry and exit of the various airlines and charter operators over the period. This data further indicates that, unlike TPA and to a lesser degree SRQ, PIE does not enjoy consistent levels of business travel demand. Instead, PIE has historically served niche markets to the U.S. northern markets or Canada to satisfy the leisure/vacation/seasonal traveler. This travel market, by its nature is more highly affected by changes in the economy, (perceived or real), changes in foreign currency exchange rates, and current levels of disposable income. As such, PIE experienced the variations of passenger enplanement demand that was satisfied, to whatever extent present at the time, by the airlines serving the Airport. The entry and exit of the various airlines and charter operators is, in the case of PIE, at the discretion (or financial success) of the particular airline/charter operator. It should be noted, however, the continued growth of international enplanements to and from Canada currently represents a major part of the Airports base of passenger activity.

Examining the more recent 5-year period, 1997 - 2001 (inclusive), a more detailed examination of passenger enplanements can be provided and are discussed in the following sections.

4.3.3.2 Five-Year Total Passenger Enplanement Levels

As shown in **Table 4-2** and **Figure 4-2**, annualized levels of total passenger enplanements have been, with the exception of 1998, steadily decreasing, from 443,300 to 319,416, at an average annual compounded rate of 6.3 percent. The data further indicates, using a 5-year average, highest enplanement levels typically occur during the 3-month period of February, March, and April. Using the same approach, the lowest enplanement levels typically occur during the months of September and October.

Table 4-1. Historical 21-Year Commercial Passenger Enplanements (1980-2000)

Year	Enplaned	Change
1982	61,144	
1983	211,426	245.78%
1984	434,369	105.45%
1985	306,481	-29.44%
1986	264,958	-13.55%
1987	209,263	-21.02%
1988	128,377	-38.65%
1989	134,025	4.40%
1990	123,483	-7.87%
1991	143,092	15.88%
1992	199,523	39.44%
1993	282,054	41.36%
1994	361,334	28.11%
1995	548,475	51.79%
1996	524,314	-4.41%
1997	443,300	-15.45%
1998	456,852	3.06%
1999	399,070	-12.65%
2000	368,709	-7.61%
2001	319,416	-13.37%

Source: St. Petersburg-Clearwater International Airport, summary of Passenger Traffic, 1980-2000 (provided by PIE).

Figure 4-1. Historical 21-Year Commercial Passenger Enplanements (1980-2000)

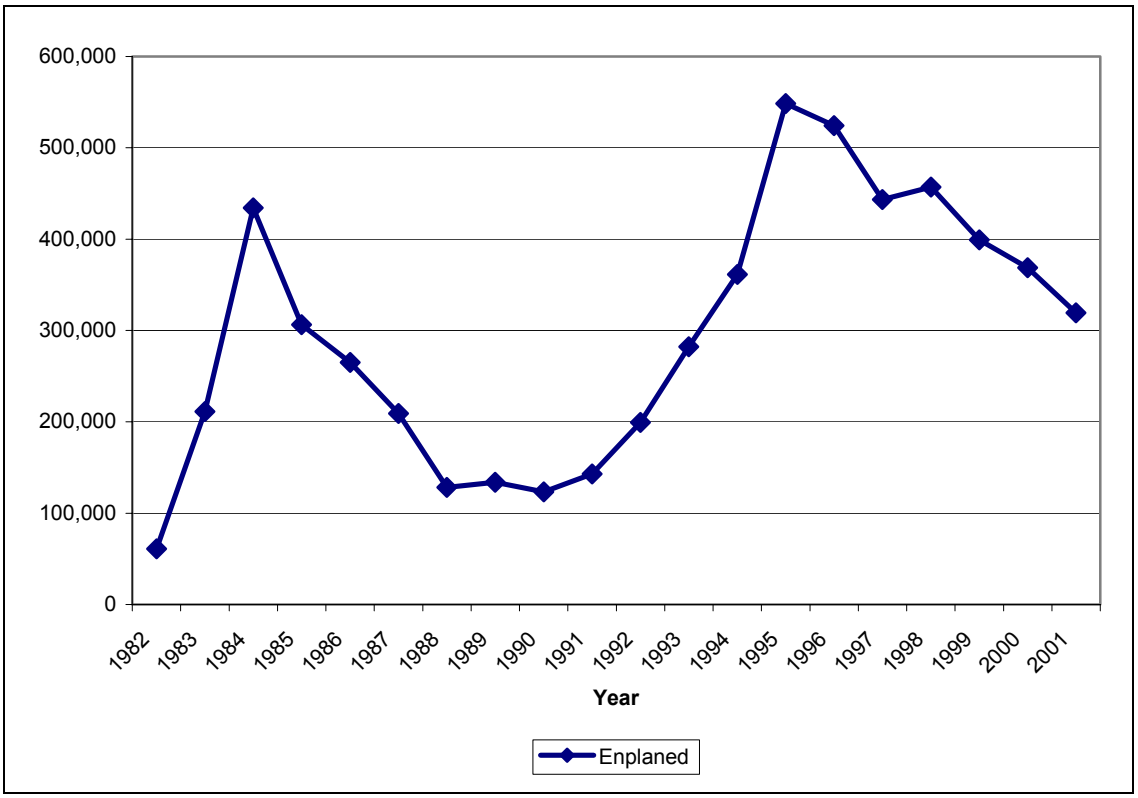


Table 4-2. Historical 5-Year Monthly Total Enplanements (1997-2001)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1997	38,609	37,950	55,529	43,918	31,928	29,968	31,848	32,869	23,141	28,386	39,783	49,371	443,300
1998	44,217	49,333	64,327	57,951	34,830	27,255	29,830	28,610	20,215	25,611	33,762	39,168	455,109
1999	41,188	42,420	56,054	49,956	32,688	25,995	24,108	22,795	18,661	25,659	29,817	29,729	399,070
2000	32,996	39,506	50,281	46,637	30,573	21,857	22,483	20,185	17,015	21,322	33,343	32,511	368,709
2001	34,850	35,226	45,620	41,740	30,977	19,418	20,977	21,132	14,055	17,375	18,113	19,933	319,416

% of Yearly Enplanements

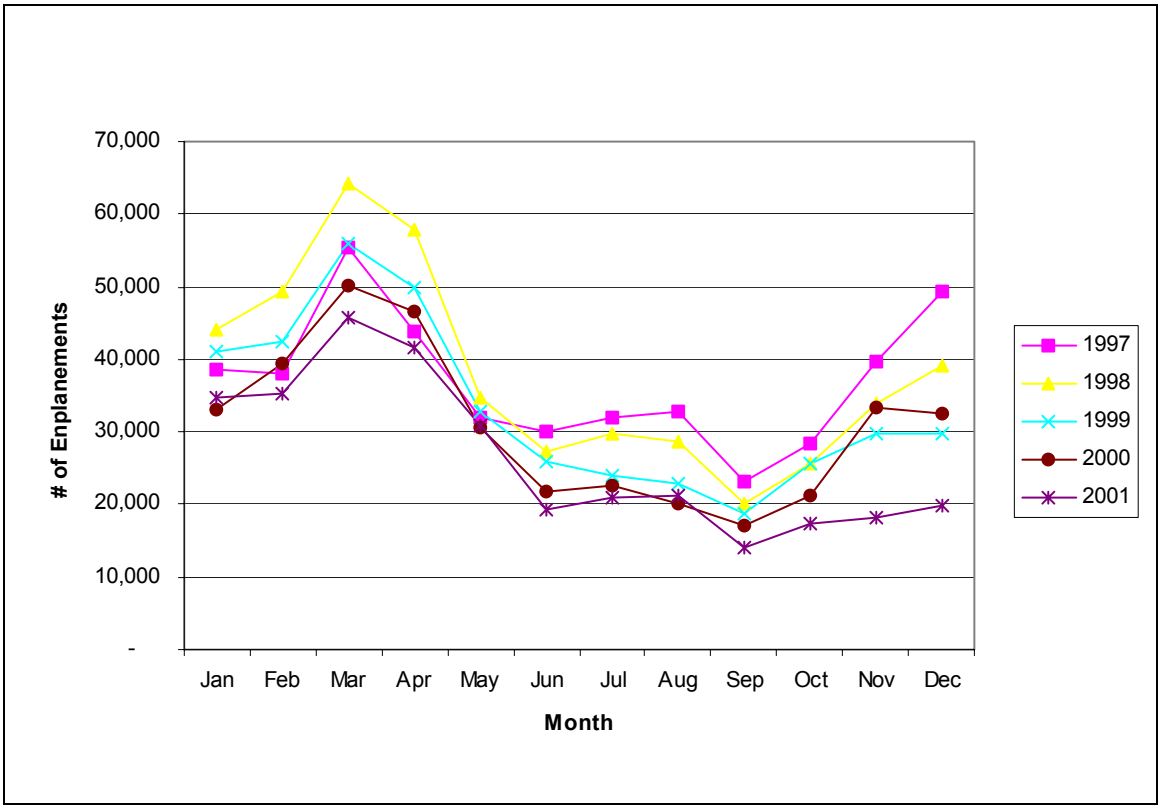
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1997	8.71%	8.56%	12.53%	9.91%	7.20%	6.76%	7.18%	7.41%	5.22%	6.40%	8.97%	11.14%	100.00%
1998	9.72%	10.84%	14.13%	12.73%	7.65%	5.99%	6.55%	6.29%	4.44%	5.63%	7.42%	8.61%	100.00%
1999	10.32%	10.63%	14.05%	12.52%	8.19%	6.51%	6.04%	5.71%	4.68%	6.43%	7.47%	7.45%	100.00%
2000	8.95%	10.71%	13.64%	12.65%	8.29%	5.93%	6.10%	5.47%	4.61%	5.78%	9.04%	8.82%	100.00%
2001	10.91%	11.03%	14.28%	13.07%	9.70%	6.08%	6.57%	6.62%	4.40%	5.44%	5.67%	6.24%	100.00%

Ranked as a % of Yearly Enplanements

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1997	5	6	1	3	8	10	9	7	12	11	4	2
1998	4	3	1	2	6	10	8	9	12	11	7	5
1999	4	3	1	2	5	8	10	11	12	9	6	7
2000	5	3	1	2	7	9	8	11	12	10	4	6
2001	4	3	1	2	5	9	7	6	12	11	10	8
Average	4.4	3.6	1.0	2.2	6.2	9.2	8.4	8.8	12.0	10.4	6.2	5.6

Source: St. Petersburg-Clearwater International Airport, Summary of Passenger Traffic 1997-2001 (provided by PIE).

Figure 4-2. Historical 5-Year Monthly Total Enplanements (1997-2001)



4.3.3.3 Five-Year Scheduled Domestic Enplanement Levels

As shown in **Table 4-3** and **Figure 4-3**, annualized levels of scheduled domestic passenger enplanements have been, with the exception of 1998, steadily decreasing, from 281,290 to 227,357, at an average annual compounded rate of 3.9 percent. The data further indicates, using a 5-year average, highest enplanement levels typically occur during the 2-month period of March and April. The lowest enplanement levels typically occur during the months of September and October.

Table 4-3. Historic 5-Year Monthly Scheduled Domestic Enplanements (1997-2001)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1997	20,648	19,185	26,499	23,469	18,770	24,238	24,557	24,601	17,220	20,733	26,900	34,470	281,290
1998	26,914	31,075	40,235	40,161	22,551	20,864	22,732	21,302	15,305	18,950	22,536	26,566	309,191
1999	20,008	24,407	31,380	31,066	21,469	21,228	18,069	17,091	14,118	18,233	19,093	19,388	255,550
2000	19,551	21,940	28,570	27,416	17,016	16,651	17,201	15,099	12,836	16,841	23,547	22,279	238,947
2001	22,392	21,594	27,356	27,319	20,933	15,365	17,071	16,656	11,718	14,531	15,279	17,143	227,357

% of Yearly Enplanements

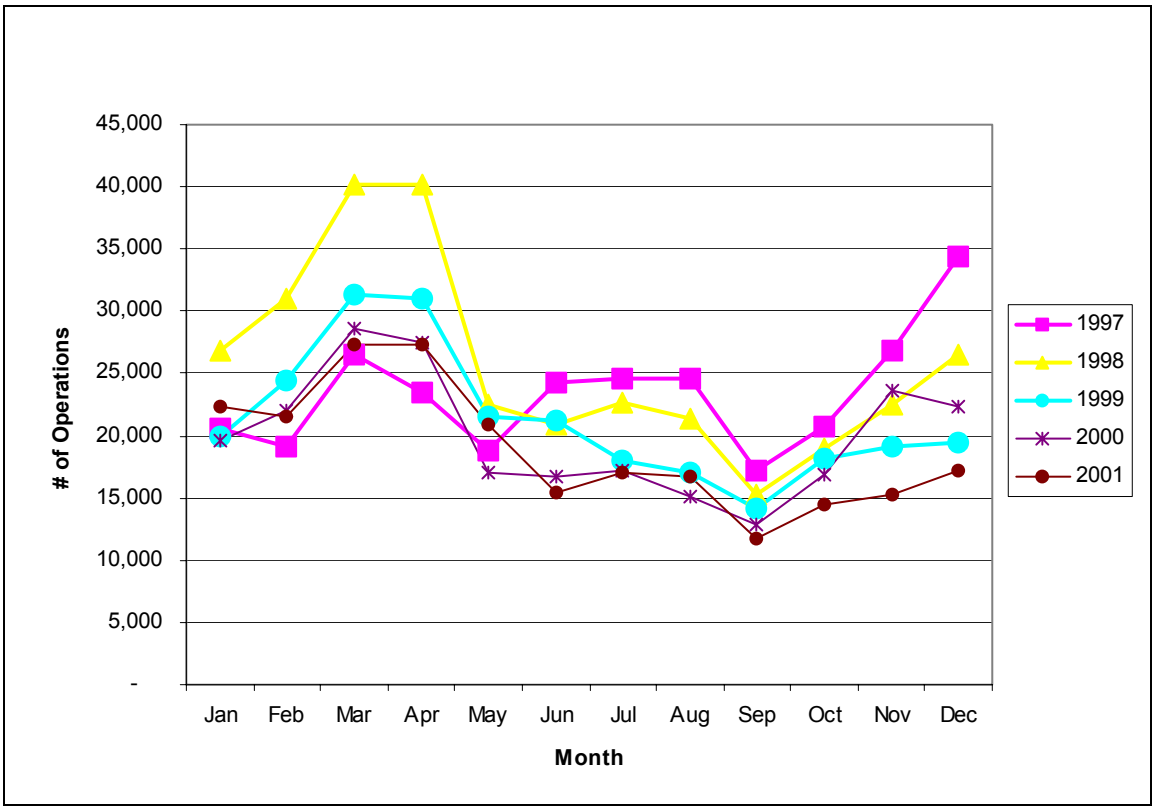
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1997	7.34%	6.82%	9.42%	8.34%	6.67%	8.62%	8.73%	8.75%	6.12%	7.37%	9.56%	12.25%	100.00%
1998	8.70%	10.05%	13.01%	12.99%	7.29%	6.75%	7.35%	6.89%	4.95%	6.13%	7.29%	8.59%	100.00%
1999	7.83%	9.55%	12.28%	12.16%	8.40%	8.31%	7.07%	6.69%	5.52%	7.13%	7.47%	7.59%	100.00%
2000	8.18%	9.18%	11.96%	11.47%	7.12%	6.97%	7.20%	6.32%	5.37%	7.05%	9.85%	9.32%	100.00%
2001	9.85%	9.50%	12.03%	12.02%	9.21%	6.76%	7.51%	7.33%	5.15%	6.39%	6.72%	7.54%	100.00%

Ranked as a % of Yearly Enplanements

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1997	9	10	3	7	11	6	5	4	12	8	2	1
1998	4	3	1	2	7	10	6	9	12	11	7	5
1999	6	3	1	2	4	5	10	11	12	9	8	7
2000	6	5	1	2	8	10	7	11	12	9	3	4
2001	3	4	1	2	5	9	7	8	12	11	10	6
Average	5.6	5.0	1.4	3.0	7.0	8.0	7.0	8.6	12.0	9.6	6.0	4.6

Source: St. Petersburg-Clearwater International Airport, Summary of Passenger Traffic 1997-2001 (provided by PIE).

Figure 4-3. Historical 5-Year Monthly Scheduled Domestic Enplanements (1997-2001)



4.3.3.4 Six-Year Scheduled International Enplanement Levels

As shown in **Table 4-4** and **Figure 4-4**, annualized levels of scheduled international passenger enplanements increased from 1996 to 1998 at an average annual compound growth rate (AACGR) of 76 percent. No enplanement data for 1997 was available for review. From 1998 through 2001, the level of scheduled international enplanements increased from 80,740 to 88,344 at an average annual compound rate of 3 percent. The highest enplanement levels typically occur during the months of January through April. The lowest enplanement levels typically occur during the months of September and October.

4.3.3.5 Five-Year Chartered Domestic Enplanement Levels

As shown in **Table 4-5** and **Figure 4-5**, annualized levels of chartered domestic passenger enplanements have drastically decreased, from 42,437 in 1997 to 3,076 in 2001, at an average annual compound rate of 40.8 percent. The highest enplanement levels typically occur during the months of January through April. The lowest enplanement levels typically occur during the months of September and October.

Table 4-4. Historic 6-Year Monthly Scheduled International Enplanements (1996-2001)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1996	5,052	4,107	5,850	5,158	2,436	853	625	688	609	581	61	39	26,059
1997	-	-	-	-	-	-	-	-	-	-	-	-	-
1998	7,463	8,330	11,207	9,319	6,621	4,024	4,823	4,889	3,630	5,353	7,125	7,956	80,740
1999	9,625	8,555	10,665	9,516	7,817	2,616	3,315	3,210	2,779	5,171	6,055	5,720	75,044
2000	5,783	7,481	9,442	8,279	5,725	2,796	2,955	2,875	2,750	2,732	4,514	4,339	59,671
2001	11,367	13,321	17,865	14,088	9,768	3,433	3,754	4,294	2,310	2,693	2,692	2,759	88,344

% of Yearly Enplanements

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1996	19.39%	15.76%	22.45%	19.79%	9.35%	3.27%	2.40%	2.64%	2.34%	2.23%	0.23%	0.15%	100.00%
1997	-	-	-	-	-	-	-	-	-	-	-	-	-
1998	9.24%	10.32%	13.88%	11.54%	8.20%	4.98%	5.97%	6.06%	4.50%	6.63%	8.82%	9.85%	100.00%
1999	12.83%	11.40%	14.21%	12.68%	10.42%	3.49%	4.42%	4.28%	3.70%	6.89%	8.07%	7.62%	100.00%
2000	9.69%	12.54%	15.82%	13.87%	9.59%	4.69%	4.95%	4.82%	4.61%	4.58%	7.56%	7.27%	100.00%
2001	12.87%	15.08%	20.22%	15.95%	11.06%	3.89%	4.25%	4.86%	2.61%	3.05%	3.05%	3.12%	100.00%

Ranked as a % of Yearly Enplanements

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1996	3	4	1	2	5	6	8	7	9	10	11	12
1997	-	-	-	-	-	-	-	-	-	-	-	-
1998	4	3	1	2	7	11	10	9	12	8	6	5
1999	2	4	1	3	5	12	9	10	11	8	6	7
2000	4	3	1	2	5	10	8	9	11	12	6	7
2001	4	3	1	2	5	8	7	6	12	10	10	9
Average	3.4	3.4	1	2.2	5.4	9.4	8.4	8.2	11	9.6	7.8	8

Source: St. Petersburg-Clearwater International Airport, Summary of Passenger Traffic 196-2001 (provided by PIE).

Figure 4-4. Historic 6-Year Monthly International Scheduled Enplanements (1996-2001)

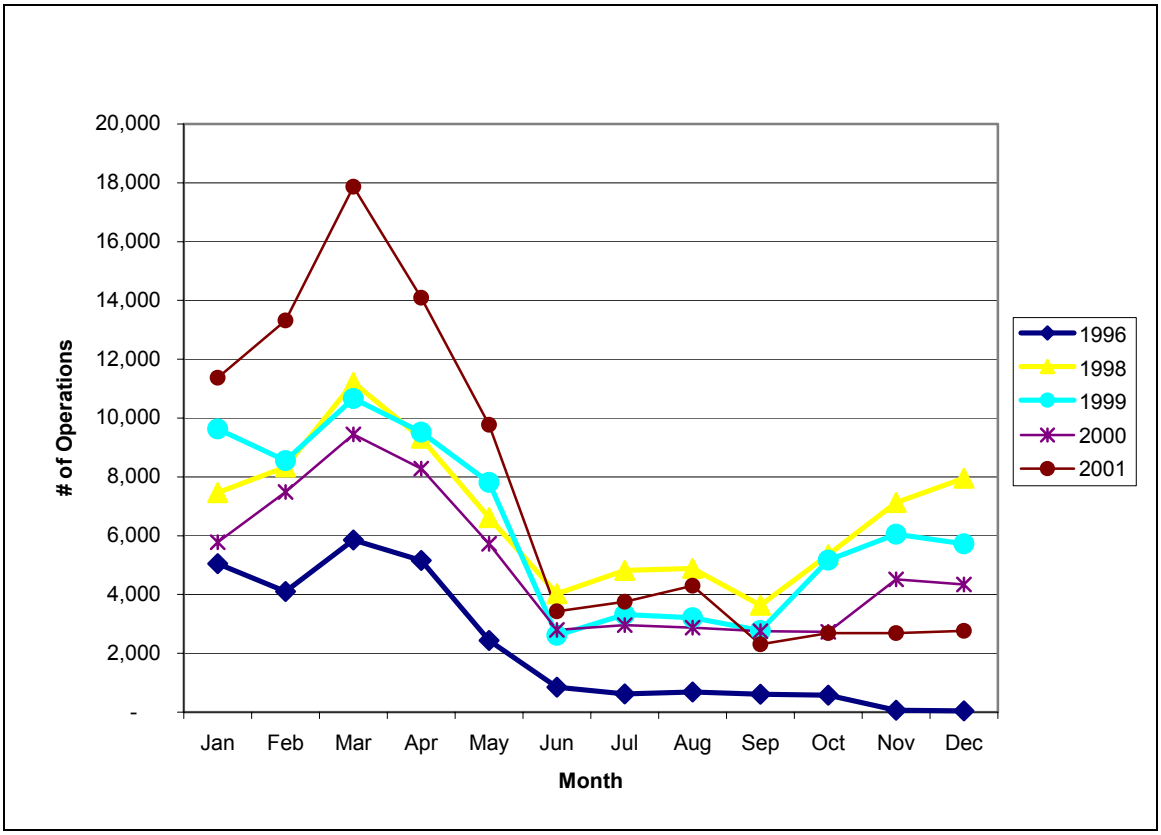


Table 4-5. Historic 5-Year Monthly Chartered Domestic Enplanements (1997-2001)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1997	6,494	6,943	9,580	4,273	2,610	1,914	1,648	1,814	1,409	1,596	1,442	2,714	42,437
1998	4,482	4,668	5,331	4,821	1,545	1,151	1,494	1,474	687	476	758	657	27,544
1999	5,486	3,625	6,927	3,098	1,270	834	942	976	610	617	503	389	25,277
2000	2,078	1,969	2,395	1,676	2,065	428	649	439	319	228	427	398	13,071
2001	1,091	311	399	213	276	620	30	19	27	30	29	31	3,076

% of Yearly Enplanements

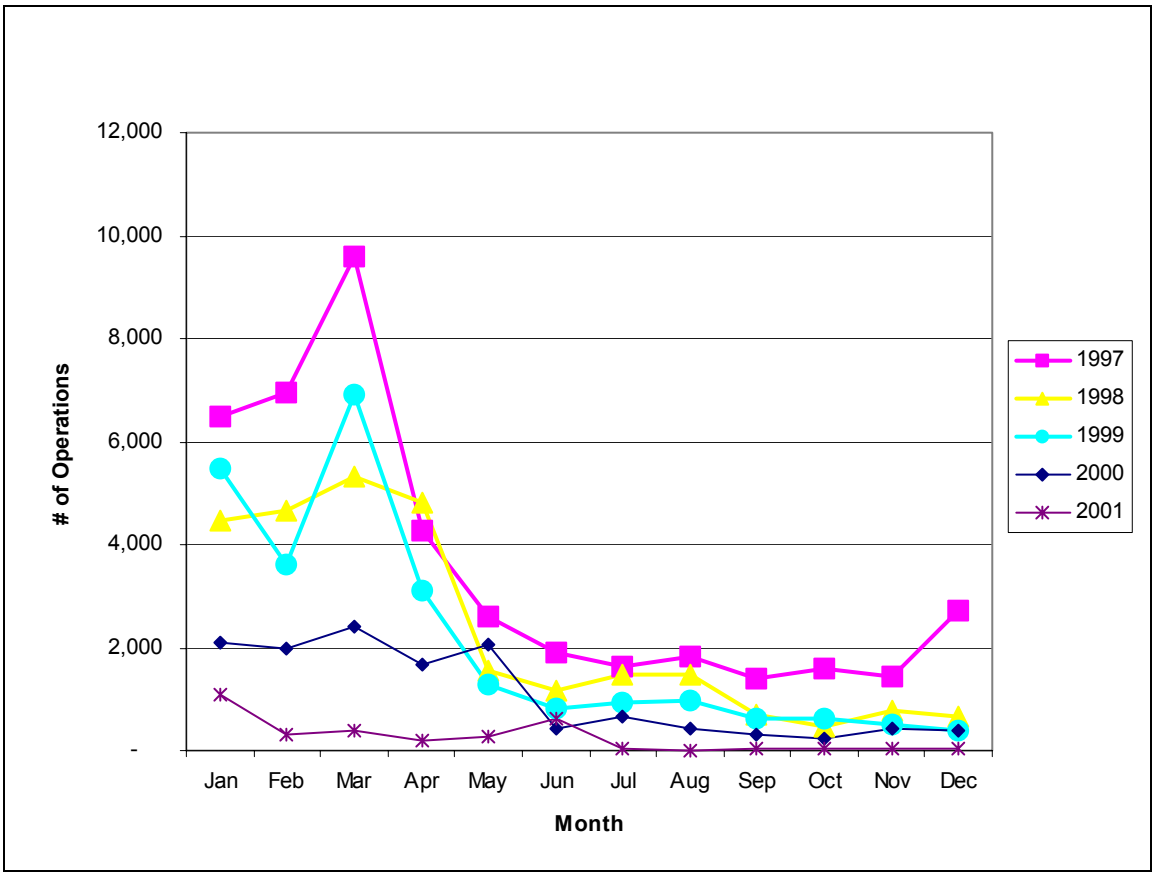
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1997	15.30%	16.36%	22.57%	10.07%	6.15%	4.51%	3.88%	4.27%	3.32%	3.76%	3.40%	6.40%	100.00%
1998	16.27%	16.95%	19.35%	17.50%	5.61%	4.18%	5.42%	5.35%	2.49%	1.73%	2.75%	2.39%	100.00%
1999	21.70%	14.34%	27.40%	12.26%	5.02%	3.30%	3.73%	3.86%	2.41%	2.44%	1.99%	1.54%	100.00%
2000	15.90%	15.06%	18.32%	12.82%	15.80%	3.27%	4.97%	3.36%	2.44%	1.74%	3.27%	3.04%	100.00%
2001	35.47%	10.11%	12.97%	6.92%	8.97%	20.16%	0.98%	0.62%	0.88%	0.98%	0.94%	1.01%	100.00%

Ranked as a % of Yearly Enplanements

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1997	3	2	1	4	6	7	9	8	12	10	11	5
1998	4	3	1	2	5	8	6	7	10	12	9	11
1999	2	3	1	4	5	8	7	6	10	9	11	12
2000	2	4	1	5	3	8	6	7	11	12	8	10
2001	1	4	3	6	5	2	8	12	11	8	10	7
Average	2.4	3.2	1.4	4.2	4.8	6.6	7.2	8	10.8	10.2	9.8	9

Source: St. Petersburg-Clearwater International Airport, Summary of Passenger Traffic 1997-2001 (provided by PIE).

Figure 4-5. Historic 5-Year Monthly Chartered Domestic Enplanements (1997-2001)



4.3.3.6 Five-Year Chartered International Enplanement Levels

As shown in **Table 4-6** and **Figure 4-6**, annualized levels of chartered international passenger enplanements have fluctuated greatly over the 5-year period. From 1995 to 1996, enplanement levels increased approximately 54 percent. That growth was not maintained in the following three years, however, dropping from the high of 119,573 in 1997 to 37,634 the following year, a decrease of approximately 68 percent. The enplanements increased annually from 1998 through the year 2000 at AACGR of 23.1 percent. The highest enplanement levels typically occur during the three months of February through April. The lowest enplanement levels typically occur during the month of September.

4.3.3.7 Commuter Enplanements

Commuter operations have not occurred at PIE, however, PAA initiated commuter service in March of 2002.

Table 4-6. Historic 5-Year Monthly Chartered International Enplanements (1997-2001)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1997	11,467	11,822	19,450	16,176	10,548	3,816	5,643	6,454	4,512	6,057	11,441	12,187	119,573
1998	5,358	5,260	7,554	3,650	4,113	1,216	781	945	593	832	3,343	3,989	37,634
1999	6,069	5,833	7,082	6,276	2,132	1,317	1,782	1,518	1,154	1,638	4,16	4,232	43,199
2000	5,584	8,116	9,874	9,266	5,767	1,982	1,678	1,772	1,110	1,521	4,855	5,495	57,020
2001	-	-	-	120	-	168	122	163	-	121	113	-	807

% of Yearly Enplanements

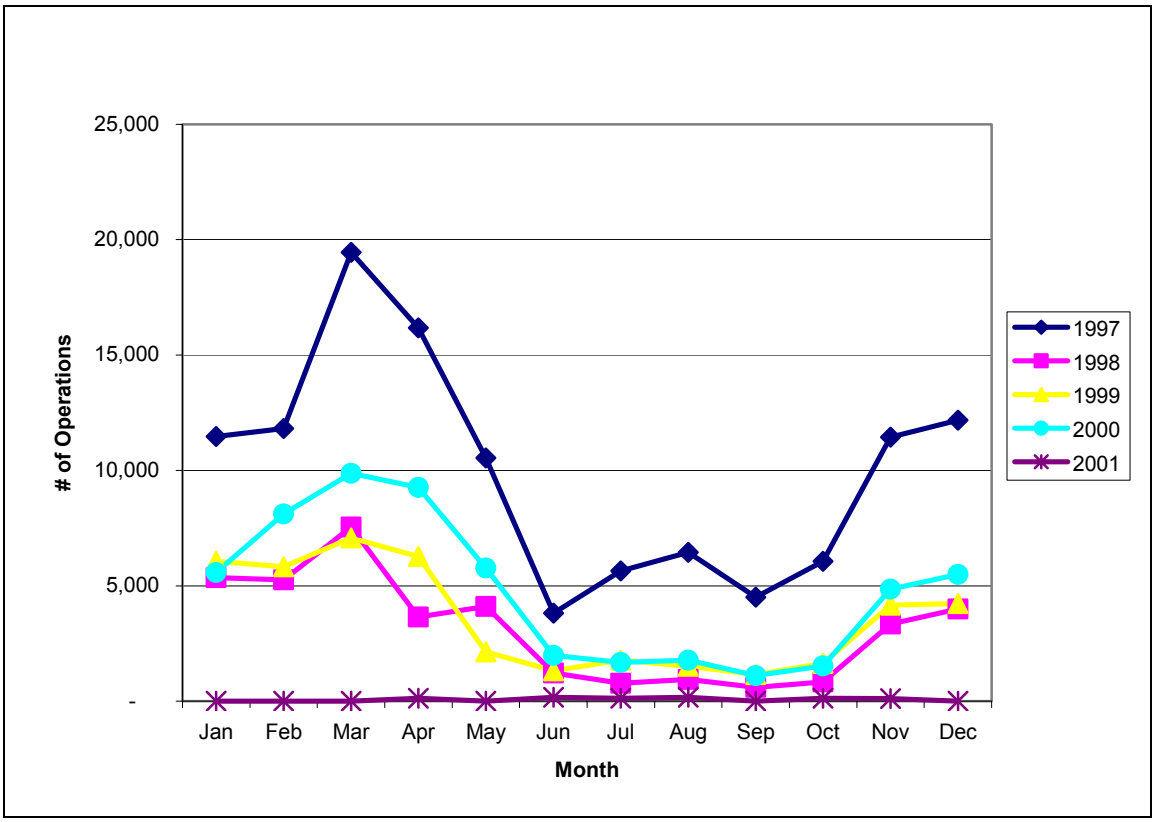
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1997	9.59%	9.89%	16.27%	13.53%	8.82%	3.19%	4.72%	5.40%	3.77%	5.07%	9.57%	10.19%	100.00%
1998	14.24%	13.98%	20.07%	9.70%	10.93%	3.23%	2.08%	2.51%	1.58%	2.21%	8.88%	10.60%	100.00%
1999	14.05%	13.50%	16.39%	14.53%	4.94%	3.05%	4.13%	3.51%	2.67%	3.79%	9.64%	9.80%	100.00%
2000	9.79%	14.23%	17.32%	16.25%	10.11%	3.48%	2.94%	3.11%	1.95%	2.67%	8.51%	9.64%	100.00%
2001	0.00%	0.00%	0.00%	14.87%	0.00%	20.82%	15.12%	20.20%	0.00%	14.99%	14.00%	0.00%	100.00%

Ranked as a % of Yearly Enplanements

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1997	5	4	1	2	7	12	10	8	11	9	6	3
1998	2	3	1	6	5	8	11	9	12	10	7	4
1999	3	4	1	2	7	11	8	10	12	9	6	5
2000	5	3	1	2	4	8	10	9	12	11	7	6
2001	7	7	7	5	7	1	3	2	7	4	6	7
Average*	3.75	3.5	1	3	5.75	9.75	9.75	9	11.75	9.75	6.5	4.5

Source: St. Petersburg-Clearwater International Airport, Summary of Passenger Traffic 1997-2001 (provided by PIE).
**1997 through 2000.*

Figure 4-6. Historic 5-Year Monthly International Chartered Enplanements (1997-2001)



4.3.4 Existing 2001 Air Carrier Enplanement Market Share

4.3.4.1 Scheduled Domestic Enplanements

American Trans Air enplaned the majority of the scheduled domestic passengers, with 83.2 percent, followed by Southeast Airlines with 13.8 percent. This relative share mix of passenger enplanements is anticipated to change significantly with the recent initiation of scheduled service by PAA. It is anticipated that PAA, through the availability of its two non-stop and numerous direct flights to northern markets, will add significantly to the overall level of scheduled domestic enplanements at PIE. (Note: Pan Am ceased service in September 2002.)

4.3.4.2 Scheduled International Enplanements

Two Canadian airlines, Canada 3000 and Air Transat, provided scheduled non-stop international service to Canadian markets. The passenger enplanements levels of the two respective airlines differed by only 12 percent and have represented a consistent base of international passenger enplanements at PIE over the past five years. The sustained continuation of the Canadian passenger enplanement levels is at question because of the recent loss of service by Canada 3000 (November 2001) coupled with the economic downturns and potential adverse affects of the events of September 11.

The existing year 2001 air carrier market share of passenger enplanements at PIE is shown in **Table 4-7** and **Figure 4-7**. Scheduled domestic enplanements comprised the

majority of activity at slightly over 71 percent. Scheduled international enplanements represent approximately 28 percent of the activity. The remaining domestic and international chartered enplanements represent slightly over 1 percent of the total.

4.3.5 Aircraft Operational Levels

The historical operational levels for all aircraft at PIE were examined and analyzed. Detailed discussions of each segment of the operations are presented in the following sections. An aircraft operation is defined as a takeoff or a landing.

4.3.5.1 Twenty-Year Commercial Operational Levels

Similar to the annualized levels of passenger enplanements, the operations of all scheduled and chartered commercial flights have varied considerably over the 20-year period. As shown in **Table 4-8** and **Figure 4-8**, air carrier operations have ranged from a low of 1,000 in 1981 to a high of 13,514 in 1995. The annualized level of total air carrier operations varies from year to year and has been directly related to the entry and exit of the various airlines and charter operators offering commercial service at PIE.

As tabulated and reported by the airport traffic control tower (ATCT) at PIE, the air taxi operational levels primarily represent operations by aircraft that are used for commercial purposes (for hire) that have 60 seats or less. In the absence of scheduled commuter operations at PIE, the reported air taxi operations represent business-class jet aircraft. It is interesting to note that over time, the annualized level of air-taxi operations remained somewhat constant through the first ten years, but steadily increased at an AACGR of 15.2 percent over the following 10-year period.

4.3.5.2 Five-Year Commercial Operational Levels

As shown in **Table 4-9** and **Figure 4-9**, annualized levels of total commercial aircraft operations have fluctuated slightly year-over-year and have ranged from 12,000 in 1997 to 14,294 in 2001. The data further indicates that, using a 5-year average, the highest number of operations typically occur in March followed by December and January. Using the same approach, the lowest level of commercial aircraft operational activity typically occurs during the month of September.

Table 4-7. 2001 Commercial Air Carrier Enplanement Market Share

Air Carrier	Total Enplanements	Market Share	
		% of Category	% of Total
Scheduled - Domestic			
American Trans Air	189,153	83.20%	59.22%
SE Airlines	31,467	13.84%	9.85%
Sun Country (Stopped 5/01)	5,839	2.57%	1.83%
Pan Am Since 12/15/01	898	0.39%	0.28%
Totals	**227,357**	**100.00%**	**71.18%**
Scheduled - International			
Canada 3000 (Stopped 11/01)	38,782	43.90%	12.14%
Air Transat	49,562	56.10%	15.52%
Totals	**88,344**	**100.00%**	**27.66%**
Charters - International			
Ryan	807	100.00%	0.25%
Totals	**807**	**100.00%**	**0.25%**
Charters - Domestic			
Champion	451	15.51%	0.14%
Laker Air	324	11.14%	0.10%
Southwest	1,528	52.54%	0.48%
Casino Express	121	4.16%	0.04%
Discover Air	309	10.63%	0.10%
Others	175	6.02%	0.05%
Totals	**2,908**	**100.00%**	**0.91%**
Grand Total	***319,416***		***100.00%***

Source: St. Petersburg-Clearwater International Airport, Summary of Passenger Traffic, 2001 (provided by PIE).

Figure 4-7. Commercial Air Carrier Enplanement Market Share

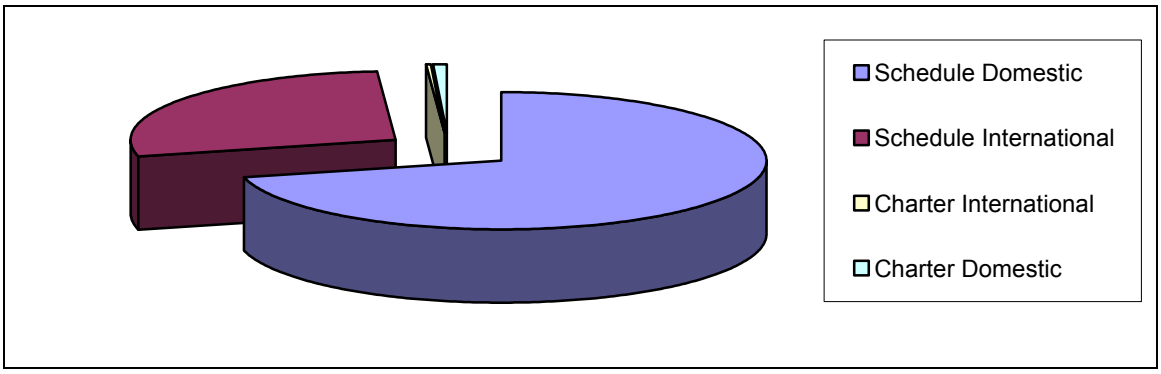


Table 4-8. Historical 20-Year Commercial (AC+AT) Operations (1982-2001)

Year	Air Carrier	Air Taxi	Totals	% Change
1982	1,000	0	1,000	
1983	3,000	1,000	4,000	300.00%
1984	12,000	2,000	14,000	250.00%
1985	7,000	2,000	9,000	-35.71%
1986	6,000	2,000	8,000	-11.11%
1987	6,000	7,000	13,000	62.50%
1988	4,000	1,000	5,000	-61.54%
1989	3,000	1,000	4,000	-20.00%
1990	2,689	818	3,507	-12.33%
1991	3,013	1,829	4,842	38.07%
1992	3,686	3,241	6,927	43.06%
1993	5,869	2,475	8,344	20.46%
1994	7,655	4,605	12,260	46.93%
1995	13,514	6,370	19,884	62.19%
1996	11,247	5,104	16,351	-17.77%
1997	7,947	4,053	12,000	-26.61%
1998	8,200	4,449	12,649	5.41%
1999	7,627	8,120	15,747	24.49%
2000	7,480	8,024	15,504	-1.54%
2001	6,730	7,564	14,294	-9.23%

Source: 1996-2001: St. Petersburg-Clearwater International Airport, Summary of Aircraft Operations 1996-2001 (provided by PIE).
1982-1995: Federal Aviation Administration, 2001 Terminal Area Forecasts.

Figure 4-8. Historical 20-Year Commercial (AC+AT) Operations (1982-2001)

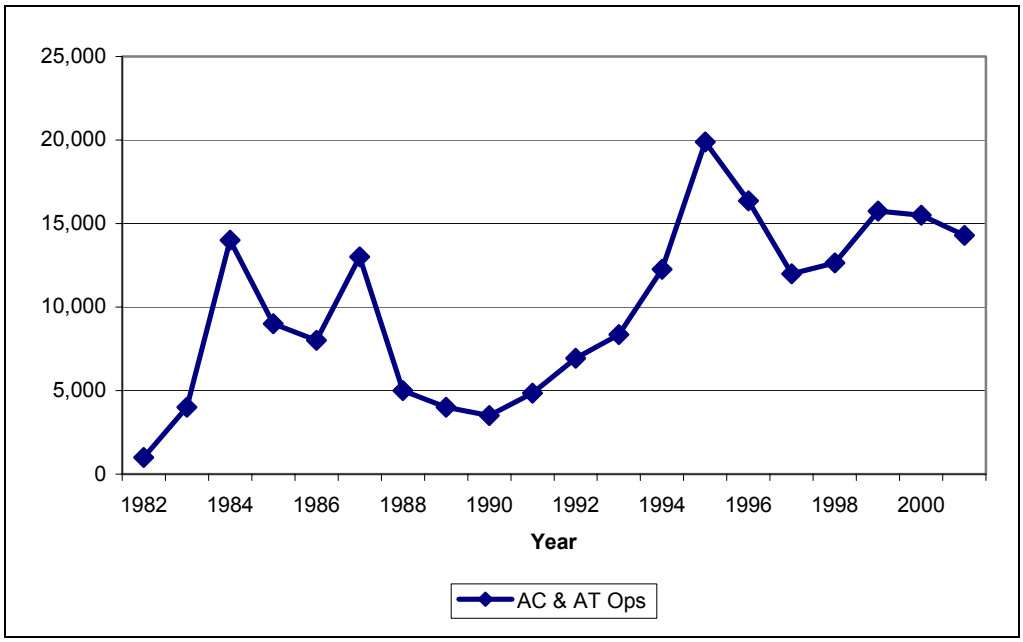


Figure 4-9. Historical 5-Year Monthly Commercial (AC+AT) Aircraft Operations (1997-2001)

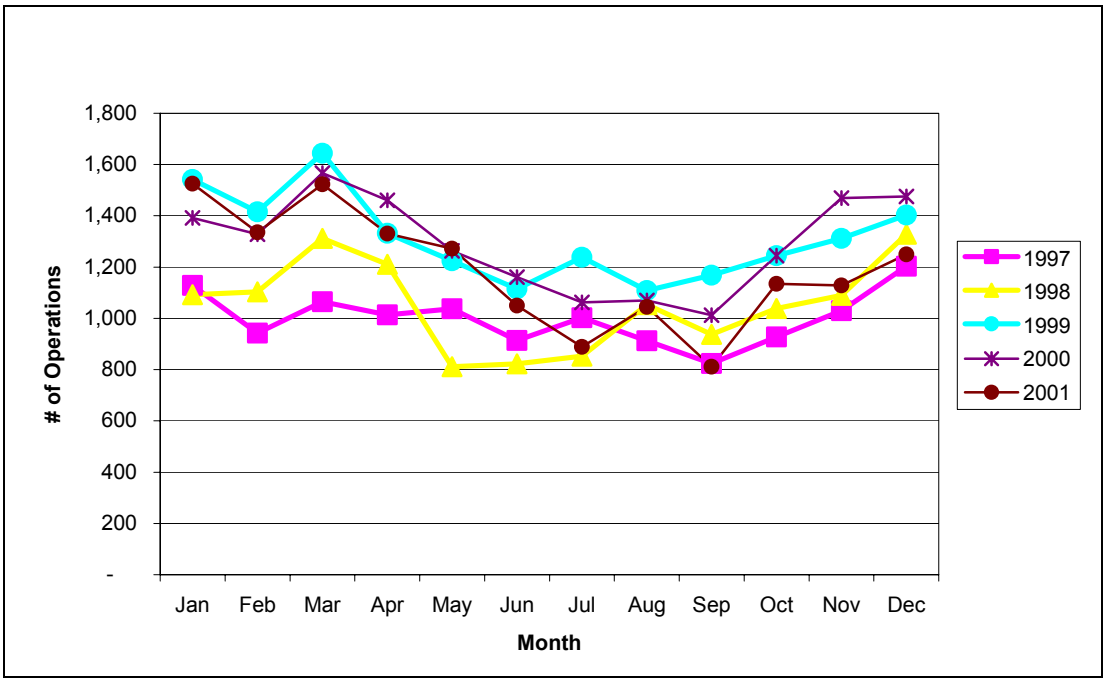


Table 4-9. Historical 5-Year Monthly Commercial (AC+AT) Aircraft Operations (1997-2001)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1997	1,129	943	1,065	1,013	1,037	914	1,002	913	824	927	1,030	1,203	12,000
1998	1,092	1,103	1,312	1,211	811	822	852	1,053	937	1,038	1,090	1,328	12,649
1999	1,542	1,416	1,644	1,332	1,224	1,115	1,238	1,109	1,168	1,244	1,312	1,403	15,747
2000	1,392	1,328	1,567	1,460	1,263	1,161	1,062	1,070	1,012	1,245	1,469	1,475	15,504
2001	1,525	1,336	1,523	1,331	1,272	1,050	889	1,045	811	1,135	1,128	1,249	14,294

% of Yearly Ops

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1997	9.41%	7.86%	8.88%	8.44%	8.64%	7.62%	8.35%	7.61%	6.87%	7.73%	8.58%	10.03%	100.00%
1998	8.63%	8.72%	10.37%	9.57%	6.41%	6.50%	6.74%	8.32%	7.41%	8.21%	8.62%	10.50%	100.00%
1999	9.79%	8.99%	10.44%	8.46%	7.77%	7.08%	7.86%	7.04%	7.42%	7.90%	8.33%	8.91%	100.00%
2000	8.98%	8.57%	10.11%	9.42%	8.15%	7.49%	6.85%	6.90%	6.53%	8.03%	9.47%	9.51%	100.00%
2001	10.67%	9.35%	10.65%	9.31%	8.90%	7.35%	6.22%	7.31%	5.67%	7.94%	7.89%	8.74%	100.00%

Ranked as a % of yearly Ops

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1997	2	8	3	6	4	10	7	11	12	9	5	1
1998	5	4	2	3	12	11	10	7	9	8	6	1
1999	2	3	1	5	9	11	8	12	10	7	6	4
2000	5	6	1	4	8	9	11	10	12	7	3	2
2001	1	3	2	4	5	9	11	10	12	7	8	6
Average	3.0	4.8	1.8	4.4	7.6	10.0	9.4	10.0	11.0	7.6	5.6	2.8

Source: St. Petersburg-Clearwater International Airport , Summary of Airport Operations 1997-2001 (provided by PIE).

4.3.5.3 General Aviation Operational Levels

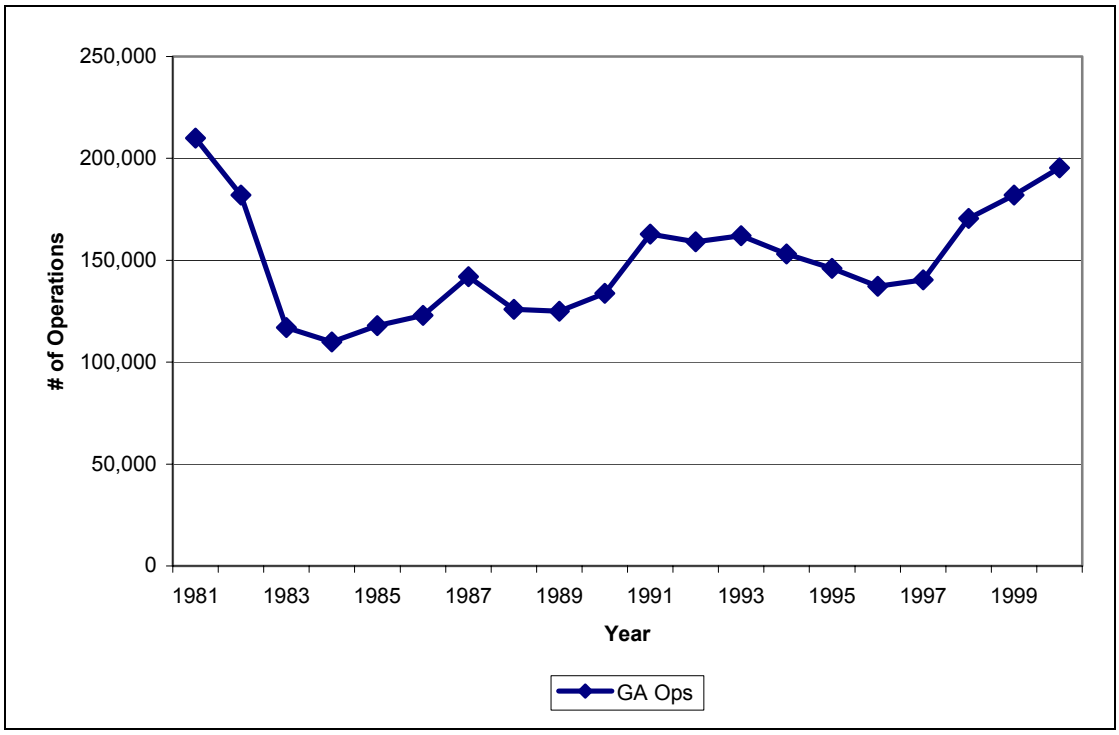
As shown in **Table 4-10** and **Figure 4-10**, annualized levels of GA aircraft operations have fluctuated year-over-year. GA operations are recorded as being either "*local*" or "*itinerant."*

Table 4-10. Historical 20-Year General Aviation Operations (1981-2000)

Year	Itinerant	Local	Totals	Change
1981	99,000	111,000	210,000	
1982	83,000	99,000	182,000	-13.33%
1983	81,000	36,000	117,000	-35.71%
1984	73,000	37,000	110,000	-5.98%
1985	79,000	39,000	118,000	7.27%
1986	81,000	42,000	123,000	4.24%
1987	90,000	52,000	142,000	15.45%
1988	85,000	41,000	126,000	-11.27%
1989	89,000	36,000	125,000	-0.79%
1990	54,483	79,309	133,792	7.03%
1991	59,213	103,579	162,792	21.68%
1992	60,657	98,487	159,144	-2.24%
1993	62,629	99,498	162,127	1.87%
1994	68,561	84,484	153,045	-5.60%
1995	72,387	73,594	145,981	-4.62%
1996	76,624	60,701	137,325	-5.93%
1997	80,139	60,193	140,332	2.19%
1998	94,282	76,226	170,508	21.50%
1999	100,565	81,385	181,950	6.71%
2000	98,530	96,826	195,356	7.37%

Source: 1996-2000: St. Petersburg/Clearwater International Airport, Summary of Aircraft Operations 1996-2000 (Provided by PIE)
1981-1995: Federal Aviation Administration, 2001 Terminal Area Forecasts

Figure 4-10. Historical 20-Year General Aviation Operations (1981-2000)



Local operations are defined as those operations performed by an aircraft that operates in the local traffic pattern or within sight of the ATCT; known to be departing for or arriving from flight in local practice areas, or executing simulated instrument approaches or low passes at the airport.

Itinerant operations are defined as those operations that occur when an aircraft departs or arrives from another airport or an area outside of the ATCT's airspace.

The highest number of operations occurred in 1981, with 210,000 total GA operations, which has been considered the peak year for GA activity. The declining levels of GA operations at PIE over the next ten years generally mirrored the overall decline of GA activity at both the state, regional, and national levels. This primarily occurred because of the following factors or conditions:

- Collapse in the U.S. GA manufacturing market in the 1980s and early 1990s.
- Significant increases in GA aircraft prices and operating costs.
- Needed changes in aircraft manufactures liability exposure to encourage the restoration of GA aircraft production.
- Improvements to surface transportation.

Despite its dominance in the 50's, 60's, and 70's, GA began a steady state of decline throughout most of the 1980's and early 1990's. Events that contributed to the downturn in GA activity include changes in disposable income, increases in airspace restrictions affecting flight conducted Visual Flight Rules (VFR), personal shifts in preferences for goods and services, and the deregulation of the commercial airline industry. Most

evident was the major decline in the production of single- and light multi-engine GA aircraft during the mid- to late-80's related to manufacturer's liability issues.

Enacted in 1994, the General Aviation Revitalization Act established an 18-year Statute of Repose on all GA aircraft and components. The enactment of the legislation represented the culmination of a lengthy industry campaign to revitalize the markets for GA products and services and to help restore a once-healthy industry. As these industry reforms took place, coupled with the general expansion of the economic markets and levels of disposable income, GA operations at PIE have generally rebounded over the past 10-year period. Total GA operations have increased to 195,356 for the year 2000, approaching the year 1981 activity levels. Much of this recovery can be credited to many of the factors previously noted.

The data further indicates, using a 5-year average, local operations represent approximately 55 percent of all GA operations. Correspondingly, itinerant operations represent the remaining 45 percent.

4.3.5.4 Military Operational Activity

Similar to GA operations, military activity at PIE is recorded and tabulated as being either local or itinerant in nature. Because the United States Coast Guard (USCG) operates its largest airbase at PIE, military operations represent persistent levels of local military activity. As shown in **Table 4-11** and **Figure 4-11**, the USCG operates both fixed- and rotor-winged aircraft at PIE in support of search and rescue missions as well as certain Department of Defense actions such as border patrol and drug smuggling interdiction. Because the role and mission of the USCG Air Base and corresponding aircraft operational levels at PIE change from time-to-time, a 5-year (1997 - 2001) average of local and itinerant operations levels was developed. Using the 5-year historical military operational data for PIE, local operations have represented approximately 56 percent of all military operations. Correspondingly, itinerant operations represent the remaining 43 percent or 12,488 and 9,761 respectively. This would yield 22,249 average operations annually. The 5-year averages are shown in **Table 4-12** and **Figure 4-12.**

Table 4-11. Historical 20-Year Military Operations (1981-2000)

Year	Itinerant	Local	Totals	% Change
1981	5,000	7,000	12,000	
1982	4,000	5,000	9,000	-25.00%
1983	4,000	6,000	10,000	11.11%
1984	4,000	5,000	9,000	-10.00%
1985	5,000	5,000	10,000	11.11%
1986	5,000	8,000	13,000	30.00%
1987	5,000	9,000	14,000	7.69%
1988	5,000	7,000	12,000	-14.29%
1989	6,000	11,000	17,000	41.67%
1990	7,182	16,596	23,778	39.87%
1991	7,899	15,780	23,679	-0.42%
1992	7,763	16,062	23,825	0.62%
1993	7,551	16,164	23,715	-0.46%
1994	6,613	13,038	19,651	-17.14%
1995	7,272	13,563	20,835	6.03%
1996	8,121	13,282	21,403	2.73%
1997	8,146	14,350	22,496	5.11%
1998	9,878	13,938	23,816	5.87%
1999	11,675	17,280	28,955	21.58%
2000	9,636	8,719	18,355	-36.61%

Source: 1996-2000: St. Petersburg/Clearwater International Airport, Summary of Aircraft Operations 1996-2000 (Provided by PIE)
1981-1995: Federal Aviation Administration, 2001 Terminal Area Forecasts

Figure 4-11. Historical 20-Year Military Operations (1981-2000)

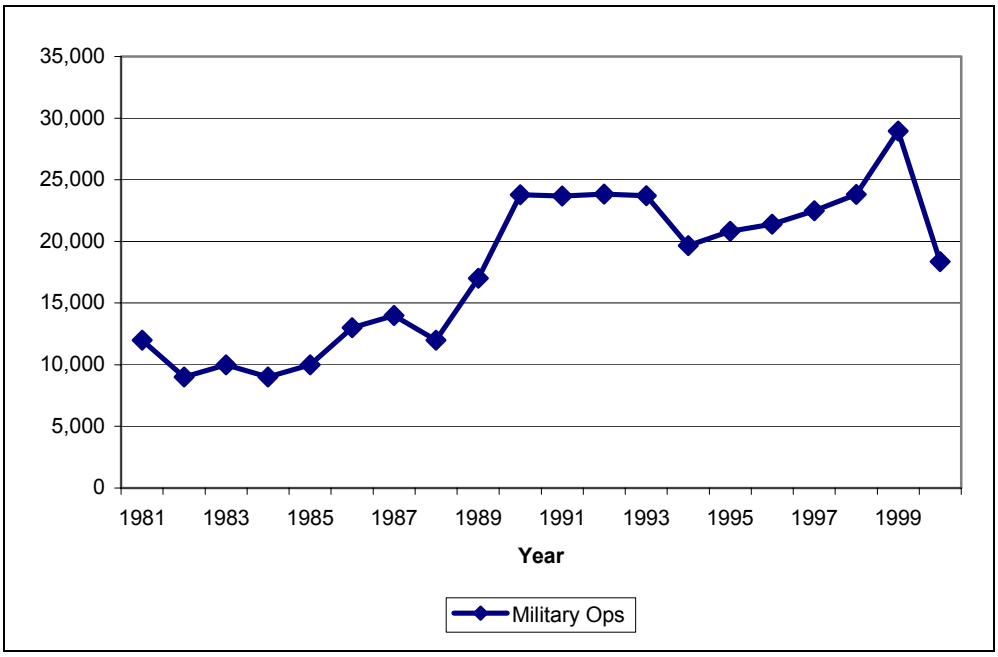


Figure 4-12. Historical 5-Year Military Operations (1997-2001)

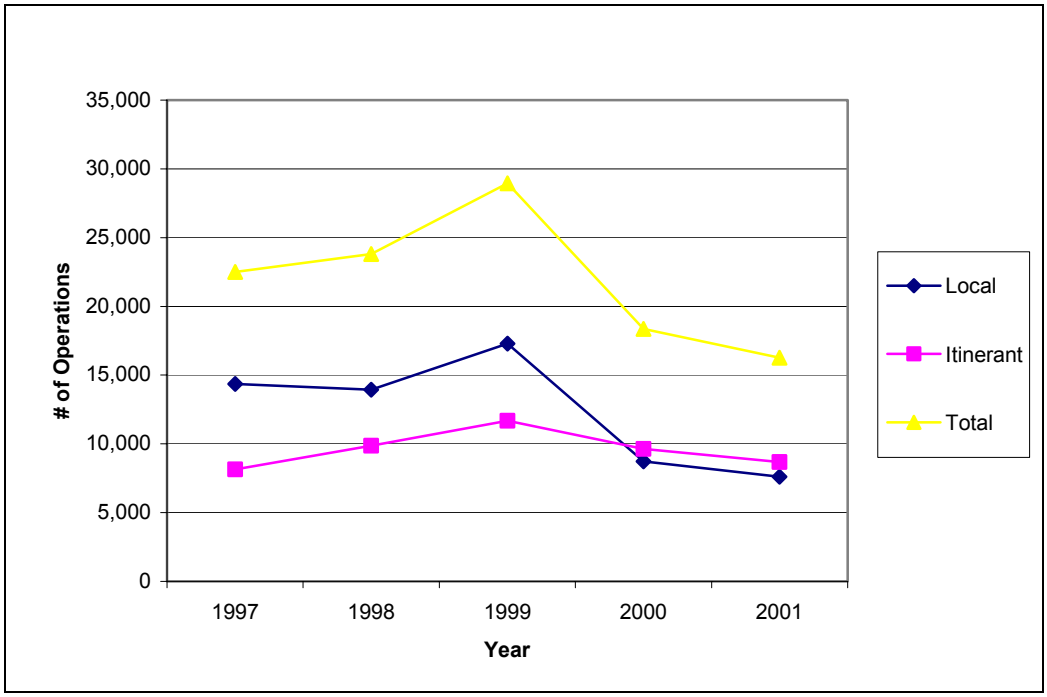


Table 4-12. Historical 5-Year Military Operations (1997-2001)

		Operations	
Year	Local	Itinerant	Total
1997	14,350	8,146	22,496
1998	13,938	9,878	23,816
1999	17,280	11,675	28,955
2000	8,719	9,636	18,355
2001	7,599	8,675	16,274
5-Year Average	12,377	9,602	21,979

Source: St. Petersburg/Clearwater International Airport, Summary of Aircraft Operations 1997-2001 (Provided by PIE).

4.3.6 Based Aircraft Levels

The historical levels of based aircraft at PIE were tabulated using TAF data for PIE for the years 1980 through 1997 and FAA Form 5010 Airport Master Records for the years 1998 through 2000. This data is not yet available for the year 2001. These based aircraft counts were tabulated and analyzed to assess the mix of GA aircraft that utilize the Airport. As shown in **Table 4-13** and **Figure 4-13**, the historical mix PIE-based aircraft is comprised of light single-engine aircraft, light multi-engine aircraft, helicopters, and cabin-class business jets. A fifth FAA classification of based aircraft included in the based aircraft count was “other.” These aircraft typically represent all other aircraft such as gliders, experimental aircraft, and balloons. No specific information was provided describing the “other” aircraft category.

Throughout the 20-year period, the total number of based aircraft at PIE has ranged from a low of 198 in 1980 to a high of 327 in 2000. The increase in aircraft was not linear, however, as the total number and relative mix of aircraft types varied from year-to-year. The data provides positive indication that starting in 1986, the basing of jets at PIE has steadily increased. The largest marked annualized increase has occurred with the last five years.

Figure 4-13. Historical 21-Year Based Aircraft (1980-2000)

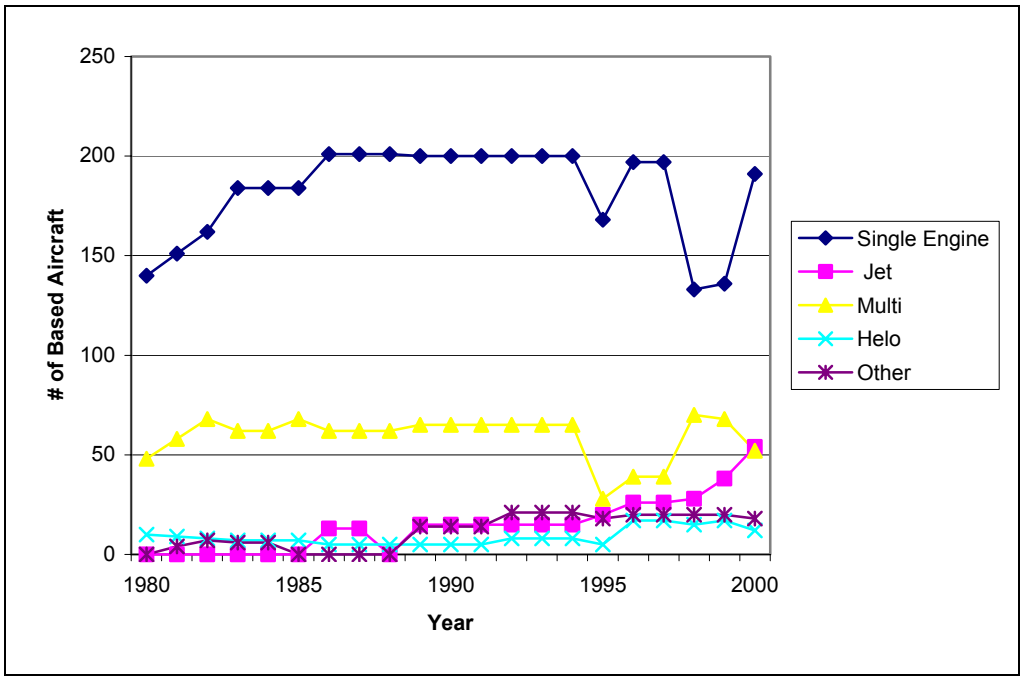


Table 4-13. Historical 21-Year Based Aircraft (1980-2000)

Year	Single	Jet	Multi	Helo	Other	Total
1980	140	0	48	10	0	198
1981	151	0	58	9	4	222
1982	162	0	68	8	7	245
1983	184	0	62	7	6	259
1984	184	0	62	7	6	259
1985	184	0	68	7	0	259
1986	201	13	62	5	0	281
1987	201	13	62	5	0	281
1988	201	0	62	5	0	268
1989	200	15	65	5	14	299
1990	200	15	65	5	14	299
1991	200	15	65	5	14	299
1992	200	15	65	8	21	309
1993	200	15	65	8	21	309
1994	200	15	65	8	21	309
1995	168	20	28	5	18	239
1996	197	26	39	17	20	299
1997	197	26	39	17	20	299
1998	133	28	70	15	20	266
1999	136	38	68	17	20	279
2000	191	54	52	12	18	327

Source: 1998-2000: FAA Form 5010-1 (Provided by PIE).
1980-1997: Federal Aviation Administration, 2001 Terminal Area Forecasts

4.3.7 Air Cargo Tonnage

The historical levels of enplaned and deplaned air cargo tonnage at PIE, over the 15-year period 1987 through 2001, were tabulated and examined, as shown in **Table 4-14** and **Figure 4-14.** Total air cargo movements, as measured in U.S. tons, steadily increased during the 7-year period 1987 through 1993 inclusive, at an AACGR of 23.4 percent. Over the next eight years, the air cargo movement continued its steady growth at an AACGR of 6.9 percent. Over the entire 15-year period, cargo movements increase at an AACGR of 14.8 percent.

Figure 4-14. Historical 14-Year Air Cargo Tonnage (1987-2000)

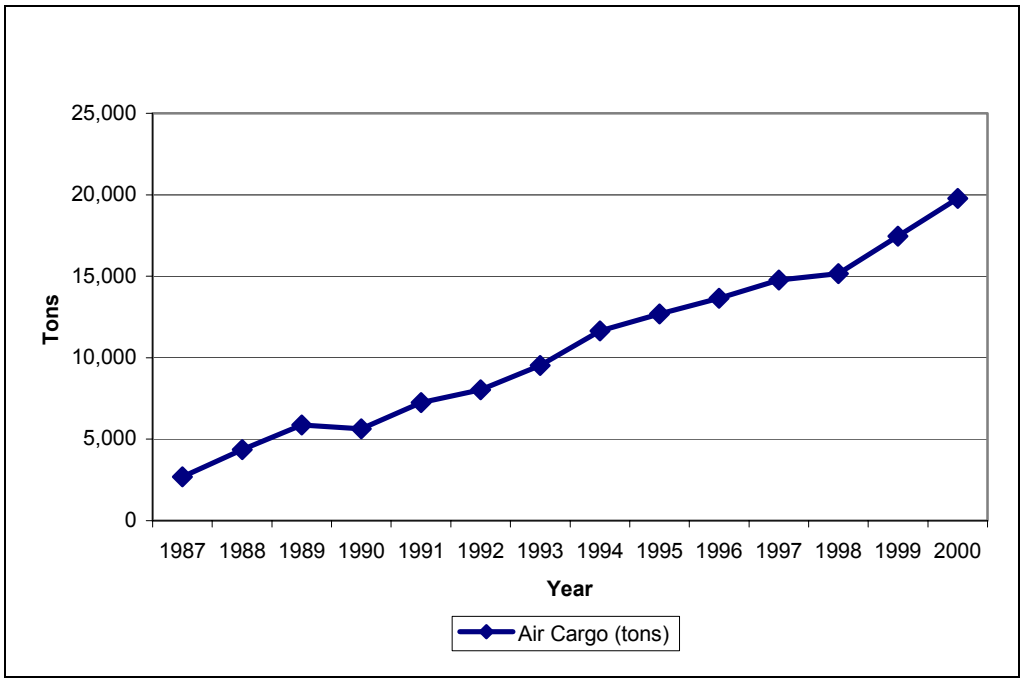


Table 4-14. Historical 14-Year Air Cargo Tonnage (1987-2000)

Year	Enplaned		Deplaned		Totals	% Change
	Domestic	International	Domestic	International		
1987	1,103	8	1,588	0	2,699	
1988	2,022	0	2,341	0	4,363	61.65%
1989	2,860	0	3,005	0	5,865	34.43%
1990	2,569	1	3,066	0	5,636	-3.90%
1991	3,229	11	3,986	16	7,242	28.50%
1992	3,406	17	4,287	326	8,036	10.96%
1993	4,247	2	4,754	525	9,528	18.57%
1994	5,088	21	5,893	640	11,642	22.19%
1995	5,374	43	6,771	502	12,690	9.00%
1996	5,972	6	7,391	281	13,650	7.57%
1997	7,214	8	7,410	137	14,769	8.20%
1998	7,181	15	7,828	130	15,154	2.61%
1999	7,834	60	9,471	88	17,453	15.17%
2000	9,530	158	9,956	129	19,773	13.29%

Source: St. Petersburg/Clearwater International Airport , Summary of Aircraft Operations 1996-2000 (provided by PIE).

4.4 AVIATION ACTIVITY FORECASTS

Aviation activity forecasts for PIE were developed using a variety of techniques considered viable and prudent. These techniques primarily centered on the use and review of existing data and projections of aviation activity as published by others. The publications were used to develop baseline activity level data, or where required, to develop derivative forecasts using combined data from a variety of sources. The primary source of aviation projection data was derived or obtained from the following publications:

- FAA Order 5090.3C, Field Formulation of the National Plan of Integrated Airport Systems (NPIAS), December 2000.
- FAA Aerospace Forecasts for Fiscal Year 2002 through 2013, FAA-APO-02-1, March 2002.
- Long-Range Aerospace Forecasts Fiscal Years 2015, 2020 and 2025, FAA-APO-01-3, June 2001.
- FAA's 2001 Terminal Area Forecast (TAF), January 2002.
- Florida Aviation System Plan 2000 (FASP).
- Forecasting Aviation Activity by Airport, GRA, Incorporated, July 2001.
- FAA Advisory Circular 150/5070-6A, Airport Master Plans, June 1985.

These publications were referenced and utilized to provide the baseline data, projection data, and forecast formulation evidence, and to develop a number of comparative aviation activity forecasts for PIE. The publications also provided a variety of sources from which meaningful analytical comparisons of forecasts could be made to validate certain forecast assumptions pertaining to PIE activity. Where appropriate, projections of aviation activity obtained from these sources were interpolated, or where required to develop forecasts beyond the last respective forecast year of a particular forecast, extrapolated to the year 2020.

Although useful in forecasting certain elements of future aviation activity, the use of trend analysis techniques as part of the PIE forecast development were applied sparingly and only where appropriate and meaningful historical activity data was available. Because of the wide range in fluctuations of historical operational data at PIE, trend analysis was found to produce projected activity levels that were considered unrealistic.

4.4.1 Forecast Development Techniques

4.4.1.1 Forecasts Previously Generated by Others

Published forecasts of aviation activity for PIE, the State of Florida, and the nation were used to develop a variety of aviation activity forecasts. Where required, interpolation or extrapolation techniques were utilized to derive projections for any one or all of the four forecast years of 2005, 2010, 2015, or 2020.

4.4.1.2 FAA 2001 TAF Growth Rates

The FAA's TAF projections of passenger enplanements, air carrier/air taxi operations, GA operations, instrument operations, and based aircraft as developed for PIE (TAF-PIE) were utilized to develop two separate TAF–based projections for each respective forecast year. The first forecast utilized the published TAF activity levels verbatim for the years 2000 to 2015. Using the calculated AACGR for the 5-year period 2010 to 2015, the TAF activity levels were extrapolated outward to the year 2020. This forecast represents the FAA's best estimates of future aviation activity at PIE, but does not reflect

actual operating conditions, constraints, planned changes, or anticipated localized shifts in activity levels at time of forecast.

In an effort to present a more realistic projection, a "normalized" TAF-based forecast of the various activity levels at PIE was developed using the AACGR calculated between each TAF forecast year (2001-2015). Utilizing actual enplanements, air carrier operations, GA operations, instrument operations, and based aircraft data for the year 2001, future activity levels were developed that "mirrored" or paralleled year-to-year growth estimates of the FAA's TAF for PIE.

4.4.1.3 FAA Aerospace Forecast 2001 through 2012 (FAA) Growth Rates

Using the FAA's Aerospace Forecasts for Fiscal Years 2002 through 2013 and the Long-Range Aerospace Forecasts Fiscal Years 2015, 2020, and 2025, AACGR projections of passenger enplanements, air carrier/air taxi operations, GA operations, instrument operations, and air cargo tonnage were developed for the short term (2002-2012) and long term (2013-2020). These growth rates were applied to the actual respective activity level for the year 2001 and grown outward to the year 2020.

4.4.1.4 Florida Aviation System Plan 2000 (FASP)

The FASP projections of commercial enplanements, air carrier operations, and GA operations for the FASP forecast years 2006, 2011, and 2021 were utilized to develop comparison forecasts. Using the calculated AACGR between each respective FASP forecast year, interpolated projections for the forecast years 2005, 2010, 2015, and 2020 were also developed. The FASP calculated AACGR was applied to year 2001 actual data to mirror the impacts of the September 11 terrorist attacks and the economic slowdown experienced during 2001 for the forecast years.

4.4.1.5 Study-Specific Forecasts

Trend Analysis

Trend analysis techniques were used sparingly throughout the forecast development and only where appropriate and meaningful data was available for use. In the case of passenger enplanements and air cargo tonnage at PIE, the derived trend line projections were found to be unrealistic. This is primarily the result of the extreme fluctuations and/or order of magnitude changes between historical years of enplanement or cargo activity at PIE. As such, trend analysis was not utilized as part of this forecast of passenger enplanements or air cargo tonnage.

Market Share – National and Florida

In addition to providing facility-level projections, the FAA's TAF also provides a forecast of activity levels for the State of Florida and the nation out to the year 2015. Using market share projection techniques, the year 2001 PIE activity levels were calculated as a percentage of the state and national TAF projections. This PIE-to-state/national percentage was held constant and applied to the respective state or national activity forecasts. This forecasting technique assumes that, 1) the percentage of PIE passenger enplanements, air carrier operations, and GA operations as a percent of the state or national activity levels remain unchanged throughout the entire forecast period, and 2) that year-over-year enplanement growth at PIE will parallel the state or national activity projection trends. Future activity levels for the year 2020 were developed using extrapolation techniques based on the 2010 through 2015 TAF AACGR.

4.4.2 Enplaned Passengers

The forecast of passenger enplanements projects the number of passengers that would occupy the aircraft when departing PIE. The projections of future commercial passenger enplanements at PIE are used to subsequently develop estimates of commercial air carrier or commuter departures and derivative facility space planning requirements.

4.4.2.1 Forecast Assumptions

By its nature of operation, proximity to other larger air carrier airports and limited number of scheduled airlines, PIE is considered an "Origination and Destination" airport. For the purposes of this passenger enplanement forecast, it was assumed that all passengers enplaned at PIE would represent originating passengers only and that no inter-airline or code sharing transfers would occur.

In developing a forecast of future commercial passenger enplanements at PIE, six separate projections were developed. Each projection was predicated on the use of data available or historical data obtained through PIE records, FAA Form 5010-Airport Master Records, FAA's TAF, FAA's Aerospace Forecast, FAA's Long-Range Forecasts, and FASP. There is also a forecast of future commuter enplanements based on the initial scheduled service provided by PAA, initiated in March of 2002. Enplanement load factors for this service are based on the FAA Aerospace Forecasts.

4.4.2.2 Forecast Findings

A total of six comparative passenger enplanement forecasts were developed and are shown in **Tables 4-15 and 4-16** and **Figures 4-15 and 4-16**.

Figure 4-15. Comparison of Passenger Enplanement Forecasts

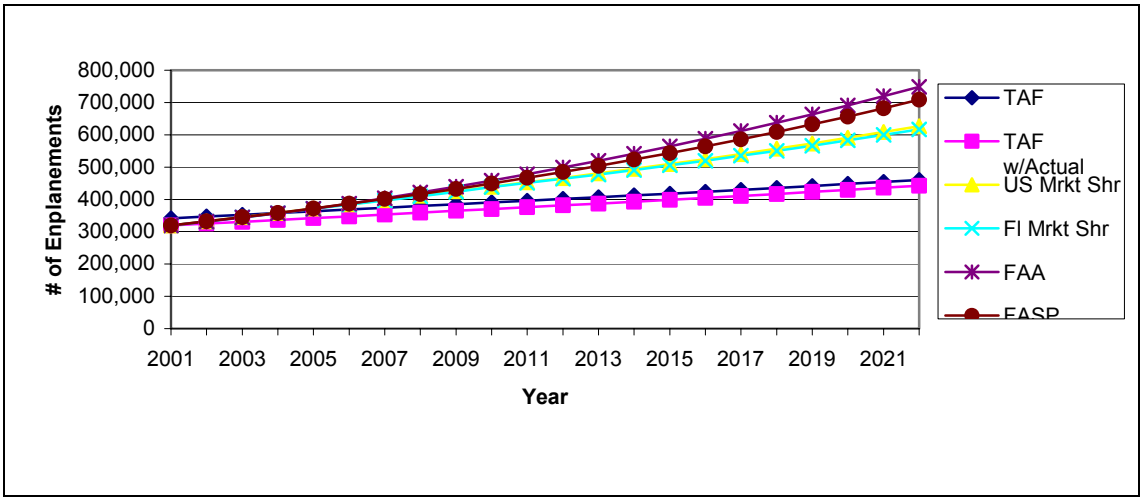


Figure 4-16. Commuter Passenger Enplanement Forecasts

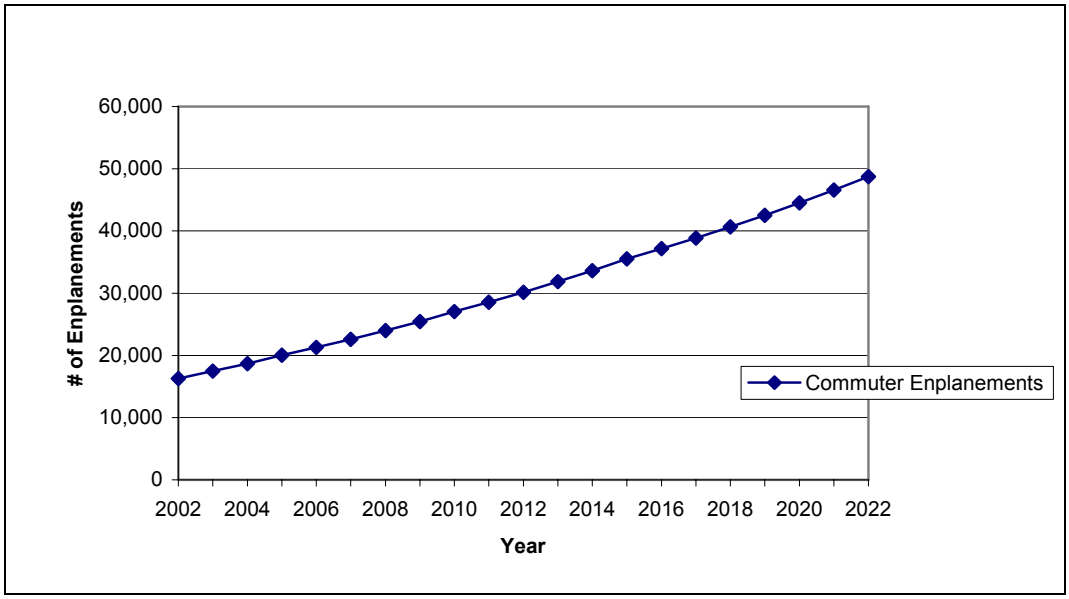


Table 4-15. Comparison of Passenger Enplanement Forecasts

Forecast Sources						
			Market Share			
Year	T.A.F.	T.A.F.	U.S.	Florida	F.A.A.	F.A.S.P.
		With PIE Provided Actual 2000 & 2001 Data				
2001	341,382	319,416	319,416	319,416	319,416	319,416
2002	**346,837**	**324,909**	**331,741**	**331,538**	**331,571**	**331,766**
2003	352,292	330,496	344,542	344,121	344,188	344,593
2004	357,746	336,180	357,836	357,181	357,286	357,916
2005	363,201	341,961	371,644	370,736	370,882	371,755
2006	368,656	347,420	384,346	383,302	386,922	386,128
2007	**374,110**	**352,966**	**397,482**	**396,293**	**403,655**	**401,057**
2008	379,565	358,600	411,068	409,725	421,112	416,563
2009	385,020	364,325	425,117	423,613	439,324	432,669
2010	390,474	370,141	439,647	437,971	458,323	449,398
2011	395,929	375,613	452,810	450,661	477,820	466,773
2012	**401,384**	**381,166**	**466,367**	**463,718**	**498,146**	**484,820**
2013	406,838	386,801	480,330	477,154	519,336	503,565
2014	412,293	392,519	494,711	490,979	541,428	523,035
2015	417,748	398,322	509,523	505,205	564,460	543,257
2016	423,583	404,337	524,778	519,843	587,723	564,261
2017	**429,500**	**410,444**	**540,489**	**534,906**	**611,945**	**586,078**
2018	435,499	416,642	556,672	550,404	637,165	608,737
2019	441,582	422,934	573,338	566,352	663,424	632,273
2020	447,750	429,321	590,504	582,761	690,766	656,719
2021	454,004	435,805	608,184	599,647	719,234	682,110
2022	**460,345**	**442,386**	**626,393**	**617,021**	**748,876**	**708,483**
				Selected Forecast		

Source: Federal Aviation Administration, 2001 Terminal Area Forecasts
PIE Summary of Passenger Traffic, 2001.
FASP 2000
FAA Aerospace Forecasts 2002-2013
FAA Long Range Aerospace Forecast. FY 2015, 2020 and 2025, FAA-APO-01-3, June 2001.
Supplemental Tables for FAA Aerospace Forecasts, Fiscal Years 2002-2013, Table 3.

Table 4-16. Commuter Passenger Enplanement Forecast

Year	Commuter Enplanements
2001	0
2002	**16,296**
2003	17,455
2004	18,696
2005	20,025
2006	21,263
2007	**22,577**
2008	23,973
2009	25,455
2010	27,029
2011	28,543
2012	**30,142**
2013	31,830
2014	33,613
2015	35,496
2016	37,139
2017	**38,858**
2018	40,657
2019	42,539
2020	44,508
2021	46,568
2022	**48,724**

Source: FAA Aerospace Forecast, Fiscal Year 2002-2013, FAA APO-02-1, March 2002, Table 25, Page IV-21 and Supplemental Table No. 4 FAA Long Range Aerospace Forecast. FY 2015, 2020, and 2025, FAA-APO-01-3, June 2001.
Note: Assume average of 4 departures daily to APF starting in 2002.

For the mid-forecast year 2010, the enplanement forecasts varied by as much as 88,182 enplanements, and for the last forecast year 2020, the forecasts varied by as much as 261,445 enplanements.

The lowest enplanement projections were derived using the FAA's 2001 TAF with year 2001 actual PIE data. This low projection was based on FAA's TAF projections for PIE that included no air taxi or commuter enplanements through the last TAF forecast year (2015). The TAF also projects a flat rate of growth in international U.S. Flag Carrier and Foreign Flag Carrier enplanements.

The highest projections were derived using the FAA's national projections of domestic and international passenger enplanements. The FAA's enplanement AACGR projections vary greatly due to the impacts of the September 11, 2001 terrorist attacks and the economic slow down experienced during the same period. The FAA's domestic enplanements AACGR projections are –6.0 percent for the year 2002, 13.4 percent for the year 2003, 3.8 percent for the years 2004 through 2013, and 3.7 percent for the years 2014 through 2020. The FAA's international enplanement AACGR projections are

1.5 percent for the year 2002, 5.5 percent for the year 2003, 5.6 percent for the years 2004 through 2013, and 5.0 percent for the years 2014 through 2020.

As previously explained, the use of trend analysis techniques were found to be of little value in projecting passenger enplanements at PIE because of the wide range of enplanement levels throughout the historical review period.

The commuter enplanements forecast is based on an initial service rate, beginning March 2002, of four departures per day of the nineteen seat Jetstream 31 aircraft. The FAA load factors are 59.95 percent in year 2005, growing to 63.52 percent by year 2015. These factors provide enplanements forecasts of 20,025 commuter passengers in year 2005 and 35,496 passengers in year 2015 when applied to the commuter operations forecasts.

4.4.3 Commercial Aircraft Operations

The forecast of commercial aircraft operations projects the number of arrivals and departures of commercial air carrier aircraft having 60 seats or more at PIE. The projections of future commercial operations at PIE are used to subsequently develop estimates of runway capacity, certain environmental impact assessments, airfield facilities, runway length requirements, and airspace protection requirements.

Projections of Air Taxi and Commuter aircraft operations were developed separately based on the initial service schedule of four daily departures initiated in March of 2002 by PAA.

4.4.3.1 Forecast Assumptions

Historically, PIE had been served by air carriers and/or charter operators that utilize large air carrier aircraft having 60 seats or more. This trend changed when Pan Am began daily commuter service to Naples, Florida. Therefore, the projections of commercial operations developed had to address this change, which was not factored into the forecasts previously generated by others.

Historically, PIE had been served by air carriers and/or charter operators that utilize large air carrier aircraft having 60 seats or more. This trend changed when Pan Am began daily commuter service to Naples, Florida.

In developing a forecast of future commercial operations at PIE, seven separate projections were developed. Each projection was predicated on the use of data available or historical data obtained through PIE records, FAA Form 5010-Airport Master Records, FAA's TAF, FAA's Aerospace Forecast, and Long-Range Forecasts, and FASP. The future forecast for commuter service was developed from the service schedule provided by PAA and projected throughout the forecast period based on the FAA Aerospace Forecast and the FAA Long-Range Forecast.

4.4.3.2 Forecast Findings

A total of seven comparative commercial aircraft operations forecasts were developed and are shown in **Tables 4-17 and 4-18** and **Figures 4-17 and 4-18**.

For the mid-forecast year 2010, the enplanement forecasts varied by as much as 13,271 commercial operations, and for the last forecast year 2020, the forecasts varied by as much as 49,378 commercial operations.

The lowest commercial operations projections were derived using the FAA's 2001 TAF, with actual 2001 PIE data. This low projection was based on FAA's

Table 4-17. Comparison of Commercial Operations Forecasts

Forecast Sources							
			Market Share				
Year	T.A.F.	T.A.F.	U.S.	Florida	F.A.A.	F.A.S.P.	Trend
		With PIE Provided Actual 2000 & 2001 Data					
2001	15,383	14,294	14,294	14,294	14,294	14,294	14,294
2002	**15,484**	**14,388**	**14,610**	**14,682**	**14,479**	**14,723**	**15,395**
2003	15,586	14,482	14,933	15,081	14,666	15,165	16,580
2004	15,688	14,577	15,264	15,491	14,856	15,620	17,856
2005	15,791	14,673	15,601	15,912	15,048	16,088	19,231
2006	15,880	14,756	15,910	16,317	15,431	16,571	20,785
2007	**15,969**	**14,839**	**16,224**	**16,733**	**15,824**	**17,068**	**22,464**
2008	16,059	14,922	16,545	17,159	16,227	17,580	24,279
2009	16,149	15,006	16,872	17,596	16,640	18,108	26,241
2010	16,240	15,090	17,206	18,044	17,063	18,651	28,361
2011	16,317	15,162	17,523	18,452	17,522	19,211	30,768
2012	**16,394**	**15,233**	**17,846**	**18,869**	**17,993**	**19,787**	**33,380**
2013	16,471	15,305	18,174	19,296	18,476	20,381	36,214
2014	16,549	15,377	18,509	19,733	18,973	20,992	39,288
2015	16,627	15,450	18,850	20,179	19,483	21,622	42,623
2016	16,705	15,523	19,198	20,636	20,050	22,271	46,404
2017	**16,784**	**15,596**	**19,551**	**21,102**	**20,634**	**22,939**	**50,521**
2018	16,864	15,670	19,911	21,580	21,234	23,627	55,003
2019	16,943	15,744	20,278	22,068	21,853	24,336	59,883
2020	17,023	15,818	20,652	22,567	22,489	25,066	65,196
2021	17,104	15,893	21,032	23,077	23,144	25,818	70,980
2022	**17,184**	**15,968**	**21,419**	**23,599**	**23,817**	**26,593**	**77,277**
					Selected Forecast		

Source: Federal Aviation Administration, 2001 Terminal Area Forecast.
2000 Data: St Petersburg-Clearwater International Airport, Summary of Aircraft Operations, 2000
FASP 2000
FAA Long Range Aerospace Forecast. FY 2015, 2020 and 2025, FAA-APO-01-3, June 2001.
Federal Aviation Administration, Aerospace Forecasts, FAA-APO-02-1, March 2002.

Table 4-18. Comparison of Commercial Operations Forecasts

Year	Commuter Operations
2001	0
2002	**2,912**
2003	3,101
2004	3,302
2005	3,516
2006	3,706
2007	**3,906**
2008	4,117
2009	4,340
2010	4,574
2011	4,808
2012	**5,054**
2013	5,313
2014	5,584
2015	5,870
2016	6,104
2017	**6,348**
2018	6,601
2019	6,865
2020	7,139
2021	7,424
2022	**7,720**

Source: FAA Aerospace Forecast, Fiscal Year 2002-2013, FAA APO-02-1, March 2002, Table 25, Page IV-21 and Supplemental Table No. 4 FAA Long Range Aerospace Forecast. FY 2015, 2020 and 2025, FAA-APO-01-3, June 2001.
Note: Assume average of 4 departures daily to APF starting in 2002.

Figure 4-17. Comparison of Commercial Operations Forecasts

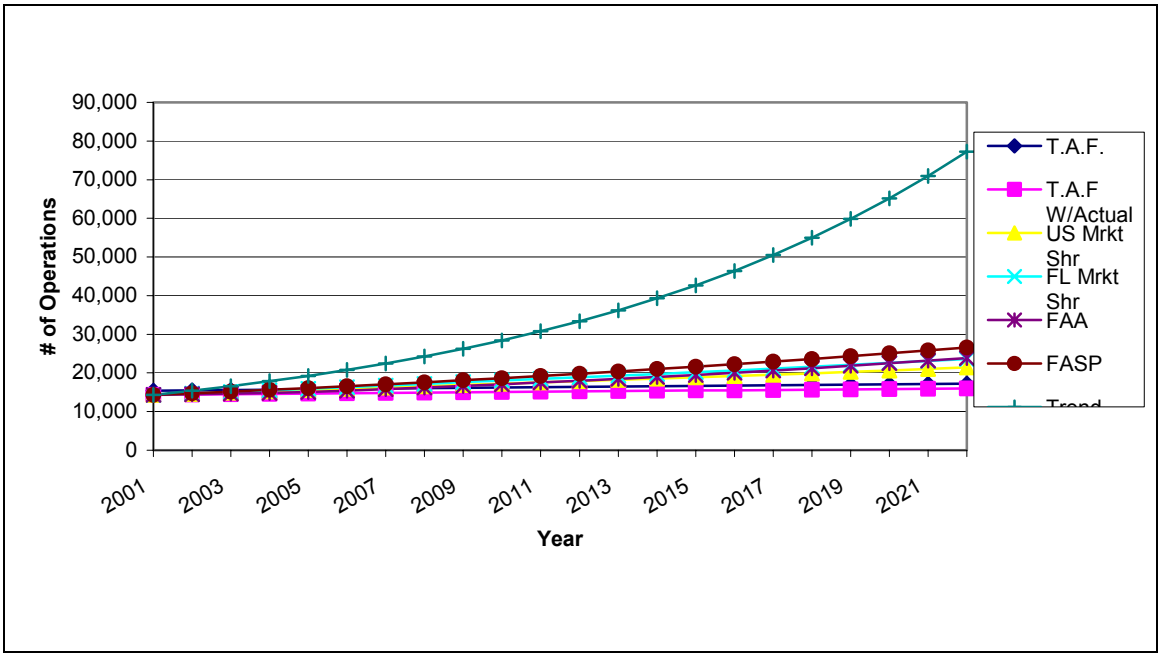
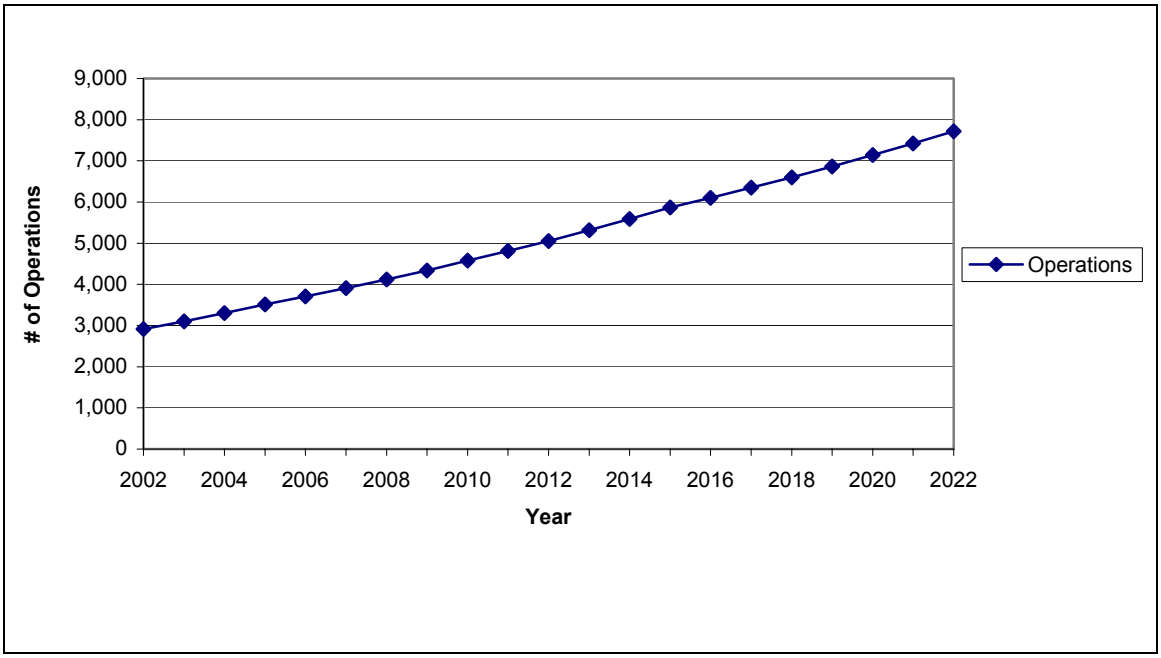


Figure 4-18. Commuter Operations Forecasts



TAF projections of an AACGR of 1.11 percent for air carrier operations through the last TAF forecast year (2015). The TAF also projected a flat rate of growth in air taxi operations throughout the same period.

The highest commercial operational projections were derived using trend analysis techniques. These projections were found to be extremely high and were therefore unrealistic. As previously explained, the use of trend analysis techniques were found to be of little value because of the wide range of air carrier operational levels throughout the historical review period.

The commuter operational projections were derived from the initial PAA schedule, begun March 2002, of four daily departures, or 2,912 yearly operations. This operational level is projected out through the forecast period based on the FAA Aerospace Forecast AACGR of 5.4 percent to year 2013 and the FAA Long-Term Forecast AACGR of 4.2 percent to the final year of the forecast. This produces a forecast activity level of 3,516 commuter operations in year 2005 and 5,882 operations in year 2015.

4.4.4 General Aviation Aircraft Operations

The forecast of GA operations projects the number of arrivals and departures of all aircraft that are not classified as air carrier or military. Similar to commercial aircraft, the projections of future GA operations at PIE are used to subsequently develop estimates of runway capacity, certain environmental impact assessments, airfield facilities, runway length requirements, and airspace protection requirements.

4.4.4.1 Forecast Assumptions

In developing comparative forecasts for GA operations, two additional derivative forecasts were developed using the Operations Per Based Aircraft (OPBA) methodology. This methodology assumes a constant ratio of GA operations (local and itinerant) to the number of based aircraft at an airport for a given forecast year. An average OPBA factor of 450 was derived for PIE using guidance provided in FAA Order 5090.3C, Field Formulation of the National Plan of Integrated Airport Systems (NPIAS, Chapter 3). This (FAA) OPBA factor was applied to the forecast of based aircraft for each of the study years. The forecast of based aircraft was developed using actual PIE year 2000 data and applying the AACGR calculated from the FAA's 2001 TAF forecast of based aircraft for the 5-year periods ending in 2005, 2010, and 2015. The 2015 AACGR was also applied to extrapolate the number of based aircraft to the year 2020.

By taking an average of the annualized OPBA for PIE for the calendar years 1990 through 2000 a second OPBA factor of 547, representing the (PIE) OPBA, was derived. This factor, 547 OPBA factor, was applied to the derived forecast of based aircraft for each of the study years.

In developing a forecast of future GA operations at PIE, eight separate projections were developed. Each projection was predicated on the use of data available or historical data obtained through PIE records, FAA Form 5010-Airport Master Records, FAA's TAF, FAA's Aerospace Forecast, and Long-Range Forecasts, and FASP.

4.4.4.2 Forecast Findings

A total of eight comparative GA operations forecasts were developed and are shown in **Table 4-19** and **Figure 4-19.**

For the mid-forecast year 2010, the GA operations projections varied by as much as 65,744 operations, and for the last forecast year 2020, the GA operations forecasts varied by as much as 100,066 operations.

The lowest GA operations projections were derived using the FAA's OPBA factor of 450. The highest GA operations forecasts were derived using the FASP 2000 projections.

4.4.5 Military

As previously discussed in section 3.5.4, military activity at PIE is comprised of both local and itinerant aircraft operations. For the purposes of this forecast of aviation activity at PIE, the annualized future military itinerant and local aircraft activity levels were held constant at 12,488 local operations and 9,761 itinerant operations throughout the 20-year forecast period. This level of activity was derived using the average of the total military operations at PIE for the 5-year period 1997-2001, as shown in **Table 4-12** and **Figure 4-12**.

4.4.6 Instrument Operations

The forecast of instrument operations projects the number of aircraft that utilize a flight plan when operating to or from PIE. This includes all instrument departures and arrivals to PIE, secondary handling of local instrument itinerant activity to nearby airports and over flights handled by the ATCT.

The projections of future instrument operations at PIE are used to subsequently develop estimates of planned improvements or upgrade of navigational aids (NAVAIDS) at the Airport.

4.4.6.1 Forecast Assumptions

In developing a forecast of future instrument operations at PIE, three separate projections were developed. Each projection was predicated on the use of data available or historical data obtained through FAA's 2001 TAF and the FAA/APO Air Traffic Activity Data System (ATADS). These projections are shown in **Table 4-20** and **Figure 4-20**. The future instrument operation levels were derived using FAA's TAF and FAA's aerospace and long-range projections of national instrument activity growth.

Table 4-19. Comparison of General Aviation Operations Forecasts

Forecast Sources								
			Market Share				OPBA Derived Forecast	
Year	T.A.F.	T.A.F. With PIE Provided Actual 2000 & 2001 Data	U.S.	Florida	F.A.A.	F.A.S.P.	High	Low
2001	199,728	190,556	190,556	190,556	190,556	190,556	181,355	149,196
2002	**203,658**	**194,305**	**192,020**	**193,826**	**191,644**	**194,933**	**183,876**	**151,270**
2003	207,665	198,128	193,495	197,152	192,738	199,411	186,432	153,372
2004	211,751	202,027	194,981	200,535	193,839	203,991	189,024	155,504
2005	215,917	206,002	196,479	203,976	194,945	208,677	191,651	157,666
2006	219,821	209,726	197,942	207,226	197,287	213,498	194,142	159,715
2007	**223,795**	**213,518**	**199,416**	**210,528**	**199,657**	**218,431**	**196,665**	**161,790**
2008	227,841	217,378	200,901	213,883	202,056	223,478	199,221	163,893
2009	231,960	221,308	202,398	217,291	204,483	228,641	201,810	166,023
2010	236,154	225,309	203,905	220,753	206,939	233,924	204,433	168,180
2011	240,070	229,045	205,371	224,011	210,332	239,293	207,304	170,541
2012	**244,050**	**232,843**	**206,848**	**227,317**	**213,781**	**244,787**	**210,216**	**172,934**
2013	248,097	236,704	208,335	230,672	217,286	250,406	213,169	175,362
2014	252,211	240,629	209,833	234,076	220,849	256,154	216,163	177,823
2015	256,393	244,619	211,341	237,531	224,470	262,034	219,199	180,319
2016	261,952	249,923	212,861	241,037	229,629	268,038	222,287	182,861
2017	**267,632**	**255,341**	**214,391**	**244,594**	**234,908**	**274,178**	**225,418**	**185,439**
2018	273,435	260,878	215,932	248,204	240,307	280,460	228,593	188,053
2019	279,363	266,534	217,484	251,867	245,831	286,885	231,813	190,704
2020	285,420	272,313	219,048	255,585	251,481	293,458	235,078	193,392
2021	291,609	278,217	220,623	259,357	257,262	300,181	238,389	196,118
2022	**297,931**	**284,250**	**222,209**	**263,185**	**263,175**	**307,058**	**241,747**	**198,883**
					Selected Forecast			

Source: Federal Aviation Administration, 2001 Terminal Area Forecast
2000 & 2001 Data: St Petersburg-Clearwater International Airport, Summary of Aircraft Operations, 2000, 2001.
Growth Rate: Federal Aviation Administration, Aerospace Forecasts, FAA-APO-02-1, March 2002
FASP 2000
1998-2000: FAA Form 5010-1 Provided by PIE.
OPBA Low=450 operations per based aircraft. OPBA source: FAA Order 5090.3C Chapter 3.
OPBA High=547 operations per based aircraft. OPBA source: Calculated from PIE Actual Data.

Figure 4-19. Comparison of General Aviation Operation Forecasts

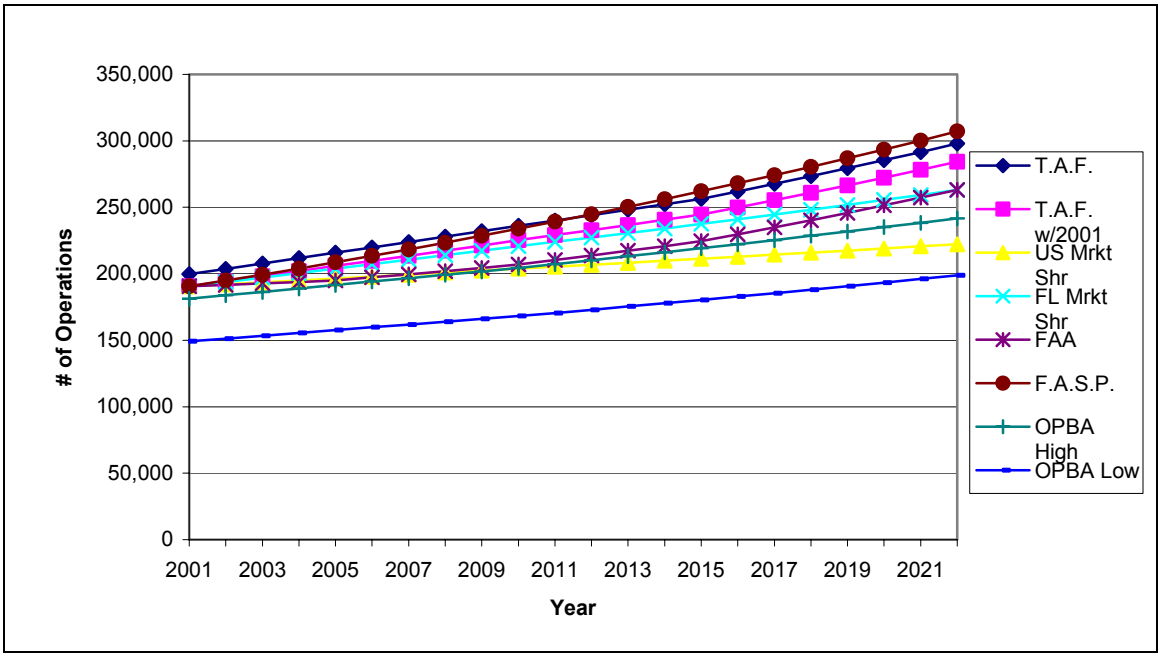
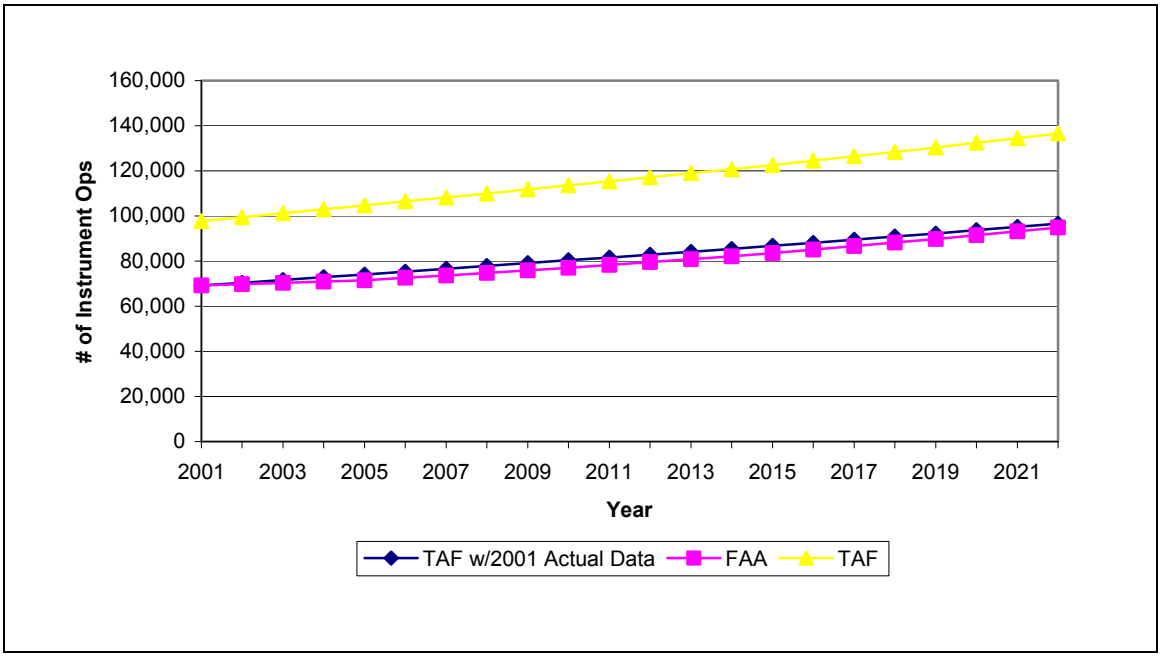


Table 4-20. Comparison of Instrument Operations Forecast

Forecast Sources			
		w/2001 Actual Data	
Year	T.A.F.	T.A.F.	FAA
2001	97,799	69,187	69,187
2002	**99,491**	**70,384**	**69,762**
2003	101,212	71,602	70,342
2004	102,964	72,841	70,927
2005	104,745	74,101	71,517
2006	106,463	75,316	72,586
2007	**108,209**	**76,551**	**73,672**
2008	109,984	77,807	74,774
2009	111,788	79,083	75,893
2010	113,621	80,380	77,028
2011	115,367	81,615	78,288
2012	**117,139**	**82,869**	**79,569**
2013	118,939	84,142	80,871
2014	120,766	85,435	82,195
2015	122,622	86,748	83,540
2016	124,527	88,095	85,075
2017	**126,462**	**89,464**	**86,639**
2018	128,426	90,854	88,231
2019	130,421	92,265	89,853
2020	132,448	93,699	91,505
2021	134,505	95,155	93,187
2022	**136,595**	**96,633**	**94,900**
			Selected Forecast

Source: 2002 Federal Aviation Administration, Terminal Area Forecast FAA ATADS.

Figure 4-20. Comparison of Instrument Operations Forecast



4.4.6.2 Forecast Findings

For the mid-forecast year 2010, the instrument operations forecasts varied by as much as 36,593 instrument operations. For the last forecast year 2020, the forecasts varied by as much as 40,943 instrument operations.

The lowest projection levels were derived using the published FAA Aerospace Forecast and Long Range Forecast growth rates applied to PIE actual 2001 data. This low projection was precipitated by the 26 percent drop in actual instrument operations from year 2000 to 2001. The FAA's instrument operations AACGR projection for year 2002 is –3.1 percent, 3.6 percent for year 2003, 1.5 percent for years 2004 through 2013, and 1.6 percent for years 2014 through 2020. The precipitous drop in instrument operations at PIE can be attributed to the effects of the economic slowdown and the September 11, 2001 terrorist attacks on the United States. The continued negative growth in year 2002 may also be a result of these factors.

The highest instrument operations forecast projection was derived using the FAA's 2001 TAF. These projections were found to be unrealistically high, due mainly to not accounting for the pronounced drop in actual instrument operations from year 2000 to year 2001.

4.4.7 Peak Activity

Peak hour activity tests an airport's ability to accommodate demand represented by an increased level of activity that occurs with predictable frequency. The determination of peak activity will aid in the development and sizing of airport facilities to meet heightened demand. The FAA defines the theoretical "peak-hour operations" as the total number of aircraft operations or enplanements expected to occur at an airport, averaged for two adjacent peak hours of a typical peak time or busiest hour on record. Peaking

characteristics are determined by estimating the peak month and daily activity, and then determining the peak hourly activity. The most common method of converting the forecasts to an hourly demand baseline is the Average Day/Peak Month (AD/PM). To determine the average day of the peak month, the peak month must first be identified

4.4.7.1 Peaking Factors and Peak Day/Peak Hour Activity (Commercial Service)

Peak month/day/hour activity calculations are needed to estimate the appropriate size of the airport terminal area, terminal buildings, aircraft aprons, and auto-parking facilities needed to accommodate future demand. FAA guidelines (AC 150/5070-6A) note that it is not appropriate to design airport facilities to meet infrequent and short-lived peaks in demand – this would result in an inefficient use of limited public resources. Rather, some middle-ground between average and peak requirements should be found, in order to predict the timing and extent of capacity expanding investments that may be needed in the future. A commonly used concept in this regard is the peak hour, which is an estimate of the peak hour of the average day of the busiest month.

Generally, the peak day/peak hour concept results in terminal facilities that reflect the highest *average* use of facilities. The concept recognizes that there will be limited times when larger numbers of aircraft – or larger aircraft discharging more passengers than typical of the fleet – will result in a larger amount of passengers than usual in the terminal, or more than average numbers of aircraft at the gates. This is acceptable within the delay tolerance limits set by the FAA. These limits are at the point when increases in service at the airport threaten to significantly exceed average delay tolerances. This point represents the planning threshold level at which to construct additional facilities, or to expand existing facilities to add capacity. A generally accepted target value for delay tolerance is no more than six minutes per aircraft operation. When terminal facilities capacity (ticketing, baggage, hold rooms), gate availability, apron space or other terminal/airfield conditions contribute to operational delays beyond this threshold, capacity enhancements should be considered.

PIE's market, currently consists of a mix of scheduled commercial operations such as Pan Am and ATA. Charter operations include Southeast and Air Transat. As PIE primarily serves the needs of the leisure/vacation traveler, the month of March is and historically has been the peak month for enplanements and commercial operations. Based on an analysis of past and current airline schedules and passenger load factors, **Table 4-21** depicts the historical and forecasted peak-month/average-day/peak-hour enplanements. **Table 4-22** shows the peak commercial operations and **Table 4-23** depicts commercial fleet mix forecast.

4.4.8 Other Peak Hour Activity

In addition to projecting annual activity levels, peak hour activity was also projected. The peak hour is defined as the busiest hour in the average day of the peak month. Peak hour projections are critical for planning purposes in calculating existing airfield capacities and determining required facilities, and were developed for GA and military operations.

4.4.8.1 General Aviation

Yearly and monthly operations data were available for GA aircraft operations for the last ten-year period. This information was used to determine the peak month operations. The average percentage of 10 percent was used to project the peak month GA operations. The number of peak month operations was then divided by 30.4 days to determine the average-day/peak-month operations. Hourly traffic reports were unavailable, thus a

reasonable standard of 20 percent was applied to the peak day operations to calculate peak hour operations for GA activity. (See **Table 4-24**.)

Table 4-21. Peak Month/Average Day/Peak Hour Enplanements

	HISTORICAL						Average	FORECAST				
	1996	1997	1998	1999	2000	2001	1996-2001	2002	2007	2012	2017	2022
Annual Enplanements	524,314	443,300	456,852	399,070	368,709	319,416	418,320	347,834	418,871	493,860	573,764	665,745
Peak Month Enplanements (March)	68,061	55,529	64,327	56,054	50,281	45,620	56,645	47,101	56,720	66,874	77,694	90,150
Ratio of PM Passengers to Annual Passengers	12.98%	12.53%	14.13%	14.05%	13.64%	14.28%	13.54%	13.54%	13.54%	13.54%	13.54%	13.54%
Average Day Enplanements in Peak Month (AD/PM)	2,196	1,791	2,075	1,808	1,622	1,472	1,827	1,519	1,830	2,157	2,506	2,908
Ratio of AD/PM Passengers to Annual Passengers	0.42%	0.40%	0.46%	0.45%	0.44%	0.46%	0.44%	0.44%	0.44%	0.44%	0.44%	0.44%
Estimate of Peak Hour Enplanements from PM Airline Schedules @ 76.76% average load factor [1]					596	662	629	523	630	742	862	1,001
Ratio of Peak Hour Passengers to AD/PM passengers					36.75%	44.95%	34.41%	34.41%	34.41%	34.41%	34.41%	34.41%

Note: [1] March Airline Schedules 2000 – 2002, as Provided by PIE

Table 4-22. Peak Commercial Operations Activity

	2001	2002	2007	2012	2017	2022
Annual Air Carrier Operations	4,770	5,333	7,210	7,680	8,253	8,966
Peak Month Operations (March)	493	388	573	647	736	846
Ratio of PM Operations to Annual Operations	10.34%	7.27%	7.95%	8.43%	8.92%	9.44%
Average Day Operations in Peak Month (AD/PM)	22	17	24	28	31	36
Ratio of AD/PM Operations to Annual Operations	0.46%	0.32%	0.34%	0.36%	0.38%	0.40%
Peak Hour Air Carrier Operations	6	5	7	8	9	10
Ratio of Peak Hour Operations to AD/PM Operations	29.03%	30.43%	27.90%	27.90%	27.90%	27.90%

Source: PBS&J 2002

Table 4-23. General Aviation Peak Month/Average Day/Peak Hour Forecast

Peak General Aviation Activity	Forecast					
	2001	2002	2007	2012	2017	2022
Annual GA Operations	190,556	191,644	199,657	213,781	234,908	263,175
Peak Month Operations (May)	18,649	18,755	19,540	20,922	22,990	25,756
Ratio of PM Operations to Annual Operations	9.79%	9.79%	9.79%	9.79%	9.79%	9.79%
Average Day Operations in Peak Month (AD/PM)	601	605	630	675	742	831
Ratio of AD/PM Operations to Annual Operations	0.32%	0.32%	0.32%	0.32%	0.32%	0.32%
Peak Hour General Aviation Operations	119	120	125	134	147	165
Ratio of Peak Hour Operations to AD/PM Operations	19.80%	19.80%	19.80%	19.80%	19.80%	19.80%

Note: May ATCT Records 2001, as provided by PIE
URS Forecasts, April 2002

4.4.8.2 Military Operations

Being the USCG's largest and busiest air station, peak month activity can be significant at PIE. USCG peak month activities were determined by review of ATCT records, and project at a flat rate, as military operation remain relatively constant. Peak month activity is shown in **Table 4-24**.

Table 4-24. Peak Month/Average Day/Peak Hour Forecast

Peak Military Activity		Forecast				
	2001	2002	2007	2012	2017	2022
Annual Mil Operations	17,622	22,249	22,249	22,249	22,249	22,249
Peak Month Operations (May)	1,628	2,055	2,055	2,055	2,055	2,055
Ratio of PM Operations to Annual Operations	9.24%	9.24%	9.24%	9.24%	9.24%	9.24%
Average Day Operations in Peak Month (AD/PM)	53	67	67	67	67	67
Ratio of AD/PM Operations to Annual Operations	0.30%	0.30%	0.30%	0.30%	0.30%	0.30%
Peak Hour MIL Operations	21	27	27	27	27	27
Ratio of Peak Hour Operations to AD/PM Operations	39.62%	39.62%	39.62%	39.62%	39.62%	39.62%

Note: May ATCT Records 2001 as Provided by PIE
URS Forecasts, April 2002

4.4.8.3 Total Aircraft Operations

Summary of total aircraft operations at PIE is shown in **Table 4-25**. This information depicts total operation, peak month, peak day, and peak hour operations.

Table 4-25. Total Aircraft Operations Summary

Year	Total Operations	Peak Month	Peak Day	Peak Hour
Historical				
2001	222,472	21,030	676	146
Forecast				
2002	231,284	21,199	689	151
2007	241,636	22,169	722	158
2012	259,077	23,625	769	168
2017	284,138	25,781	840	182
2022	316,962	28,657	934	201

Source: PBS&J, 2002

4.4.9 Air Cargo Tonnage

The forecast of air cargo tonnage projects the amount, in tons, of air cargo expected to be enplaned and deplaned at PIE. The projections of future air cargo tonnage at PIE are subsequently used to develop estimates of cargo handling facilities and airside space requirements.

4.4.9.1 Forecast Assumptions

In developing a forecast of future air cargo tonnage at PIE, two projections were developed. Each projection was predicated on the use of data available or historic data obtained from PIE records or the FAA's Aerospace Forecast and Long-Range Forecast. These projections are shown in **Table 4-26** and **Figure 4-21**.

4.4.9.2 Forecast Findings

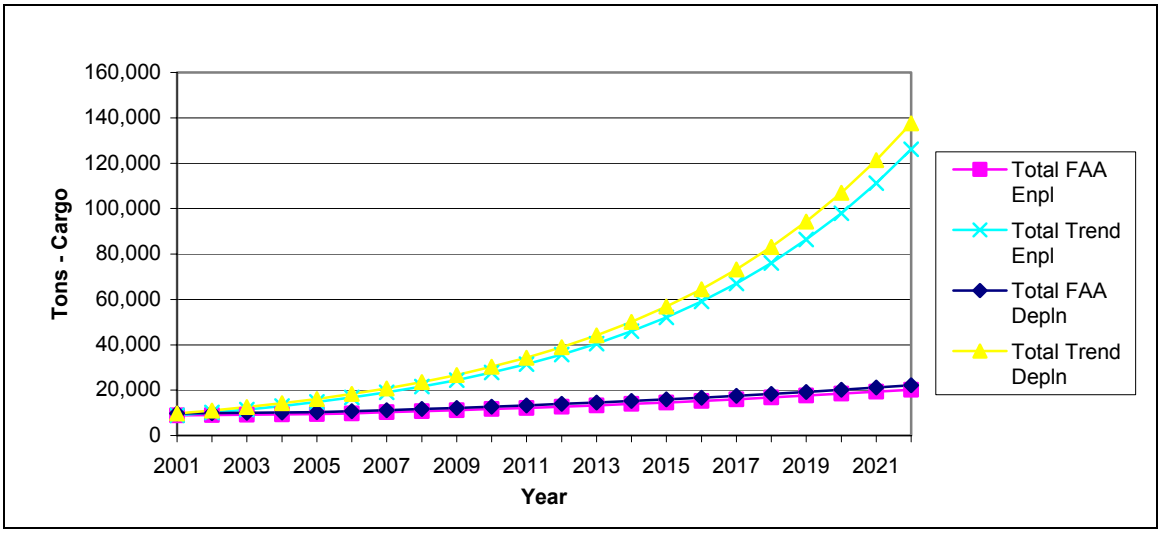
For the mid-forecast year 2010, the projections varied by 16,084 tons for enplaned cargo and 17,545 tons for deplaned cargo, a difference of 138 percent between the high and low forecasts in both categories. For the final forecast year 2020, the forecasts differed by 79,525 tons for enplaned and 86,772 tons for deplaned cargo, a difference of approximately 431 percent between the high and low forecasts in both categories.

Table 4-26. Comparison of Air Cargo Tonnage Forecasts

	Enplaned Cargo				Deplaned Cargo				Total Cargo			
	F.A.A. Growth Rate		Trend Growth		F.A.A. Growth Rate		Trend Growth		F.A.A. Growth Rate		Trend Growth	
Year	Domestic	Total	Domestic	Total	Domestic	Total	Domestic	Total	Domestic	Total	Domestic	Total
2001	8,790	8,910	8,790	8,910	9,561	9,724	9,561	9,724	18,351	18,634	18,351	18,634
2002	**8,901**	**9,026**	**9,972**	**10,108**	**9,682**	**9,852**	**10,847**	**11,032**	**18,584**	**18,878**	**20,819**	**21,140**
2003	9,014	9,144	11,313	11,468	9,805	9,981	12,305	12,515	18,819	19,124	23,619	23,983
2004	9,129	9,263	12,835	13,010	9,929	10,112	13,960	14,198	19,058	19,375	26,795	27,208
2005	9,244	9,384	14,561	14,759	10,055	10,244	15,838	16,108	19,300	19,628	30,398	30,867
2006	9,651	9,799	16,519	16,744	10,498	10,698	17,968	18,274	20,149	20,497	34,486	35,018
2007	**10,076**	**10,233**	**18,740**	**18,996**	**10,960**	**11,173**	**20,384**	**20,731**	**21,036**	**21,405**	**39,124**	**39,727**
2008	10,519	10,685	21,260	21,550	11,442	11,668	23,125	23,519	21,961	22,353	44,385	45,070
2009	10,982	11,158	24,119	24,449	11,945	12,185	26,235	26,682	22,927	23,343	50,354	51,131
2010	11,465	11,652	27,363	27,736	12,471	12,725	29,763	30,270	23,936	24,377	57,126	58,007
2011	11,988	12,186	31,043	31,466	13,040	13,308	33,765	34,341	25,028	25,494	64,808	65,807
2012	**12,535**	**12,744**	**35,217**	**35,698**	**13,634**	**13,918**	**38,306**	**38,959**	**26,169**	**26,661**	**73,523**	**74,657**
2013	13,106	13,327	39,953	40,499	14,256	14,556	43,458	44,199	27,362	27,883	83,411	84,697
2014	13,704	13,937	45,326	45,945	14,906	15,223	49,302	50,142	28,610	29,160	94,628	96,087
2015	14,329	14,575	51,422	52,124	15,586	15,920	55,932	56,886	29,914	30,495	107,354	109,009
2016	15,017	15,275	58,337	59,133	16,334	16,685	63,454	64,536	31,350	31,960	121,791	123,669
2017	**15,737**	**16,009**	**66,182**	**67,085**	**17,118**	**17,487**	**71,987**	**73,214**	**32,855**	**33,495**	**138,169**	**140,300**
2018	16,493	16,778	75,082	76,107	17,939	18,327	81,668	83,060	34,432	35,104	156,750	159,167
2019	17,284	17,584	85,179	86,342	18,800	19,207	92,651	94,230	36,085	36,791	177,830	180,572
2020	18,114	18,428	96,634	97,953	19,703	20,130	105,110	106,902	37,817	38,558	201,744	204,855
2021	18,983	19,314	109,629	111,126	20,649	21,097	119,245	121,278	39,632	40,410	228,875	232,404
2022	**19,895**	**20,241**	**124,372**	**126,070**	**21,640**	**22,110**	**135,282**	**137,588**	**41,534**	**42,352**	**259,654**	**263,658**
		Selected Forecast				Selected Forecast				Selected Forecast		

Source: St. Petersburg-Clearwater International Airport, History of Air Cargo Shipments, 2000.
Federal Aviation Administration, Aerospace Forecasts, 2001-2012, FAA-APO-01-1, March 2001.

Figure 4-21. Comparison of Air Cargo Tonnage Forecasts



The low forecast projections were derived using the published FAA Aerospace Forecast and Long Range Forecasts growth rates. This forecast is the result of growth rates of –5.4 percent for domestic cargo and –2.3 percent for international cargo for year 2002, 2.4 percent for domestic cargo and 5.4 percent for international cargo for year 2003, 4.4 percent for domestic cargo and 6.1 percent for international cargo for forecast years 2004 through 2013. The long-range FAA cargo growth rates are 4.8 percent for domestic cargo and 5.0 percent for international cargo for years 2014 through 2020. The high forecast projections were derived using a trend analysis of historic PIE data. These projections, as mentioned before, were deemed unrealistic as a result of the extreme fluctuations and/or magnitude changes between historical years of cargo tonnage data.

4.4.10 Based General Aviation Aircraft

The based GA aircraft forecast for PIE was developed using the published FAA Aerospace Forecast growth rates for each of the primary based aircraft categories, single-engine, jet, multi-engine, helicopter and other, through the period ending 2013. The AACGR for the final 7-year period of the forecast, ending in 2020, was assumed to continue the growth of the last five years of the TAF forecast. These growth rates were then applied to the actual year 2000 number of based aircraft at PIE, according to FAA Form 5010-1 provided by PIE, within the corresponding time periods and grown out to the year 2020.

4.4.10.1 Forecast Assumptions

In developing a forecast of future based GA aircraft at PIE, a single projection was developed using historical data obtained through PIE records, FAA Form 5010-Airport Master Records, published FAA Aerospace Forecasts and FAA's TAF. This projection is shown in **Table 4-27** and **Figure 4-22**.

4.4.10.2 Forecast Findings

The aircraft mix for based GA aircraft varies slightly from the year 2000 mix of 58 percent single-engine, 16.5 percent jet aircraft, 16 percent multi-engine, 4 percent helicopter and 5.5 percent other. The corresponding final forecast year, 2020, aircraft

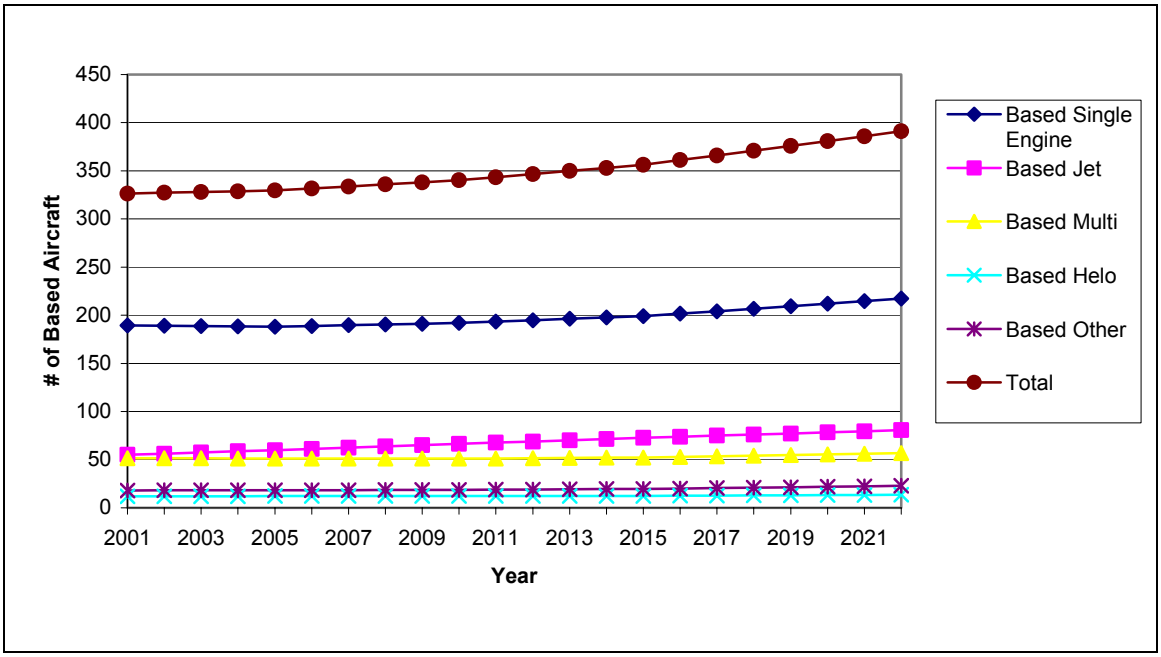
mix consists of 56 percent single-engine, 20 percent jet aircraft, 15 percent multi-engine, 3 percent helicopter, and 6 percent other. The number of based aircraft was forecast to grow from an actual of 327 in year 2000, to 340 in year 2010, and 381 in the final forecast year of 2020.

Table 4-27. Based Aircraft Forecast

Year	Single	Multi	Jet	Helo	Other	Total
2001	190	52	55	12	18	326
2002	**189**	**52**	**56**	**12**	**18**	**327**
2003	189	51	57	12	18	328
2004	188	51	59	12	18	329
2005	188	51	60	12	18	330
2006	189	51	61	12	18	332
2007	**190**	**51**	**62**	**12**	**18**	**334**
2008	190	51	64	12	19	336
2009	191	51	65	12	19	338
2010	192	51	66	12	19	340
2011	193	51	68	12	19	343
2012	**195**	**52**	**69**	**12**	**19**	**347**
2013	196	52	70	12	19	350
2014	198	52	72	12	19	353
2015	199	52	73	12	20	356
2016	202	53	74	13	20	361
2017	**204**	**54**	**75**	**13**	**21**	**366**
2018	207	54	76	13	21	371
2019	209	55	77	13	21	376
2020	212	56	78	13	22	381
2021	215	56	79	13	22	386
2022	**217**	**57**	**81**	**14**	**23**	**391**

Source: 2000: FAA Form 5010-1 (provided by PIE).
Federal Aviation Administration, 2001 TAF.

Figure 4-22. Based Aircraft Forecast



4.4.11 Average Aircraft Size (Seats)

4.4.11.1 Forecast Assumptions

Air Carrier Assumptions

The average aircraft size for air carrier aircraft at PIE was derived by determining the percent of total landings per aircraft type and then applying the calculated percent to the number of seats for the corresponding aircraft configuration. These numbers were then totaled to create a weighted average for both domestic and international air carrier aircraft for the year 2000. This composite average aircraft size was then grown out to the year 2020 based on the published FAA Aerospace Forecasts.

Findings

The forecast for average aircraft size was projected out to year 2020 at an AACGR of less than 1 percent in the case of both domestic and international air carriers. The projections start at an average of 165 seats for domestic air carriers and 244 for international air carriers in year 2000, to approximately 170 for domestic and 237 for international at mid-forecast year 2010. For the final forecast year 2020, the forecast calls for an average aircraft size of approximately 182 for domestic and 246 for international air carriers.

4.4.11.2 Commuter Assumptions

The forecast for average aircraft size for commuter aircraft is solely based on the expected addition of intrastate service by PAA using the nineteen seat Jetstream 31 aircraft.

4.4.12 General Aviation Operations Per Based Aircraft

The resultant OPBA for the PIE forecasts show an AACGR of less then 1 percent out to the final forecast year of 2020. This projection grows from the base year 2000 OPBA of 597, to a mid-forecast year 2010 OPBA of 609, and a final forecast year 2020 OPBA forecast level of 660.

4.4.13 Recommended Aviation Activity Forecasts

The forecast of aviation activity as developed presents a variety of aviation activity projections that were predicated upon the use of unique and discrete data sources, activity forecast previously developed by others, or through derivative development techniques. The following sections describe the rationale of why certain projections were selected to represent the "recommended aviation activity forecast" for PIE.

4.4.13.1 Carrier Passenger Enplanements

A total of six unique commercial passenger enplanement forecasts were developed. A passenger enplanement forecast was derived using the Florida Market Share. This forecast was recommended because this forecast, as well as the companion forecast using the FAA's TAF national growth rates, produced a median range of passenger enplanement growth at PIE over the 20-year forecast period.

The highest projected levels of passenger enplanement growth were produced using the FAA's national (system-wide) passenger enplanement forecasts. This forecast was not recommended because of the FAA's 20-year AACGR of 3.7 percent for domestic enplanement growth and the 5.1 percent for international enplanement growth were considered to be unrealistically high with respect to PIE's current unique and limited air service market. However, the higher FAA–forecasted rates of international growth may be more readily attainable when and if new transatlantic non-stop routes are developed at PIE.

4.4.13.2 Commuter Passenger Enplanements

The only forecast for commuter enplanements was developed from the FAA Aerospace Forecast and FAA Long-term Forecast load factor applied to the predicted number of commuter departures for the recently initiated PAA service.

4.4.13.3 Air Carrier Aircraft Operations

At total of seven unique air carrier operations forecasts were developed. The air carrier aircraft operations forecast derived using the FAA's national projections of air carrier operations growth was considered to best represent the median–range of air carrier aircraft activity projections for the 20-year forecast period.

These FAA nationally based projections were found to have comparable AACGRs to that of the two derivative forecasts using the state and national market share analysis techniques. Projections using the TAF forecasts were considered to represent a very conservative forecast having a 15-year AACGR that was only slightly greater than 1 percent. The TAF projections of operations for PIE air taxi (commercial aircraft having less than 60 seats) also held constant throughout the same period. The use of trend analysis produced overly optimistic and unrealistic projections of air carrier operations.

4.4.13.4 Air Taxi/Commuter Operations

One commuter operations forecast was developed from the initial service levels for the newly instituted PAA service and grown out according to the AACGR predicted in the FAA Aerospace Forecasts and FAA Long-Term Forecast.

4.4.13.5 Military

Military aircraft operations at PIE were held constant throughout the entire 20-year forecast period using the derived five-year (1997-2001) average of 12,488 local and 9,761 itinerant operations annual operations.

4.4.13.6 General Aviation

Of the eight unique GA operational forecasts generated, the FAA's estimates of national GA operational growth was considered to best represent the median–range of GA operational activity projections for the 20-year forecast period. When comparing these annualized operational totals, it was noted that the FAA's forecast was very similar to the projections generated using the to FAA's TAF for PIE when normalized to actual 2000 starting levels. The recommended forecast of GA operations was found to fall with in the mid-range of all projections generated and therefore represented a median forecast.

4.4.13.7 Instrument Operations

The FAA's projections of future instrument operations, as derived using the FAA's Aerospace and Long-Range instrument activity forecasts, were recommended for the 20-year forecast period. These forecasts were found to be within 5 percent of the comparable TAF instrument forecast using actual year 2001 PIE instrument operations data.

4.4.13.8 Cargo Tonnage FAA

Of the two respective projections of air cargo tonnage growth at PIE, the FAA's Aerospace and Long-Range projections of national air cargo growth were recommended for the 20-year forecast period. The use of trend analysis was found to produce very high and thus unrealistic annualized projections of air cargo activity.

4.4.13.9 Based Aircraft

The FAA's TAF projection of GA based aircraft growth applied to actual year 200 PIE data was recommended for the 20-year forecast period.

4.4.14 Comparison to FAA 2001 Terminal Area Forecast

The forecast documentation requires a comparison between the recommended forecasts and the FAA's TAF forecast levels for passenger enplanements, commercial operations, and total operations. The comparison of these forecast levels for PIE indicates higher growth rates for passenger enplanements and commercial operations and a lower growth rate for total operations in the recommended forecasts.

The recommended passenger enplanement forecast predicts 27,560 more enplanements than the TAF forecast in year 2005 and 122,953 more forecasted passenger enplanements in 2015. Of these differences, in year 2005, 73 percent, or 20,025 enplanements, and in year 2015, 29 percent, or 35,496 enplanements, can be directly attributed to the steep increase as a result of the commuter service initiated by Pan Am, March 2002. While there is approximately an 8 percent difference in passenger enplanements in the year 2000 actual PIE data over the year 2000 TAF data, this trend is almost completely reversed in the year 2001 enplanements, with an approximately 6

percent difference of TAF enplanements over the 2001 PIE actual data. This is due in large part to the events of September 11, the loss of service from Canada 3000, and the economic slowdown experienced during the same period. The forecasted enplanements were calculated from this lower year 2001 data to account for these factors. Even taking this into account, our forecast produced higher numbers throughout the forecast years. The primary cause for the differences, not directly associated with the new commuter service, can be attributed to the 4 percent drop in international enplanements in the first year of the TAF forecast and a flat forecast throughout the remainder of the forecast period. The domestic enplanements in TAF grows at an AACGR of 2.14 percent from year 2000 to the final forecast year of 2015, but with no growth forecast for international enplanements, this translates to an overall 1.37 percent AACGR for TAF enplanements. The recommended PIE air carrier forecast grows at an AACGR of 3.32 percent throughout the forecast period to 2015. This growth is based on the assumption PIE will at least maintain its current market share of the TAF forecast of air carrier passenger enplanements statewide.

The commercial operations forecasts also present a divergence from the recommended forecast to the TAF PIE forecast. The recommended forecast is approximately 2,773 operations higher at forecast year 2005 and 8,738 operations higher at final forecast year 2015. Of these differences, in year 2005, 127 percent, or 3,516 operations, and in year 2015, 67 percent, or 8,738 operations, can be directly attributed to the step increase as a result of the commuter service initiated by PAA, March 2002. The AACGR for TAF PIE commercial operations is 0.51 percent, whereas the recommended forecast is based on the published FAA Aerospace Forecast of aggregate commercial operations of 2.24 percent. Even when calculated separately, the TAF forecast AACGR for air carrier operations at PIE is 1.13 percent while the FAA's Aerospace Forecast is based on a 2.4 percent short term and 3.5 percent long term AACGR. Another determining factor for these forecast differences is that the TAF PIE forecast projects no growth for air taxi/commuter operations, yet the FAA Aerospace forecast includes a 2.4 percent AACGR for the same category, in addition to the increased commuter operations caused by the new PAA activity.

The total operations combined forecasts reverse the trend of the recommended PIE forecast, predicting higher operations numbers than the TAF forecasts. For the forecast year 2002, the recommended forecast predicts 16,924 less total operations when compared to the TAF forecast. For the year 2015, 22,544 less operations are projected in the recommended forecast as opposed to the TAF forecast. These differences can be almost entirely attributed to the differences in the GA operations forecast; the TAF GA forecast is 20,972 operations higher in forecast year 2005 and 31,923 operations higher in forecast year 2015 than the recommended forecast. The difference is due to the recommended FAA Aerospace Forecast providing a negative cumulative AACGR of 0.04 percent over the first five years of the forecast, including a negative AACGR of 2.46 percent in actual GA operations from year 2000 to year 2001, to account for the affects of the September 11, 2001 terrorist attacks and the economic slowdown of the same period. The recommended cumulative forecast AACGR of 0.9 percent for GA operations was provided by the FAA Aerospace Forecast, compared to 1.76 percent AACGR for the TAF PIE forecast. Over the 15 years of the forecast, this difference in growth rates translates to a 14 percent difference in GA operations, or 31,923 operations.

Table 4-28. Summary of Airport Planning Forecasts

	Base Yr Level	Base Yr + 1 yr	Base Yr + 5 yr	Base Yr + 10 yr	Base Yr + 15 yr	Base Yr + 20 yr	Base Yr to +1	Base Yr to +5	Base Yr to +10	Base Yr to +15	Base Yr to +20
Passenger Enplanements	**2001**	**2002**	**2007**	**2012**	**2017**	**2022**	**2002**	**2007**	**2012**	**2017**	**2022**
Air Carrier	319,416	331,538	396,293	463,718	534,906	617,021	3.80%	4.41%	3.80%	3.50%	3.35%
Commuter	0	16,296	22,577	30,142	38,858	48,724	0.00%	8.49%	7.07%	6.40%	5.93%
TOTAL	319,416	347,834	418,871	493,860	573,764	665,745	8.90%	5.57%	4.45%	3.98%	3.74%
Peak Enplanements											
Peak Month	45,620	47,101	56,720	66,874	77,694	90,150	3.25%	4.45%	3.90%	3.61%	3.46%
Average Day/Peak Month	1,472	1,519	1,830	2,157	2,506	2,908	0.00%	4.76%	3.97%	3.64%	3.48%
Peak Hour	662	523	630	742	862	1,001	-20.97%	-0.98%	1.16%	1.78%	2.09%
Operations											
Itinerant											
Air carrier/air taxi	14,294	14,479	15,824	17,993	20,634	23,817	1.29%	2.05%	2.33%	2.48%	2.59%
Commuter	0	2,912	3,906	5,054	6,348	7,720	0.00%	7.62%	6.32%	5.72%	5.27%
Total Commercial Operations	14,294	17,391	19,730	23,047	26,982	31,538	21.67%	6.66%	4.89%	4.33%	4.04%
General aviation	94,668	95,422	100,477	108,389	119,151	132,847	0.80%	1.20%	1.36%	1.55%	1.71%
Military	9,468	9,761	9,761	9,761	9,761	9,761	3.09%	0.61%	0.31%	0.20%	0.15%
Local											
General aviation	95,888	96,220	99,178	105,391	115,756	130,330	0.35%	0.68%	0.95%	1.26%	1.55%
Military	8,154	12,488	12,488	12,488	12,488	12,488	53.15%	8.90%	4.35%	2.88%	2.15%
TOTAL OPERATIONS	222,472	231,283	241,634	259,076	284,138	316,963	3.96%	1.67%	1.53%	1.64%	1.79%
Instrument Operations	69,187	69,762	73,672	79,569	86,639	94,900	0.83%	1.26%	1.41%	1.51%	1.59%
Peak Hour Operations											
Commercial											
Air Carrier	6	5	5	6	6	7	-18.76%	-4.76%	-0.61%	-0.41%	0.51%
Commuter	0	1	2	2	3	3	N/A	14.87%	7.18%	7.60%	5.65%
General Aviation	119	120	125	134	147	165	0.67%	0.96%	1.17%	1.41%	1.63%
Military	21	27	67	67	67	67	26.26%	26.12%	12.30%	8.04%	5.97%
Cargo/mail (enplaned+deplaned tons)	18,634	18,878	73,672	26,661	33,495	42,352	1.31%	31.64%	3.65%	3.99%	4.19%
Based Aircraft											
Single Engine (Nonjet)	190	189	190	195	204	217	-0.18%	0.01%	0.28%	0.50%	0.69%
Multi Engine (Nonjet)	52	52	51	52	54	57	-0.31%	-0.25%	-0.03%	0.24%	0.48%
Jet Engine	55	56	62	69	75	81	2.10%	2.53%	2.26%	2.07%	1.92%
Helicopter	12	12	12	12	13	14	0.19%	0.15%	0.17%	0.37%	0.58%
Other	18	18	18	19	21	23	0.35%	0.42%	0.53%	0.85%	1.17%
TOTAL	326	327	334	347	366	391	0.24%	0.45%	0.60%	0.76%	0.91%

Table 4-28 Continued. Summary of Airport Planning Forecasts

	Base Yr Level	Base Yr + 1 yr	Base Yr + 5 yr	Base Yr + 10 yr	Base Yr + 15 yr	Base Yr + 20 yr	Base Yr to +1	Base Yr to +5	Base Yr to +10	Base Yr to +15	Base Yr to +20
Average aircraft size (seats)	**2001**	**2002**	**2007**	**2012**	**2017**	**2022**	**2002**	**2007**	**2012**	**2017**	**2022**
Air carrier											
Domestic	163.0	163.9	167.8	173.7	179.5	184.8	0.55%	0.58%	0.64%	0.65%	0.63%
International	238.0	237.7	237.5	238.8	243.2	248.5	-0.11%	-0.04%	0.04%	0.14%	0.22%
Commuter	19.0	19.0	19.0	19.0	19.0	19.0	0.00%	0.00%	0.00%	0.00%	0.00%
Average enplaning load factor											
Air carrier											
Domestic	69.7%	71.0%	72.6%	73.0%	73.2%	73.2%	1.92%	0.82%	0.46%	0.33%	0.25%
International	74.4%	75.4%	76.5%	76.5%	76.3%	76.3%	1.34%	0.56%	0.28%	0.17%	0.12%
Commuter	58.6%	59.2%	61.0%	62.9%	64.2%	65.3%	1.13%	0.83%	0.71%	0.61%	0.55%
GA operations per based aircraft	584	588	601	619	645	671	0.75%	0.57%	0.60%	0.67%	0.70%

Table 4-29. Comparison of Airport Planning and TAF Forecasts

	Year	Airport Forecast	TAF	AF/TAF (% Difference)
Passenger Enplanements				
Base yr.	2002	347,834	346,837	0.3%
Base yr. + 5yrs.	2007	418,871	374,110	12.0%
Base yr. + 10yrs.	2012	493,860	401,384	23.0%
Base yr. + 15yrs.	2017	573,764	n/a	n/a
Base yr. + 20yrs.	2022	665,745	n/a	n/a
Commercial Operations				
Base yr.	2002	17,391	15,489	12.3%
Base yr. + 5yrs.	2007	19,730	15,978	23.5%
Base yr. + 10yrs.	2012	23,047	16,402	40.5%
Base yr. + 15yrs.	2017	26,982	n/a	n/a
Base yr. + 20yrs.	2022	31,538	n/a	n/a
Total Operations				
Base yr.	2002	231,283	240,239	-3.7%
Base yr. + 5yrs.	2007	241,634	260,965	-7.4%
Base yr. + 10yrs.	2012	259,076	281,627	-8.0%
Base yr. + 15yrs.	2017	284,138	n/a	n/a
Base yr. + 20yrs.	2022	316,963	n/a	n/a

DEMAND/CAPACITY ANALYSIS

St. Petersburg-Clearwater International Airport

5

5.1 GENERAL OVERVIEW

The next step in the Master Plan process is analyzing the capacity of existing airport facilities against forecasted demand. Demand – capacity analysis is the comparison of the existing conditions of the Airport as reported in Chapter 2, to growth projections as reported in Chapter 4, from which airport requirements for runways, taxiways, aprons, terminals, and other related facilities to accommodate growth over the short-, intermediate-, and long-term, can be defined.

5.2 DESIGN CRITERIA

Airport design standards, as established by the Federal Aviation Administration (FAA) were employed in this Master Plan for developing airport facilities to meet existing and forecast levels of aviation activity.

5.2.1 Airport Reference Code (ARC)

According to *FAA Advisory Circular (AC) 150/5300-13, Airport Design*, *Change 6*, the Airport Reference Code (ARC) is a coding system that coordinates airport design criteria with characteristics of the aircraft intended to operate at the airport. Two separate components comprise the ARC, aircraft approach category and airplane design group. The aircraft approach category is an operational characteristic relating to the approach speed of an aircraft. Approach categories are based on a factor of 1.3 times aircraft stall speed in landing configuration at maximum certificated landing weight. Approach categories are represented by a letter designation, as depicted below:

The Airport Reference Code (ARC) is a coding system that coordinates airport design criteria with characteristics of the aircraft intended to operate at the airport.

Aircraft Approach Speed Categories	
Category A	Speed less than 91 knots
Category B	Speed 91 knots or more, but less than 121 knots
Category C	Speed 121 knots or more, but less than 141 knots
Category D	Speed 141 knots or more, but less than 166 knots
Category E	Speed 166 knots or more

Airplane design group is a physical characteristic defined by an aircraft's wingspan. While approach speeds only affect runway design, wingspan affects the design of taxiways, taxilanes, and aprons. The airplane design group is depicted by a Roman numeral, as described in the following table.

Airplane Design Group By Wingspan	
Group I	Up to, but not including 49 ft
Group II	49 ft up to, but not including 79 ft
Group III	79 ft up to, but not including 118 ft
Group IV	118 ft up to, but not including 171 ft
Group V	171 ft up to, but not including 214 ft
Group VI	214 ft up to, but not including 262 ft

5.2.2 Critical Aircraft

Determining the critical aircraft is instrumental in developing an airport's design criteria and determining the ARC. The critical aircraft of an airport is based primarily on the most demanding aircraft, with the highest approach speed and longest wingspan, which makes substantial use of the airport on a regular basis. FAA Order 5090.3C, Field Formation of the National Plan of Integrated Airport Systems (NPIAS), defines substantial use as scheduled commercial service or 500 or more annual itinerant aircraft operations.

The current critical aircraft for St. Petersburg-Clearwater International Airport (PIE) is the L1011-500, which requires an ARC of C-IV, small-hub, long-haul, primary commercial service airport. The future critical aircraft for PIE is the B747-200, which requires an ARC of D-V.

5.3 AIRSPACE CAPACITY

Airspace interaction is defined as the potential for conflicts among aircraft on approach or departure to other airports, and may require adjustment of operating procedures at the affected airports. Airspace and traffic patterns over the Tampa Bay area represent a very complex airspace structure due to the number of airports in close proximity to each other as well as the related volumes and mix of traffic.

PIE is directly affected by high performance aircraft from MacDill Air Force Base and Tampa International Airport (TPA) as well as several general aviation (GA) airports, all within a 20-nautical mile (nm) radius from PIE. Thus, the ability to safely and efficiently conduct and control aircraft activity in the region depends upon the extent of airspace compatibility and air traffic control between airports in the area.

Airspace capacity at an airport can be significantly impacted when the flight paths of air traffic at nearby airports, local navigational aids (NAVAIDs), and or special use airspace (SUA) interact to affect operations at the study airport. Additionally, obstructions near or in line with the approaches to an airport that require aircraft to alter flight paths can limit the number of aircraft processed, and thus, adversely affect airspace capacity. As a result, a review of the obstructions, airports, airspace, operations, and associated approach and departure procedures that surround PIE was completed to determine airspace capacity. **Figure 5-1** illustrates the overall airspace surrounding PIE, as depicted in the FAA Miami Sectional Aeronautical Chart, 70th Edition (March 2002).

5.3.1 Airspace Limitations

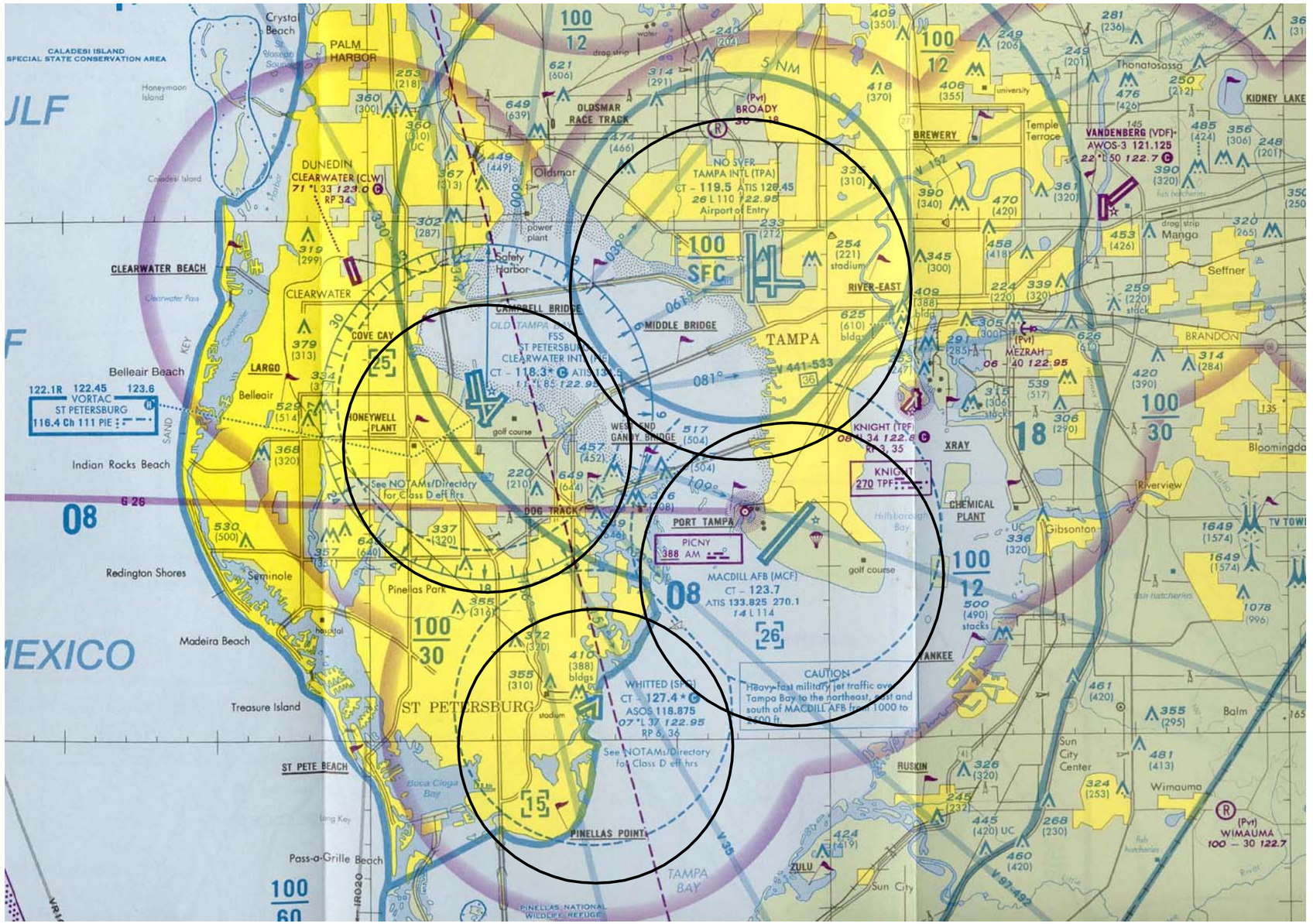
As discussed in Chapter 2, airspace in the St. Petersburg-Tampa Bay Area is controlled by regional and local air traffic control (ATC) and consists of Class B and D airspace at Tampa International Airport (TPA), Class D and Military Airspace at MacDill Air Force

Base (MCF), and extended Class C and D airspace at PIE. Aircraft en route to or departing any of these airports often use the same airway routes and/or NAVAIDs, and transverse the same areas at varying altitudes and speeds. The combined level of activity at TPA, MCF, and PIE requires enhanced coordination by ATC at all facilities to ensure safe and efficient flight operations. Still the proximity of these airports and levels of air traffic impacts airspace capacity at PIE.

A review of the flight paths to PIE, TPA, and MCF, as well as associated NAVAIDs, was completed to determine the level of impact that TPA and MCF have on the airspace capacity for PIE. Primary arrivals and departures to TPA use runways 18R-36L and 18L-36R, which are oriented to the north and south, with limited east-west arrivals and departures on 09-27. PIE's runway orientation is based upon its military heritage since two runways 17L-35R and 17R-35L are oriented in a north-south direction, while runways 09-27 and 04-22 are oriented in an east-west and northeast-southwest direction, respectively. MCF's runway is oriented in a northeast-southwest direction (Runway 04-22). Additionally, GA airports located within 20 nm of PIE include: Clearwater Airpark (CLW), Peter O'Knight (TPF), Albert Whitted Municipal (SPG), and Vandenberg (X16) Airports, have arrivals and departures flight tracks that are oriented primarily north-south and northeast-southwest.

Terminal instrument procedures (TERPS) are in place at all three airports (MCF, PIE, and TPA), and are northeast-southwest and north-south, and north-south respectively. A straight-in precision approach procedure is shown in **Figure 5-2** for all runways at PIE, TPA, and MCF that are equipped with an instrument landing system (ILS) based upon Department of Transportation Orders 8260-3B, *United States Standard for Terminal Instrument Procedures (TERPS)* and 8260-36A, *Civil Utilization of Microwave Landing System (MLS).*

A TERPS procedure consists of four segments: an initial approach, intermediate approach, final approach, and missed approach segment. The dimensions of these respective segments are based upon various instrument waypoints. These waypoints provide guidance to aircraft, operating under instrument flight rules (IFR), approaching the Airport.



Source: VFR Terminal Area Chart Tampa/Orlando, US DOT–FAA National Aeronautical Charting Office, September 2001

PBS&J		St. Petersburg - Clearwater International Airport	Tampa Bay Regional Airspace

Figure 5-1

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INITIAL APPROACH SEGMENT

INTERMEDIATE APPROACH SEGMENT

FINAL APPROACH SEGMENT

MISSED APPROACH FLIGHT PATH

GRAPHIC SCALE IN FEET

N

0 7,500 15,000 22,500

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PBSJ

St. Petersburg - Clearwater International Airport

Approaches and Departures of Tampa International, MacDill AFB, and St. Pete International

Figure 5-2

ILS approaches to airports are designated as Category I, II, or III. PIE and TPA are equipped with an ILS Category II on Runways 17L-35R and 18L-36R, respectively. A Category II ILS provides guidance information from the coverage limits of the ILS, to the point at which the localizer course line intersects the glide path, at a height of 50 feet above the horizontal plane containing the runway threshold. This Category II ILS supports landing minimums as low as 100 feet height above touchdown (HAT) and 1,200 feet runway visual range (RVR).

TPA and MCF are also equipped with Category III ILS on Runways 18R-36L and 4-22, respectively. Like the Category II ILS, the Category III ILS provides guidance information from the coverage limits of the ILS, with no decision height specified above the horizontal plane, containing the runway threshold. A category III ILS, depending upon if it is designated as a Category III A, B, or C operation, will require different runway visual ranges (RVR). Cat-III A and B require an RVR of greater than 700 feet and greater than 150 feet, respectively. CAT-III C requires an RVR without reliance on external visual reference.

Approaches to all airports utilize the TPA and PIE – very high omni-directional range (VOR) for en route, terminal area navigation and/or instrument approaches. In addition, aircraft transitioning to or from PIE must meet the designated equipment requirements in order to enter TPA's airspace, or must deviate around the airspace. **Figure 5-2** illustrates the TERPS for PIE, TPA, and MCF.

5.3.2 Military Airspace Limitations

The location of MCF, not only to PIE and TPA, but also to other public-use airports in the vicinity requires special ATC procedures in order to avoid any possible conflicts between high-speed military jet aircraft and commercial aircraft operations. Currently, heavy and fast military jet traffic operates from 1,000 to 2,500 feet in the northeastern, eastern, and southern regions of Tampa Bay.

Between 1100-2300 (0700-1900 local) universal time clock (UTC) daily, airspace that lies within the Tampa Class B Airspace will be delegated to MCF Air Traffic Control Tower (ATCT) for airport traffic control services, and thus, Class B Airspace services will not be provided within this portion of the Class B Airspace while this area is active. This airspace control will extend from 1,200 ft mean sea level (MSL) up to and including 1,600 ft MSL. Included are the areas south of a line located 1½ miles west of and parallel to MCF's Runway 04-22 extended runway centerline, within a 4.5 nm radius from the geographical center of MCF (*Airport/Facility Directory, Southeast US,* 13 June, 2002).

5.3.3 Instrument Approach Limitations

As discussed in Chapter 2, and further demonstrated above, the airspace surrounding PIE is constrained by the amount of approaches and departures associated with multiple airports. This limits the airspace available for additional instrument approaches to PIE, and ultimately, the number of aircraft that can be processed during peak periods. Additional instrument approaches to PIE on a north-south (Runway 17L-35R) and possibly northeast-southwest (Runway 04-22) alignment could be developed. North-south approaches and departures to 17L-35R follow the north-south approaches and departures of TPA's Runway 18-36. By following the same pattern, ATC maintains adequate separation between aircraft in the area by assigning specific altitudes.

Potential future instrument approaches to PIE would need to take into account current and potential operations at TPA and MCF. TPA is currently in the process of adding a

third north-south parallel runway to the airport infrastructure. Thus, instrument approach altitudes, airspace protection for holding and missed approach procedures, and adequate separation between approach procedures to the Airports are of utmost concern. Additionally, approaches to PIE and TPA would need to be coordinated to ensure safety by avoiding conflicts of aircraft on potential converging courses. Presently, TPA uses terminal radar approach control (TRACON) to control aircraft and monitor the 20 airports within the Tampa Bay region (Refer to **Figure 5-2**).

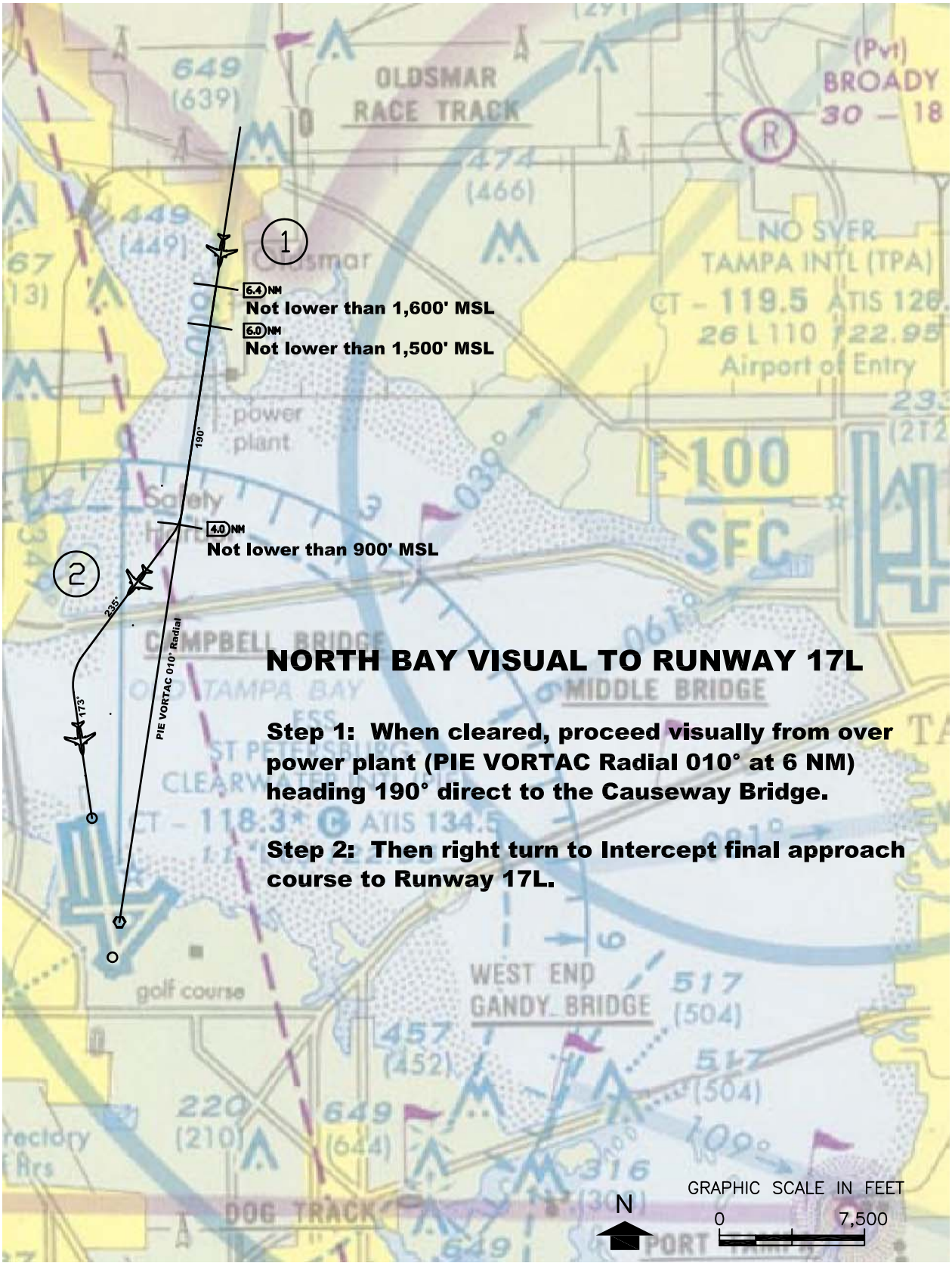
5.3.4 Noise Abatement Procedures

In heavily populated areas, noise abatement procedures are often required to mitigate the potential noise associated with aircraft operations at an airport. In the case of PIE, several noise abatement procedures are in place in order to limit the potential noise associated with turbojet and military aircraft. These procedures often require aircraft to follow set approach or departure paths and altitudes in order to avoid or limit potential overflight of populated communities.

Within the vicinity of PIE, there are the noise sensitive areas of Safety Harbor, Del Oro Groves, and Oldsmar, which are approximately five miles north and are in the area of the ILS outmarker (CAPOK). As a result, noise abatement approach procedures have been established to minimize noise exposure from approaches and departures to these noise sensitive areas. In addition, these established noise abatement procedures are extended to private and corporate jet aircraft on a voluntary basis.

The St. Pete Two approach, which is also used for Air Carrier turbojet aircraft having a certified gross weight of 60,000 lb or more, requires aircraft to follow the North Bay Visual Approach (Approach and Departure procedures, *U.S. Terminal Procedures, Southeast*, Volume 3 of 4, 13 June, 2002), weather permitting, in order to comply with the current noise abatement procedures. This approach path, which is restricted to daylight operations only, requires aircraft to proceed visually from over the power plant (PIE R-010 6 DME fix) on a heading of 190 degrees direct to the causeway bridge, then turning right to intercept the final approach course to Runway 17L (see **Figure 5-3)**. Furthermore, aircraft approaching from the south and southwest towards Runway 35R must maintain an altitude of 1,600 ft.

Currently, turbojets departing on either Runway 17L or Runway 35R are required to use the St. Pete Two Departure (**Figure 5-4**) in order to avoid noise sensitive areas to the north of the Airport. Takeoffs from Runway 35R requires turbojet aircraft to fly departure heading until 1.5 DME, then turn right to heading 030 degrees to intercept and fly outbound on the St. Petersburg R-010. All other aircraft fly runway heading or as assigned by ATC. For all departures, aircraft must maintain 1,600 feet and expect further clearance to the filed altitude ten minutes after departure. (*U.S. Terminal Procedures, Southeast,* Volume 3 of 4, November 1, 2001). It is important to note that PIE ATC tower's operating hours are from 6:00 a.m. to 11:00 p.m. However, PIE is operational 24-hours per day, including visual meteorological conditions (VMC) and instrument meteorological conditions (IMC) operations.



SOURCE: URS, 2002

PBS&J	St. Petersburg - Clearwater International Airport	North Bay Visual Approach to 17L	Figure 5-3

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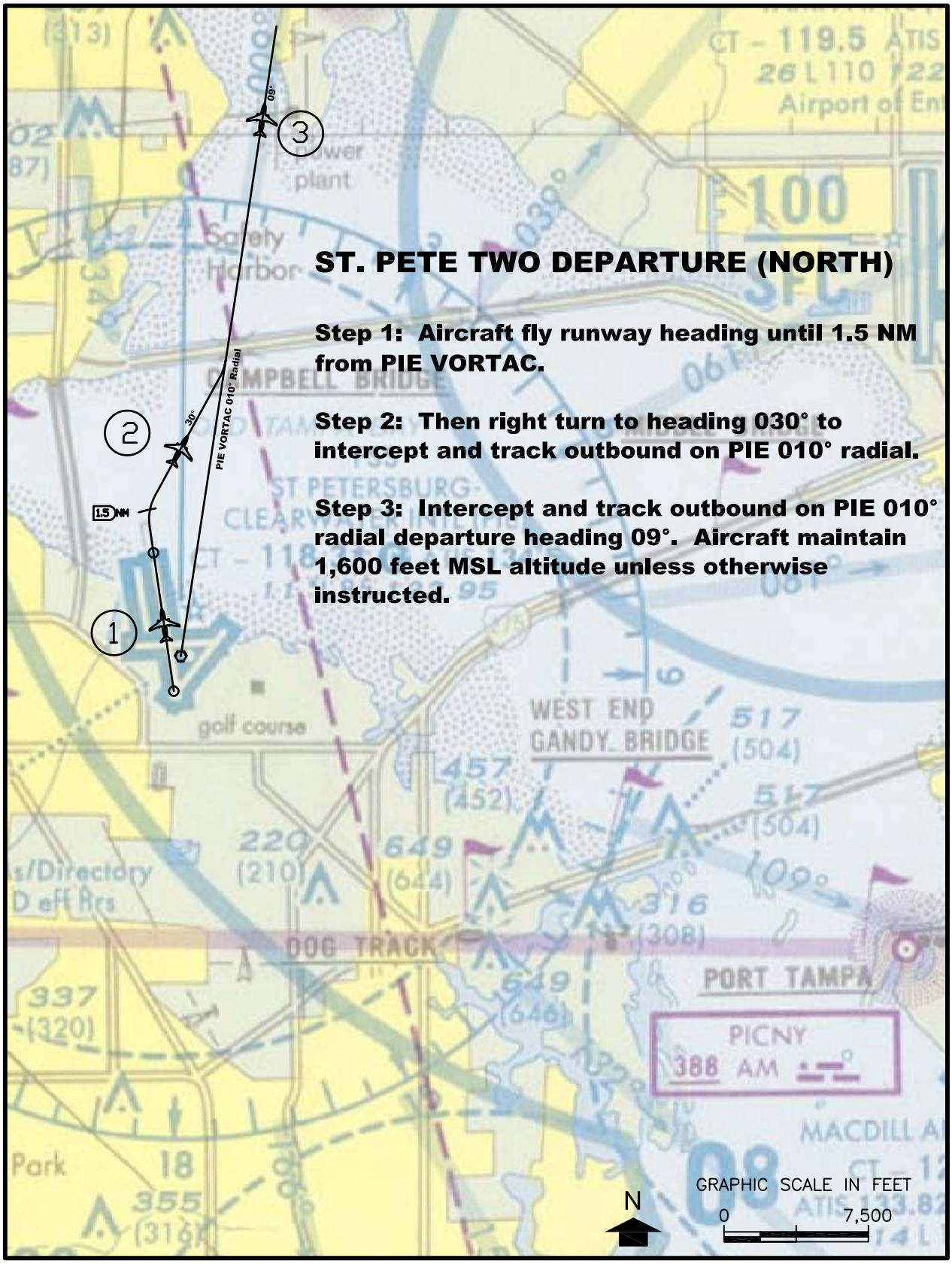

SOURCE: URS, 2002

PBS&J	St. Petersburg - Clearwater International Airport	St. Pete Two Departure North	Figure 5-4

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These procedures not only limit potential noise associated with aircraft operations, but also limit any potential conflicts associated with aircraft operations at MCF, TPA, or other airports in the area. By maintaining departure and approach paths that are similar to both TPA and MCF, airspace conflicts between aircraft are limited.

5.4 AIRSIDE CAPACITY

A demand and capacity analysis of airfield or airside systems and facilities includes calculating hourly capacities for visual flight rules (VFR) and IFR. Additionally, annual service volume (ASV), the total number of aircraft operations that may be accommodated at the airport without excessive delay, is also calculated. As defined by the FAA, ASV is a reasonable estimate of the Airport's annual capacity, accounting for the differences in runway use, aircraft mix, weather conditions, etc., encountered over a year's time. The parameters, assumptions, and calculations required for this analysis are included in the following sections.

5.4.1 Runway Orientation, Utilization, and Wind Coverage

PIE has four active runways. Runways 17L-35R and 17R-35L are oriented in a north-south alignment, and Runway 04-22 is oriented in a northeast-southwest configuration, while 09-27 is oriented in an east-west configuration. It is necessary to analyze the use and configuration of these runways, in conjunction with other variables, to determine the overall capacity of the airfield. By definition, capacity is a measure of the maximum number of aircraft operations, which can be accommodated on an airport or airport component in an hour as well as on an annual basis. In other words, airfield capacity is the sum of all operations, or a combination of total takeoff capacity and total landing capacity. Each operation is defined by wind direction, heading, available instrument approaches, noise abatement procedures, airspace restrictions, and other operating parameters. Since the capacity of an airport component is independent of the capacity of other airport components, it can be calculated separately.

Runway utilization is also dependent on weather and winds. The National Oceanic and Atmospheric Administration's (NOAA) National Climatic Data Center (NCDC) in Asheville, North Carolina provides statistical wind data to analyze runway use based on prevailing wind direction and overall weather conditions. The resulting runway utilizations will factor into the capacity calculations for the airfield in later sections. **Table 5-1** presents runway utilization in specific weather conditions at PIE. It is important to note that currently Runways 17L-35R and 4-22 are equipped to accommodate IFR conditions.

Table 5-1. Runway Utilization (2001)

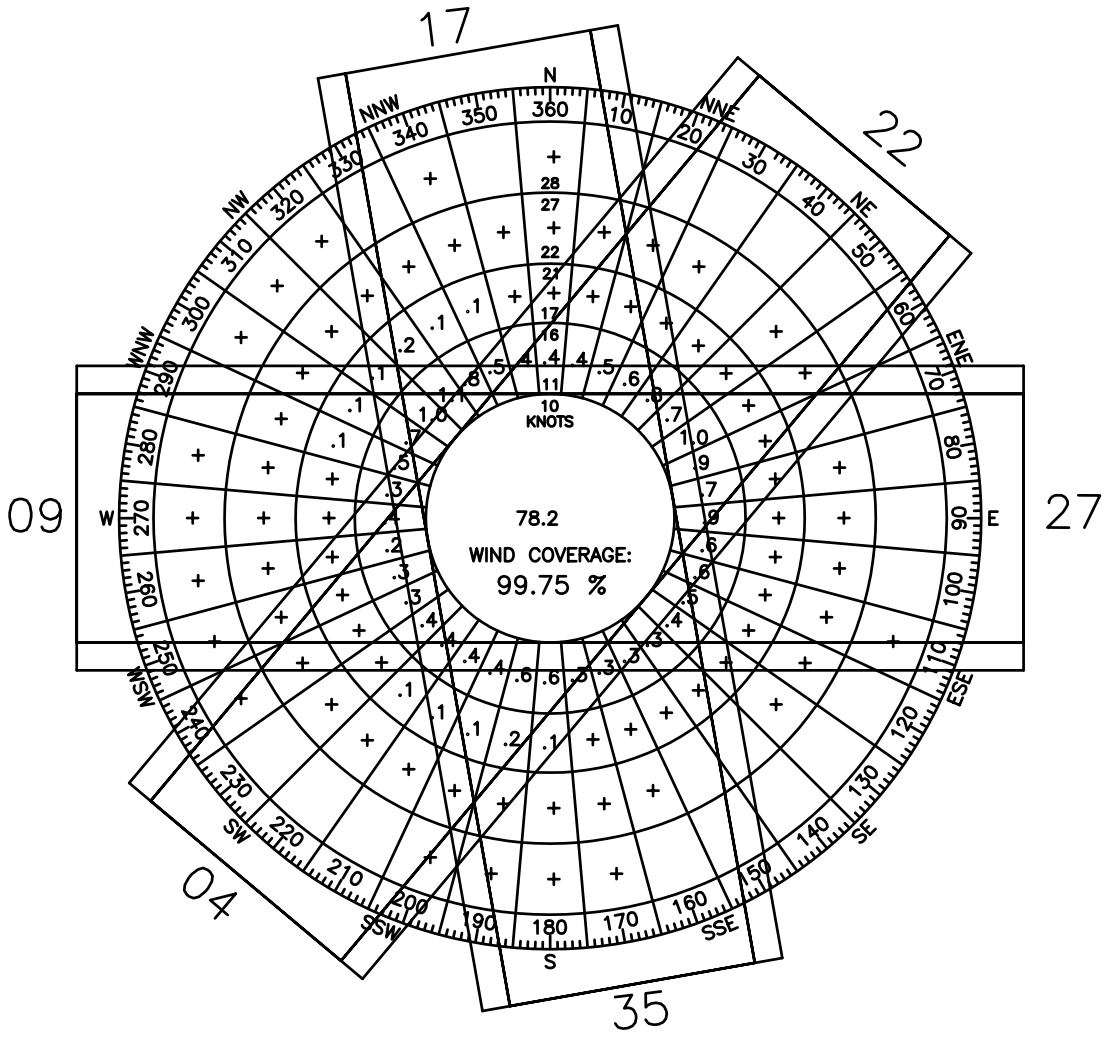
Runway	Average Day Operations	Annual Operations	VFR Conditions	IFR Conditions
17L	141	51,459	22.45%	35.00%
35R	267	97,571	42.57%	65.00%
17R	2	586	0.26%	0%
35L	8	2,939	1.28%	0%
04	65	23,627	10.31%	0%
22	58	21,074	9.19%	0%
09	80	29,283	12.78%	0%
27	7	2,676	1.17%	0%
	628	229,215	100.00%	100.00%

Source: URS, 2002, NOAA, NCDC, April 2002.

Wind coverage is the most important element in determining runway orientation. Runway orientation should dictate maximum operations into the wind. Accordingly, the FAA requires crosswind coverage of the airfield to be at least 95 percent. Using Version 4.2D of the FAA's *Airport Design for Microcomputers,* a wind analysis was completed to include all weather, VFR, IFR, CAT-I, and CAT-II conditions. Crosswind components of 10.5, 13, 16, and 20 knots were applied. Utilizing these assumptions, the all weather and IFR wind roses are depicted in **Figure 5-5 and 5-6**.

Crosswind coverage and maximum crosswind components are typically dependent on the size of aircraft using the runway. A crosswind component of 10.5 knots applies to FAA design Group A aircraft, 13 knots applies to Group B aircraft, 16 knots applies to Group C aircraft, and 20 knots applies to Group D and E aircraft. However, there is very little variation in the all weather analysis for 10.5 knots (99.75%) and 20 knots (100.0%). Since wind coverage is not a major concern for PIE, the most conservative approach using the factors associated with a 10.5 crosswind component were analyzed as aircraft in approach Category A are most susceptible to crosswinds. As mentioned, the analysis yielded a 99.75 percent wind coverage for all weather conditions, and 96.90 percent coverage for IFR conditions. Wind coverage during VFR conditions equals 99.76 percent. These percentages represent the coverage based on usage of all runways.

The primary runway, 17L-35R, hosts all categories of arriving and departing traffic including air carrier, GA, and military aircraft. However, GA is the dominant user. The traffic pattern for the runway is northbound the majority of the time, therefore Runway 35R is used most often. Parallel Runway 17R-35L hosts mostly military helicopter operations departing to the south and GA touch and go operations (T&Gs) departing to the north. Runway 04-22 is used almost exclusively for GA T&Gs, with a small percentage of military operations. The majority of traffic arriving and departing on Runway 09-27 is attributed to small GA aircraft, with a limited percentage of GA jets, turboprops, and military aircraft. **Table 5-2** provides a breakdown of air traffic specific to each individual runway for PIE. For example, **Table 5-1** showed that Runway 17L is used 23 percent of the time. **Table 5-2** further breaks down runway utilization by aircraft category. Therefore, it is clear that the traffic on Runway 17L is comprised of all aircraft categories, but the majority consists of GA piston aircraft.



Windrose shows winds at 10 and 13 knots.

ALL WEATHER WINDROSE

CROSSWIND COMPONENT	17-35	04-22	09-27	COMBINED
10.5 KNOTS (12 MPH)	90.32%	90.1%	91.01%	99.75%
13 KNOTS (15 MPH)	95.27%	94.72%	95.52%	99.95%
16 KNOTS (18 MPH)	99.23%	98.83%	98.87%	99.99%
20 KNOTS (23 MPH)	99.86%	99.77%	99.74%	100.0%

Source: National Oceanic and Atmospheric Administration, National Climatic Data Center

PBS&J

St. Petersburg - Clearwater International Airport

All Weather Windrose

Figure 5-5

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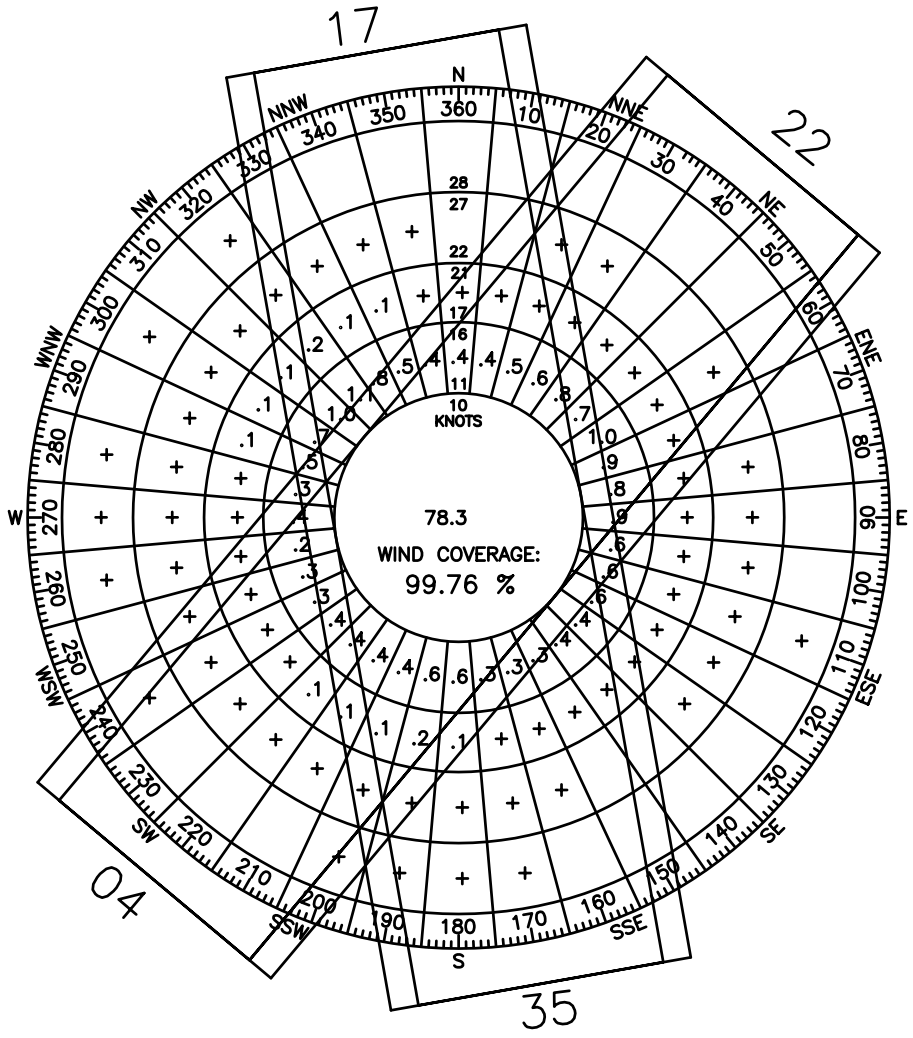

Windrose shows winds at 10 and 13 knots.

IFR WINDROSE

CROSSWIND COMPONENT	17-35	04-22	COMBINED
10.5 KNOTS (12 MPH)	90.31%	90.05%	96.90%
13 KNOTS (15 MPH)	95.29%	94.7%	98.90%
16 KNOTS (18 MPH)	99.28%	98.86%	99.68%
20 KNOTS (23 MPH)	99.89%	99.79%	99.93%

Source: National Oceanic and Atmospheric Administration, National Climatic Data Center

PBS&J	St. Petersburg - Clearwater International Airport	IFR Windrose	Figure 5-6

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Table 5-2. Air Traffic by Runway

Runway	17L	35R	17R	35L	4	22	9	27
Air Carrier	5.36%	4.61%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
GA Jet	5.75%	3.95%	0.00%	0.00%	0.00%	0.00%	2.30%	0.00%
GA Turbo	1.99%	1.63%	0.00%	0.00%	0.00%	0.00%	2.74%	0.00%
GA Piston	78.70%	66.95%	0.00%	0.00%	0.00%	0.00%	75.85%	97.66%
Military	1.34%	1.09%	100.00%	4.99%	0.64%	0.00%	7.87%	2.34%
T&G Piston	2.41%	19.71%	0.00%	95.01%	76.16%	85.39%	9.54%	0.00%
T&G Military	4.44%	2.05%	0.00%	0.00%	23.20%	14.61%	1.71%	0.00%
	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.01%	100.00%

Source: URS 2002, PBS&J, 2002

5.4.2 Airfield Capacity Parameters and Assumptions

Airfield capacity is calculated as defined by *FAA AC 150/5060-5 Airport Capacity and Delay.* This document provides detailed methods, parameters, and assumptions necessary for accurate computation. The airfield capacity is computed using varying runway configurations typical of U.S. airports. Airfield capacity calculations consider the highest level of runway utilization in accordance with current air traffic rules, procedures, and guidelines.

Because of the unique airfield configuration at PIE, capacity calculations were based on three different configurations. Runways 17L-35R and 04-22 were analyzed as a crossing formation and Runway 09-27 was analyzed as a single runway configuration. Additionally, based upon interviews with the PIE ATCT, Land and Hold Short Operations (LAHSO) are employed to maximize airfield utilization and capacity. LASHO operations are used to manage primarily GA and military operations as air carriers operating under FAR Part 121 and GA operators operating under FAR Part 135 are excluded from participating in LASHO. Depending upon wind and weather conditions, up to three runways can be employed utilizing LASHO. The optimum period the ATCT employs LASHO is when the winds are out of the east (25-30 percent of the year), allowing Runway 17L-35R, 4-22, and 9-27 to be employed simultaneously. Therefore, the airfield capacity analysis also included LASHO procedures.

As part of the capacity analysis Runway 17R-35L was excluded from the airfield capacity for several reasons. Since the separation of Runway 17L-35R and Runway 17R-35L is less than 700 feet, simultaneous approaches and departures are not permissible and the two runways are considered as one runway. In addition, the utilization and availability of Runway 17R-35L is limited as the runway is a component of Taxiway A, which limits the runway's availability when aircraft are taxiing on Taxiway A.

5.4.2.1 Aircraft Mix Index

When analyzing demand versus capacity, the FAA classifies an aircraft based on size, weight, and performance (A, B, C, or D), as illustrated by **Table 5-3**. Evaluating the percentage of operations associated with each aircraft class derives an Airport's fleet mix. The fleet mix is then used to calculate the mix index, which is also significant to the computation of airfield capacity. The mix index is a mathematical expression representing the percent of Class C aircraft plus three times the percent of Class D aircraft, or %C + 3D.

Table 5-3. FAA Demand/Capacity Aircraft Classifications

Aircraft Class	Max Certified Takeoff Weight (lbs)	Number of Engines	Wake Turbulence Classification
A	Under 12,500	Single	Small (S)
B		Multi	
C	12,500 to 300,000	Multi	Large (L)
D	Over 300,000	Multi	Heavy (H)

Source: FAA AC 150/5060-5 Airport Capacity and Delay

In 2001, the facilities at PIE accommodate aircraft within each of the four categories. The majority of aircraft fall within the A and B category, while categories C and D account for the remaining aircraft. For the purpose of airfield capacity calculations, the mix index percent (C + 3D) is 10.4 percent. In addition, the fleet mix for the years 2002, 2007, 2012, 2017, and 2022 were predicted and mix indices were calculated accordingly. Mix indices will be used to determine the ratio of demand to total capacity for each year and reported in a later section. **Table 5-4** identifies existing and projected fleet mix and mix indices relating to airfield capacity calculations.

Table 5-4. Fleet Mix and Mix Index

Classification	2001 Ops (%)	2002 Ops (%)	2007 Ops (%)	2012 Ops (%)	2017 Ops (%)	2022 Ops (%)
A & B	89.8%	89.8%	89.50%	89.58%	89.16%	88.85%
C	10.1%	10.1%	10.36%	10.28%	10.66%	10.96%
D	0.1%	0.1%	0.14%	0.15%	0.18%	0.22%
Mix Index	**10.40%**	**10.40%**	**10.78%**	**10.71%**	**11.19%**	**11.62%**

Sources: URS 2002, PBSJ, 2002, Air Nav, and PIE Airline Schedules (March 2000-2002), PIE Landing Reports, and FAA ATCT data.

It was necessary to specify mix indices of all possible runway configurations for VFR and IFR, as suggested in the previous section. Since all C and D category aircraft operating at PIE use Runway 17L-35R or 04-22, it is safe to assume the mix index is equal to 10.4 percent for VFR operations and 32 percent for IFR operations on Runway 17L in the crossing configuration. Runway utilization data shows limited operations of C and D category aircraft in the single configuration of 09-27. The mix index for the latter configuration is 6.9 percent for VFR and 0 percent for IFR. The mix index for the three-runway configuration using LAHSO is 10.4 percent for VFR operations and 0 percent for IFR operations.

It should be noted that the mix index for IFR conditions is only applied to runways with precision ILS approach capabilities (Runway 17L). Therefore, the IFR mix index for all runway capacity configurations that do not include Runway 17L is considered 0.0 percent. Additionally, LAHSO operations cannot be used during periods of IFR weather, thus the mix index for the three-runway LAHSO configuration is also considered to be 0.0 percent.

5.4.2.2 Percent Arrivals

The percent of arrivals component represents the ratio of arriving aircraft to the total number of operations. It is generally common that total annual arrivals equal total annual departures and average daily arrivals equal average daily departures. Therefore, a factor of 50 percent arrivals was used in the capacity analysis.

5.4.2.3 Percent Touch and Go

A T&G occurs when an aircraft takes off immediately after it lands and is usually associated with flight training activity. The percentage of T&Gs is the ratio of T&Gs to the total number of annual aircraft operations. Typically, an airport's number of T&G operations will decrease as air carrier operations increase or as weather conditions deteriorate. It is also common for T&G operations to decrease as the demand for service approaches runway capacity. In most cases T&G operations can vary zero to 50 percent of total operations.

The majority of T&G operations are attributed to GA, with 62,050 operations recorded in 2001.

The majority of T&G operations are attributed to GA, with 62,050 operations recorded in 2001. Military fixed-wing aircraft and rotorcraft also conduct T&G operations, with over 13,300 recorded in 2001. As seen in **Table 5-5**, the annual T&G percentage for the Airport is calculated to be 32.9 percent. The T&G factors were also calculated for the three runway configurations. The crossing configuration consisting of 17L-35R and 04-22 has a T&G percentage of 33, and T&G factors of 1.26 for VFR and 1.00 for IFR. The single runway configuration, consisting of 09-27, has a T&G percentage of 33, and T&G factors of 1.31 for VFR and 1.00 for IFR. The three-runway configuration utilizing LAHSO has a T&G percentage of 33, and T&G factors of 1.31 for VFR and 1.00 for IFR.

It should be noted that LAHSO operations are not conducted during times of IFR conditions. Therefore, though the T&G factor for IFR operations in the three-runway LAHSO configuration is presented as 1.0, it is later discounted in the capacity calculation to present actual operational activity. This results in no T&G or other LAHSO associated operations during IFR conditions.

Table 5-5. Percent Touch and Go Operations

Category	Annual Ops	Touch & Gos	Total Ops
Air Carrier	7,262		7,262
GA Jet	7,486		7,486
GA Turbojet	3,416		3,416
GA Prop	13,0647		130,647
GA T&G		62,050	62,050
Military C130	1,868		1,868
Military UH60	3,136		3,136
Military T&G C130		3,338	3,338
Military T&G UH60		1,452	1,452
Military T&G UH60 on RW4/22		8,562	8,561
	153,814	75,401	229,215
% T&G		**32.90%**	

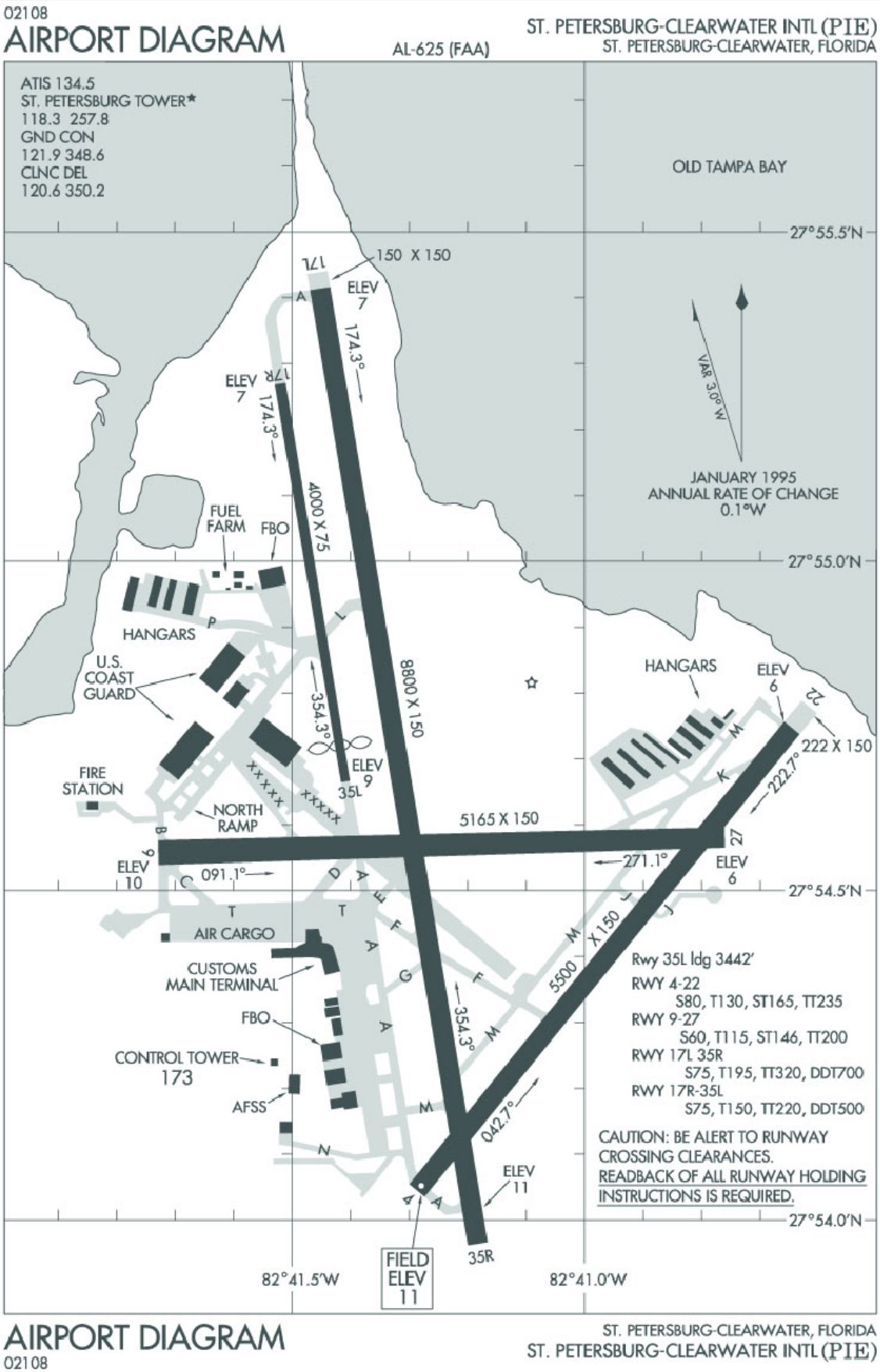
Source: FAA AC 150/5060-5 Airport Capacity and Delay; URS 2002

5.4.2.4 Taxiway Factors

An essential element of an airfield capacity is its location of taxiway entrance and exit locations. Airfield capacity can be enhanced when full-length, parallel taxiways are available with ample entrance and exit taxiways. Runway capacity is negatively impacted when there are numerous taxiway and runway crossings as is typical at PIE. The criteria for taxiway exit factors are derived from the mix index and the distance the taxiways are from the runway thresholds. PIE taxiway factors were calculated for the crossing and single runway configurations. The maximum taxiway exit factor for either VFR or IFR operations is 1.0. **Figure 5-7** illustrates the existing taxiway system at PIE.

According to *FAA AC 150/5060-5 Airport Capacity and Delay*, if the mix index for the crossing configuration is 10.4 percent, only entrance/exit taxiways spaced at least 750 feet apart and 2,000 to 4,000 ft from a runway's threshold, contribute to the taxiway factor calculation. Based on these standards, two taxiways (Taxiway F and L) fall within the published limits producing a taxiway factor of 0.93 for VFR operations and 1.0 for IFR operations.

In the single runway configuration, the mix index is 6.9 percent, so again the entrance/exit taxiways 750 feet apart and spaced 2,000 to 4,000 ft from the runway's threshold applies to the taxiway factor calculation. Therefore, one taxiway (Taxiway E) was identified for this configuration as well. The taxiway exit factor for the single runway configuration is 0.86 for VFR operations and 0.95 for IFR operations. In the optimum LASHO three-runway configuration, the mix index is 10.4 percent. Again the entrance/exit taxiways 750 feet apart and spaced 2,000 to 4,000 ft from the threshold apply to the calculation. Therefore, one taxiway (Taxiway F) was identified for this configuration. The taxiway exit factor for the single runway configuration is 0.86 for VFR operations and 0.98 for IFR operations.



Source: The Federal Aviation Administration (FAA), National Aeronautical Charting Office (NACO), May 15, 2003

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PBS&J	St. Petersburg - Clearwater International Airport	St. Pete-Clearwater International Taxiway System	Figure 5-7

Regardless of the airfield configuration employed there are deficiencies in the existing taxiway system. Future improvements to the runway and taxiway configuration at PIE will be necessary to increase airfield capacity. Thus, an additional capacity scenario will illustrate the benefits of improving the existing taxiway system to a taxiway exit factor of 1.0, where at least four taxiways contribute to airfield capacity. Further suggestions for taxiway system improvements and enhancements will be evaluated in the Alternatives section.

5.4.2.5 General Airspace Limitations

As discussed in Section 5.2 Airspace Capacity, airspace surrounding PIE is somewhat constrained due to the close proximity of TPA, MCF, and several GA airports in the general vicinity. This level of activity and general congestion has specific impacts on the airspace in the area, and overall capacity of the Airport.

The airspace capacity limiting factors that have been identified at PIE include potential restriction on the airspace available for additional instrument approach procedures. Due to ILS approaches at PIE, TPA, and MCF, it is concluded that an instrument approach procedure to Runway 9-27 at PIE would incur potential conflicts with either TPA or MCF operations. Even VFR traffic patterns to Runway 9-27 are limited due to airspace constraints with TPA and MCF. The airspace and overall approach requirements for ILS and other instrument approaches are significant, and the addition of an east-west approach could increase ATC workload as well as the potential for hazardous operations. Furthermore, such an approach would require strict noise mitigation procedures since the approach and departure paths would be over significantly populated areas.

Although the airspace surrounding PIE is somewhat constrained by the number of aircraft operations, noise abatement procedures and instrument approach procedures, it is not completely limited by airspace restrictions. Increases in aircraft operations at PIE will not exceed the airspace capacity in its existing configuration. Continued coordination between ATC at the airports in the region will ensure that safe and efficient operations continue, while maintaining the smallest amount of delay possible.

5.4.2.6 Runway Instrumentation

Capacity calculations for PIE include data for all four runways subdivided into two separate categories. Runways 17L-35R and 04-22 are analyzed as a crossing formation and Runway 09-27 is analyzed as a single runway formation. The primary runway (17L-35R) is equipped with a CAT-I ILS precision approach (currently being upgraded to CAT–II capability) to Runway 17L, in addition to GPS, VOR, and NDB approaches. Approaches to Runway 35R include GPS, VOR, and localizer back course (LOC-BC), and the runway is currently being upgraded to CAT-I ILS capability. There is a VOR, approach to Runway 04 as well. Additionally, ATC facilities, equipment, and services are adequate for operating a radar environment.

5.4.2.7 Weather Influences

An IFR condition exists when either of the following situations occurs:

- Cloud ceiling is less than 1,000 ft above ground level (AGL).
- Visibility is equal to ½ mile, but less than 3 miles.

Weather data obtained from the NCDC identified that VFR conditions at PIE occur approximately 95.1 percent of the time, while IFR conditions occur 4.2 percent of the time. CAT-I approaches are required approximately 0.2 percent of the time and CAT-II approaches are required approximately 0.3 percent of the time. The Airport is only considered closed approximately 0.2 percent of the time. The ILS approach to Runway 17L is capable of a Category I Approach, which allows IFR landings when ceilings are as low as 200 ft AGL and visibility is between ½ and ¾ mile. The Airport is considered closed to landing aircraft in IFR conditions when cloud ceiling or visibility is below 200 ft and/or less than 1/2 mile. When the CAT II approach to 17L becomes operational in 2004, ILS approaches minimums will be reduced to ceilings less than 200 feet and visibilities less than one half mile.

5.4.3 Airfield Capacity Calculations

Based on *FAA AC 150/5060-5 Airport Capacity and Delay,* this section calculates VFR and IFR hourly capacities as well as determines annual service volume.

5.4.3.1 Hourly VFR Capacity

The hourly VFR capacity calculation for PIE is based on data from each of the runway configurations, described previously, crossing, single and LASHO. FAA AC 150/5060-5 *Airport Capacity and Delay* formula for VFR hourly capacity multiplies hourly capacity base (C*), T&G factor (T), and the taxiway exit factor (E) to get the hourly VFR capacity for each component. Hourly capacity is derived from the aircraft mix index and the percent arrivals. The T&G factor is derived from the aircraft mix index and the percent T&G. Taxiway exit factor is derived from the aircraft mix index, percent arrivals, and the distance and spacing of taxiways from the threshold of the runway.

For the crossing runway configuration, the hourly VFR capacity currently equals 127 operations, using the following data:

C* x T x E = Hourly VFR Capacity

108 x 1.26 x .93 = 126.55 or 127

The single runway configuration is calculated identically. For this component, the hourly VFR capacity currently equals 110 operations, using the following information:

C* x T x E = Hourly VFR Capacity

98.00 x 1.31 x .86 = 110.41 or 110

Considering the three-runway configuration utilizing LAHSO, the hourly VFR capacity currently equals 194 operations, using the following information:

C* x T x E = Hourly VFR Capacity

172 x 1.31 x .86 = 193.78 or 194

5.4.3.2 Hourly IFR Capacity

Hourly IFR Capacity is also calculated for each of the runway configurations. However, it is important to note that the only ILS approach currently available is the CAT-I ILS approach to Runway 17L which is included in the crossing configuration. Thus, the crossing configuration is represented as a single runway for the purposes of calculating hourly IFR capacity. Therefore, the actual capacity of the crossing configuration is currently 57 operations an hour, as shown in the following calculation:

C* x T x E = Hourly IFR Capacity

60 x 1.00 x 0.95 = 57.00

Currently, total hourly IFR capacity for the single runway configuration (Runway 9-27) is zero.

IFR hourly capacity for the three-runway configuration using LAHSO is also zero since LAHSO operations cannot be conducted during IFR conditions.

The hourly VFR and IFR capacities determined above will be used to calculate the ASV for PIE.

5.4.3.3 Annual Service Volume

ASV is the estimation of an airport's annual capacity. ASV is dependent on differences in runway use, aircraft mix, weather conditions, etc., that would be encountered over a year's time. ASV is based on the parameters and assumptions presented in section 6.4.2, and the hourly capacities for the three runway configurations. Guidance for conducting this estimation is provided by FAA AC 150/5060-5 *Airport Capacity and Delay.*

The ASV calculation is representative of the existing airfield capacity in its current configuration (2001). The equation for calculating ASV is:

Cw x D x H

Cw equals weighted hourly capacity, D equals annual demand divided by daily demand, and H equals daily demand divided by hourly demand. To calculate the Cw, the percent of time each runway-use configuration is utilized, the runway-use that provides maximum capacity, and the ASV weighting factor for each runway configuration are all determined. These factors, along with the hourly capacity factors calculated previously, are entered into a formula to generate the Cw. For PIE, Cw is equal to 120 operations.

D is simply the ratio of annual demand to average daily demand of the peak month. D for PIE is equal to a ratio of 382 operations per day.

H is the ratio of average daily demand to average peak hour demand during the peak month. H for PIE is equal to a ratio of 5 operations per hour.

With these components in place, the ASV for PIE is calculated as 231,552 operations per year.

$$Cw \times D \times H = ASV$$

$$120 \times 382 \times 5 = 231,552$$

According to the FAA, the following guidelines determine the phased needs as demand reaches certain levels of capacity:

- 60% of ASV: Planning for capacity improvements should begin.
- 80% of ASV: Planning for improvements should be complete and construction should begin.
- 100% of ASV: Demand has reached maximum capacity and delays are inevitable.

As presented in the Chapter 4, Aviation Demand, annual operations for 2001, the base year of this study, were 231,283. This total is approximately 99.9 percent of the calculated ASV of 231,552 operations. Therefore, in accordance with FAA guidelines, PIE has reached maximum capacity and needs to initiate immediate plans for capacity-enhancing improvements. Delays are already experienced by the ATCT on a regular basis and the ATCT compensates for the less than ideal configuration with LAHSO when able. **Table 5-6** and **Figure 5-8** illustrate the aviation demand forecast for PIE and its relationship to the Airport's ASV. It is important to note that major changes must be made to the current runway and taxiway system to gain capacity to meet current and increasing demands. Immediate improvements include an additional runway and improvements to the taxiway system. Section 7, Alternative Analysis will explore possible capacity enhancement improvements.

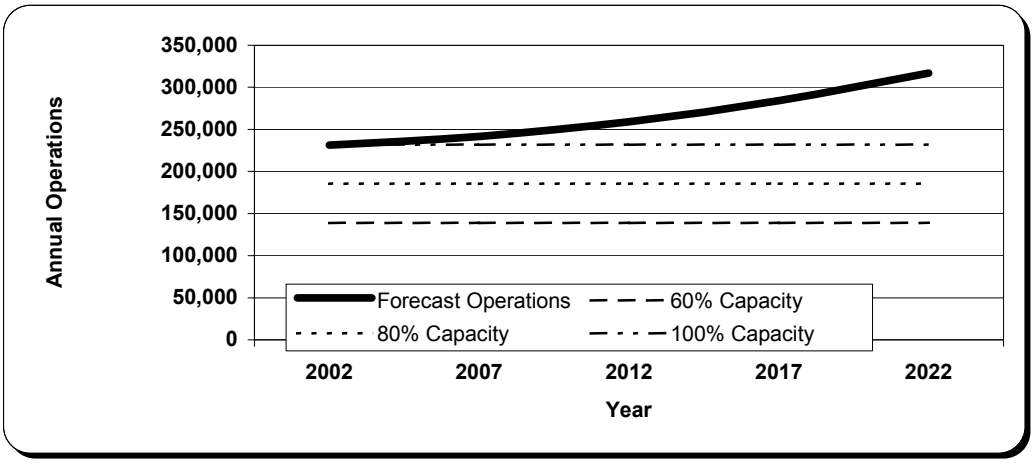
It is important to note that major changes must be made to the current runway and taxiway system to gain capacity to meet increasing demands.

Table 5-6. ASV vs. Demand

Year	Mix Index	Operations	ASV	DEM-CAP Ratio
2002	10.4%	231,283	231,552	99.9%
2007	10.8%	241,634	231,552	104.4%
2012	10.7%	259,076	231,552	111.9%
2017	11.2%	284,138	231,552	122.7%
2022	11.6%	316,963	231,552	136.9%

Source: PBS&J, 2002

Figure 5-8. ASV vs. Demand



Source: PBS&J, 2002

5.5 LANDSIDE CAPACITY

The ability of an airport to provide efficient landside facilities is essential to the success of the airport, and is especially important for the public who utilize the Airport. This section focuses on landside facilities including the terminal building, automobile parking, ground access, industrial park, and other facilities. The following sections will identify the capacity of each facility and the capability to meet the projected demand, as suggested by Chapter 4 - Aviation Activity Forecast. The demand-capacity analysis for landside facilities will also identify surpluses and deficiencies to reveal where facility improvements may be necessary.

5.5.1 Terminal Building Renovation and Expansion

The passenger terminal at PIE is the interface between ground and air transportation. The Airport, and primarily the terminal building serve as the gateway to the community and form the visitor's first impression of the community. As such, the primary purpose of the terminal is to provide for the safe, efficient, and comfortable transfer of passengers and their baggage to and from aircraft and ground transportation. To accomplish this, essential elements such as ticketing, passenger processing, baggage handling, and security inspections are required. These are supported by food service, car rental, gift shops, rest rooms, airport management and other ancillary facilities.

The planning and design of the terminal renovations and expansions are intended to ensure the primary circulation and functional flow relationships are improved, and, where necessary, revised accordingly.

5.5.1.1 Terminal Apron

Commercial terminal apron space is comprised of the number of gate positions for aircraft parking and the size of aircraft utilizing the positions. Currently, PIE has 14 domestic and international gates in the terminal apron area. The terminal apron area is approximately 41,556 sq yd. As commercial operations and demand for gates and aircraft parking positions increase, additional terminal apron will likely be required. In Chapter 6, Facility Requirements, terminal apron area will be calculated based on the forecast peak hour operations, average parking position occupancy time, and aircraft arrival/departure rates. Total area required, including specific number of gates and

aircraft parking positions, will be determined for the 20-year planning period. Improvements will be suggested in Chapter 7 - Alternatives Analysis.

5.5.1.2 Demand/Capacity Analysis and Terminal Building Requirements

Detailed descriptions of historical aviation activity and forecasts of future demand were determined in Chapter 4. The capacity and adequacy of the existing terminal facilities were compared to the future passenger demands that determined the recommendations contained herein for revisions, expansions, or additions to the airport terminal facilities.

Capacity requirements were calculated for essentially all aspects of the terminal area at PIE. These calculations, based on various forecast components, should be regarded as generalized planning tools that assume attainment of forecast levels. Should the forecast prove conservative, proposed developments should be advanced in the development schedule. Likewise, if traffic growth materializes at a slower rate than forecast, deferral of expansion would be prudent.

5.5.1.3 Existing Terminal Conditions

The majority of operations are conducted in the main terminal building that operates continuously throughout the year. This building is a two-level structure and is approximately 143,980 square feet in area. Due to its layout, some areas of the terminal are not useable for passenger services. These areas are unused or leased to non-aviation tenants. The first floor (122,051 sq ft) accommodates five airlines; four rental car agencies; concession areas; 14 gates; two TSA security-screening areas; U.S. Customs; duty-free shop; two concessionaires, including a gift shop and a newsstand; Pinellas County sheriff's offices; and restrooms. The second level (22,819 sq ft) is used exclusively for airport administration offices, non-aviation offices, conference rooms, and a restaurant. With the exception of the baggage claim, the terminal building was not design to provide second level aircraft boarding.

Current space utilization of the terminal building is inefficient for the processing of passengers and maximization of revenue generation. Every effort must be made to provide a simplified, efficient, and unobstructed flow of passengers, baggage, vehicles, aircraft, etc., in and about the terminal building and support areas. The existing layout of the terminal is not an example of such a functional flow design. The primary terminal functions and ancillary activities were located over time without respect to the functional relationships necessary for terminals to operate efficiently. For example, security should be consolidated to one area of the terminal. This is an especially critical aspect for consideration since the events of September 11, 2001 and the increase security screening requirements. Similarly, domestic aircraft boarding gates are located throughout the building on either side of the international arrivals area (U.S. Customs) rather than being consolidated so that several gates could be served by a common hold-room(s). Furthermore, a large area of terminal space (former bag claim area) is used essentially as a TV lounge. This existing layout leads to inefficiencies for the Airport, passengers, and tenants, as well as confusion and longer walks for passengers as they

enter and depart the terminal. **Figures 5-9** and **5-10** show circulation and functional relationships recommended for commercial service terminal buildings. **Figure 5-11** shows an example of a nonfunctional terminal layout. **Figures 5-12 and 5-13** are the layout of the existing first and second floors, respectively, of terminal building at PIE. **Figure 5-12** has some similarities to **Figure 5-11** in regards to deficiencies in layout and function.

5.5.1.4 Evaluation of the Existing Passenger Terminal

The existing terminal building is the result of a series of additions that have created a linear terminal that has 860 feet of frontage. The building has four major sections, separated from each other by four-hour and three-hour firewalls.

Going from west to east, the first area is the new baggage claim addition that was completed in 2000. It is Type II protected construction and has fire sprinklers. The second area is the Wick Wing. It was completed in 1958, is Type IV unprotected construction, and does not have fire sprinklers. There is a small addition at the rear of the Wick Wing that was completed in 1983 that is of the same construction type. The third area is the former baggage claim area, which was completed in 1984, and is the same construction type as the Wick Wing. The fourth area is the original airport terminal, which is of Type II protected construction with fire sprinklers. It has had several renovations and additions, including Federal Inspection Services (F.I.S.) in 1989, additional departure lounges in 1985 and additional ticketing and airline offices in 1995. An enclosed walkway was added to the front of the terminal in 1995 to provide for sufficient circulation between the various parts of the terminal and to provide a unified modern appearance. Development of the terminal through renovation of existing areas or expansion through additions has required negotiation with the Pinellas County Building Department to maintain an acceptable level of life safety and protection of building elements.

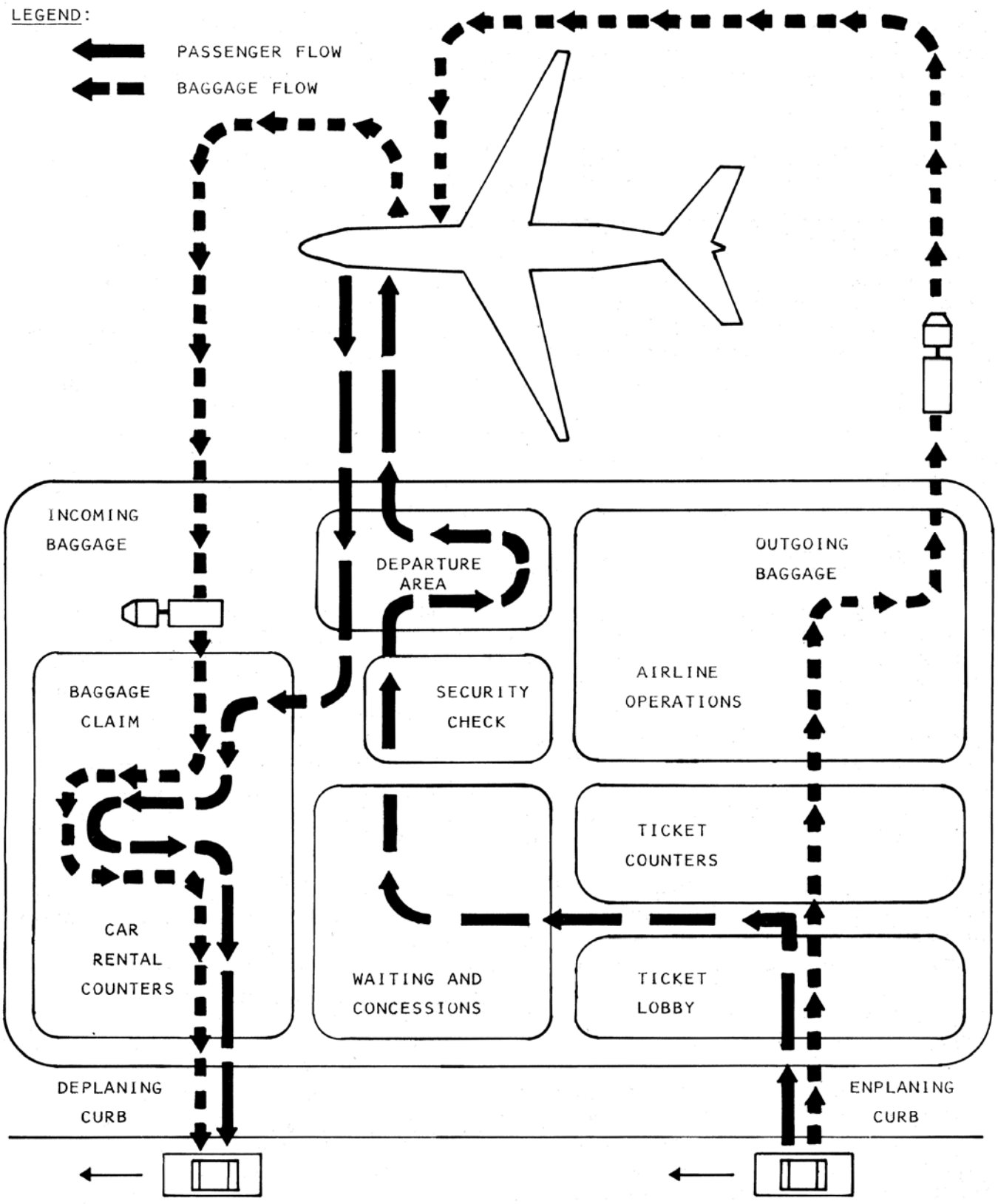
Roof-mounted package units provide heating, ventilation, and air-conditioning (HVAC).

Floor to floor access is provided by two elevators, each serving separate second floor areas, four exterior fire stairs, and one interior stair.

5.5.1.5 General Terminal Building Sizing Criteria

The terminal building and support area will be the element of the Airport most affected by future passenger activity increases. Various planning parameters were analyzed to determine the need for renovation and expansion.

The primary facilities that serve scheduled commercial passengers at PIE include the passenger terminal building and the aircraft-parking apron. Individual terminal area facilities are examined in terms of their general spatial requirements to accommodate the future forecasted passenger and aircraft activity levels. Alteration of these facilities may be necessary to meet specific forecast levels.



Source: Federal Aviation Administration,
Advisory Circular 150/5360-9 Dated: 4/4/80

PBS&J	St. Petersburg - Clearwater International Airport	Terminal Circulation	Figure 5-9

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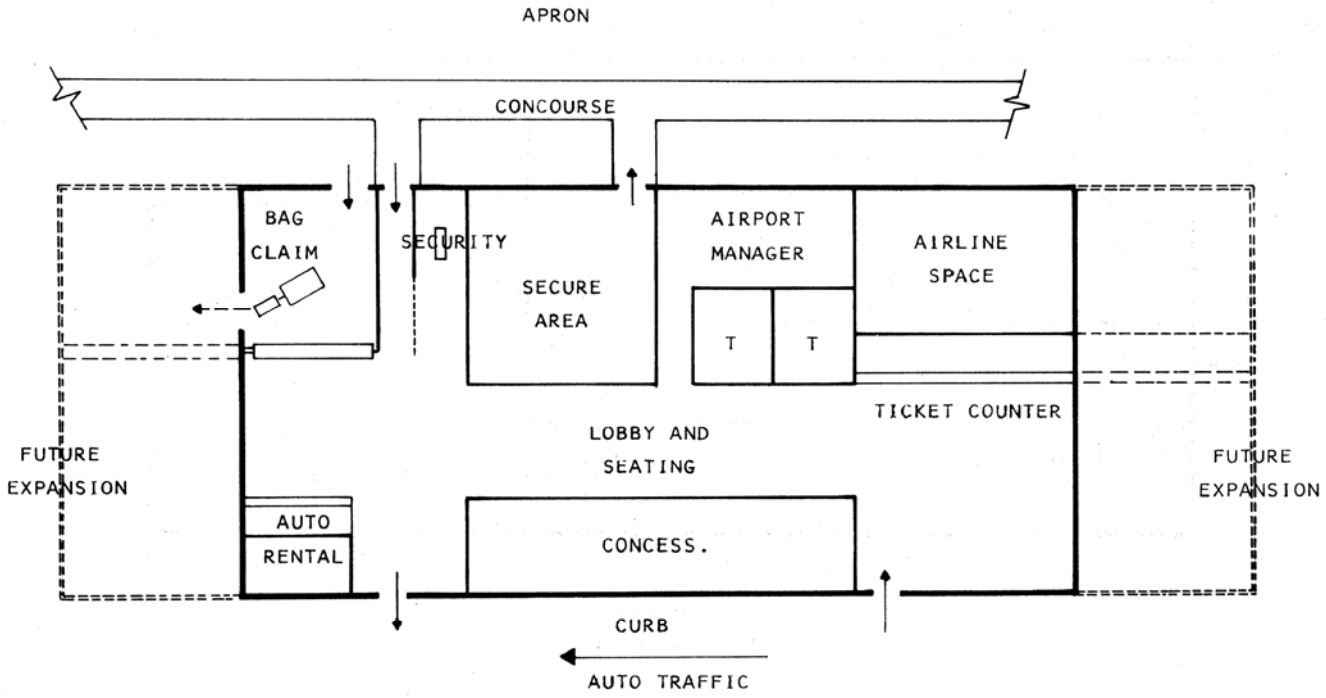

Source: Federal Aviation Administration,
Advisory Circular 150/5360-9 Dated: 4/4/80

PBS&J	St. Petersburg - Clearwater International Airport	Functional Terminal Layout	Figure 5-10

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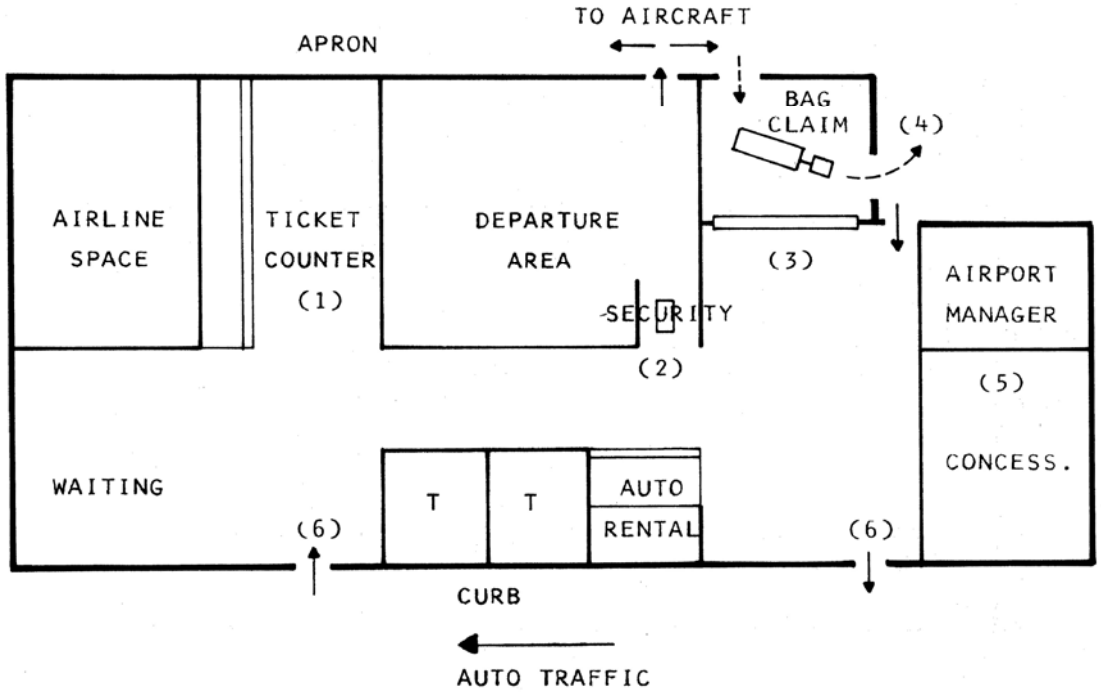

(1) TICKET COUNTER EXPANSION REQUIRES REORIENTATION AND MAJOR RECONSTRUCTION

(2) QUEUES AT SECURITY CLEARANCE BLOCK CIRCULATION

(3) BAGGAGE CLAIM EXPANSION RESTRICTED

(4) CROSS TRAFFIC - BAG CARTS AND PEDESTRIANS

(5) **OFFICE AND CONCESSIONS BLOCK** LOGICAL BUILDING EXPANSION

(6) BUILDING FUNCTIONS IN WRONG SEQUENCE TO MATCH ARRIVING AND DEPARTING VEHICLES

Source: Federal Aviation Administration, Advisory Circular 150/5360-9 Dated: 4/4/80

PBS&J	St. Petersburg - Clearwater International Airport	Dysfunctional Terminal Layout	Figure 5-11

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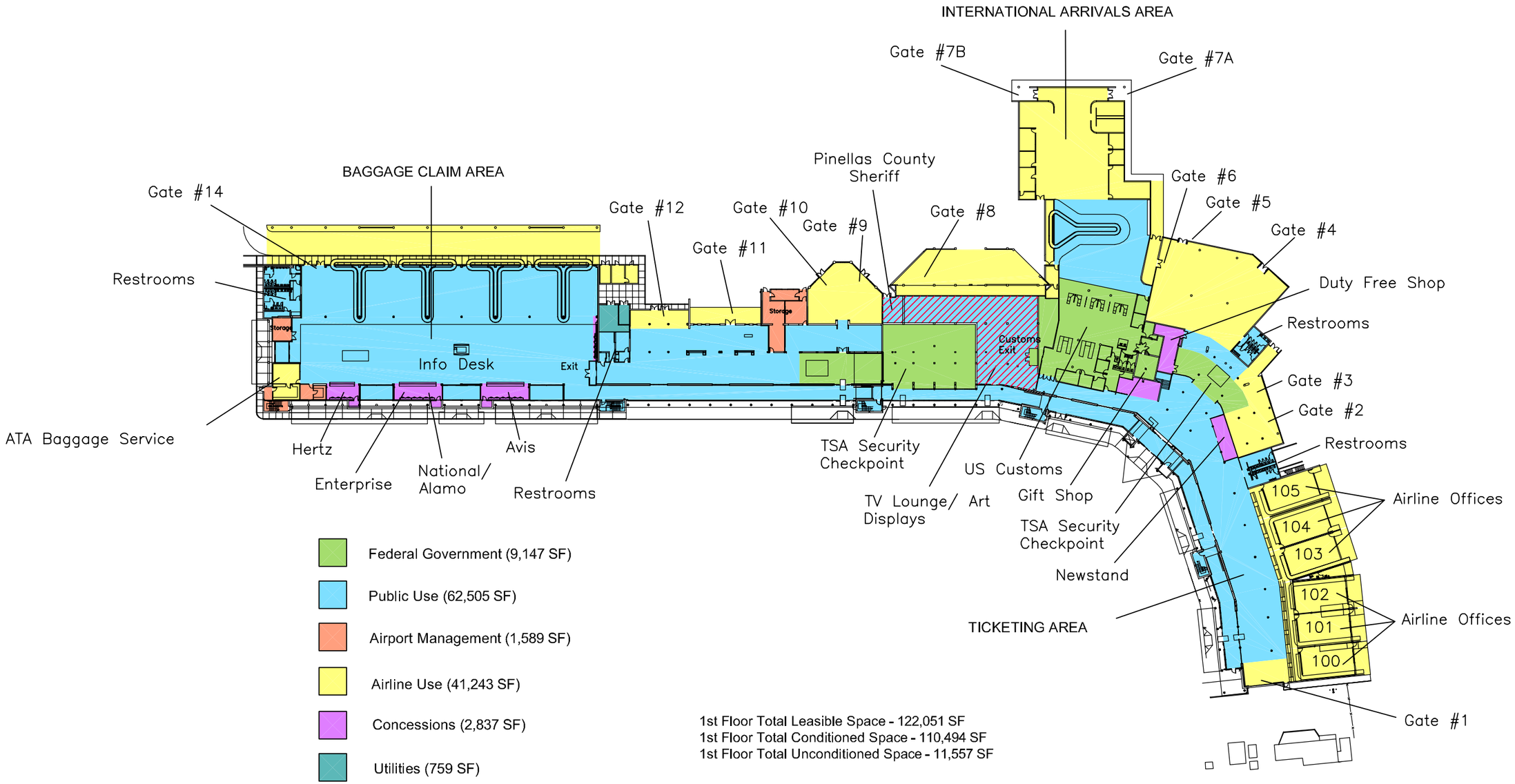

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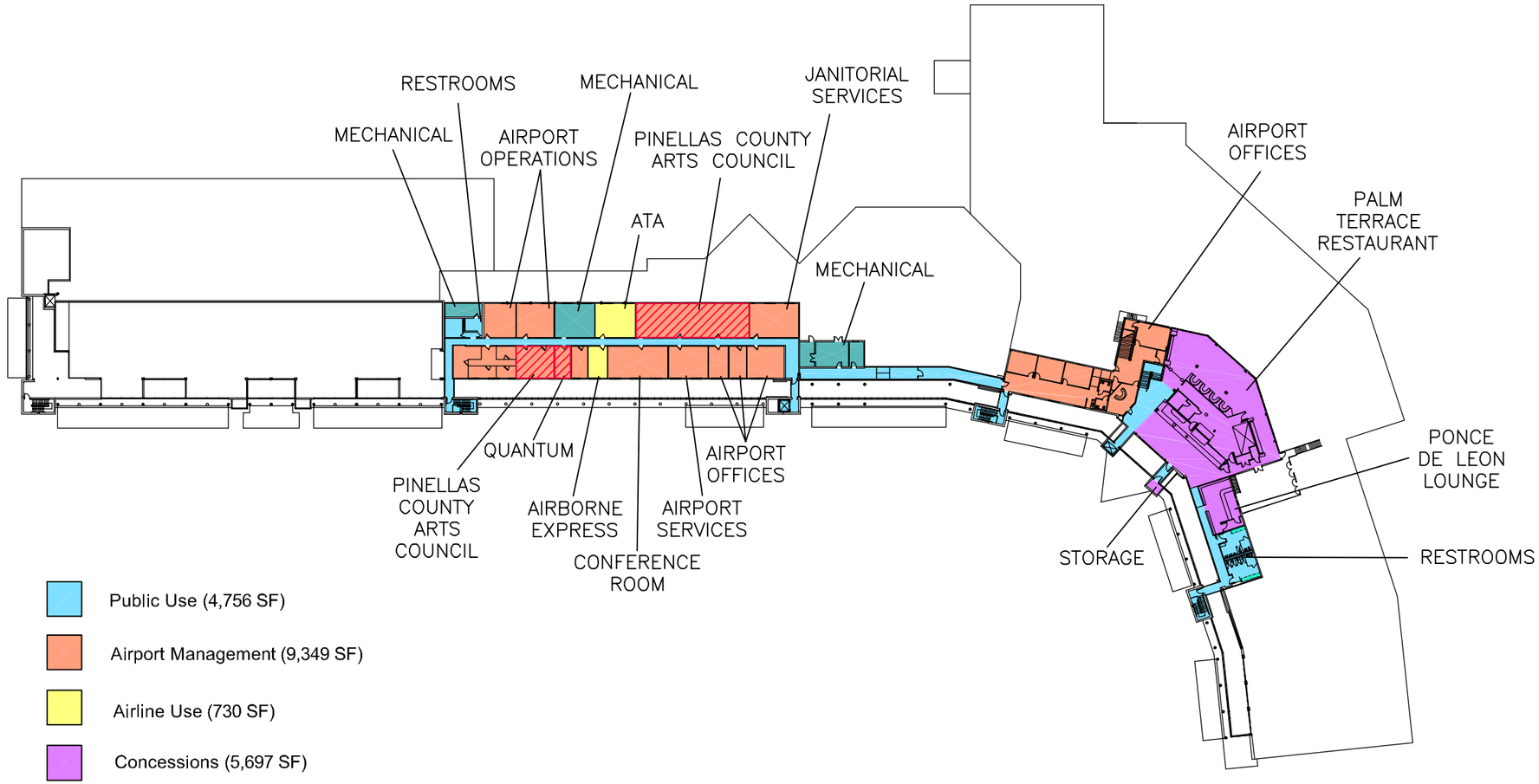
St. Petersburg - Clearwater International Airport

St. Pete Terminal 1st Floor

Figure 5-12



Public Use (4,756 SF)

Airport Management (9,349 SF)

Airline Use (730 SF)

Concessions (5,697 SF)

Utilities (1,287 SF)

Non-Aviation or Unused (2,053 SF)

2nd Floor Total Leasible Space - 21,819 SF
2nd Floor Total Conditioned Space - 21,819 SF
2nd Floor Total Unconditioned Space - 0 SF

GRAPHIC SCALE IN FEET

0 80

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St. Petersburg - Clearwater International Airport

St. Pete Terminal 2nd Floor

Figure 5-13

General sizing criteria for terminal buildings have been established over time by various governmental agencies and industry groups. However, the general sizing parameters are not applicable in every situation. The experience of the consultant and adaptation to unique situations is also necessary. The sources for terminal planning guidance include the FAA, International Air Transport Association (IATA), Transportation Research Board (TRB), and the International Civil Aviation Organization (ICAO), to name a few. Some of the documents referenced for this report include the following:

- IATA Airport Terminals Reference Manual, 7th Edition, January 1, 1989
- FAA AC 150/5360-13, Change 1, Planning and Design Guidelines for Airport Terminal Facilities, January 19, 1994
- FAA AC 150/5360-9, Planning and Design of Airport Terminal Facilities at Non-hub Locations, April 4, 1980.
- Measuring Airport Landside Capacity, Special Report No. 215, TRB, 1987.

Using these documents, and the experience and judgment of the consultant, general gross spatial requirements were determined for PIE. Within the terminal building, several independent activities occur which require spatial analysis to accommodate peak-hour activities. These include: ticketing, waiting areas, baggage claim and storage, airline (air carrier and commuter) facilities, security screening stations, airport management and operations facilities, car rental agencies, public rest rooms, and concessions.

General guidelines have been used for sizing the gross square foot (sq ft) requirements for terminal facilities based upon the peak hour passengers (PHP). These factors vary depending on the type of annual passengers processed, as shown below:

- International airport terminals – 333 + sq ft/PHP
- Small to large hub airport terminals – 250 to 300 sq ft/PHP
- Non-hub commercial airport terminals – 150 to 250 sq ft/PHP
- General aviation airport terminals – 49 to 100 sq ft/PHP

PIE is classified as a small-hub commercial airport for which 150 square feet per PHP will provide sufficient gross area for all of the previously mentioned activities. However, it is assumed that given current international activity at PIE, though much smaller than typical international airports, 200 sq ft per PHP is more appropriate for planning purposes. To refine this general sizing requirement, a detailed calculation of space by activity area was prepared and is presented later in this report. The general overall space requirements for the cardinal years of the forecast period are shown below in **Table 5-7**.

Table 5-7. Gross Terminal Space Requirements

Year	PHP	Sq Ft/PHP	Space Required
2002 (Existing)	523	200 sq ft	104,600 sq ft
2007	630	200 sq ft	126,000 sq ft
2012	742	200 sq ft	148,400 sq ft
2017	862	200 sq ft	172,400 sq ft
2022	1,001	200 sq ft	200,200 sq ft

Most commercial service terminals have similar tenant and space demands. Each terminal will typically include the following functions by percent of total space:

- Airline space - 33%
- Public space - 40%
- Concession space - 17%
- Airport management - 4%
- Utilities - 6%

The distribution of the major terminal elements, shown above, results in an even division of revenue and non-revenue spaces. Planning terminal development or expansion should consider the financial aspects to assure the total area of revenue producing space (i.e., airline, concessions) equals or exceeds non-revenue space, to offset the Airport's obligation to finance the expansion of the building.

Studies for the expansion of terminal facilities, such as this study, are developed around a 20-year planning period. Forecasts of enplaned passengers, aircraft operations, and terminal sizing requirements are generated in increments of five, ten, and twenty years. However, terminal construction is typically phased in ten-year periods, primarily due to the time and cost of construction and the impacts imposed upon the passengers, airport, and airline operations. Although excess capacity is experienced in the first few years as enplanements increase to the expected demand levels, this is normal. Benefits from initial excess capacity include flexibility to adapt to changing market conditions, such as new entrants into the market. This also allows long periods from intensive construction activities in the terminal area and time to study future terminal expansion before reaching or exceeding peak hour passenger capacity levels.

5.5.2 Automobile Parking

According to FAA AC 150/5360-13 *Planning and Design Guidelines for Airline Terminal Facilities*, 40 to 85 percent of the originating passengers arrive to airports in private automobiles. Consequently, adequate public parking facilities are a valuable part of good terminal design. Automobile parking facilities are not only intended to provide space for passengers, but also for employees, visitors, and car rental agencies. The FAA suggests that for every one million total annual passengers, an airport should supply from 1,000 to 3,300 parking spaces.

PIE is currently designated as an origin and destination airport, and automobile-parking capacity had been adequate most of the time with capacity being exceeded during holiday travel periods such as Thanksgiving and Christmas. During these times, PIE employs a remote parking lot located on the west side of Roosevelt Boulevard and a shuttle bus is required to transport passengers to the terminal. However, with changes in airlines, schedules, and destinations, the remote lot is being employed nearly every weekend in addition to holiday travel days. The Airports long-term plan is to close the remote parking lot and make the land area available for lease. However, before the Airport closes this lot, it will need to supplement parking capacity by building parking garages in the terminal area.

Until recently (August 2002) parking was free at PIE, and extended parking and non-airport users parking was not discouraged. This may have affected the main parking lot's capacity during peak travel periods. PIE's public parking facility is also accommodating GA employees and customers because of limited parking in the GA areas that will be discussed in later sections. Additionally, 191 spaces in the formerly short-term parking

lot closest to the terminal building had been closed due to TSA/FAA security regulations, but are now used by rental car companies.

Currently, there are 714 public parking spaces, 191 rental car spaces, and 153 employee spaces. An additional 469 public spaces exist in the remote lot, but these spaces will be lost when the remote lot is closed. Based on airport industry standards, a factor of 1,400 parking spaces per million passengers was utilized in determining automobile parking capacity. Industry standards recommended 44 sq yd per space for public parking spaces, and 36 sq yd for rental car spaces. Both of these sizing factors include maneuvering lanes and turning space for each parking space. The demand for automobile parking at PIE is illustrated in **Table 5-8**. **Figure 5-14** shows the current terminal parking areas.

Table 5-8. Automobile Parking Demand

	2001	2002	2007	2012	2017	2022
Total Annual Passengers	638,832	695,669	837,742	987,720	1,147,528	1,331,490
Parking Space Demand	894	974	1,173	1,383	1,607	1,864
Required Area (SY)	39,750	43,286	52,126	61,458	71,400	82,848

Source: FAA 150/5360-13 Planning and Design Guidelines for Airport Terminal Facilities; PBS&J, 2002

5.5.3 Ground Access and Terminal Roads

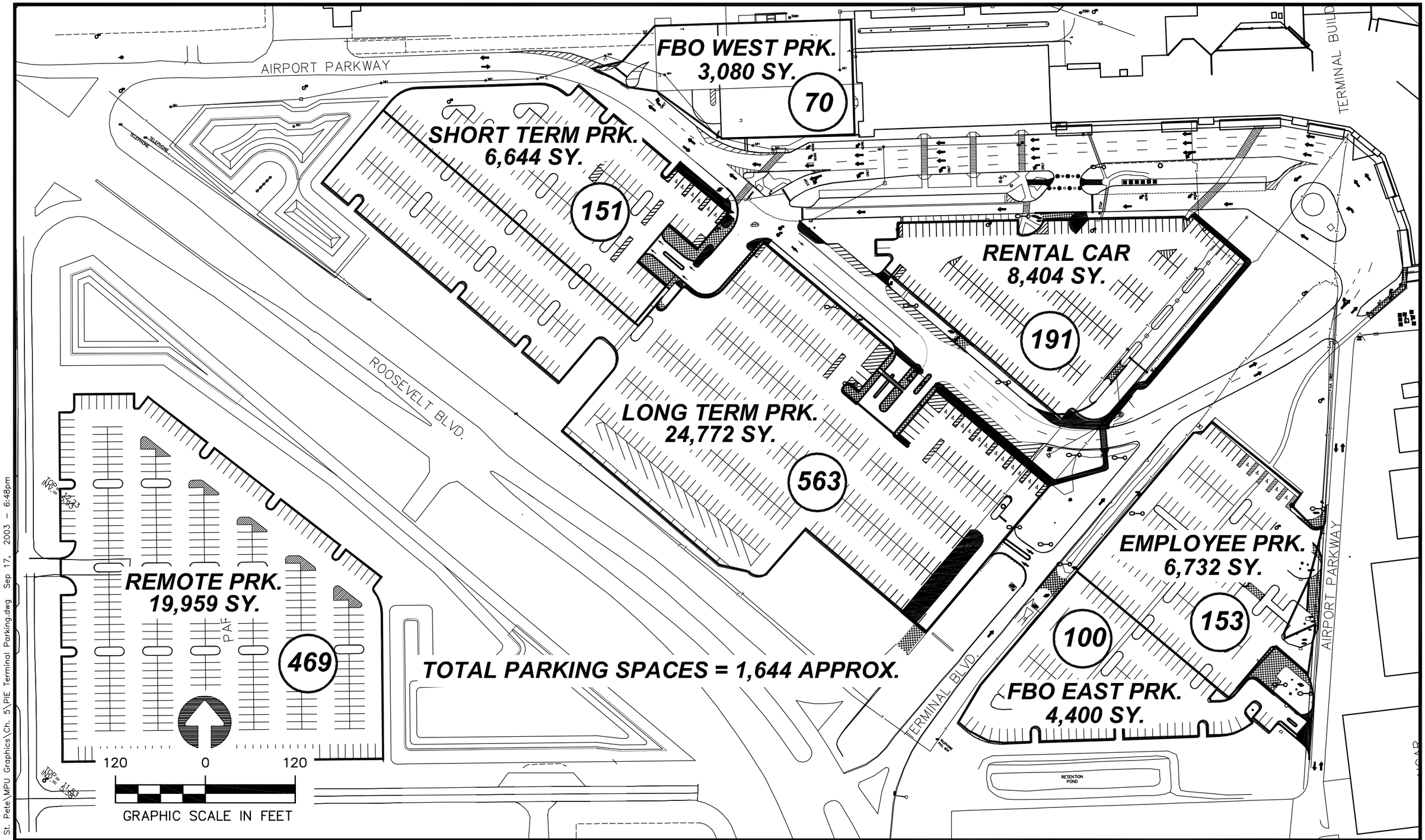
5.5.3.1 Access to the Airport

The highway system in Pinellas County is well developed with Roosevelt Boulevard (SR 686), Ulmerton Road (SR 688), US Highway 19, and US Highway 92 providing regional access in close proximity of PIE. Interstate 275 is located 3 miles east of the Airport, accessible by Ulmerton Road and Roosevelt Boulevard. This system currently provides excellent access to Hillsborough County and through Pinellas County. The Florida Department of Transportation (FDOT) has embarked upon a long range roadway improvement and upgrade program in the vicinity of PIE which will improve service and access to the area by renovating major roadways and intersections at Ulmerton, Roosevelt, and 49th Street, in addition to providing additional access from I-275 via the CR 296 connector (118th Street). Also included in this project is the development of Roosevelt into an elevated, limited access highway, which will require alternate access into the Airport.

5.5.4 Primary Airport Access Roads

5.5.4.1 Terminal Access Roadway System

Terminal access roadway systems are made up of several components. First is the primary terminal access roadway, known at PIE as Terminal Boulevard. This road then leads to a terminal access road, in this case, Airport Parkway, which provides access into the general terminal area, the terminal building(s), and parking areas. Terminal access roads are typically one way and flow in a counter-clockwise direction. Terminal frontage roads branch off the terminal access road providing direct access to the terminal curb. **Figure 5-15** shows circulation and functional relationships recommended for the commercial service terminal area regarding traffic flows and parking.



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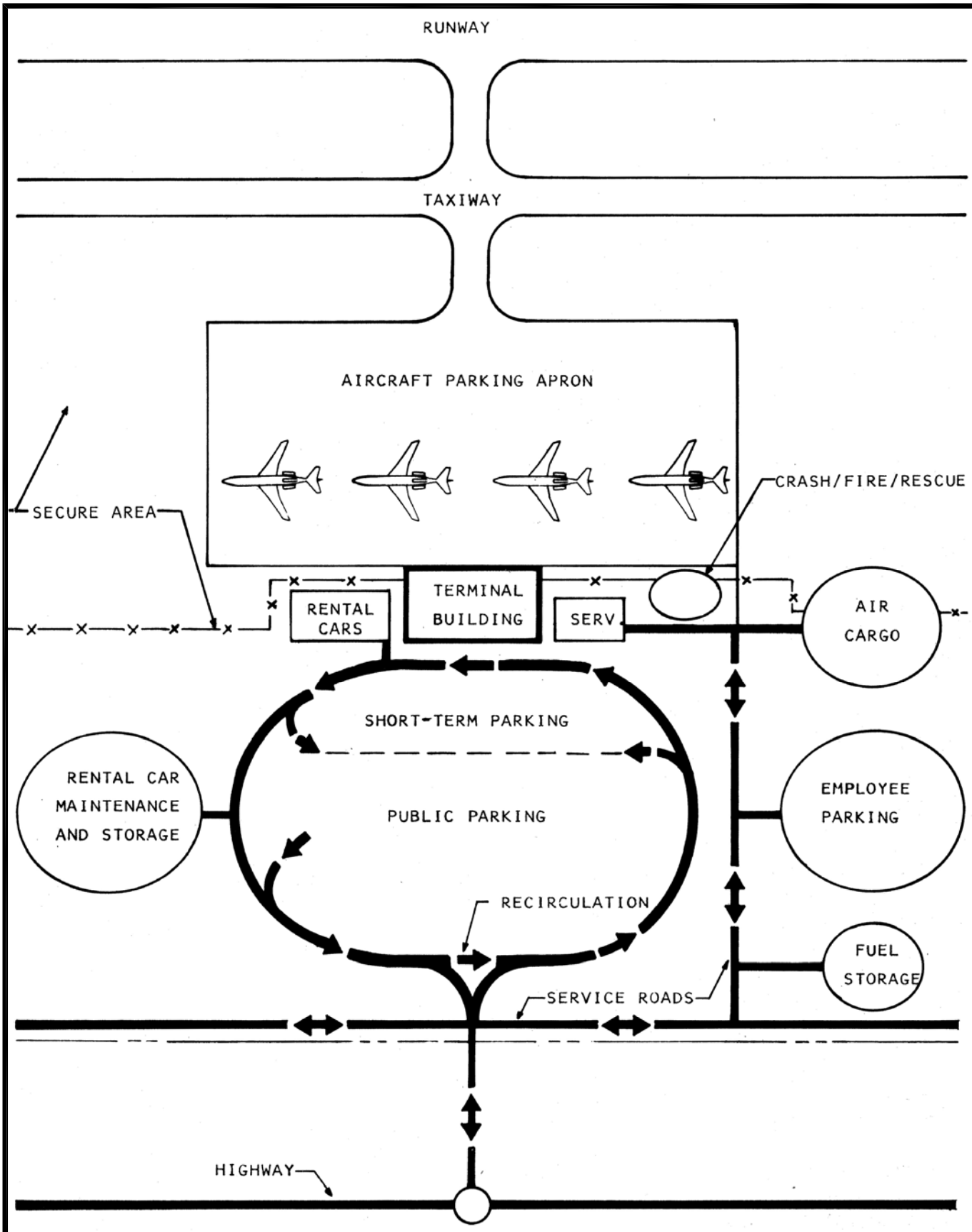
Terminal Parking

Figure 5-14



Source: Federal Aviation Administration, Advisory Circular 150/5360-9 Dated: 4/4/80

PBS&J	St. Petersburg - Clearwater International Airport	Terminal Area Access Roadway System	Figure 5-15

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5.5.4.2 Terminal Circulation Configuration

The PIE terminal access and roadway system is classified as a centralized layout. This is typical of terminal area complexes that consist of a single terminal building and an at-grade terminal roadway system that all passenger-related vehicles normally pass through to access the terminal, parking, and rental cars. **Figure 5-16** shows the terminal roadway system.

5.5.4.3 Primary Terminal Area Access Roads

There are two primary access roads to the terminal area. The first is Terminal Boulevard, a one-lane, at-grade roadway that bisects the terminal parking area. Terminal Boulevard terminates at Airport Parkway. Access is gained directly from Roosevelt Boulevard. (See **Figure 5-16**.)

The second is Airport Parkway, also accessible from Roosevelt at two locations. At its most northern entrance off Roosevelt, it is initially a two-lane, two-way roadway coming into the terminal area, where it becomes a terminal access roadway that bisects the rental car and public parking lots and merges with Terminal Boulevard. At this point, Airport Parkway continues as a one-way, two-lane, counterclockwise terminal access road where it flows by the terminal building and terminal frontage road. The terminal roadway portion terminates where it meets Airport Parkway and ultimately merges with itself where it becomes a two-lane, two-way road again, exiting onto Roosevelt Boulevard. (See **Figure 5-16**.)

Capacity per lane for at-grade primary airport access roadways is 800 vehicles per hour (VPH) for vehicle speeds of less than 30 miles per hour (MPH). Estimating that 80 percent of passengers arrive and depart the Airport by automobile, and the remainder of peak hour passengers arrive by high occupancy vehicles (e.g., buses, limos, vans, etc.), the primary Airport entrance roadways system will exceed capacity before 2022.

Table 5-9. Primary Airport Access Roadway Capacity

Year	Peak Month Average Day Peak Hour Passengers	80% Automobile	Other	Average Day PH Vehicles	Existing Roadway Capacity VHP	VPH Deficiency
2002	1,046	836	105	941	1,600	0
2007	1,259	1,007	126	1,133	1,600	0
2012	1,485	1,188	148	1,336	1,600	0
2017	1,725	1,380	172	1,552	1,600	0
2022	2,001	1,601	200	1,801	1,600	201

AIRPORT PARKWAY

ROOSEVELT BLVD.

PARKING

TERMINAL BLVD.

AIRPORT PARKWAY

RETENTION POND

120 0 120

GRAPHIC SCALE IN FEET

Legend

- Primary Terminal Access Road
- Terminal Area Access Road
- Terminal Frontage Road
- General Aviation Access Road

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PBS&J

St. Petersburg - Clearwater International Airport

Terminal Area Access Roadway System

Figure 5-16

5.5.4.4 Terminal Area Access Road

A portion of Airport Parkway serves as the terminal access roadway from the area it bisects the rental and public parking lots. It begins as one-way once it passes the entrance to the short-term public parking lot. From this point, its circulation is counter-clockwise in direction, and provides limited choices to passengers driving through the terminal area, either directing them to the terminal frontage road or parking facilities. (See **Figure 5-16**.) Terminal access roads should be able to accommodate 1,000 VPH and should consist at a minimum of two 12-foot lanes. The portion of Airport Parkway that serves as the terminal area access road meets these minimum requirements.

The capacity calculation of Airport Parkway is similar to primary terminal access roads. Assuming the two-lane Airport Parkway has a capacity of 2,000 VPH and assuming all terminal traffic uses Airport Parkway, capacity of Airport Parkway appears to be adequate for the future.

5.5.4.5 Terminal Frontage Road

Terminal frontage roads are designed to distribute vehicles directly in front of the terminal building adjacent to the terminal curb. A minimum of two lanes adjacent to the curb is recommended. The inside lane, sized at an eight-foot lane width, is for the loading and unloading of passengers and baggage. This lane has no throughput capacity. The outside lane is used for maneuvering to and from the curb front and should be sized at 12 feet wide to provide a capacity of 300 VPH. Additional 12-foot, 600 VPH capacity through-lanes should be provide to expedite traffic through the terminal frontage area.

The terminal frontage roadway system at PIE consists of three lanes, one curbside lane and two through-lanes with a capacity of 900 VPH. (See **Figure 5-16**.) Assuming 50 percent of vehicles (900 vehicles) access the terminal frontage roadway, capacity will be at 100 percent by 2022. Additional capacity should be provided.

5.5.4.6 Other Primary Airport Access Roads

The Airport is accessible by several primary roadways. Airport Parkway is a dual-purpose, two-lane, at-grade access road accessible at two locations from Roosevelt Boulevard. Airport Parkway's southern entrance from Roosevelt provides access to the FAA's ATCT and Flight Service Station (FSS) facilities as well as the fixed base operators (FBOs). Airport Parkway continues to the intersection with Terminal Boulevard provides access to the parking lots, terminal building frontage road, and UPS, finally terminating at Roosevelt Boulevard. (See **Figure 5-16**.)

As the southern entrance of Airport Parkway is essentially limited to accessing the FAA and FBO facilities, an 800 VPH road capacity is considered adequate for the planning period.

Access to the Airport's west and north areas where the U.S. Coast Guard facility (USCG), Pemco, Shelt Air corporate hangar complex, Jet Executive FBO, and the U.S. Army Reserve helicopter training facility (under construction) are located, is provided by Fairchild Drive. Accessible from Roosevelt Drive, Fairchild Drive is a two-lane, two-way road that is inadequate to provide necessary capacity to the tenants on this side of the Airport. During peak demand, especially with the conclusion of the afternoon shift of workers from USCG, backups are frequent. Fairchild Drive is access controlled from Roosevelt, and in the afternoons, Roosevelt Boulevard backs up as well as Fairchild Road traffic exits the Airport. Afternoon traffic congestion on Roosevelt Boulevard is

further exacerbated by the traffic light at the Airport Parkway's northern terminal entrance, as the two signalized intersections are relatively close to one another.

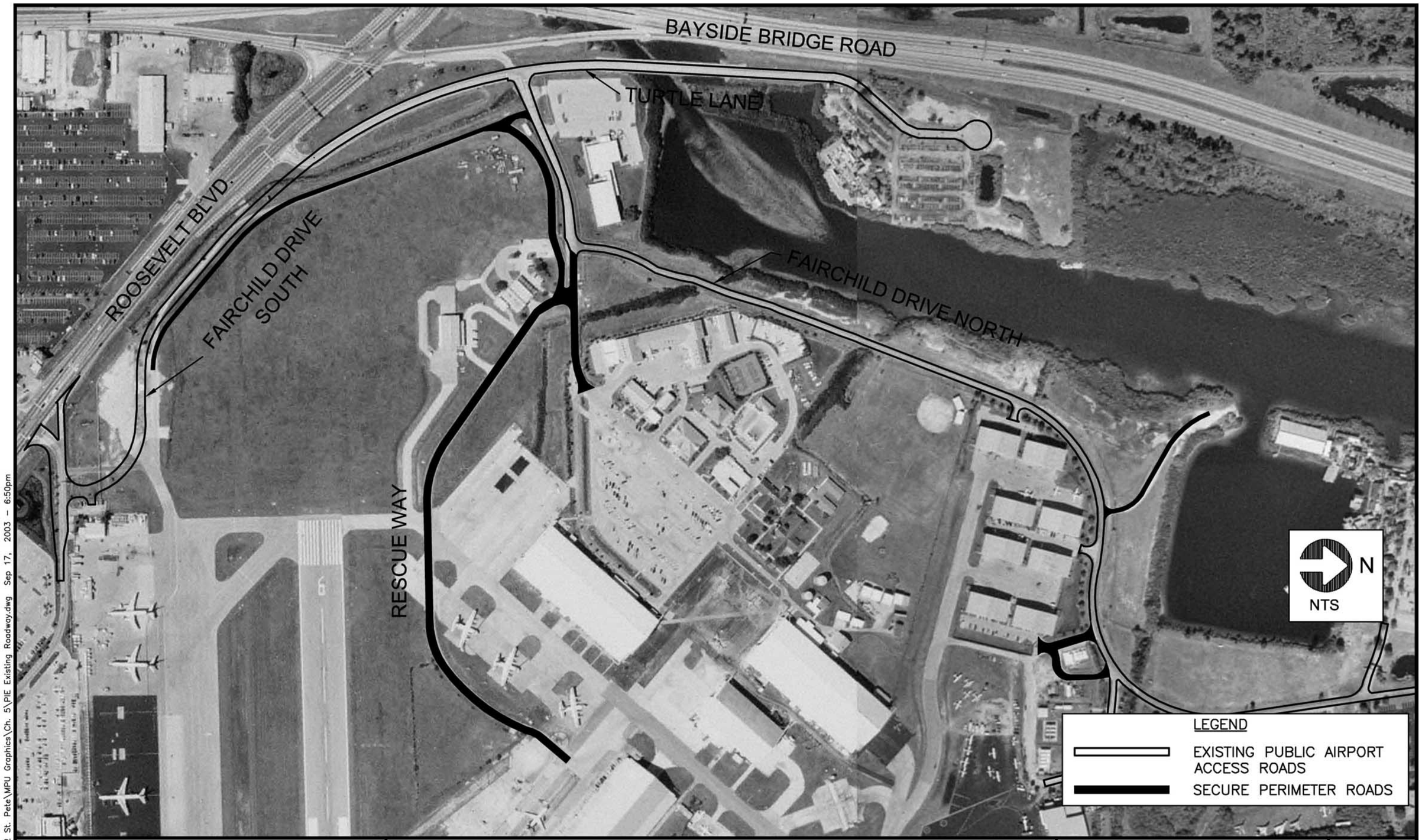
Pinellas County Public Works Department, recognizing the traffic backups on Roosevelt, has designed a realignment of Fairchild Drive that will eliminate the access controlled intersection at Fairchild and Roosevelt Boulevard, and reroute Fairchild Drive on Airport property to the south parallel to Roosevelt Boulevard, establishing an intersection with Airport Parkway. Traffic will still be able to access the west- and north-side facilities from the original Fairchild Drive entrance, which will become one-way onto the airport, but all traffic exiting will be routed to Airport Parkway. Mixing Fairchild traffic with airport terminal traffic on Airport Parkway will result in backups on Fairchild Drive as well as congestion in the terminal area. See **Figure 5-17**.

On the Airport's east side, 34th Street North, also known as Evergreen Avenue, provides vehicular access from Ulmerton Road to the Moog Facility and T-Hangar complex north of Runways 4-22 and 9-27. This two-way, two-lane roadway has relatively light traffic, and will prove to be adequate for access to the T-hangars. However, with the Airport's recent acquirement of the Airco Golf Course, development plans for the golf course, which is accessible by Old Roosevelt Boulevard, may require re-evaluation of access to the Airport's Westside. See **Figure 5-18**.

5.5.4.7 Service Roads

Service roads are dedicated access roads divided into two categories: those that are non-secure and those that are restricted. Non-secure service roads typically allow access to non-secure areas of an airport, generally for deliveries of goods and services such as fuel, cargo, and the like. At PIE, there are non-dedicated, non-secure service roads functioning as primary access roads, providing this type of accessibility.

Secure service roads are those that only badged airport personnel can use. This type of road allows access to the secured airside areas of the Airport such as perimeter roads. PIE has one continuous perimeter road used for security patrols and access to NAVAIDS and other equipment and facilities located on airside. (See **Figures 5-17 and 5-18**.) Secure service roads should be paved or otherwise stabilized for ease of maintenance and durability. Capacity is not an issue as use and access is limited.



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PBS&J

St. Petersburg - Clearwater International Airport

Existing Airport Roadway System (West)

Figure 5-17

PBSJ

St. Petersburg - Clearwater International Airport

Existing Airport Roadway System (East)

Figure 5-18

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5.5.5 Non-Aviation Areas

One major goal for PIE is to capitalize on the value of real estate within and adjacent to Airport property, which allows the Airport to diversify revenue sources and utilizes land to the fullest extent possible. Development of business centers, industrial parks, and commerce areas can be extremely valuable resources in the realization of that goal. Careful planning and organization of these non-aviation revenue generators can be vital to the funding of other landside or airside improvements at the Airport. The entire Airport is also designated as Foreign Trade Zone #193.

One major goal for PIE is to capitalize on the value of real estate within and adjacent to Airport property, which allows the Airport to diversify revenue sources and utilizes land to the fullest extent possible.

The Airport owns and maintains numerous properties around the Airport's perimeter that are used for non-aviation purposes. These properties, totaling almost 500 acres, are located in several main areas:

- Airport Business/Industrial Park – 300 acres
- Ulmerton and 40th Street parcel – 6.8 acres
- Former Showboat property – 4.1 acres
- Airco Golf Course – 130 acres
- 34th North Street property – 47.7 acres
- Former Moog Property – 31 acres
- Former Turtle Club property – 9.2 acres
- U.S. Naval Reserve property – 4 acres

The Airport Business/Industrial Park is approximately 300 acres and is surplus airport property remaining from when the former military base was converted to a public use airport. The Business/Industrial Park is highly developed with few parcels remaining for lease and/or development. While many of the parcels are leased to Pinellas County departments such as the county jail and economic development, light industrial tenants lease land as well. Access to the Airport Business/Industrial Park is afforded by Roosevelt Boulevard, which is current under design for improvements to a limited access road including a realignment and grade separation. The realignment will shift slightly to the west impacting one, and possibly two buildings in the Industrial Park. The upgrade of Roosevelt Boulevard is tentatively scheduled for 2007 – 2010 timeframe.

The Ulmerton and 40th Street parcel is a 16.5 acre triangular parcel located between the runway protection and approach zones of Runways 35R and 4. Accessible from Ulmerton Road via 40th Street, the frontage along Ulmerton is very attractive for commercial development such as restaurants. The remaining land area away from Ulmerton Road has limited use as height restrictions on development become critical to avoid penetration of the runway approach zones and associated FAR Part 77 surfaces. This parcel may be further affected by the pending changes to the Ulmerton/Roosevelt Boulevard interchange and the future realignment of Roosevelt Boulevard.

The former Showboat property is a 4.1-acre triangular parcel affronting Ulmerton, old Roosevelt Boulevard, and 37th Street. This parcel is currently under lease by a motel, gas station, and fast food outlet.

Recently, the Airco Golf Course came under control of the Airport, and affords the Airport with a tremendous development and economic opportunity. The 130-acre parcel's potential to the Airport will be a significant alternative revenue source as the Airport converts the property from a golf course to commercial uses. The golf course currently generates approximately one cent per square foot, where as commercial properties near the Airport generate upwards to 75 cents per square foot. The land

areas along the airside areas of the Airport offer excellent aviation development opportunities as well.

Just east of the Airco property are two parcels. The first is the land area available along and south of 34th Street North. This 47.7-acre parcel is currently undeveloped. A Native American burial area and wetlands may be in this area. This land area also contains a large drainage easement. Because of the make-up of the property, development opportunities may be limited.

The second parcel is the 31-acre former Moog property. The Airport is currently in the process of acquiring this property for future lease to a potential tenant for light manufacturing or other compatible uses. This property also has airside access to the airfield through the fence.

Two parcels located on the north and west side of the Airport includes the Naval Reserves Training Center and the former Turtle Club Restaurant. The four-acre naval Training Center is under a long-term lease. The 9.2-acre Turtle Club parcel offers the Airport a leasing opportunity. Access to the property from Roosevelt Boulevard is limited to Fairchild Drive, a single, two-lane road.

The Airport recently placed a full time real-estate person on staff to market and lease these land areas. In order to market these properties successfully, the following should be considered:

- Identify available parcels by number, acreage, and the available utilities that are in place for prospective tenants.
- Set a lease/buy cost associated with each parcel, for proposals and financial analysis by prospective tenants.
- Develop minimum standards for construction and maintenance of tenant businesses in the commerce park.
- Promote and maximize the benefits of the foreign trade zone designation.

These requirements should be completed to allow proper marketing and development of the Airport commerce park. Because this area is nearing full development, and is surrounded by fully developed properties, it may be necessary to focus expansion efforts in other areas of Airport property. A review of the available non-aviation land areas and an overall land use plan will be completed in later sections of the Master Plan document.

As discussed in previous sections, the Airport Business Center lies within Foreign Trade Zone #193 on the west side of Airport property. The 42-acre area owned by PIE hosts a variety of industries, including information systems, health care, education, and government. Approximately, 65 percent of the Business Center is leased to private tenants, while the government utilizes approximately 25 percent. The remaining 10 percent, or approximately five acres, is currently unoccupied.

Expansion of the Business Center is restricted by Airport parking to the east and other commercial developments to the north, west, and south. Therefore, if expansion is favored, the Airport must monitor adjacent parcels and purchase as they become available. Although it is important to maintain the Business Center property, it is necessary to seek valuable purchasing opportunities in other areas as well.

5.5.6 Airport Security and Fencing

Airport security has taken center stage after the terrorist attacks on September 11, 2001. PIE has been progressive in its security plan by initiating an evaluation of its current

security program, procedures, and equipment. In addition, the Airport is implementing and installing new security procedures and equipment to ensure the safety of its employees and the public at large. The Airport is currently in the process of complying with recent security directives as issued by the FAA and the Transportation Security Administration (TSA). Automobile parking within 300 feet of the terminal building, primarily short-term parking, has been closed off to public parking and is now used by the rental car companies who are required to inspect every returned rental vehicle. In addition, PIE has initiated the development of a Security Master Plan (ASMP), which is scheduled to begin in fall 2002. The ASMP will have limited distribution due to the sensitive nature of the contents, including evaluation of current procedures, equipment, training, etc. and provision of recommendations for improvement. PIE is currently complying with all FAA and TSA requirements and recommendations with regard to Airport security, and will continue to implement additional security procedures as needed and recommended. It is important to mention that security measures, especially changes to the terminal, parking, roadways, and access must be included in the Airport Master Plan Update.

5.5.7 Airport Rescue and Fire Fighting

Aircraft rescue and fire fighting (ARFF) facilities at airports operating in accordance with Federal Aviation Regulations (FAR) Part 139.315 are assigned an index determination based on the length and average daily departures of air carrier aircraft. Indexes range from Index A (includes aircraft less than 90 feet in length) to Index E (includes aircraft at least 200 feet in length). The rule states that the longest index group with five or more departures per day should be the ARFF Index for the airport. At PIE, the current ARFF designation is Index C, which includes aircraft at least 126 feet, but less than 159 feet in length. This designation is adequate to meet demand of the current fleet. However, it is important to note as improvements are made to runway capacity and larger aircraft begin to utilize PIE facilities, it may be necessary to consider upgrading the ARFF facilities. The ARFF station is located on the northwest side of the field along Fairchild Drive. As the Airport develops and expands, the relocation of the ARFF may be required.

5.5.8 Fuel Facilities

The existing fuel farm is a one-acre facility on the north side of the airfield located among the Sheltair, Jet Executive Center, and US Coast Guard (USCG) lots. The Airport owns and maintains USCG fuel tank and fueling facilities, while Jet Executive Center, Signature Flight Support, Air 1, own individual tanks within the farm. Fuels stored on site include 100 LL, Jet A, and JP8. The fuel farm includes 18 fuel tanks with an overall capacity of 310,000 gallons. **Table 5-10** shows the fuel farm's capacities by type fuel. Surveys and personal interviews reveal a need for greater efficiency within the farm. Currently, fuel distributors find that refueling tanks within the fuel farm is extremely difficult because of the poor layout and access to the farm. Although, fuel quantity is acceptable to meet existing demand, more tanks will be necessary to meet future demand as suggested in the based aircraft and GA operations forecasts.

Table 5-10. Fuel Farm Capacity and Fuel Storage by Type

Owner/Lessee	Size (gal)	Content
Air 1	20,000	Jet A
Air 1	20,000	Jet A
Air 1	10,000	100 LL
Jet Executive Center	20,000	Jet A
Jet Executive Center	15,000	Jet A
Jet Executive Center	15,000	Jet A
Jet Executive Center	10,000	100 LL
Signature Flight Support	20,000	Jet A
Signature Flight Support	20,000	Jet A
Signature Flight Support	10,000	Jet A
Signature Flight Support	10,000	Jet A
Signature Flight Support	10,000	Jet A
Signature Flight Support	10,000	100 LL
U.S. Coast Guard	30,000	JP8
U.S. Coast Guard	30,000	JP8
U.S. Coast Guard	20,000	JP8
U.S. Coast Guard	20,000	JP8
U.S. Coast Guard	20,000	JP8

5.6 GENERAL AVIATION

As discussed in Chapter 2 - Existing Airport Facilities, Statistics, and Environment, GA at PIE consists primarily of corporate, flight training, and recreational flying activity. The facilities associated with GA that must be analyzed for demand and capacity are aircraft storage facilities, aircraft apron area, and automobile parking. As GA operations increase, the need for expanded landside and airside facilities will become evident. Specific facility requirements for each area will be identified in Chapter 6.

5.6.1 Aircraft Storage Facilities

Aircraft storage needs often reflect local climatic conditions, as well as the size and sophistication of an airport's based aircraft fleet. Typically, larger, more expensive aircraft will be stored in larger corporate or conventional hangars, which tend to be more secure facilities. In Florida, a general rule of thumb is that 85 percent of based aircraft owners will desire hangar space for aircraft storage, primarily for protection from the weather and lower maintenance costs. However, approximately 65 percent of the 327 based aircraft at PIE are stored in hangar facilities, with a growing demand for additional hangar space. Therefore, also based on demand for corporate level aircraft storage space, it is estimated that approximately 70 percent of all based aircraft require some type of hangar facility. FBOs report increasingly long waiting lists for aircraft storage units every year.

Currently, there are 122 T-hangar stalls including six oversize multi-engine aircraft or helicopter stalls, five typical multi-engine aircraft stalls, and 74 single-engine aircraft stalls. Total T-hangar area is approximately 160,100 sq ft, of which 37,800 sq ft is associated with multi-engine aircraft and 122,300 sq ft is associated with single-engine

aircraft. There are 17 corporate/conventional hangars of various sizes providing approximately 359,000 sq ft of aircraft storage and maintenance space to at least 89 aircraft. Currently, total aircraft storage facility area equals 525,100 sq ft, which is significantly lower than the demand for storage area of 616,989 sq ft. **Table 5-11** reports the estimated number of aircraft requiring storage throughout the remainder of the planning period.

Table 5-11. Aircraft Storage Facility Demand

	2001	2002	2007	2012	2017	2022
Based Aircraft	326	327	334	347	366	391
Total Aircraft Requiring Storage	229	229	250	277	311	332
Required Aircraft Storage Area (sq ft)	616,989	618,443	675,902	748,675	839,900	897,553

Source: FAA AC 150/5300-13 Airport Design, PBSJ CADD measurements

5.6.2 Aircraft Apron Area

Ample aircraft apron areas are necessary to effectively circulate taxiing aircraft, store local and transient aircraft, and conduct related aviation activities. Since the majority of airport traffic is comprised of GA aircraft, it is essential for the apron areas to be located and sized properly to accommodate demand. Three types of apron areas are typical to airports: hangar apron, based aircraft tie-down apron, and transient aircraft tie-down apron.

Hangar aprons are necessary to park aircraft and maneuver aircraft adjacent to and in and out of the hangar facilities. Hangar apron areas should approximate the amount of hangar storage space. The Airport has approximately 39,876 sq yd designated for hangar apron and there is approximately 39,889 sq yd of hangar area. As more hangars are built to meet the existing shortage suggested in the previous section, more apron space will be necessary. Also as discussed previously, additional hangar space will be necessary incrementally over the course of the planning period. With the construction of new hangar facilities, apron space should equal hangar area. Details concerning hangar apron area requirements will be discussed in Chapter 6 - Facility Requirements.

Apron space is also reserved for based and itinerant aircraft parking in tie-down positions. Based aircraft tie-down positions are necessary because a certain percentage of based aircraft will not require or desire hangar space. In addition, itinerant traffic does not commonly use hangar space. Tie-down positions vary in size according to whether the aircraft is based or itinerant and the size of the aircraft.

Typically, tie-down positions should be available to accommodate the number of non-hangared based aircraft plus one-half of the busy-hour itinerant aircraft. Currently, there is approximately 31,604 sq yd of based aircraft tie-down space and 17,043 sq yd of transient tie-down space, or a total of 48,647 sq yd of tie-down apron space. Utilizing the forecast for based aircraft and GA operations, **Table 5-12** shows the projected demand for tie-down apron. Details concerning tie-down apron area requirements will also be discussed in Chapter 6 - Facility Requirements.

Table 5-12. Demand for Aircraft Tie-Down Apron

	2001	2002	2007	2012	2017	2022
Based Aircraft	326	327	334	347	366	391
Based Aircraft Requiring Tie-Down	98	98	83	69	55	59
Busy Hour Itinerant Aircraft	60	60	62	67	73	82
Total Aircraft Requiring Tie-Down	157	158	146	136	128	141

Source: PBS&J 2002.

5.6.3 GA Automobile Parking

The lack of automobile parking can be detrimental to Airport tenants and revenue. Upon conducting personal interviews and reviewing inventory surveys, it is clear that GA automobile parking is inadequate in some areas and adequate in other areas. Currently, parking is limited to designated areas around major GA facilities. In some cases, such as the case of Jet Executive, tenants and customers are required to park in the grass areas along side access roads or parking lots due to inadequate parking area. The FBOs near the terminal area let their customers use the East and West lease lots in the terminal area in addition to their parking lots. The East lot is part of a larger parking lot that includes the access-controlled Airport employee lot. The East leased lot is adjacent to the west end of the terminal building near baggage claim. A summary of GA parking by area is shown below in **Table 5-13**. The next chapter will discuss facility requirements for GA automobile parking.

Table 5-13. General Aviation Parking by Area

Parking Areas	Spaces
Southwest Quadrant	
Signature	130
Nat Av Acadamy	5
Air 1	35
East Leased Lot	100
West Leased Lot	70
Total Southwest Quad. Parking Spaces	335
Northwest Quadrant	
Pemco	50
SheltAir	97
Jet Exec.	33
Total Northwest Quad. Parking Spaces	180
Total GA Parking Spaces	520

5.7 AIR CARGO

Air cargo operators at PIE include UPS and Airborne Express, and a freight forwarder providing transport of belly freight on the air carriers. Air cargo forecasts and tenant inventory surveys agree that air cargo operations are currently limited by the amount of available apron space designated to air cargo. The aviation activity forecast suggests that air cargo will increase approximately 30 percent by 2012 and 56 percent by 2022. With this type of demand, the market for air cargo cannot be overlooked. However, before any expansion can occur, careful planning must be executed to relieve existing constraints. Chapter 6 - Facility Requirements will incorporate the needs of both cargo operators.

At present, UPS operates one DC-8 and two B757 freighters on the West Ramp. UPS expects to upgrade their fleet to one B757 and three A300 aircraft in the next few years. With only approximately 183,000 sq ft of leasehold, it is already difficult for UPS to accommodate the existing fleet and equipment necessary to the success of their company.

Airborne is also in need of additional space to their existing 30,000 sq ft leasehold. Currently, Airborne operates one DC-9 at Gate 1 on the West Ramp, but space is severely limited when Gates 2 and 3 are in use. Airborne is interested in upgrading their fleet to one B767, which would require an additional 10,000 sq ft of apron area. Airborne is also interested in relocating main operations and sort facilities from their off-Airport location to a more convenient on-Airport location if adequate space and access are made available.

5.7.1 Air Cargo Demand/Capacity

The selected forecast for air cargo activity indicates that the Airport will experience moderate, but sustained, air cargo growth over the 20-year period. In order to assist Airport management in planning adequate facilities to efficiently accommodate this demand, assessments of the existing facility capacity and the level of service are

necessary. This assessment is used to determine any inadequacies in facility sizes over the forecast period. These deficiencies comprise the Airport's facility requirements.

5.7.1.1 Industry Standards

Cargo facility requirements can vary significantly from operator to operator depending on the specific operating characteristics at a particular location. At airports with limited space for air cargo activities, consolidation facilities and warehouses may be located off-site. This type of operation would involve the consolidation of freight shipments prior to delivery to the airfield, where activity is limited to the transfer of containers from truck to aircraft. Airports with adequate space to support on-site warehouse and consolidation facilities may accommodate these facilities adjacent to the aircraft parking area to facilitate efficiencies.

These variations in potential operational procedures can lead to necessary adjustments in the projected facility requirements. For example, the Airport currently does not offer any warehouse or sorting facilities on or adjacent to the airfield. A review of air cargo operations at similar airports may shows that such facilities are common on airports with comparable or even lower volumes. However, Airborne Express maintains a major sorting facility in the adjacent business park west of Roosevelt Boulevard, which offsets this apparent deficiency at PIE.

The following paragraphs provide some general notes on standards used at other airports.

Airside

A review of industry standards for air cargo facilities indicates that, on average, between 1.0 and 2.75 sq yd of air cargo apron space per one annual ton of cargo represents an acceptable level of space for air cargo processing. For comparison purposes, the Jacksonville International Airport Air Cargo Feasibility Study (Global Aviation Associates, Ltd., June 1997) indicated that in 1996-1997 Jacksonville International Airport (JAX) provided a total amount of useable air cargo apron space measuring approximately 38,444 sq yd. This space supported multiple air cargo companies representing 27,582 tons of airfreight and express traffic (excluding air mail) for the year. This results in a utilization ratio of 1.39 sq yd per annual ton. It should be noted that the Airport has recently completed various air cargo improvements and has recently developed additional air cargo expansion, which should result in an increase to the calculated ratio of 1.39.

The utilization ratio for apron space can vary significantly based on aircraft types and the frequency of aircraft loading/unloading operations. For example, a higher utilization ratio is necessary for air cargo operations that involve simultaneous aircraft loading/unloading operations or that involve larger aircraft types. As a result, the planning standards presented this report may require future adjustments to account for these factors.

Buildings

A 1995 Airports Council International survey evaluated 75 domestic airports and determined an average utilization rate of approximately 1.5 sq ft of building space per annual ton of air cargo. Building space may include administrative offices, warehouses, and related support facilities. It is assumed that many of the airports evaluated included freight consolidation facilities on the airfield, resulting in slightly higher utilization rates than those required for the current conditions at PIE.

According to the Jacksonville International Airport Air Cargo Feasibility Study, in 1997 the Airport provided 67,308 sq ft in total building area for air cargo, including warehouses and offices. This represented a utilization ratio of 2.44. Likewise, in 1998 Pensacola Regional Airport (PNS) provided 14,500 sq ft of building space for air cargo and accommodated 4,060 tons of airfreight, representing a ratio of 3.57. The building facilities for both of these Airports include warehouse and consolidation facilities on the airfield. These facilities also appear to provide excess capacity for air cargo activities.

Landside

Industry standards for landside facilities related to air cargo typically include surface access roads that are separated from the primary vehicular traffic flows related to the commercial passenger terminal. Efficiencies in the roadway network to facilitate direct truck access to the nearest highway network are also similar among most airports. Industry standards suggest that airports consider facilities that provide approximately 0.5 truck loading/unloading bays per every 1,000 sq ft of air cargo building space. Similarly, approximately one vehicular parking space should be made available for every 1,000 sq ft of building space to accommodate employee and other vehicles.

5.7.1.2 Level-of-Service Criteria

Facility requirements related to air cargo activities are largely unique to each individual operator and can vary significantly depending on the efficiencies and available capacities associated with a particular operation. Based on industry standards for air cargo and discussions with local air cargo representatives, three individual Level-of-Service categories have been identified to quantify minimum versus desirable facility requirements. Available capacity will be evaluated for aircraft aprons, administrative offices, and warehouse facilities related to air cargo. For purposes of this analysis, the three Level-of-Service categories are generally defined as follows:

Level-of-Service "A" – Level-of-Service "A" represents a condition where available air cargo facilities exceed the facilities required and desired by air cargo operators. This condition generally results in the elimination of congestion and delays as the excess facilities represent an under-utilization condition where excess capacity is available. This excess capacity may represent non-leased facilities, resulting in reduced revenue for the Airport due to additional maintenance costs, with no revenue generation from the air cargo tenants from these facilities to offset these costs. Based on industry standards and discussions with local operators on current operating efficiencies, air cargo facility requirements associated with Level-of-Service "A" at PIE are estimated as follows:

- Aircraft apron space – 2.75 sq yd per annual ton
- Air cargo office space – 0.35 sq ft per annual ton
- Air cargo warehouse space – 1.25 sq ft per annual ton

Level-of-Service "B" – Level-of-Service "B" represents adequate facilities to facilitate a comfortable operating condition for cargo operators at the Airport. This condition allows for flexibility in the day-to-day operations and generally accommodates most peak-hour conditions experienced by the cargo operators. This level of service also approximates a maximization of potential revenue to the Airport through air cargo facility leases. For this analysis, air cargo facility requirements associated with Level-of-Service "B" at the Airport are estimated as follows:

- Aircraft apron space – 2.0 sq yd per annual ton
- Air cargo office space – 0.27 sq ft per annual ton
- Air cargo warehouse space - 0.75 sq ft per annual ton

Level-of-Service "C" – Level-of-Service "C" represents the minimum facility requirements necessary to accommodate a particular level of air cargo activity at the Airport. This level of service generally represents an operating condition at which adequate air cargo facilities are provided to facilitate day-to-day operations, but lack of desired facility space may lead to congested conditions and possible delays. This condition may also represent a reduction in potential lease revenue to the Airport, as operators would likely increase their leased facilities to accommodate their existing operations if additional facilities were available. For this analysis, air cargo facility requirements associated with Level-of-Service "C" for the Airport are estimated as follows:

- Aircraft apron space – 1.25 sq yd per annual ton
- Air cargo office space – 0.20 sq ft per annual ton
- Air cargo warehouse space – 0.25 sq ft per annual ton

Again, it is important to note that these estimated requirements are provided for planning and budgeting purposes. Specific requirements by individual cargo tenants may vary from these estimates based on the unique operating characteristics proposed by the operator. These characteristics may include proposed location of storage facilities (i.e., on-site versus off-site), operational procedures (i.e., freight forwarder vs. integrated carrier), aircraft fleet mixes, and other attributes.

Where possible, the Airport should engage in discussions with existing and prospective air cargo tenants to determine changes in operational characteristics and corresponding changes in specific facility requirements.

5.7.1.3 Existing Requirements

Based on the respective standards identified in Section 5.7.1.2 and an evaluation of the existing facilities described in Chapter 2, the general cargo requirements for the Airport at the current air cargo volumes are shown in Table 5-14.

Table 5-14. Existing Air Cargo Requirements

Existing Capacity	Level-of-Service	Recommended Capacity	Existing Deficiency
Apron Pavement:			
22,700 sq yd	"A"	51,200 sq yd	28,500 sq yd
	"B"	37,200 sq yd	14,500 sq yd
	"C"	23,300 sq yd	600 sq yd
Office Space:			
4,600 sq ft	"A"	6,500 sq ft	1,900 sq ft
	"B"	5,000 sq ft	400 sq ft
	"C"	3,700 sq ft	-
Warehouse Space:			
0 sq ft	"A"	23,300 sq ft	23,300 sq ft
	"B"	14,000 sq ft	14,000 sq ft
	"C"	4,700 sq ft	4,700 sq ft

The above analysis indicates that for the above facilities, the current Airport cargo operators are generally operating at an approximate Level-of-Service "C", as defined in the preceding section. The analysis indicates that the Airport currently provides insufficient capacity for current air cargo aircraft parking, which is validated from discussions with existing cargo representatives. Between aircraft and equipment, both existing dedicated cargo carriers routinely maximize the use of their available apron space. Airborne Express has indicated an immediate need for additional apron space to accommodate current and anticipated operations.

Because the Airport currently offers no warehouse or consolidation facilities on the airfield, the analysis indicates that at least 4,700 sq ft of warehouse facilities should be considered to meet existing demand. Airborne Express has indicated their desire to lease on-airport warehouse space to facilitate loading/unloading operations associate with their current aircraft fleet.

5.8 MILITARY

The most dominant military presence operating from PIE at this time is the USCG. With nearly 600 full-time employees and 9,000 operations each year, the USCG is the largest and busiest air station in the United States. According to tenant surveys and personal interviews, the existing 41 acres is sufficient for current operations and future activity. In fact, forecasts show little variation in the number of operations throughout the planning period. However, one issue to be addressed is the poor access into the USCG facilities from Roosevelt Boulevard (SR 686) and 49th Street. Congestion in this area, especially during shift changes and rush hours, is a major obstacle to entering and exiting this portion of the Airport. It is necessary to address this issue in planned improvements for PIE.

In addition to the USCG, PIE is also home of a branch of the United States Army Reserve. The Army plans to share a number of USCG administrative buildings, which equal approximately 98,000 sq ft. However, the Army is planning to build new ramp and

hangar facilities slightly north of the property leased by the Jet Executive Center. This facility would support approximately 10 HH-60 Blackhawk helicopters.

5.9 SUMMARY

In summary, the most critical aspect for the Airport to address is the capacity of the airfield. Operating at essentially 100 percent of capacity, the Airport must address this issue immediately. If not, the Airport can expect a decline in the level of service it offers to its customer base, whether it is commercial and corporate operators delayed during departure or arrival, or constraints to military or flight training activities.

The second critical aspect for the Airport to address is the commercial terminal area. As an ambassador to the community, the Airport's terminal and variety of services contribute to visitors' first impressions of the community. Much of the terminal is beyond its useful life and a major upgrade of the facilities is required. Modern terminal facilities also serve as an attractant for additional visitors and commercial services.

Third, the Airport must also address capacity constraints for its GA tenants. Whether it is roadway, or hangar aprons for parking spaces, these aspects are paramount to maintaining existing tenants and attracting new tenants.

Finally, the non-aviation properties either owned or soon to be acquired by the Airport offer tremendous alternative revenue generation opportunities.

FACILITY REQUIREMENTS

St. Petersburg-Clearwater International Airport

6

6.1 GENERAL OVERVIEW

This chapter of the Master Plan identifies the facility requirements necessary to meet projected aviation demand at the St. Petersburg – Clearwater International Airport (PIE), based on Chapter 5, Demand/Capacity Analysis. Before conceptual planning can commence, it is important that the facility requirements necessary to accommodate forecasted demand be identified. This information will be used to develop alternatives for future expansion and phasing concepts that are based on forecasted activity levels.

6.2 AIRFIELD REQUIREMENTS

6.2.1 Runway Requirements

As discussed previously, the existing runway system at PIE includes four runways; 17L-35R, 17R-35L, 9-27, and 4-22. The existing airport reference code (ARC) assigned to each runway is shown in **Table 6-1**.

Meeting runway safety area requirements (RSA) is one of the FAA's highest priorities in maintaining safety at the nations airports. Runway 17L-35R RSA beyond the runway ends does not meet the requirements, as shown below in **Table 6-1**. The current RSA that is available in the approach of Runway 17L is 500 feet wide by 475 feet long plus 250 feet wide by 525 feet long. The current RSA that is available in the approach of Runway 35R is 500 feet wide and 830 feet long. All other runways meet current RSA requirements.

Table 6-1. Runway ARC Designations and Required Safety Area Requirements

Runway	Length & Width	Existing Airport Reference Code (ARC)	Safety Area Width	Safety Area Length Beyond Runway End
17L-35R	8,800' x 150'	C-IV	500’	1000’
17R-35L	4,000' x 75’	B-II	150’	300’
22-Apr	5,500' x 150'	B-II	150’	300’
27-Sep	5,165' x 150'	B-II	150’	300’

Source: PIE ALP, 2000, FAA, 2002

As demonstrated in Chapter 5, the level of aircraft demand has reached maximum capacity of the airfield and is expected to exceed capacity 137 percent by 2022. To date, the air traffic control tower (ATCT) has been able to manage capacity constraints by operating under Federal Aviation Administration (FAA) approved ”land and hold short” (LAHSO) procedures. However, these procedures cannot maximize efficiency due to significant operational restrictions. Airlines operating under FAR Part 121 and general aviation (GA) operating under FAR Part 135 are prohibited from participating in LAHSO procedures, and only GA operating under FAR Part 91 and military can participate. LASHO is further restricted to visual flight rules (VFR) daytime conditions only. Thus, in order to accommodate the forecast level of aircraft activity, capacity enhancing runway improvements are imperative.

The existing runway separation between Runways 17L-35R and 17R-35L is 500 feet, does not meet the requirements for simultaneous operations, and both runways are considered as a single runway. Additionally, Runway 17R-35L is restricted exclusively to small aircraft due to the runway's 75-foot width (i.e., part of Taxiway A). The airfield configuration is also such that simultaneous operations can only be conducted under FAA approved LAHSO operations, which are often limited by aircraft type and weather considerations. LASHO is most effective when the winds are from the east, which allows for the simultaneous use of Runways 17L-35R, 4-22, and 9-27. However, this occurs less than 30 percent of the time yearly. When the winds are from any direction other than the east, only Runways 17L–35R and 4-22 can be used simultaneously. These runway restrictions and the lack of adequate separation for simultaneous operations on the parallel runways, limit the overall capacity of the runway system.

A number of runway improvements have been identified that may increase the capacity of the existing runway system. Currently, only Runway 17L-35R can accommodate large commercial aircraft. Forecast of aircraft operations and fleet mix, and interest by foreign carriers to service PIE identify large long-haul aircraft, such as the Boeing 747, which require longer runway lengths for takeoff due to their longer stage lengths and operating characteristics. These aircraft are forecast to exceed 500 annual operations by 2004, and thus, will likely become the design aircraft at PIE. Additionally these aircraft typically require approximately 10,000 feet for takeoff depending on stage length, temperature, and weather conditions. Currently, the Airport is in the process of extending Runway 17L-35R 1,500 feet to a total length of 10,000 feet, anticipated to be available in 2004. This will accommodate the projected critical aircraft (B747) in most takeoff configurations and allow the Airport to meet the forecast demand from large commercial aircraft anticipated over the planning period. The extension of the runway will change its ARC designation to ARC-D-V)

Also, the lack of adequate separation between Runways 17L-35R and 17R-35L provides no additional airfield capacity, as both runways are considered as one. If the separation of the two runways could be increased by 700 feet or greater, significant capacity could be gained, as air traffic control (ATC) could operate these two runways simultaneously. The previous Airport Layout Plan (ALP) shows a new 3,500 by 75 foot runway located 700 east of Runway 17L-35R, replacing Runway 17R-35L. An increase of approximately 158,000 operations per year could be gained by this proposed development. **Table 6-2** and **Figures 6-1 and 6-2** demonstrate the capacity increase to be gained by the new parallel runway versus existing conditions.

Table 6-2. Comparison of Existing Capacity Versus Potential Capacity

Year	Operations
2002	231,283
2007	241,634
2012	259,076
2017	284,138
2022	316,963

Existing Airfield Capacity	
60.00%	138,931
80.00%	185,241
100.00%	231,552

Potential Airfield Capacity	
60.00%	233,738
80.00%	311,651
100.00%	389,564

Figure 6-1. Airfield Capacity – Existing Conditions

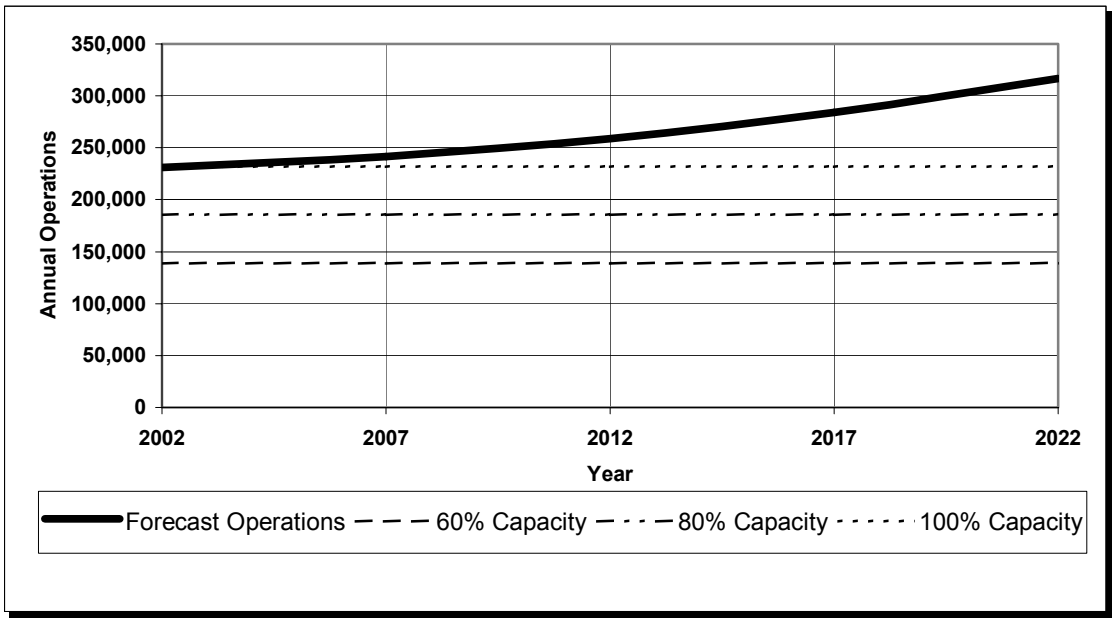
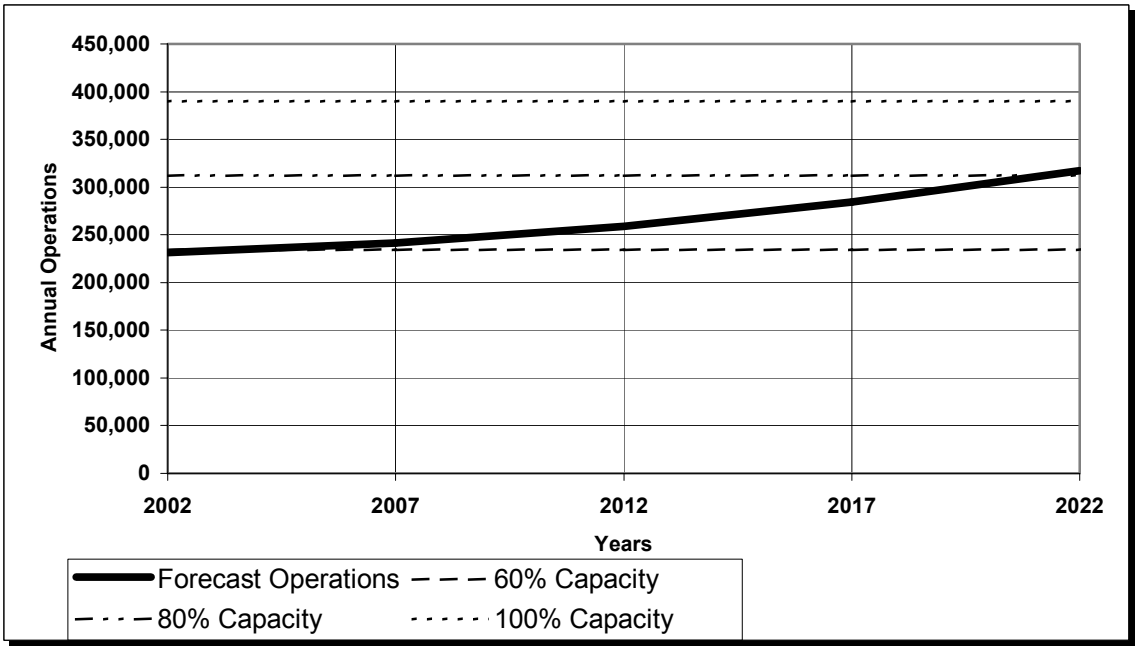


Figure 6-2. Capacity Increase Afforded by
New GA Parallel Runway > 700 ft separation from Runway 17L-35R*



*Note: * Assumes necessary taxiway improvements as well.*

The relocated parallel runway would be primarily for GA aircraft activity and used primarily for touch and go (T&G) and flight training activity. The increased runway separation would significantly increase operational safety, efficiency, and airfield capacity.

Even with the extension of Runway 17L-35R and the relocation of Runway 17R-35L to provide simultaneous operations, airfield capacity at PIE will not be realized due to multiple runway crossings caused primarily by Runway 9-27 and to a lesser extent Runway 4-22. Associated taxiways with Runways 9-27 and 4-22 and a lack of adequate exit taxiways on Taxiway A contribute to the capacity problem as well.

As described earlier in Chapter 5, Runway 9-27 is used approximately 14 percent of the time. Runway 9-27 is primary used by small GA aircraft during periods of excessive crosswind conditions on the other runways. Furthermore, Runway 9-27 has multiple runway intersections with Runway 17L-35R and Runway 4-22, and an additional crossing will occur with the proposed relocation of Runway 17R-35L. As discussed previously, these runway intersections limit the overall capacity of the airfield system and can diminish overall airfield safety by creating confusion for pilots, possibly leading to runway incursions. Therefore, the closure of Runway 9-27 is recommended upon completion of the new parallel runway east of Runway 17L-35R. The capacity enhancements afforded by the new parallel runway and elimination of runway and taxiway crossings is the only action the Airport can take to gain adequate capacity to meet increasing aviation demand over the planning period. In Section 7, Alternatives Analysis, several alternatives for increasing airfield capacity are evaluated.

FAA guidelines recommend that crosswind runways should be at least 80 percent of the length of the primary runway, to ensure balanced airfield capabilities. However, due to the existing configuration of the airfield, physical constraints of adjacent development, and environmental constraints of any development in Tampa Bay, extending Runway 4-22 to 8,000 feet is not possible at this time. Runway 4-22; however, can be extended to the southwest by approximately 875 feet. This extension will be dependent upon potential constraints, including the approach clearance over the Ulmerton and Roosevelt interchange. Section 7, Alternative Analysis, will address the potential extension alternatives for Runway 4-22. The extension of Runway 4-22 may change its current ARC designation of B-II.

In general, the proposed runway configuration, as discussed in this section, in conjunction with taxiway improvements to be discussed in Section 6.2.2, will increase airfield capacity at PIE to a level capable of accommodating the forecast demand. However, it should be noted that an Environmental Assessment (EA) would be required for each of the runway improvements identified, which must be completed before design and construction of the project begins.

6.2.2 Taxiway Requirements

The type and location of taxiways in relation to the runway system can have an impact on the capacity of the airfield. Adequate entrance and exit taxiways, in conjunction with full-length parallel taxiways, provide the highest level of obtainable capacity to the runway system. It is important to ensure that an adequate taxiway system is available to support each of the runways discussed previously.

The existing taxiway system at PIE is inadequate to support the existing and/or proposed runway configurations. Taxiway improvements are necessary to enhance airfield capacity and provide the maximum benefit to the runway system. Each runway

should have a full-length parallel taxiway with sufficient entrance/exit taxiways. The number and location of entrance/exit taxiways available to aircraft may vary with the length of the runway and fleet mix index. Typically, three to four entrance/exit taxiways are necessary to provide adequate entrance and exit capabilities for arriving and departing aircraft. Additionally, based on a mix index for PIE ranging from approximately 10.4 percent to 11.6 percent over the planning period, taxiways that are spaced at least 750 feet apart and are located 2,000 to 4,000 feet from the landing threshold are most beneficial for enhancing overall airfield capacity.

Taxiway A provides seven entrance/exit taxiways to Runway 17L-35R. However, due to the irregular placement of the entrance/exit taxiways they do not provide the optimum capacity. Therefore, consideration should be given to eliminating some of the entrance/exit taxiways and locating entrance/exit taxiways that contribute to enhancing capacity. As all large, high performance aircraft must land on Runway 17L-35R, high-speed exit taxiways should considered.

Runway 4-22 has six entrance/exit taxiways provided by Taxiway M, and their locations, for the most part, are placed appropriately for maximizing capacity. Further refinement may be necessary, but the addition of high-speed taxiways is not necessary due to the type of aircraft operating on Runway 4-22.

Therefore, the following taxiway improvements, in conjunction with the previously described runway improvements, are necessary to increase airfield capacity at PIE:

- Extend Taxiway A to the full length of the proposed Runway 17L-35R extension; eliminate those entrance/exit taxiways that do not contribute to capacity enhancement, locating entrance/exit taxiways at optimum locations; and consider adding four high-speed exit taxiways.
- Construct a full-length parallel taxiway east of Runway 17L-35R and include, at minimum, four new entrance/exit taxiways. High-speed should be considered. This taxiway will also serve as a full-length parallel taxiway to the proposed relocation of Runway 17R-35L.
- Construct four new entrance/exit taxiways along the full-length parallel taxiway west of the relocated 17R-35L.
- Construct a new full-length parallel taxiway east of the relocated 17R-35L parallel runway extending south to Runway 4-22, including four new entrance/exit taxiways.
- Extend Taxiway M to the full length of the proposed Runway 4-22 extension and include a new entrance/exit taxiway at the Runway 4 end.
- Construct a new full-length parallel taxiway to the southeast of Runway 4-22, including five new entrance/exit taxiways.
- Deactivate Runway 9-27, designating the former approach end of Runway 9 as a taxiway, and abandon the remaining runway east of Taxiway M.
- Deactivate and abandon Taxiway K.
- Deactivate and abandon Taxiways M-1 and the full length of Taxiway F.
- Redesign and correct turning radius and fillets at Taxiway L and Runway 17L-35R.

Separation standards for the taxiway system should be set according to FAA AC 150/5300-13 *Airport Design*. Therefore, taxiway centerline separation should be at minimum as follows:

- Runway 17L-35R (Airport Reference Code –ARC D-V) to parallel taxiway – 400 feet (existing is 500 ft)
- New Runway 17R-35L (ARC B-II) to parallel taxiway – 240 feet
- Runway 4-22 (ARC B-III or C-II) to parallel taxiway – 300 feet (existing is 350 feet)

The required runway, taxiway, and apron separation standards, as prescribed by the FAA, will be utilized later in the alternative development plans and ALP.

6.2.3 Airfield Lighting, Signage, and Pavement Markings

6.2.3.1 Airfield Lighting

Existing Runway lighting at PIE includes the following systems:

- High intensity runway lighting (HIRL) Runway 17L-35R
- Medium intensity runway lighting (MIRL) Runways 9-27 and 4-22
- Touch-down zone lighting (TDZL) and centerline lighting (CL) Runway 17L
- Medium intensity taxiway lighting (MITL) all taxiways
- Runway threshold lights on Runways 17L-35R, 9-27, and 4-22
- No runway lighting on Runway 17R-35L

Future improvements to the airfield lighting systems at the Airport should include MIRLs and threshold lighting on the relocated new parallel Runway 17R-35L and an MITL system on all new associated taxiways. Additionally, all existing lighting systems should be maintained and expanded in conjunction with the proposed runway and taxiway extensions or construction.

6.2.3.2 Airfield Signage

The existing airfield signage at PIE is adequate for the current facilities. However, signage improvements should be considered to ensure clear guidance to pilots in conjunction with all future airfield projects. Projects recommended in this study that would require signage updates and or expansion include: runway extensions, new and/or relocated runway construction, and taxiway extensions and/or construction. All signage improvements must be in accordance with FAA guidelines and should be incorporated into the design and construction of each airfield project.

6.2.3.3 Pavement Markings

The current pavement markings at PIE are adequate considering the existing facilities. Existing pavements markings are as follows:

- Runway 17L-35R – Precision
- Runway 17R-35L – Visual
- Runway 4-22 – Non-Precision
- Runway 9-27 – Visual

However, pavement markings should be updated, as necessary, to coincide with the completion of the proposed runway extensions, taxiway extensions, and any improvements to the apron area. Additionally, all new taxiway construction should be appropriately marked according to FAA guidelines. Visual runway markings should be incorporated into the design and construction of the relocated parallel runway. Finally, runway markings on Runway 9-27 should be removed in conjunction with the deactivation of the runway. Appropriate taxiway markings should be applied on the

portion of the runway that will be converted to a taxiway. All taxiways are marked with centerline and pavement edge markings.

6.2.4 Navigational Aid (NAVAID) Requirements

The available instrument approaches and capabilities of associated navigational aids (NAVAIDS) at an airport have a considerable impact on the overall airfield capacity, especially when considering instrument flight rules (IFR) hourly capacity. As discussed in Chapter 5, the airspace surrounding PIE is congested and may impose limitations affecting the Airport's ability to obtain additional instrument approaches. However, some NAVAID facilities and specific instrument approaches may be obtained and implemented at PIE to increase IFR capacity and ensure safe operations during such conditions.

Based on a review of the existing NAVAIDS at the Airport, and the forecast demand in the previous chapters, specific improvements to the existing NAVAID and approach system have been identified. Most notably is the CAT-I ILS approach to Runway 35R currently underway in association with the upgrade of Runway 17L ILS approach from CAT–I to CAT–II. Adjacent land use and airspace constraints will prevent the ability to provide precision instrument approach capabilities to Runway 4-22. However, maintaining the non-precision instrument approach to Runway 4 retains IFR capabilities to the runway. The new ILS instrument approach to Runway 35R will enhance the airfield's overall capacity in IFR weather.

Table 6-3 shows the NAVAID requirements, according to runway, that are necessary to increase overall Airport capacity and ensure operational safety during IFR conditions. These requirements will compliment the proposed runway and taxiway improvements discussed previously, to obtain the highest level of capacity.

Table 6-3. NAVAID Requirements

Runway	Existing NAVAIDS	Proposed NAVAIDS
17L	GPS, CAT-I ILS, VOR, NDB, VASI-4, SSALR	GPS, CAT-II ILS, RVR, PAPI-4, ALSF-2,
35R	VOR, LOC BC, GPS, VASI-4	VOR, CAT-I ILS GPS, MALSRPAPI-4
17R*	None	PAPI-2L
35L*	PAPI-2L	PAPI-2L
09**	PAPI-4L, REIL	N/A
27**	VASI-4R, REIL	N/A
4	VOR, PAPI-4L, REIL	Same
22	PAPI-4L, REIL	Same

*Notes: * Runway planned for relocation to east of Runway 17L-35R.*
*** Runway to be deactivated and designated as a taxiway.*
Source: PBS&J, 2002

6.2.5 Summary of Airfield Requirements and Future Capacity

In determining the facility requirements necessary to correct inadequate or substandard facilities, and increase the overall airfield capacity of PIE to accommodate the forecast demand, the following airfield requirements have been identified:

- Extend Runway 17L-35R 1,500 feet to a total length of 10,000 feet.
- Relocate Runway 17R-35L 700 feet or greater east of Runway 17L-35R (+/- 4,000 feet by 75 feet).
- Deactivate and designate Runway 9-27 as a taxiway.
- Extend Runway 4-22 875 feet, to a total length of 6,375 feet x 150 feet and overlay Runway 4-22.
- Extend Taxiway A to the full length of the proposed Runway 17L-35R extension, eliminate inefficient entrance/exit taxiways, and include four new high-speed entrance/exit taxiways.
- Construct east full-length parallel taxiway to Runway 17L-35R, including four entrance/exit taxiways to 17L-35R, and four entrance/exit taxiways to the relocated parallel Runway 17R-35L.
- Construct full-length parallel taxiway east of relocated 17R-35L, including four new entrance/exit taxiways, extending south to Runway 4-22.
- Extend Taxiway M to the full length of the proposed Runway 4-22 extension with entrance/exit taxiway at the Runway 4 end.
- Construct full-length parallel taxiway to southeast of Runway 4-22, including five entrance/exit taxiways.
- Deactivate and abandon Taxiway F, G, K, E, and M-1.
- Correct turning radius and fillets on Taxiway L.
- Install a Category I ILS approach system on Runway 35R with medium intensity approach lighting system with runway alignment (MALSR)
- Install CAT-II ILS and approach landing system with sequenced flashers (ALSF-2) on Runway 17L
- Install 2-light PAPI-2L equipment on new parallel Runway 17R-35L.

6.3 COMMERCIAL TERMINAL REQUIREMENTS

The forecasts of commercial passenger enplanements and aircraft operations were based on planning criteria established by URS Corporation, as included in the Environmental Assessment for the Proposed Extension of Runway 17L/35R, and as provided by PBS&J for the Master Plan Update for PIE. A summary of the applicable planning criteria is as follows:

6.3.1 Evaluation of Demand/Capacity Planning Criteria

The criteria as presented has utilized the passenger traffic forecast and aircraft fleet mix as the basis of quantifying the terminal space programs for the 20-year planning period, divided into five year increments (2007 to 2020). The following section of the study represents the calculation of the terminal area space programs for the planning periods.

Table 6-4. Aircraft Fleet Mix & Peak Hour (PH/AD/PM) PAX Calculation

Planning Period – 2007						
Aircraft Quantity	**Aircraft Type**	**Seat Count**	**Load Factor***	**PAX**	**PAX x Quantity**	**Dom./Int'l.**
2	BAe31	19	76.76%	15	15 x 2 = 30	Dom.
1	MD87	139	76.76%	107	107 x 1 = 107	Int'l.
1	B727-200	134	76.76%	103	103 x 1 = 103	Dom.
2	B737-800	154	76.76%	118	118 x 2 = 236	Dom.
1	B757-300	205	76.76%	158	158 x 1 = 158	Int'l.
7	Operations				PH/AD/PM PAX = 634	
				Domestic PH/AD/PM PAX = 369		
				International PH/AD/PM PAX = 265		

Note: PH/AD/PM = 630 per PBS&J Forecast of Enplaned PAX for 2007 used in lieu of quantity (634) indicated in above Table.
Modified quantity for Domestic and International PH/AD/PM PAX used as follows: Domestic PH/AD/PM PAX = 365 International PH/AD/PM PAX = 265
7 Operations matches PBS&J Forecast of Peak Hour Operations for 2007.

Table 6-5. Aircraft Fleet Mix & Peak Hour (PH/AD/PM) PAX Calculation

Planning Period – 2012						
Aircraft Quantity	**Aircraft Type**	**Seat Count**	**Load Factor***	**PAX**	**PAX x Quantity**	**Dom./Int'l.**
2	BAe31	19	76.76%	15	15 x 2 = 30	Dom.
1	MD87	139	76.76%	107	107 x 1 = 107	Int'l.
2	B727-200	134	76.76%	103	103 x 2 = 206	Dom.
1	B737-800	154	76.76%	118	118 x 1 = 118	Dom.
1	B757-300	205	76.76%	158	158 x 1 = 158	Dom.
1	B757-300	205	76.76%	158	158 x 1 = 158	Int'l.
8	Operations					
				Domestic PH/AD/PM PAX = 512		
				International PH/AD/PM PAX = 265		

Note: PH/AD/PM = 742 per PBS&J Forecast of Enplaned PAX for 2012 used in lieu of quantity (777) indicated in above Table.
Modified quantity for Domestic and International PH/AD/PM PAX used as follows: Domestic PH/AD/PM PAX = 477
International PH/AD/PM PAX = 265
8 Operations matches PBS&J Forecast of Peak Hour Operations for 2012.

Table 6-6. Aircraft Fleet Mix & Peak Hour (PH/AD/PM) PAX Calculation

Planning Period – 2017						
Aircraft Quantity	**Aircraft Type**	**Seat Count**	**Load Factor**	**PAX**	**PAX x Quantity**	**Dom./Int'l.**
3	BAe31	19	76.76%	15	15 x 3 = 45	Dom.
1	MD87	139	76.76%	107	107 x 1 = 107	Int'l.
2	B737-800	154	76.76%	118	118 x 2 = 236	Dom.
2	B757-300	205	76.76%	158	158 x 2 = 316	Dom.
1	B757-300	205	76.76%	158	158 x 1 = 158	Int'l.
9	Operations					
				Domestic PH/AD/PM PAX = 597		
				International PH/AD/PM PAX = 265		

Note: PH/AD/PM = 862 and matches PBS&J Forecast of Enplaned PAX for 2017.
Breakdown of Domestic and International PH/AD/PM PAX used per quantities from above Table.
9 Operations matches PBS&J Forecast of Peak Hour Operations for 2017.

Table 6-7. Aircraft Fleet Mix & Peak Hour (PH/AD/PM) PAX Calculation

Planning Period – 2022						
Aircraft Quantity	**Aircraft Type**	**Seat Count**	**Load Factor**	**PAX**	**PAX x Quantity**	**Dom./Int'l.**
3	BAe31	19	76.76%	15	15 x 3 = 45	Dom.
1	MD87	139	76.76%	107	107 x 1 = 107	Int'l.
2	B737-800	154	76.76%	118	118 x 2 = 236	Dom.
2	B757-300	205	76.76%	158	158 x 2 = 316	Dom.
1	B757-300	205	76.76%	158	158 x 1 = 158	Int'l.
1	B767-300	252	76.76%	193	193 x 1 = 193	Int'l.
10	Operations					
				Domestic PH/AD/PM PAX = 597		
				International PH/AD/PM PAX = 458		

Note: PH/AD/PM = 1,001 per PBS&J Forecast of Enplaned PAX for 2022 used in lieu of quantity (1,055) indicated in above Table.
Modified quantity for Domestic and International PH/AD/PM PAX used as follows: Domestic PH/AD/PM PAX = 597
International PH/AD/PM PAX = 404
10 Operations matches PBS&J Forecast of Peak Hour Operations for 2022.

Table 6-8. Tenant Airline/Aircraft Fleet Mix

Planning Period 2007			
Tenant Airline	**Aircraft Type**	**Aircraft Quantity**	**Dom./Int'l.**
ATA	B737-800	2	Dom.
Pan Am	BAE-31/41	2	Dom.
	B727-200	1	Dom.
Southeast	MD87	1	Int'l.
Air Transat	B757-300	1	Int'l.
Planning Period 2012			
Tenant Airline	**Aircraft Type**	**Aircraft Quantity**	**Dom./Int'l.**
ATA	B737-800	1	Dom.
	B757-300	1	Dom.
Pan Am	BAE-31/41	2	Dom.
	B727-200	1	Dom.
Un-named	B727-200	1	Dom.
Southeast	MD87	1	Int'l.
Air Transat	B757-300	1	Int'l.
Planning Period 2017			
Tenant Airline	**Aircraft Type**	**Aircraft Quantity**	**Dom./Int'l.**
ATA	B737-800	1	Dom.
	B757-300	2	Dom.
Pan Am	BAE-31/41	3	Dom.
	B737-800	1	Dom.
Southeast	MD87	1	Int'l.
Air Transat	B757-300	1	Int'l.
Planning Period 2022			
Tenant Airline	**Aircraft Type**	**Aircraft Quantity**	**Dom./Int'l.**
ATA	B737-800	1	Dom.
	B757-300	2	Dom.
Pan Am	BAE-31/41	3	Dom.
	B737-800	1	Dom.
Southeast	MD87	1	Int'l.
Air Transat	B757-300	1	Int'l.
Martin	B767-300	1	Int'l.

Note: Pan Am ceased service in September 2002. Analysis assumes void filled by new entrant airline(s).

6.3.2 Terminal Area Space Programs

Based on the before referenced planning criteria for the forecasts of passenger enplanements and aircraft operations, terminal area space programs were developed for the planning periods 2007, 2012, 2017 and 2022, and are presented in **Appendix A**. Each terminal space program consists of three spreadsheets; the first is a tabulation of the international and domestic passenger traffic during the Peak Hour (PH/AD/PM), the number of operations during the PH/AD/PM, and the aircraft fleet mix, the second is a summary of the calculation of terminal areas and primary design elements for the facility,

and the third is a detailed analysis of the space program. These terminal space programs were provided with the supplemental space criteria for the airport's administrative offices, but without any information from the current air terminal tenants.

6.4 LANDSIDE REQUIREMENTS

This section identifies the facility requirements necessary for the various on-Airport landside facilities to meet the projected demand, as presented in Chapter 5. The landside facilities that will be discussed in this section include; Airport access and terminal roads, automobile parking, Airport commerce park, GA areas, and land use and acquisition.

6.4.1 Ground Access and Terminal Roads

6.4.1.1 Airport Access

Ground access to the Airport as described in Chapter 5 is excellent. Access is gained by Ulmerton Road and Roosevelt Boulevard directly, and FDOT is in the process of making substantial improvements to both of these roadways. Improvements include improvements to the interchange of Ulmerton and Roosevelt, upgrading each roadway to limited access, which will improve the level of service for each roadway.

6.4.2 Primary Airport Access Roads

6.4.2.1 Terminal Access Roadway System

As defined earlier, capacity of the terminal access roadway system will be exceeded before the end of the planning period in 2022. The combination of Terminal Boulevard and Airport Parkway provides two lanes of traffic with a capacity of 1,600 vehicles per hour (VPH). By 2022 the demand will exceed 1,800 VPH. Therefore, the addition of another 12-foot lane to each roadway will be required to provide a total terminal access roadway system capacity in excess of 2,400 VPH.

6.4.2.2 Terminal Frontage Road

The terminal frontage roadway system will also reach its maximum capacity limit of 900 VPH by 2022. A second through-lane should to be provided to add an additional 600 VPH capacity to the terminal frontage road system.

6.4.2.3 Other Primary Airport Access Roads

Airport Parkway is a dual-purpose roadway as it provides terminal access as well as access to the fixed base operators (FBOs) and FAA facilities from two separate entrances off Roosevelt. The portion of Airport Parkway serving the FBOs and FAA facilities is likely adequate for the duration of the planning period, whereas the portion of Airport Parkway serving the terminal area is not. However, with the Pinellas County Department of Public Works proposal to realign Fairchild Drive, connecting it into the northern-most entrance/exit of Airport Parkway off Roosevelt Boulevard, additional capacity throughput will be necessary. Providing two lanes in each direction on Airport Parkway in the terminal area will be required to accommodate the additional traffic to be generated by Fairchild Drive.

Access to other areas of the east side the Airport will need to be improved as the Airco Golf Course development take place over time. A signature entrance and access road from Ulmerton into the Airco property will be necessary to invite tenants and support development. An access road will likely be a divided four-lane roadway curb and gutter,

landscaped medians, and overhead lighting. The location of the signature entrance could be developed at the 37th or 38th street entrances.

6.4.3 Automobile Parking

Automobile parking facilities provide space for passengers, car rental agencies, visitors, and employees. As discussed in Chapter 5, the existing parking areas at PIE currently have approximately 1,058 available parking spaces in the terminal area (± 47,610 sq yd) comprised of 151 short-term and 563 long-term public parking spaces, 191 rental car parking spaces, and 153 employee parking spaces. There is also an additional remote lot across Roosevelt Boulevard consisting of 469 spaces (± 19,959 sq yd).

6.4.3.1 Public Automobile Parking Requirements

Because of the convenience short-term parking provides to Airport users, premium fees may be collected to generate revenue.

Public parking lots are comprised of short-term and long-term components. Short-term parking generally accounts for 20 to 30 percent of the total public parking volume. Also, short-term lots are usually within closer vicinity of the terminal building and are reserved for parking durations of less than three hours. Because of the convenience short-term parking provides to Airport users, premium fees may be collected to generate revenue.

Long-term parking generally accounts for 70 to 80 percent of the total public parking volume. Long-term lots are usually situated further from the terminal building and are used when parking durations exceed three hours. Because long-term lots are typically less convenient that short-term lots, due to longer walking distances, a reduced fee is generally charged.

Until recently (2002), PIE was one of the few commercial service airports that provide free public parking to airport users. The Airport has since reconfigured the parking lot to pay parking for additional revenue generation, as well as to improve traffic flow through the terminal area.

The parking lot is also being reconfigured to accommodate security requirements of the Transportation Security Administration (TSA). The parking spaces closest to the terminal that were short-term parking were closed to all parking for many months following the events of September 11, 2001. However, the TSA has approved the area for use as rental car ready/return parking, since all rental cars are physically inspected prior to entrance to the parking lot.

Of the 714 public parking spaces at PIE, 151 are designated short-term (6,644 sq yd). Long-term parking consists of 563 spaces (24,772 sq yd). There is also a 469-space, remote, long-term lot of approximately 19,959 sq yd located on the west side of Roosevelt Boulevard. This lot is used for overflow parking during the peak travel periods. The lot is accessed by a shuttle service operated by the Airport. However, the Airport has long-term plans of closing this lot permanently by 2012 and converting the land to a lease property for potential tenants for development in order for the Airport to generate higher annual revenues. The closure of this lot can only occur after supplemental parking capacity is provided in the terminal area through parking garages.

As defined in Chapter 5, Demand/Capacity Analysis, the factor applied to estimate demand for public parking at PIE is 1,400 spaces per million passengers. In accordance with FAA AC 150/5360-13 *Planning and Design Guidelines for Airport Terminal Buildings,* the factor for sizing public parking areas is 44 sq yd per automobile parking space, which includes parking, lanes, and circulation areas. **Table 6-9** depicts PIE existing capacities versus forecasted demand. There is currently a shortage of short-term parking spaces of 141 spaces. By 2007, there will be a further deficit in short-term

parking of 201 spaces (8,837 sq yd) increasing to a 408-space deficiency (17,962 sq yd) by 2022. With the closing of the remote long-term parking lot scheduled for 2012, there will be a deficit long-term parking capacity of 405 parking spaces (17,818 sq yd). Long-term parking deficiencies are projected to increase throughout the forecast period to 742 spaces (32,642 sq yd) by 2022.

In order for the Airport to accommodate public parking requirements in the terminal area, a multi-level parking garage structure will be required.

6.4.3.2 Employee Automobile Parking Requirements

PIE has a designated parking lot in the terminal area for employee parking, which consists of approximately 153 spaces (± 6,732 sq yd), and is located on the south side of Terminal Boulevard east of the parking areas near the GA area. The employee parking lot is equipped with access control devices intended to limit parking to Airport employees only. However, this lot is part of a larger lot that is shared and used by the FBOs for customer parking.

Table 6-9. Public Automobile Parking Facility Requirements

	2001	2002	2007	2012	2017	2022
Total Annual Passengers	638,832	695,669	837,742	987,720	1,147,528	1,331,490
Existing Short-term Capacity	151	151	151	151	151	151
Short-term Parking Required (No.)	268	292	352	415	482	559
Surplus (Deficiency)	**(117)**	**(141)**	**(201)**	**(264)**	**(331)**	**(408)**
Existing Short-term Area (SY)	6,644	6,644	6,644	6,644	6,644	6,644
Short-term Area Required (SY)	11,806	12,856	15,481	18,253	21,206	24,606
Surplus (Deficiency)	**(5,162)**	**(6,212)**	**(8,837)**	**(11,609)**	**(14,562)**	**(17,962)**
Existing Long-term Capacity (assumes remote lot closes 2012)	1,032	1,032	1,032	563	563	563
Long-term Parking Required (No.)	626	682	821	968	1,125	1,305
Surplus (Deficiency)	**406**	**350**	**211**	**(405)**	**(562)**	**(742)**
Existing Long-term Area (SY)	44,731	44,731	44,731	24,772	24,772	24,772
Long-Term Area Required (SY)	27,546	29,997	36,123	42,590	49,481	57,414
Surplus (Deficiency)	**17,185**	**14,734**	**8,608**	**(17,818)**	**(24,709)**	**(32,642)**
Existing Total Public Parking Capacity	1,183	1,183	1,183	714	714	714
Total Public Parking Required (No.)	894	974	1,173	1,383	1,607	1,864
Surplus (Deficiency)	**289**	**209**	**10**	**(669)**	**(893)**	**(1,150)**
Existing Total Public Parking Capacity (SY)	51,375	51,375	51,375	31,416	31,416	31,416
Total Public Parking Area Required (SY)	39,352	42,853	51,605	60,844	70,688	82,020
Surplus (Deficiency)	**12,023**	**8,522**	**(230)**	**(29,428)**	**(39,272)**	**(50,604)**

Source: FAA AC 150/5360-13 Planning and Design Guidelines for Airport Terminal Facilities and PBS&J, 2002

A general range for airport employee parking demand is 25 to 40 employee parking spaces per 100,000 passenger enplanements. For PIE, the higher factor of 40 spaces per 100,000 enplanements is used to calculate the parking requirements throughout the planning period. The parking sizing criteria per space for employees is the same as public parking, 44 sq yd per space. The current number of parking spaces designated for employee parking (153) is adequate to meet demand until approximately 2007. By then, the employee lot will have to be expanded by taking spaces from the adjacent East Leased Lot used by the FBOs. By 2022 when the Employee Lot has acquired all of the East Leased Lot, the Employee Lot will be 11 spaces short when additional capacity will be necessary. **Table 6-10** depicts the existing conditions, parking demand, and potential inadequacies for employee automobile parking.

Table 6-10. Employee Automobile Parking Requirements

	2001	2002	2007	2012	2017	2022
Total Annual Enplanements	319,416	347,834	418,871	493,860	573,764	665,745
Existing Employee Parking Capacity (No.)	153	153	153	153	153	153
Employee Parking Required (No.)	128	139	168	198	230	266
Surplus (Deficiency)	**25**	**14**	**(15)**	**(45)**	**(77)**	**(113)**
Existing Employee Parking Area (SY)	6,732	6,732	6,732	6,732	6,732	6,732
Employee Parking Area Required (SY)	5,622	6,122	7,372	8,692	10,098	11,717
Surplus (Deficiency)	**1,110**	**610**	**(640)**	**(1,960)**	**(3,366)**	**(4,985)**

Source: FAA AC 150/5360-13 Planning and Design Guidelines for Airport Terminal Facilities and PBS&J, 2002

6.4.3.3 Rental Car Automobile Parking Requirements

Avis, Hertz, National/Alamo, and Enterprise rental car companies currently serve PIE. These four rental companies share the 191-car-capacity ready return lot located directly in front of the terminal building. The number of stalls allocated to each rental car company is recalculated each year on the basis of company performance and percentage of Airport business. Storage lots and cleaning facilities are located across from the main Airport property in the industrial park.

FAA AC 150/5360-13 Planning and Design Guidelines for Airport Terminal Facilities suggests one ready return space accommodates 750 enplanements. However, this factor is too high for St. Petersburg, and a factor of one rental cal per 2,000 enplanements is more consistent with rental car use at the Airport. Consequently, as enplanements increase, the need for additional ready return stalls will also increase. Standard sizing criteria for rental car lots is 36 sq yd per vehicle parking stall. Using

these guidelines, rental car capacity is adequate. By 2007 capacity will become inadequate and continue throughout the planning period. deficiency will increase to 471 spaces, and by 2022 an additional 701 spaces will be required. **Table 6-11** illustrates the facility requirements for rental car ready return parking.

Table 6-11. Rental Car Ready Return Parking

	2001	2002	2007	2012	2017	2022
Total Annual Enplanements	319,416	347,834	418,871	493,860	573,764	665,745
Existing Rental Car Parking Capacity (No.)	191	191	191	191	191	191
Rental Car Parking Required (No.)	160	174	209	247	287	333
Surplus (Deficiency)	**31**	**17**	**(18)**	**(56)**	**(96)**	**(142)**
Existing Rental Car Parking Area (SY)	9,220	9,220	9,220	9,220	9,220	9,220
Rental Car Parking Area Required (SF)	5,749	6,261	7,540	8,889	10,328	11,983
Surplus (Deficiency)	**3,471**	**2,959**	**1,680**	**331**	**(1,108)**	**(2,763)**

6.4.3.4 GA Automobile Parking Requirements

The number of automobile parking spaces required for an airport is directly dependent on the peak hour GA operations reported for the airport. For PIE, 119 peak hour operations were recorded for 2001, with approximately 50 percent of operations local and 50 percent itinerant. It is estimated that for every local peak hour GA operation 0.9 passengers are expected. For every peak hour itinerant GA operation 3.0 passengers are expected. Total peak hour GA passengers for 2001 are estimated to be 232, and are estimated to reach 321 by 2022. GA automobile parking requirements are based on the planning factor of 1.3 parking spaces per peak hour passenger. A calculation of 44 sq yd per parking space is used for planning automobile parking areas. Therefore, the existing 520 automobile parking spaces would be sufficient through 2022. However, as employee parking continues to grow and takes additional spaces in the Employee/East Leased Lot, GA parking will see a 44 space deficit by 2022. **Table 6-12** depicts the general aviation parking space requirements.

Table 6-12. GA Automobile Parking

	2001	2002	2007	2012	2017	2022
Peak Hour GA Operations	119	120	125	134	147	165
Peak Hour Local	60	60	62	67	73	82
Peak Hour Itinerant	60	60	62	67	73	82
Peak Hour GA Passengers	232	234	243	261	286	321
Peak Hour Local	54	54	56	60	66	74
Peak Hour Itinerant	179	180	187	200	220	247
Existing GA Auto Parking Spaces	520	520	502	464	424	378
Required GA Auto Parking Spaces	302	304	316	339	372	417
Surplus (Deficiency)	**218**	**216**	**186**	**125**	**52**	**(39)**
Existing GA Auto Parking Area (SY)	22,880	22,880	22,088	20,416	18,656	16,632
Required GA Auto Parking Area (SY)	13,273	13,362	13,921	14,905	16,378	18,349
Surplus (Deficiency)	**9,607**	**9,518**	**8,167**	**5,511**	**2,278**	**(1,717)**

Note: Decline in GA parking from 2007 through 2022 is due to expansion of Employee Parking taking spaces in the adjacent East Leased Lot.

6.4.4 General Aviation (GA) Areas

GA activity at PIE consists of corporate, flight training, and recreational flying operations. The facilities associated with the GA operations include aircraft storage buildings, apron for conventional hangars, and aircraft tie-down apron for local and itinerant traffic.

6.4.4.1 Aircraft Storage Facilities

As discussed in Chapter 5, 14 T-hangar buildings and 17 conventional hangars exist at PIE, and store approximately 229 aircraft, or 70 percent of total based aircraft. Based on data obtained in the inventory portion of the Master Plan, it is estimated that the conventional hangars accommodate approximately 89-based aircraft, while T-hangars store approximately 122 aircraft. Therefore, T-hangars accommodate approximately 58 percent of all stored aircraft, while the conventional hangars provide storage for 42 percent of based aircraft. The existing conventional hangars store an average of five aircraft per hangar.

Remaining consistent with data reported in Chapter 5, Demand Capacity Analysis, the total of aircraft requiring storage in 2001 was 70 percent. By 2007 75 percent of based

aircraft will require hangar storage, increasing to 85 percent by 2017, and then remaining constant through 2022. For the planning period, the percentage of aircraft stored in conventional and T-hangars was determined to be 58 percent requiring T-hangars and 42 percent requiring conventional hangars. Deficiencies exist throughout the course of the planning period and are shown in **Table 6-13**.

It should be noted that although corporate hangars (single, stand-alone hangar buildings that house one corporate-type aircraft) do not currently exist at PIE, they could be used in addition to conventional hangars to meet the hangar storage requirements.

Table 6-13. Aircraft Storage Facility Requirements

	2001	2002	2007	2012	2017	2022
Forecast Based Aircraft	326	327	334	347	366	391
Total Aircraft Requiring Storage	229	229	250	277	311	332
Existing Conventional Hangars	17	17	17	17	17	17
Conventional Hangars Required	19	19	21	23	26	28
Surplus (Deficiency)	**(2)**	**(2)**	**(4)**	**(6)**	**(9)**	**(11)**
Existing T-Hangars Units	122	122	122	122	122	122
T-Hangar Units Required	133	133	145	161	180	193
Surplus (Deficiency)	**(11)**	**(11)**	**(23)**	**(39)**	**(58)**	**(71)**

Source: PBSJ, 2002

6.4.4.2 Conventional Hangar Apron

Conventional hangar apron is required for parking and maneuvering aircraft within and around the hangar facility. For planning purposes, hangar apron area should equal the area of the hangar building. Currently, PIE hosts approximately 359,000 sq ft of conventional hangar space and 358,886 sq ft (39,880 sq yd) of conventional hangar apron. As hangar needs are expected to increase, so is the need for more apron area. The average size of the existing conventional hangars at PIE is approximately 21,100 sq ft. By applying a standard average of 20,000 sq ft per conventional hangar to future conventional hangar requirements, **Table 6-14** shows the total amount of conventional hangar apron space required throughout the planning period.

Table 6-14. Conventional Hangar Apron Requirements

	2001	2002	2007	2012	2017	2022
Existing Conventional Hangars	17	17	17	17	17	17
Existing Conventional Hangar Apron (sq ft)	358,886	358,886	358,886	358,886	358,886	358,886
Conventional Hangars Required	19	19	21	23	26	28
Conventional Hangar Apron Required (sq ft)	383,904	380,000	420,000	460,000	520,000	560,000
Deficiency/Surplus (sq ft)	**-25,018**	**(21,114)**	**(61,114)**	**(101,114)**	**(161,114)**	**(201,114)**

Source: FAA AC 150/5300-13 Airport Planning and Design and PBS&J, 2002

6.4.4.3 Aircraft Tie-Down Apron

The number of tie-down positions should accommodate the number of non-hangared based aircraft plus one-half of the busy-hour itinerant aircraft. Estimates show that the percentage of based aircraft utilizing hangars will increase from 70 percent in 2001 to 85 percent in 2022. Conversely, the percentage of non-hangared based aircraft will decrease from 35 percent in 2001 to 15 percent in 2022. However, GA operations are predicted to increase, thus the number of busy-hour itinerant aircraft will increase.

The existing GA aircraft tie-down apron space available at PIE is approximately 29,478 sq yd. Of this total, approximately 29,500 sq yd are used for based aircraft tie-down apron, which is sufficient to meet the existing and future demand requirements. Approximately 19,200 sq yd are used for itinerant tie-down apron, which is inadequate for the duration of the planning period. However, as the percentage of non-hangared aircraft decreases, fewer based aircraft tie-down slots will be necessary. Therefore, redesignation of tie-down apron use, from based aircraft tie-down to itinerant tie-down apron, is recommended.

Sizing criteria for tie-down positions vary according to aircraft size, including space for circulation and fueling. FAA AC 150/5300-13 Airport Planning and Design indicates that planning for 300 sq yd for each based aircraft and 360 sq yd for each busy hour itinerant aircraft will provide sufficient space for a mix of GA aircraft types. Therefore, as based aircraft tie-down usage is converted to transient usage, remarking and relocation of tie-down anchors will be necessary to accommodate the greater space needs for itinerant aircraft. Using these standards, **Table 6-15** shows the tie-down requirements for the planning period.

Table 6-15. Tie-Down Apron Requirements

	2001	2002	2007	2012	2017	2022
Existing Based Aircraft Tie-Down Apron	29,478	29,478	29,478	29,478	29,478	29,478
Based Aircraft Requiring Tie-Down	98	98	83	69	55	59
Based Aircraft Apron Requirements (sq ft)	29,380	29,450	25,033	20,797	16,469	17,599
Surplus (Deficiency)	**97**	**28**	**4,444**	**8,681**	**13,009**	**11,879**
Existing Itinerant Tie-Down Apron (sq ft)	19,169	19,169	19,169	19,169	19,169	19,169
Busy Hour Itinerant Aircraft	60	60	62	67	73	82
Total Itinerant Tie-Down Apron Required (sq ft)	21,420	21,563	22,465	24,054	26,431	29,612
Surplus (Deficiency)	**(2,251)**	**(2,394)**	**(3,296)**	**(4,885)**	**(7,262)**	**(10,442)**
Total Existing Tie-Down Apron (sq ft)	48,647	48,647	48,647	48,647	48,647	48,647
Total Required Tie-Down Apron (sq ft)	50,800	51,013	47,498	44,850	42,900	47,211
Surplus (Deficiency)	**(2,154)**	**(2,366)**	**1,149**	**3,796**	**5,747**	**1,436**

Source: PBSJ, 2002

6.4.5 Aircraft Fuel Storage

Future aircraft fuel storage requirements for commercial and GA were calculated based on Airport records and estimated monthly fuel deliveries to the fuel farm. Fuel usage by the USCG was not available from the Airport and is not included in this analysis. Monthly deliveries to the fuel farm are currently estimated to occur four times a month or once per week. Assuming that eight fuel farm deliveries per month or twice per week are considered the maximum threshold for deliveries from local suppliers, then future fuel farm capacity can be estimated. **Table 6-16** depicts future fuel storage requirements.

Table 6-16. Projected Fuel Storage Requirements

	Year	Airline Fuel	General Aviation	Total Fuel	Avg. Monthly Fuel Use	Tankage Capacity	Monthly Deliveries	Jet A Gallons	100LL Gal
Historical	1994	8,204,546	2,560,147	10,764,693	897,058	N/A	N/A	N/A	N/A
	1995	15,062,089	2,708,614	17,770,703	1,480,892	N/A	N/A	N/A	N/A
	1996	5,795,727	2,758,149	8,553,876	712,823	N/A	N/A	N/A	N/A
	1997	10,947,358	2,927,988	13,875,346	1,156,279	N/A	N/A	N/A	N/A
	1998	10,868,202	3,422,368	14,290,570	1,190,881	N/A	N/A	N/A	N/A
	1999	7,981,311	4,187,950	12,169,261	1,014,105	N/A	N/A	N/A	N/A
	2000	7,306,589	4,650,977	11,957,566	996,464	N/A	N/A	N/A	N/A
	2001	6,886,561	3,181,950	10,068,511	839,043	190,000	4	160,000	30,000
Forecast	2002	8,716,764	4,002,785	12,719,549	1,059,962	190,000	6	160,000	30,000
	2007	11,585,044	4,223,442	15,808,486	1,317,374	190,000	7	160,000	30,000
	2012	16,492,879	4,622,863	21,115,742	1,759,645	220,000	8	185,000	35,000
	2017	23,532,899	5,245,074	28,777,973	2,398,164	300,000	8	255,000	45,000
	2022	33,523,886	6,124,184	39,648,070	3,304,006	415,000	8	350,000	65,000

6.4.6 Air Cargo Facility Requirements

Projections for future cargo facility requirements were developed for PIE based on the 2002 selected forecast. The projected requirements individually consider airside facilities, office/ warehouse space, and landside facilities.

6.4.6.1 Airside Facilities

Cargo operators typically prefer to have their operations isolated from other airfield activities to avoid interference from these activities. Although separation from airline passenger activities is preferred, efficient access to passenger aircraft parking areas is also desirable in order to facilitate efficient processing of belly cargo.

Based on the previously set forth Level-of-Service criteria, the air cargo requirements for PIE are presented in **Table 6-17**.

Table 6-17. Projected Air Cargo Apron Requirements

Planning Activity Level (Forecast Year)	Level-of-Service	Recommended Apron Capacity	Existing Deficiency
PAL 1 (2007):			
24,000 tons (2007)	"A"	66,000 sq yd	43,300 sq yd
	"B"	48,000 sq yd	25,300 sq yd
	"C"	30,000 sq yd	7,300 sq yd
PAL 2 (2012):			
34,000 tons (2014)	"A"	93,500 sq yd	70,800 sq yd
	"B"	68,000 sq yd	45,300 sq yd
	"C"	42,500 sq yd	19,800 sq yd
PAL 3 (2022):			
44,000 tons (2021)	"A"	121,000 sq yd	98,300 sq yd
	"B"	88,000 sq yd	65,300 sq yd
	"C"	55,000 sq yd	32,300 sq yd

The current UPS fleet mix includes two B-757 aircraft and one DC-8 aircraft. Representatives from UPS indicate that the fleet mix may change as early as 2004 with the anticipated introduction of an Airbus 300 (A-300) to replace one of the B-757 aircraft. Long-range changes may include a shift to two A-300 aircraft and one B-757 per day. Similarly, Airborne Express has indicated interest in upgrading the daily DC-9 operations to B-767 operations. This change could result in increased tonnage and will likely require some parking or apron modifications to accommodate the wide-body aircraft.

6.4.6.2 Office/Warehouse Space

Office and warehouse space is more difficult to evaluate due to the different operational systems (i.e. on-site vs. off-site) used by different carriers. Currently, both carriers are satisfied with the office space provided for administrative tasks. In discussions with representatives of Airborne Express, a short-term need for a small on-airport warehouse measuring at least 3,500 sq ft was identified.

Airborne Express has also indicated its desire to develop a third-party facility at the Airport, but remains sensitive to projected lease costs. In addition, Airborne Express also indicated the possibility of shifting services from PIE to Tampa International Airport (TPA) upon completion of an ongoing cargo enhancement program.

Based on the planning standards assumed for this study, future office and warehouse requirements are presented in **Table 6-18** and **Table 6-19**, respectively.

Table 6-18. Projected Air Cargo Office Space Requirements

Planning Activity Level (Forecast Year)	Level-of-Service	Recommended Office Space Capacity	Existing Deficiency
PAL 1 (2007):			
24,000 tons (2007)	"A"	8,400 sq ft	3,800 sq ft
	"B"	6,480 sq ft	1,880 sq ft
	"C"	4,800 sq ft	200 sq ft
PAL 2 (2012):			
34,000 tons (2014)	"A"	11,900 sq ft	7,300 sq ft
	"B"	9,180 sq ft	4,580 sq ft
	"C"	6,800 sq ft	2,200 sq ft
PAL 3 (2022):			
44,000 tons (2021)	"A"	15,400 sq ft	10,800 sq ft
	"B"	11,880 sq ft	7,280 sq ft
	"C"	8,800 sq ft	4,200 sq ft

Table 6-19. Projected Air Cargo Warehouse Requirements

Planning Activity Level (Forecast Year)	Level-of-Service	Recommended Warehouse Capacity	Existing Deficiency
PAL 1 (2007):			
24,000 tons (2007)	"A"	30,000 sq ft	30,000 sq ft
	"B"	18,000 sq ft	18,000 sq ft
	"C"	6,000 sq ft	6,000 sq ft
PAL 2 (2012):			
34,000 tons (2014)	"A"	42,500 sq ft	42,500 sq ft
	"B"	25,500 sq ft	25,500 sq ft
	"C"	8,500 sq ft	8,500 sq ft
PAL 3 (2022):			
44,000 tons (2021)	"A"	55,000 sq ft	55,000 sq ft
	"B"	33,000 sq ft	33,000 sq ft
	"C"	11,000 sq ft	11,000 sq ft

Although the above analysis indicates an immediate need for air cargo warehouse facilities, it is noted that existing air cargo carriers currently perform day-to-day operations without an on-site warehouse facility. It is recommended that this plan evaluate improvement strategies that consider the estimated demand. However, formal

commitments should be coordinated with potential tenants prior to initiating air cargo warehouse improvements on the airfield.

6.4.6.3 Landside Facilities

Landside facilities directly related to air cargo activities include vehicular parking spaces, truck loading bays, and surface access road. Applying previously noted industry standards, **Table 6-20** presents the anticipated vehicular parking spaces required to accommodate future demand. **Table 6-20** also provides projected truck loading/unloading bay requirements based on a ratio of 0.5 bays per every 1,000 sq ft of building space, consistent with the previously discussed industry standards.

Table 6-20. Projected Air Cargo Landside Requirements

Planning Activity Level (Forecast Year)	Level-of-Service	Recommended Vehicular Parking Spaces	Recommended Truck Loading/ Unloading Bays
PAL 1 (2007):			
24,000 tons (2007)	"A"	38	19
	"B"	24	12
	"C"	11	5
PAL 2 (2012):			
34,000 tons (2014)	"A"	54	27
	"B"	35	17
	"C"	15	8
PAL 3 (2022):			
44,000 tons (2021)	"A"	70	35
	"B"	45	22
	"C"	20	10

6.4.6.4 Summary of Cargo Facility Requirements

The existing and future facility requirements associated with air cargo activity are projected in **Table 6-21**.

Table 6-21. Summary of Air Cargo Facility Requirements

	Existing Capacity	Level-of-Service "C"	Level-of-Service "B"	Level-of-Service "A"
PAL 1 (24,000 tons):				
Aircraft Apron Space	22,700 sq yd	30,000 sq yd	48,000 sq yd	66,000 sq yd
Office Space	4,600 sq yd	4,800 sq ft	6,480 sq ft	4,800 sq ft
Warehouse Space	-	6,000 sq ft	18,000 sq ft	30,000 sq ft
Vehicular Parking Spaces	-	11 spaces	24 spaces	38 spaces
Truck Loading Bays	-	5 bays	12 bays	19 bays
PAL 2 (34,000 tons):				
Aircraft Apron Space	22,700 sq yd	42,500 sq yd	68,000 sq yd	93,500 sq yd
Office Space	4,600 sq yd	6,800 sq ft	9,180 sq ft	11,900 sq ft
Warehouse Space	-	8,500 sq ft	25,500 sq ft	42,500 sq ft
Vehicular Parking Spaces	-	15 spaces	35 spaces	54 spaces
Truck Loading Bays	-	8 bays	17 bays	27 bays
PAL 3 (44,000 tons):				
Aircraft Apron Space	22,700 sq yd	55,000 sq yd	88,000 sq yd	121,000 sq yd
Office Space	4,600 sq yd	8,800 sq ft	11,880 sq ft	15,400 sq ft
Warehouse Space	-	11,000 sq ft	33,000 sq ft	55,000 sq ft
Vehicular Parking Spaces	-	20 spaces	45 spaces	70 spaces
Truck Loading Bays	-	10 bays	22 bays	35 bays

6.4.7 Land Acquisition

Land acquisition for additional aviation development may be necessary as the Airport continues to develop and improve airside and landside areas for the conduct of aviation and non-aviation activities. This is not to preclude the Airport from acquiring land for adjunct activities such as those for non-aviation revenue enhancement or for encroachment protection.

6.5 Summary

This section has identified the general facility requirements necessary to meet the 20-year unconstrained aviation demand. Prior to the actual physical layout of these facilities, specific refinement must be accomplished to enable the Airport to develop in a coherent and logical manner. This task will be completed in the alternatives identification and evaluation, and Airport development plans portions of the Master Plan. A summary of the general facility requirements has been compiled and is presented in **Table 6-22.**

Table 6-22. Airport Facility Requirements Summary

	2002 (Existing)	2007	2012	2017	2022
Airfield Requirements					
Runways	17L-35R 8,800' x 150'	17R-35L 10,000' x 150'	Same	Same	Same
	17R-35L 4,000' x 75'	New 17L-35R +/-3,700'x 75'	Same	Same	Same
	4-22 5,500' x 150'	4-22 6,375' x 150	Same	Same	Same
	9-27 5,165' x 150'	9-27 Closed - Converted to TWY	Same	Same	Same
Taxiways	A -Full Length Parallel West RWY 17L-35R, 8,800' x 75'	Same	A -Full Length Parallel West RWY 17R-35L, 10,800' x 75' w / 4 highspeed (HS) exit TWYs	Same	Same
	B - Stub Rwy 9-27, 300' x 75'	Same	B- Stub Closed New B - Full Length Parallel East RWY 17R-35L, 10,000' x 75' w / 4 HS exit TWYs	Same	Same
	C - Stub RWY 9-27, 400' x 75'	C - Stub Closed New C - Full Length Parallel East New RWY 17L-35R =/- 3,700' x 35'	Same	Same	Same
	D - Stub RWY 9-27, 350' x 75	D - Stub Closed	Same	Same	Same
	E - Stub RWY 17L-27R, 525' x 75'	E - Stub Closed New TWY E formerly RWY 9-27, 5,165' x 75'	Same	Same	Same
	F - Connector RWYs 17L-35R & 4-22, 1,700' x 40'-50'	F - Connector Closed	Same	Same	Same
	G - Stub RWY 17L-35R, 450' x 40'	G - Stub Closed	Same	Same	Same
	K - Connector RWY 4-22 & 9-27, 1,450' x 50'	K - Connector Closed	Same	Same	Same
	L - Exit RWY 17L-35R, 475' x 75'	Same	Same	Same	Same
	M - Full Parallel RWY 4-22, 5,500' x 50'	M - Full Parallel RWY 4-22, 6,375' x 50'	Same	Same	Same
	T- Terminal Arpon Edge, 1,775' x 75'	Same	Same	Same	Same
			New N - Full Length Parallel South RWY 4-22 6,375' x 50' w / 4 exit TWYs	Same	Same

Table 6-22. Airport Facility Requirements Summary (Con't.)

Airfield Lighting	RWY 17L-35R - HIRL, Centerline	RWY 17R-35L - HIRL, Centerline	Same	Same	Same
	RWY 17R-35L - None	New RWY 17L-35R - MIRL	Same	Same	Same
	RWY 4-22 - MIRL	Same	Same	Same	Same
	RWY 9-27 - MIRL	RWY 9-27 Closed	Same	Same	Same
	ALL TWYS - MITL	Same	Same	Same	Same
Pavement Markings	RWY 17L35R - Precision	RWY 17R35L - Precision	Same	Same	Same
	RWY 17R-35L - Visual	New RWY 17L-35R - Visual	Same	Same	Same
	RWY 4-22 - Non Precision	Same	Same	Same	Same
	RWY 9-27 - Visual	RWY 9-27 Closed	Same	Same	Same
	ALL TWYS - Edge and Centerline	Same	Same	Same	Same
Navigational Aid	RWY 17L - CAT I ILS, MALSR, Touchdown Zone Lighting (TDZL), VASI-4	RWY 17R - CAT II ILS, ALSF-2, Touchdown Zone Lighting (TDZL), VASI-4	Same	Same	Same
	RWY 35R - LOC BC, VOR, GPS, REIL, VASI-4	RWY 35L - CAT I ILS, MALSR, TDZL, VASI-4	Same	Same	Same
	RWY 4 - VOR, REIL, PAPI 4L	Same	Same	Same	Same
	RWY 22 - REIL, PAPI 4L	Same	Same	Same	Same
	RWY 9 - REIL, PAPI 4L	RWY 9 Closed	Same	Same	Same
	RWY 27 - REIL, VASI 4R	RWY 27 Closed	Same	Same	Same
	RWY 17R - None	New RWY 17L - VOR	Same	Same	Same
	RWY 35L - PAPI 2L	New RWY 35R - VOR	Same	Same	Same
	VORTAC	Same	Same	Same	Same
Commercial Terminal Requirements					
Aircraft Boarding Gates Required (No.)	14	7	8	9	10
Terminal Apron Required (sq yd)	41,560	41,560	41,560	41,560	41,560
Gross Terminal Requirements (sq ft)	143,980	148,498	161,448	177,318	192,064

Table 6-22. Airport Facility Requirements Summary (Con't.)

Airline Space					
Airline Ticket Counter					
Ticket counter agent positions	10	29	33	37	45
Ticket counter (lineal feet)	155	139	159	180	217
Ticket counter (area)	1,550	1,417	1,617	1,827	2,206
Ticket counter queuing area	2,325	2,072	2,352	2,646	3,206
Ticket counter support office (ATO)	500	3,475	3,975	4,500	5,425
Baggage Makeup	5,000	7,845	7,845	9,560	9,560
Baggage Claim					
Number of devices	4	3	3	4	4
Total lineal feet	720	540	540	720	720
Bag claim area	10,000	9,500	9,500	10,000	10,000
Baggage Claim Input	3,780	2,835	2,835	3,780	3,780
Holdrooms	21,736	15,429	18,579	20,675	24,766
Clubrooms	0	0	0	0	0
Airlines Offices - Airside Terminal	0	0	0	0	0
Airline Operations	4,059	9,450	9,450	9,450	9,450
Subtotal	49,105	52,023	56,153	62,438	68,393
Concessions					
Food & beverage	5,697	7,547	8,889	10,327	11,992
Rental Car area	1,428	3,060	3,060	3,060	3,060
News/sundries (5% of Gross Terminal Area)	1,840	771	929	1,034	1,238
Subtotal	8,965	11,379	12,878	14,420	16,290
Public Space					
Security Checkpoints	1,319	1,500	2,250	2,250	2,250
Ticket Lobby	3,100	6,950	7,950	9,000	10,850
Baggage Claim Lobby	6,894	3,000	3,000	3,000	3,000
Restrooms	3,586	2,620	3,420	4,300	4,300
Terminal Services	1,000	2,220	2,780	3,380	3,380
Concourse Circulation	18,717	18,880	21,780	24,740	28,360
Mechanical & Services	14,398	14,254	15,565	17,118	18,569
Airport Administrative Offices	13,408	7,200	7,200	8,200	8,200
Subtotal		56,624	63,945	71,988	78,909
FIS					
INS area	7,751	7,751	7,751	7,751	7,751
Public Health Services	910	910	910	910	910
Customs Services	7,596	7,596	7,596	7,596	7,596
Animal & Plant Health Inspection Services	1,415	1,415	1,415	1,415	1,415
Baggage Claim	7,500	7,500	7,500	7,500	7,500
Public Circulation	1,800	1,800	1,800	1,800	1,800
Meeters & Greeters area	1,500	1,500	1,500	1,500	1,500
Subtotal	28,472	28,472	28,472	28,472	28,472

Table 6-22. Airport Facility Requirements Summary (Con't.)

Landside Requirements					
Primary Access Roads	See Section 6.4.2	See Section 6.4.2	See Section 6.4.2	See Section 6.4.2	See Section 6.4.2
Terminal Access Roads	See Section 6.4.2.1	See Section 6.4.2.1	See Section 6.4.2.1	See Section 6.4.2.1	See Section 6.4.2.1
Terminal Frontage Roads	See Section 6.4.2.2	See Section 6.4.2.2	See Section 6.4.2.2	See Section 6.4.2.2	See Section 6.4.2.2
Terminal Curb Frontage (lin ft)	1,377	1,377	1,377	1,377	1,432
Service Roads	See Section 6.4.2.3	See Section 6.4.2.3	See Section 6.4.2.3	See Section 6.4.2.3	See Section 6.4.2.3
Automobile Parking					
Short-term Spaces	151	352	415	482	559
Long-term Spaces	1,032	821	968	1,125	1,305
Employee Spaces	153	168	198	230	266
Rental Car Spaces	191	209	247	287	333
General A viation Spaces	520	316	339	372	417
Aircraft Storage Hangars					
T-Hangars	122	145	161	180	193
Conventional Hangars	17	21	23	26	28
GA Aircraft Parking Apron					
Conventional Hangar Apron (sq yd)	42,757	46,729	51,760	58,067	62,053
Tie-Down Apron (sq yd)	48,647	48,647	48,647	48,647	48,647
Aircraft Fuel Storage (Gal.)					
Jet A	160,000	160,000	185,000	255,000	350,000
100LL	30,000	30,000	35,000	45,000	65,000
Land Acquisition	None	None	None	None	1.5 Acres

Source: PBS&J, 2002

Source: PBS&J, 2002

IDENTIFICATION AND EVALUATION OF ALTERNATIVES

7

ST. PETERSBURG-CLEARWATER INTERNATIONAL AIRPORT

7.1 GENERAL

The primary objective of this chapter is to evaluate potential development alternatives and identify an overall development plan for St. Petersburg-Clearwater International Airport (PIE) that will meet the Airport's aviation needs over the planning period. Now that airside and landside facility requirements have been identified, various development concepts that will provide facilities must be evaluated. This chapter will review various Airport development alternatives necessary to satisfy the facility requirements identified in Chapter 6. Since the possible combinations of alternatives can be endless, some logical judgment and foresight was applied to identify those alternatives that would have the greatest potential for implementation while meeting the projected demand. Subsequent chapters will define how the selected alternatives are to be implemented.

7.2 DEVELOPMENT CONSIDERATIONS

Prior to determining the ultimate development plan, the various airside, landside, and general airport requirements were identified in Chapter 6, Facility Requirements. The evaluation criteria for each requirement and subsequent alternative may vary with each particular functional area. In general, the criteria used in the alternatives review and evaluation process can be grouped into four general categories. These include:

1. Operational – Any selected development alternative should be capable of meeting the Airport's facility needs as they have been identified for the planning period. The preferred development plan should resolve any existing and/or projected deficiencies as they relate to Federal Aviation Administration (FAA) design and safety criteria.
2. Environmental – Airport growth and expansion has the potential to impact the Airport's environs. The selected plan should seek to minimize environmental impacts in the areas outside the Airport's boundaries. Alternatives should also seek to obtain a reasonable balance between expansion needs and off-site acquisition and relocation needs. The preferred development plan should also recognize sensitive environmental features that may be impacted by the alternatives evaluated herein.
3. Cost – Some alternatives may result in excessive costs as a result of expansive construction, acquisition, or other development requirements. In order for a preferred alternative to best serve the Airport and the community it must satisfy development needs at reasonable costs.
4. Feasibility – The selected alternative should be capable of being implemented. Therefore, the development plan must be acceptable to the FAA, Florida Department of Transportation (FDOT), city and county government, and the community served by the Airport. The preferred development options should proceed along a path that supports the area's long-term economic development and diversification objectives.

The following sections will use these criteria in evaluating those alternatives which best meet the Airport's long-term planning goals and development needs.

Development alternatives are presented in the following separate but interrelated functional areas of the Airport:

- Airfield configuration
- Land use/land acquisition
- Landside facilities – building areas
- Landside facilities – surface access

It should be noted that any evaluation of alternatives could also include a "no action" alternative. However, a "no action" alternative does not meet the forecast requirements of the Airport and would effectively reduce the quality of services being provided to the general public, and potentially affect the St. Petersburg-Clearwater area's ability to accrue additional economic growth. A "no action" alternative in any of the functional areas identified would limit future development at PIE to the existing airside and landside configuration and those projects necessary to meet forecasted demand. No additional development, with the exception of tenant-funded projects, would be made over the 20-year planning period.

In addition to limiting Airport growth potential, this approach would continue to restrict activity by larger passenger and/or cargo aircraft, thus decreasing the potential for attracting charter and/or scheduled commercial air service. Projected increases in both commercial and general aviation (GA) operations would be limited due to inadequate facilities. Additionally, actual increases in based aircraft may be less than forecast due to a lack of available hangar space and high construction lag times that typically occur with reactive approaches to development. This alternative would not meet the forecast needs of the Airport nor the previously discussed development evaluation criteria.

7.3 AIRFIELD CONFIGURATION

The runways and taxiways are the focal point of the Airport complex, and airfield facility requirements are often the most critical factor in the determination of viable development alternatives. In particular, the runway system often has the greatest influence on the location and overall development of other Airport facilities.

The potential for physical expansion of the Airport to accommodate airfield development is a primary factor that determines long-term expansion. The runway and taxiway system directly affects the efficiency of aircraft movements both on the ground and in the surrounding airspace. Thus, the overall capacity of an airport to accommodate aviation activity is directly related to the efficiency and capabilities of the airfield system. Additionally, the runway and taxiway system can limit the ability of the Airport to handle certain aircraft, which can directly affect the types of air service the Airport can accommodate.

The airfield's existing configuration of four runways accommodates the current fleet mix and air traffic levels. However, the airfield's configuration and volume of aircraft operations have the Airport operating at nearly 100 percent of its capacity. Forecasted increases in both GA and commercial operations will exacerbate the capacity situation and significantly limit the Airport's ability to operate effectively and handle the anticipated increase in activity.

To address these issues, it will be necessary to augment the operational capacity of the airfield to effectively accommodate the increase in traffic expected, as well as the aircraft mix anticipated to use the Airport. This will entail extension and relocation of runways; closure, expansion, and construction of taxiways; and relocation and construction of navigational and approach aids.

7.3.1 Runway Improvements

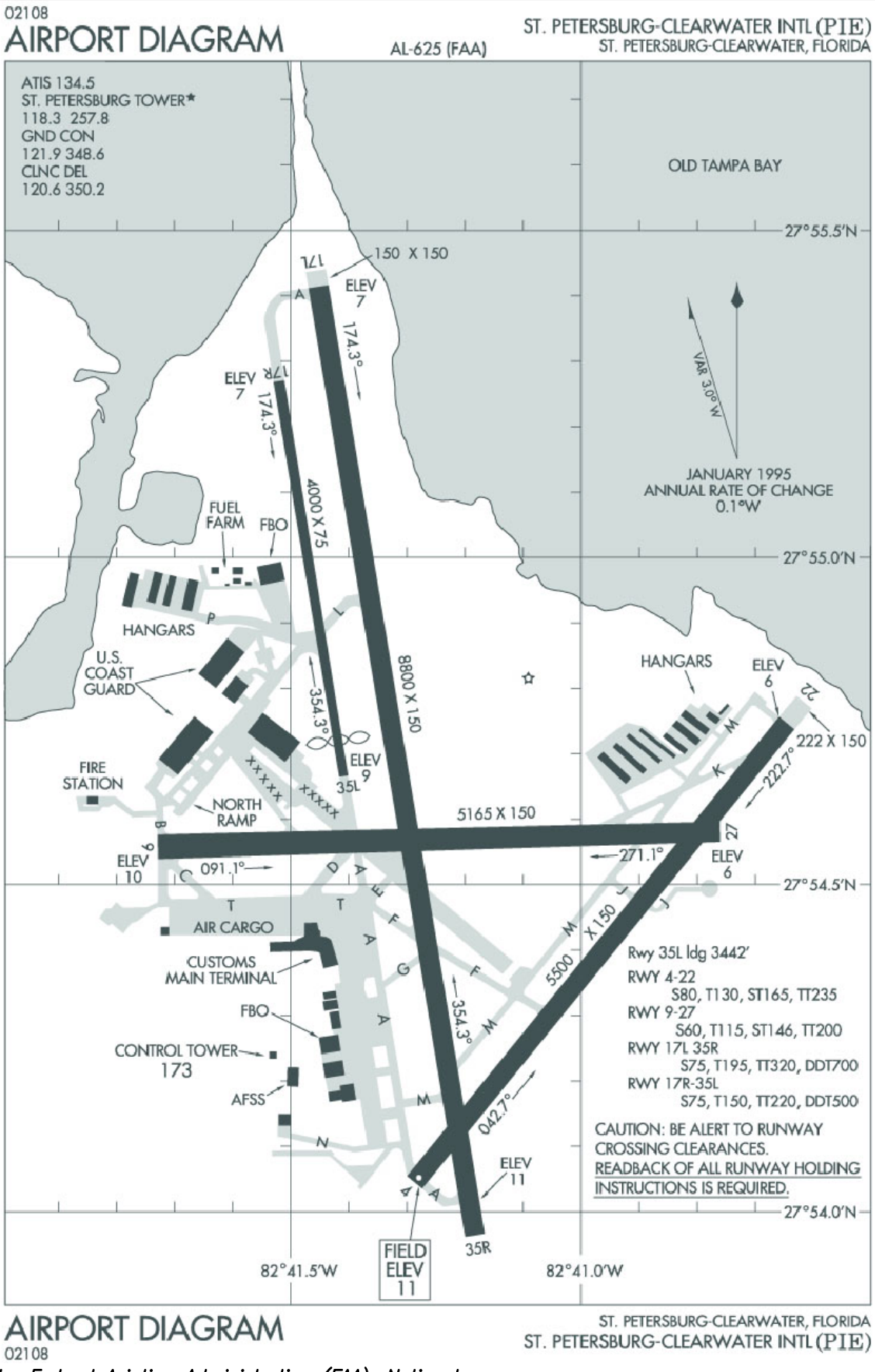
The following sections outline the runway improvements that are deemed as necessary for the Airport to gain maximum capacity, and will be included and evaluated within three overall airfield alternatives. The overall airfield alternatives will incorporate runway and taxiway improvements from these sections as appropriate to meet the needs identified in Chapter 6. **Figure 7-1** illustrates the existing runway/taxiway configuration at the Airport.

7.3.1.1 Extend Runway 17L-35R

Runway 17L-35R is the primary runway at PIE and is 8,800 feet long by 150 feet wide. The existing airport layout plan (ALP) includes an extension of 1,200 feet for a total runway length of 10,000 feet. Based on the forecasts presented in Chapter 4 and the subsequent facility requirements in Chapter 6, the planned extension of Runway 17L–35R will be necessary to accommodate the forecast increase in activity by international carrier utilizing large commercial aircraft such as the Boeing 747. These aircraft typically require takeoff lengths in excess of 9,500 feet, especially for takeoff on hot summer days to destinations with long stage lengths.

The runway extension, that is currently under design, will be constructed on both ends of the runway and utilize displaced thresholds to provide the longest available takeoff length possible. A 300-foot extension to the 17L end will create a displaced threshold and be used solely for takeoff on 17L and roll-out of aircraft landing on Runway 35R. A 900-foot extension is proposed for the 35R end of the runway. All 900 feet will be available for takeoff on 35R and roll-out on 17L; however, a 900-foot displaced threshold (necessary for approach clearance over Ulmerton Road) will make only 300 feet of the extension available for landing traffic on Runway 35R.

The runway extension and use of displaced thresholds will allow the Airport to meet takeoff requirements and overall demands of the larger forecast aircraft while minimizing off-airport land use impacts and obstruction concerns. The runway extension will also provide the required runway safety areas beyond each runway end to meet current runway safety area requirements. The runway extension is anticipated to be complete in 2004.



Source: The Federal Aviation Administration (FAA), National Aeronautical Charting Office (NACO), May 15, 2003

PBS&J	St. Petersburg - Clearwater International Airport	Runway / Taxiway Configuration	Figure 7-1

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7.3.1.2 Relocate Runway 17R-35L

Currently Runway 17R-35L is located to the west of Runway 17L-35R and is 4,000 feet long by 75 feet wide. The runway is integrated with Taxiway A, a parallel taxiway to Runway 17L-35R with a 500-foot offset. As a result, Runway 17R-35L is unusable when aircraft are taxing on Taxiway A. Additionally, Runway 17R-35L is unusable when aircraft are operating on Runway 17L-35R, as the runway centerline separation between 17L-35R and 17R-35L is 500 feet and does not meet the minimum separation requirements of 700 feet established by the FAA to allow simultaneous operations of both runways.

Therefore, due to the significant operational restrictions of Runway 17R-35L, the runway should be relocated as proposed on the previous ALP, to attain the benefits of parallel runways with adequate separation criteria and the additional airfield capacity. The relocation of Runway 17R-35L to a distance of 700 feet or greater and parallel to Runway 17L-35R can provide additional capacity of up to 158,000 annual aircraft operations, a 68 percent increase in annual service volume. The relocation of Runway 17R-35L cannot occur unless Runway 9-27 is deactivated, as it creates additional runway intersections limiting the maximum capacity afforded by the new runway, increasing air traffic control tower (ATCT) workload, and creating the potential for increased runway incursions. Three alternatives have been identified for the relocation of Runway 17R-35L. The potential locations are:

- 400 feet east of the existing Runway 17L-35R in conjunction with a new full-length parallel taxiway.
- 800 feet east of the existing Runway 17L-35R to allow for simultaneous arrivals and departures during visual flight rules (VFR) conditions.
- 1,650 feet east of the existing Runway 17L-35R in the southeast corner of the Airport (Airco property), utilizing staggered thresholds to increase runway separation for airfield capacity.

The above locations present the most feasible runway relocation sites providing some level of additional operational capabilities. These locations will be evaluated with the other runway improvements discussed in this section, as well as the taxiway improvements to be identified later, to determine the best location for the runway.

7.3.1.3 Deactivate Runway 9-27

Runway 9-27 is 5,165 feet long and 150 feet wide and crosses Runway 17L-35R approximately midway along the runway and continues on to intersect Runway 4-22 near the Runway 22 end. Runway 9-27 would also likely intersect the relocated runway (17R-35L). As discussed in Chapters 5 and 6, the effects of these multiple runway intersections have worked to reduce overall airfield capacity at PIE and increase ATCT workload and the potential of runway incursions.

Furthermore, the overall annual utilization of 9-27 is extremely low, approximately 12 percent for Runway 9 and one percent for Runway 27 during VFR conditions. The runway does not have instrument approach capabilities and is closed during instrument flight rules (IFR) conditions. In addition, the majority of activity on Runway 9 is U.S. Coast Guard helicopters that would be better accommodated by one or more new helipad(s) closer to their facilities. Other aircraft utilizing the runway, during periods of excessive crosswind conditions on the other runways (17L-35R, 17R-35L, and 4-22) are predominantly small GA aircraft.

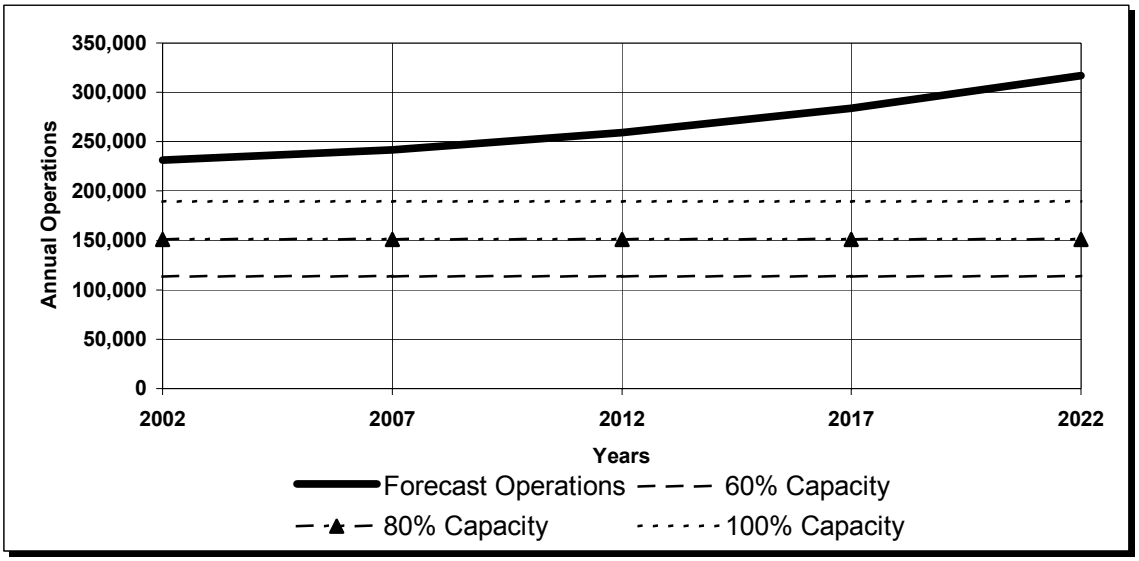
The existing ALP includes the deactivation of Runway 9-27 and conversion to a taxiway. Due to the low overall utilization of Runway 9-27 and the reduction of airfield capacity on the airfield system, the planned deactivation of Runway 9-27 is warranted. However, portions of the runway should be remarked and used as a new taxiway. This will reduce the number of runway intersections and conflicts that are currently limiting airfield capacity and enhance the existing taxiway system that is also considered less than adequate. Additionally, deactivating the runway will open up areas on the west side of the airfield near the commercial terminal building area for additional landside development. This area is currently unusable due to the restrictions imposed by the Runway 9-27 safety area, obstacle free zone, and Part 77 surfaces.

It is important to note that the deactivation of Runway 9-27 cannot occur until additional airfield capacity is provide to compensate for the loss of Runway 9-27, such as the relocation of Runway 17R-35L. Taking Runway 9-27 out of service before additional capacity enhancement measures are provided will reduce the airfield ASV by 42,400 annual operations, or a reduction of 18.3 percent. **Table 7-1 and Figure 7-2** depict the loss of ASV with Runway 9-27 deactivated without other capacity enhancements.

Table 7-1. Airfield Capacity With and Without Runway 9-27

Airfield Capacity			
% of ASV Capacity	With RWY 9-27	Without RWY 9-27	% Increase - Decline
60.00%	138,931	113,501	-18.30%
80.00%	185,241	151,335	-18.30%
100.00%	231,552	189,169	-18.30%

Figure 7-2. Airfield Capacity Without Runway 9-27



7.3.1.4 Extend Runway 4-22

Runway 4-22 is currently 5,500 feet long and 150 feet wide and has a current airport reference code designation of B-II. As discussed in Chapter 6, it is not possible to extend Runway 4-22 to meet FAA recommended guidelines that crosswind runways be 80 percent of the primary runway, due to the existing airport property boundaries, adjacent and off-airport land uses, and FAA requirements for safety areas. Therefore, only an 875-foot extension to the runway is feasible. Additionally, due to the 34:1 non-precision approach to Runway 4 and structures (Ulmerton and Roosevelt interchange) along the flight path, only 525 feet of the total runway extension may be used for landing. The remaining 350 feet of displaced threshold may be used for takeoff on Runway 4 and/or rollout for landing aircraft on Runway 22. Thus, Runway 4-22 should be extended 875 feet to a total length of 6,375 feet.

The extension of Runway 4-22 will result in a change of the runway's current ARC designation of B-II, as the longer length will make the runway available to larger and higher performing aircraft. Evaluating the existing airfield infrastructure supporting the runway, parallel Taxiway M, offset separation from the runway is 350 feet, which exceeds current ARC B-II setback requirements of 240 feet, but meets B-III setback requirements for runways with lower than ¾ mile approach visibility minimums. Although Runway 4 has a non-precision approach of greater than ¾ mile, a B-III designation will preserve the flexibility to pursue lower minimum approach capability in the future if desired. An ARC designation above B-III requires a 400-foot separation between the runway and taxiway, which would require a waiver from the FAA or construction of a new taxiway. As neither of these options is recommended, the B-III designation will give the ability for the runway to handle larger aircraft, including commuter turboprop aircraft such as the Bombbardier/DeHavilland Dash 8 series aircraft or the Aerospatiale ATR 42-72 series aircraft, some of the largest aircraft in the Aircraft Group B-III category.

The runway's current width of 150 feet exceeds current standard width of 75 feet for B-II runways. A B-III runway requires a 100-foot width. Therefore, the width of the runway should be reduced to 100 feet. There is an economic benefit of reducing the runway's width. The FAA will only issues grants for the eligible width of the runway (i.e., the center 100 feet of the runway). The pavement outside the design width is not eligible and any costs for repair or reconstruction are borne by the Airport and FDOT.

Changing the runways ARC designation to B-III will require greater runway safety area width and length beyond the runway ends. The safety area width will increase from 150 feet wide to 300 feet and the length beyond the runway ends will increase from 300 feet to 600 feet. While the approach end of Runway 4 has adequate space for an unobstructed safety area length and width, Runway 22 will require a displaced threshold of approximately 500 feet to meet B-III runway safety area standards.

The extension of Runway 4-22 will help toward balancing the airfield system and will meet FAA guidelines for crosswind runways to the extent possible. Additionally, ATCT staff will have increased flexibility to assign larger aircraft to 4-22 in order to increase operational efficiency and overall capacity.

7.3.2 Taxiway Improvements

The following sections outline the taxiway improvements that have been considered. The overall airfield alternatives will incorporate taxiway improvements from these sections as appropriate to meet the needs identified in Chapter 6.

7.3.2.1 Parallel Taxiways

As discussed in Chapters 5 and 6, full-length parallel taxiways in conjunction with adequate entrance and exit taxiways on a runway are necessary in order to obtain the highest level of airfield capacity. Currently, none of the four runways at the Airport have dual full-length parallel taxiways. The full-length Taxiway A is located 5,000 feet west of Runway 17L-35R; however, a portion of this taxiway also serves as Runway 17R-35L. Utilizing a portion of Taxiway A as a runway requires clear restrictions on the use of Runway 17L-35R and Taxiway A. Portions of Taxiway A, beyond the ends of the landing thresholds of Runway 17R-35L, may not be used when 17R-35L is active.

Likewise, Runway 17R-35L may not be used for aircraft arrivals and departures when other aircraft require Taxiway A for taxiing to and from Runway 17L-35R. These restrictions typically work to increase aircraft delay and limit the capacity of a parallel taxiway.

Parallel Taxiway M is located east of Runway 4-22 and accesses the full length of the runway through use of the Taxiway A. No other parallel taxiways currently exist at PIE.

In order to reduce the taxi time to and from the Airport's runways and maximize overall capacity, full-length parallel taxiways should be constructed for each active runway. Dual parallel taxiways should be considered when aviation development warrants taxiway access on both sides of a runway. Additionally, it is desirable that parallel taxiways be utilized only for aircraft taxiing and not as a dual runway/taxiway operation. Furthermore, each full-length parallel taxiway should seek to provide the most direct access to each end of the runway, limiting the number of jogs in alignment and/or runway crossings to as few as possible. These improvements to the parallel taxiways at PIE will significantly increase the overall airfield capacity at the Airport.

7.3.2.2 Entrance and Exit Taxiways

As with parallel taxiways, adequate entrance and exit taxiways are instrumental in allowing aircraft to exit the runway, reducing delays and helping increase overall capacity. Guidance provided in the FAA Advisory Circular (AC) 150/5060-5, *Airport Capacity and Delay*, requires a minimum of four entrance/exit taxiways, spaced at least 750 feet apart and located 2,000 and 4,000 feet from the landing threshold, to maximize airfield capacity.

Currently, none of the active runways at PIE have four entrance/exit taxiways that meet the requirements to enhance overall airfield capacity.

Currently, none of the active runways at PIE have four entrance/exit taxiways that meet these requirements to enhance overall airfield capacity. Additionally, many of the existing entrance and exit taxiways at the Airport intersect at various angles and locations creating less than desirable conditions for airfield capacity and increasing the possibility for pilot confusion and error. Thus, construction of additional taxiways in conjunction with the proposed runway extensions and full-length parallel taxiways should be completed. The number of new taxiways and runway placement should be planned according to FAA guidelines and based on the forecast operations and associated mix index in order to enhance airfield capacity. Additionally, existing taxiways that become unnecessary or create operation conflicts and confusion should be removed to simplify the overall taxiway system.

7.3.2.3 High-Speed Taxiways

In addition to adequate parallel and entrance/exit taxiways, acute angle or "high speed" taxiways are often used to increase the rate at which landing aircraft can depart the runway, thus increasing overall airfield capacity. High-speed taxiways reduce aircraft runway occupancy times and allow the runway system to process more aircraft. This increases overall capacity by allowing aircraft to depart the runway at higher speeds and free air traffic control (ATC) to clear landing and departing traffic sooner. Standard 90-degree angle exit taxiways typical at many airports require slower aircraft maneuvering speeds for runway exit.

Currently the Airport has only three taxiways (Taxiways F, E, and G) that may be misinterpreted as high-speed taxiways. Though these taxiways are at acute angles to Runway 17L-35R, their location, dimension, and overall design limits the speed at which aircraft can depart the runway and the number of aircraft that can actually utilize these taxiways. Additionally, these taxiways are in close proximity to the terminal area, and aircraft departing the runway via Taxiways E and F are likely to enter the terminal apron area at higher than desirable taxi speeds.

Therefore, new high-speed taxiways should be constructed according to FAA guidelines in order to capture an increased amount of aircraft traffic at an appropriate exit speed. Four high-speed taxiways to each parallel taxiway should be constructed to accommodate landing traffic in both directions on Runway 17L-35R. This will provide access to the east and west side of the Airport, reducing runway occupancy times and increasing overall airfield capacity.

7.3.3 Airfield Development Alternatives

The following sections outline the airfield development alternatives incorporating the airfield proposed development described in the previous section. From this analysis, which will evaluate three possible airfield development alternatives, a selected preferred alternative will be determined. The alternatives discussed in the following sections have been evaluated according to the overall needs at PIE and the development considerations identified previously.

7.3.3.1 Airfield Alternative 1

Alternative 1 maximizes airfield capacity by incorporating all necessary runway and taxiway improvements previously identified. Under this alternative, Runways 17L-35R and 4-22 would be extended 1,500 feet and 875 feet, respectively. The runway extensions will provide adequate takeoff length on the primary runway for the forecast fleet mix and provide a crosswind runway that is capable of handling a higher percentage of the larger aircraft. Runway 17R-35L would be relocated 800 feet to the east of Runway 17L-35R, approximately midway along the primary runway. The relocated runway would be approximately 3,700 feet long by 75 feet wide and runway designations would be modified in conjunction with the relocation (i.e., 17L-35R becomes 17R-35L). This relocation would allow simultaneous arrivals and departures on the parallel runways during VFR conditions and significantly increase airfield capacity. In addition, Taxiway A would be used solely for aircraft taxi and thus reduce delays inherent with integrated runway/taxiway configuration. The relocation of 17R-35L would also aid in separating GA operations from larger air carrier and cargo traffic.

Additionally, Runway 9-27 would be deactivated to reduce runway intersections that are currently restricting airfield capacity. The runway would be remarked and used as a taxiway. Runway markings would be relocated to coincide with the runway extensions.

Taxiway improvements include the construction of dual full-length parallel taxiways to all runways, which will include adequate entrance/exit taxiways at critical distances to increase airfield capacity. Furthermore, high-speed taxiways will be constructed on Taxiway A initially, as well as on the proposed parallel taxiway on the east side of Runway 17L-35R when it is constructed. The high-speed taxiways will reduce runway occupancy times and further enhance capacity. Existing taxiways K, G, F, E, and M-1 between 17L-35R and Taxiway A would be deactivated and abandoned.

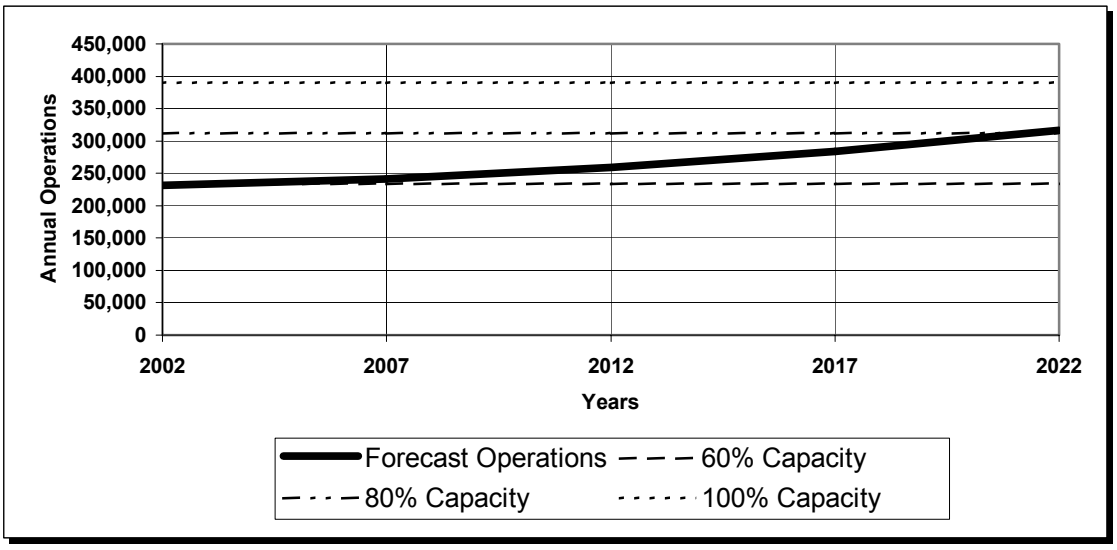
Finally, U.S. Coast Guard helicopter traffic, which currently uses Runway 9 for arrivals and departures, would be relocated to a new helipad(s) located near the Coast Guard facilities. This will reduce conflicts and delays caused by mixing helicopter and fixed wing aircraft traffic and increase operational efficiency for the Coast Guard helicopters.

Under Alternative 1 airfield capacity would be increased significantly while existing development areas remain available for future development. Additionally, property near the commercial terminal where Runway 9 is situated would be available for expansion of the terminal and cargo areas. Furthermore, relocating Runway 17R-35L to the east of the primary runway would essentially separate commercial and light GA traffic. **Table 7-2** and **Figure 7-3** depict the overall airfield capacity increase of 68 percent that Alternative 1 will provide**. Figure 7-4** illustrates the airfield configuration and overall development included in Alternative 1.

Table 7-2. Alternative 1 ASV Capacity Increase

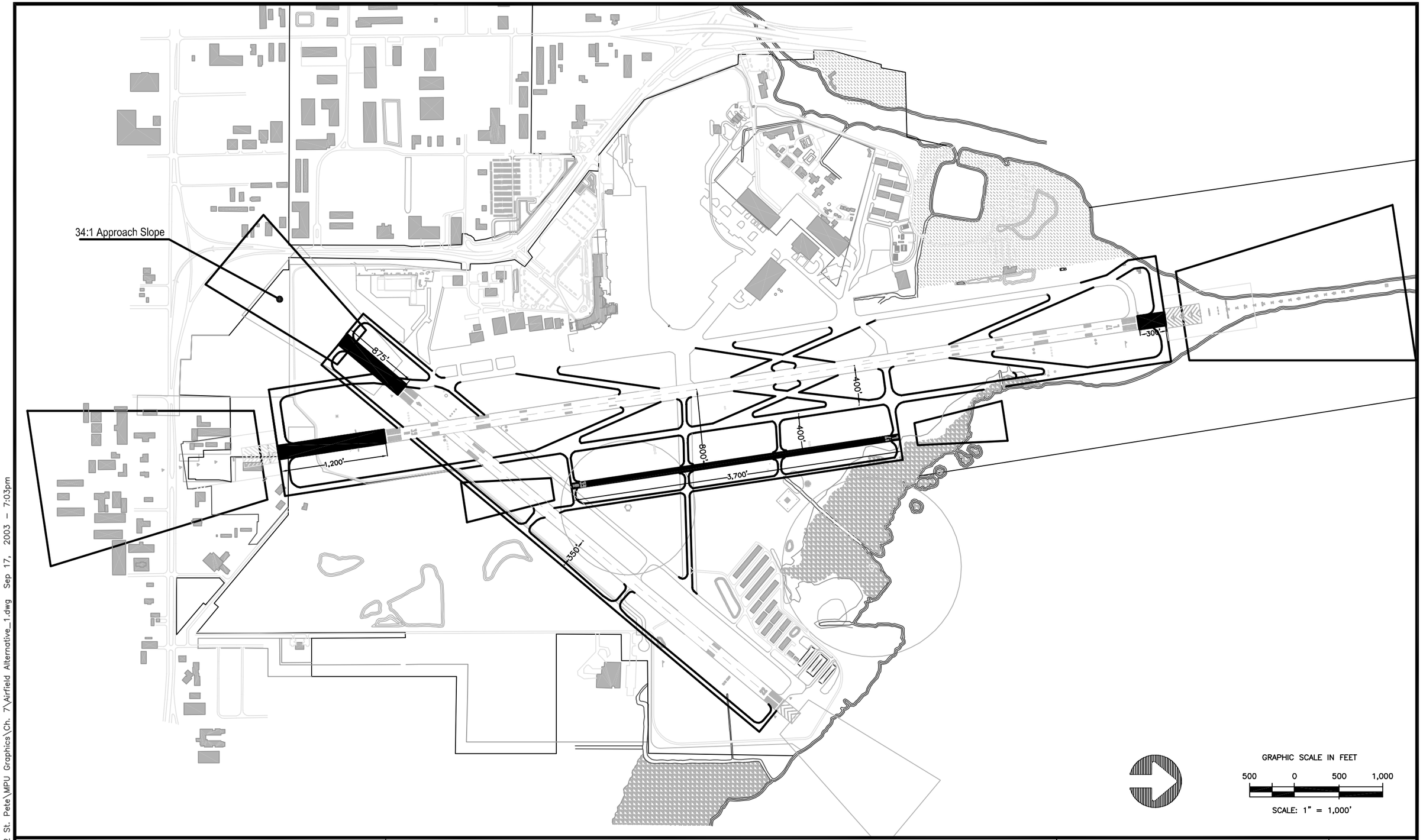
Airfield Capacity			
% of ASV Capacity	**Alt 1 Capacity**	**Existing Capacity**	**% Increase - Decline**
60.00%	233,738	138,931	68.24%
80.00%	311,651	185,241	68.24%
100.00%	389,564	231,552	68.24%

Figure 7-3. Alternative 1 - New GA Parallel Runway > 700 ft Separation from Runway 17L-35R



7.3.3.2 Airfield Alternative 2

As in Alternative 1, Alternative 2 seeks to maximize airfield capacity by utilizing runway and taxiway improvements. Alternative 2 includes runway extensions to Runways 17L-35R and 4-22 as described in Alternative 1. Additionally, the deactivation and partial use for the taxiway of Runway 9-27, as described previously, remains the same in Alternative 2. However, under Alternative 2 Runway 17R-35L is relocated 400 feet east of the primary runway (17L-35R) and is incorporated into a new parallel taxiway to 17L-35R, much like the existing configuration. This relocation will work to separate light GA traffic from commercial operations in the terminal area. Thus, delays currently being experienced from the interaction of light GA and large commercial aircraft would be significantly reduced. It should be noted though, restrictions governing the use of the relocated runway in conjunction with aircraft arriving and departing on 17L-35R or taxiing on the new east parallel taxiway will be necessary and continue to limit the use of the relocated 17R-35L. Additionally, simultaneous arrivals and departures would not be possible, due to the 400-foot runway separation, under this scenario.



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Development Alternatives
Airfield Alternative 1

Figure 7-4

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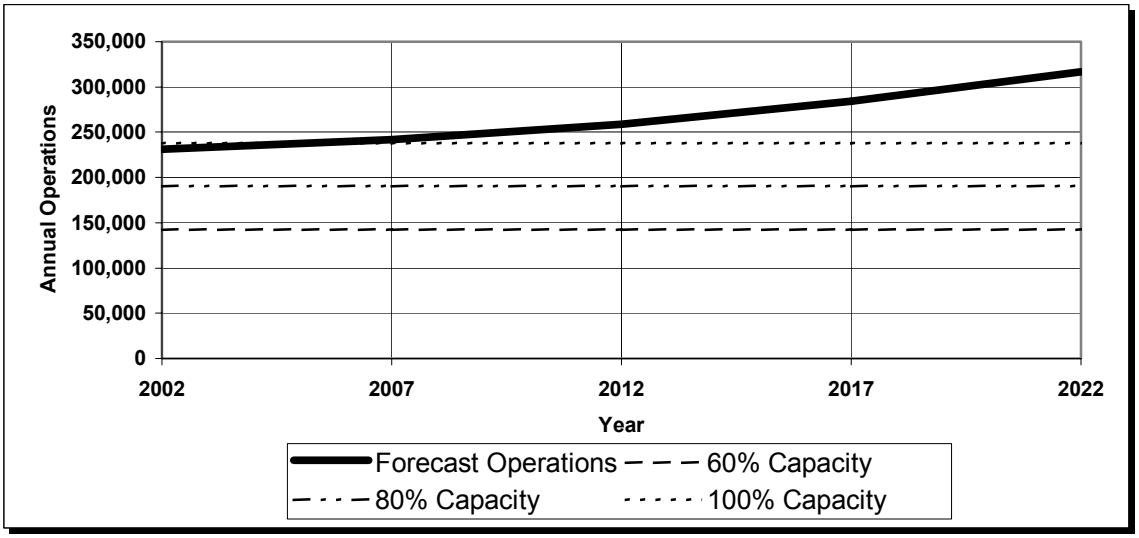
Alternative 2 includes the construction of dual parallel taxiways for Runways 17L-35R and 4-22. These taxiways would also include adequate entrance/exit taxiways as described previously. High-speed taxiways, as identified in Alternative 1, would also be constructed on the primary runway. No parallel taxiways would be provided for the relocated 17R-35L. Existing Taxiways E, G, and F from Taxiway A to the proposed parallel taxiway to 17L-35R would be deactivated and abandoned. Finally, as in Alternative 1, a new helipad(s) would be constructed on or near U.S. Coast Guard property to accommodate helicopter traffic.

Alternative 2 would increase airfield capacity by only 2.54 percent, primarily through the addition of full-length parallel taxiways, entrance/exit taxiways, and high-speed taxiways along the primary runway (17L-35R). In addition, the relocation of Runway 17R-35L would work to separate light GA from commercial activity. However, operational restrictions on the use of the relocated 17R-35L would remain and continue to limit the capacity of that runway. **Table 7-3** and **Figure 7-5** depict the capacity increasing ASV with Alternative 2. **Figure 7-6** illustrates the airfield configuration and overall development included in Alternative 2.

Table 7-3. Alternative 2 ASV Capacity Increase

Airfield Capacity			
% of ASV Capacity	Alt 2 Capacity	Existing Capacity	% Increase - Decline
60.00%	142,460	138,931	2.54%
80.00%	189,947	185,241	2.54%
100.00%	237,434	231,552	2.54%

Figure 7-5. Alternative 2 - New GA Parallel Runway with 400 ft Separation from Runway 17L



34:1 Approach Slope

875'

1,200'

400'

3,700'

300'

GRAPHIC SCALE IN FEET

500 0 500 1,000

SCALE: 1" = 1,000'

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Development Alternatives
Airfield Alternative 2

Figure
7-6

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7.3.3.3 Airfield Alternative 3

Alternative 3 includes the runway and taxiway improvements discussed previously in an effort to increase airfield capacity. The Runway 17L-35R and 4-22 extensions, deactivation of Runway 9-27, construction of full-length parallel taxiways, entrance/exit taxiways, and high-speed taxiways on the primary runway, as discussed in Alternatives 1 and 2, are included in Alternative 3. These improvements will enhance the overall operational safety and capacities of the airfield system at PIE that have been included in all three alternatives. Alternative 2 differs most significantly from the previous alternatives in the placement of relocated Runway 17R-35L.

Under Alternative 3, 17R-35L would be relocated 1,655 feet east of 17L-35R, parallel to the 35R end, in the southeast quadrant of the Airport (Airco Golf Course). Additionally, the relocated 17R-35L will be approximately 400 feet longer than in Alternatives 1 and 2 for a total length of 4,100 feet. Relocating the runway 1,655 feet from Runway 17L-35 and utilizing staggered thresholds; increased simultaneous operations can be accommodated. Thus, the overall airfield capacity can often be increased to a level greater than that obtained with the 700 feet of separation. Additionally, as in Alternative 1, dual full-length parallel taxiways would be included with the relocated runway to further enhance capacity.

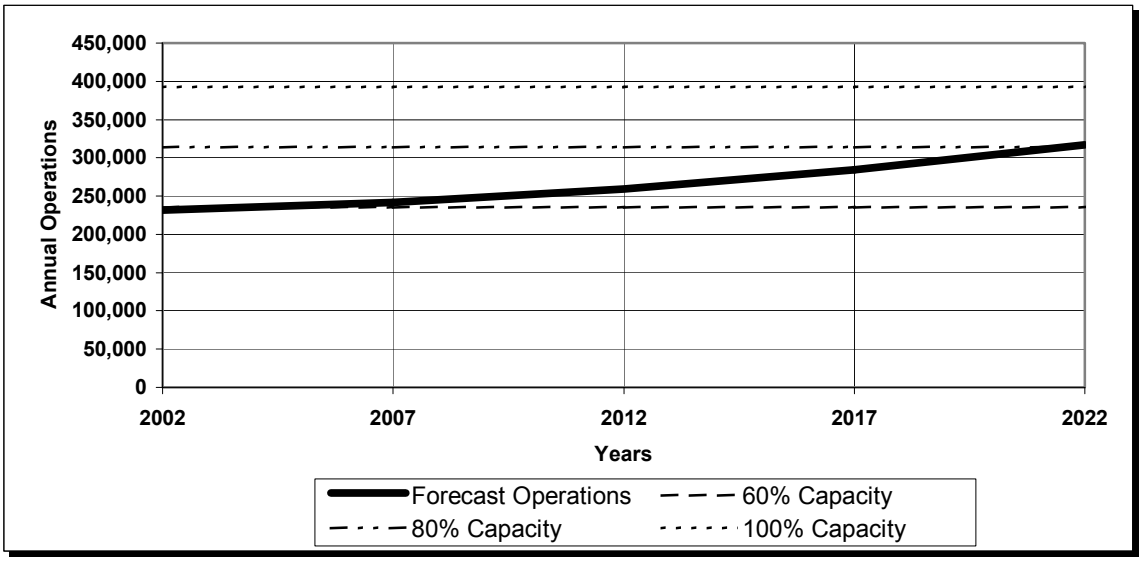
The relocation of 17R-35L will also separate light GA traffic from larger commercial aircraft operating on the primary runway (17L-35R) and in the terminal area. However, with the relocated 17R-35L to the southeast corner of the Airport, future commercial non-aviation development that is currently under consideration by the Airport would not be possible. Only land areas between the Runway 35R end and the relocated runway and near the intersection of the relocated runway and 4-22 could be developed as aviation uses.

Alternative 3 would increase airfield capacity through the addition of full-length parallel taxiways, entrance/exit taxiways, and high-speed taxiways, deactivating Runway 9-27 and relocating Runway 17R-35L to the southeast corner of the Airport. The ability of the parallel runways (17L-35R and 17R-35L) to process arrivals and departures would be further enhanced by utilizing staggered thresholds to increase the overall runway separation in terms of airfield capacity. In addition, the relocation of Runway 17R-35L would work to separate light GA from commercial activity. However, significant land area would be required for the relocated runway and areas that are currently planned for commercial aviation development would no longer be available. **Table 7-4** and **Figure 7-7** show the capacity increase of 69 percent that Alternative 3 can provide. **Figure 7-8** illustrates the airfield configuration and overall development included in Alternative 3.

Table 7-4. Alternative 3 ASV Capacity Increase

Airfield Capacity			
% of ASV Capacity	Alt 3 Capacity	Existing Capacity	% Increase - Decline
60.00%	235,203	138,931	69.29%
80.00%	313,604	185,241	69.29%
100.00%	392,005	231,552	69.29%

Figure 7-7. Alternative 3 - New GA Parallel Runway > 1,500 ft Separation from Runway 17L-35R



34:1 Approach Slope

875'

1,200'

1,655'

4,100'

400'

300'

350'

GRAPHIC SCALE IN FEET

500 0 500 1,000

SCALE: 1" = 1,000'

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Development Alternatives
Airfield Alternative 3

Figure
7-8

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7.3.4 Preferred Airfield Alternative

Based on the development considerations discussed previously, Alternative 1 has been identified as the preferred airfield alternative. Only this alternative provides an expansion program that most effectively meets the overall short-, medium-, and long-range goals at the Airport, in a manner that preserves the most substantial amount of available land on-airport for future development, while significantly increasing airfield capacity at PIE. Additionally, Alternative 1 will help separate light GA activity from larger commercial aircraft while still maintaining the overall movement areas to the center of the Airport. Due to clearance requirement of its critical area, the TVOR located near the intersection of Runway's 9-27 and 4-22 in the southeast quadrant of the airfield will need to be relocated 200 feet northeast of its present location to allow for the placement of the new Runway 17L-35R. The relocation of the TVOR may affect future T-hangar placement to maintain clearance of the TVOR's critical area.

Only the first alternative provides an expansion program that most effectively meets the overall short-, medium-, and long-range goals at the Airport.

With the preferred airfield alternative identified, a capacity calculation, which utilized the methods and formulas described in Chapter 5, was completed to determine the future capacity of the airfield in 2022. Additionally, the hourly capacity and annual service volume (ASV) for long-range planning, which is presented in FAA AC 150/5060-5, was reviewed to check and verify the accuracy of the Airport specific calculation. **Table 7-5** presents the resulting VFR and IFR hourly capacities, as well as the Airport's ASV, with completion of the improvements identified in the preferred alternative (Alternative 1), according to Airport specific calculations and FAA long-range planning data.

Table 7-5. Future Capacity vs. Forecast Demand*

Data	Year	Aircraft Mix Index	Annual Operations	VFR Hourly Capacity	IFR Hourly Capacity	Annual Service Volume (ASV)	Percent ASV
Airport Specific Calculation	2022	11.6%	303,445	179	58	353,280	85.9%
FAA Long Range Planning	2022	11.6%	303,445	197	59	355,000	85.5%

*Note: *Assumes all airfield capacity improvements identified in the preferred alternative are implemented by 2022.*

Source: FAA AC 150/5060-5, Airport Capacity and Delay and PBS&J, 2002

7.4 LANDSIDE FACILITIES – BUILDING AREAS

7.4.1 Terminal Facilities

The study has focused on the development of the passenger terminal to accommodate the forecast of passenger traffic and aircraft operations for the 2007, 2012, 2017, and 2022 planning intervals. The study effort applied a program methodology to calculate an estimate of the terminal space requirements for each of the planning milestone dates. Utilizing the calculations for each of the special programs, an analysis of the phased terminal expansion alternatives was undertaken.

Conceptual designs for the terminal expansion were developed for both the existing terminal location and a proposed "green field" site within the current airport land use area. During the early phase of the planning process, the "green field" design alternative

was eliminated based on preliminary financial analysis on the replacement terminal concept. Two expansion alternatives for the passenger terminal at the existing location were designed; a linear concept and a pier concept. As recommended by the Design Team, the Airport staff selected the pier concept design solution as the preferred expansion alternative for PIE.

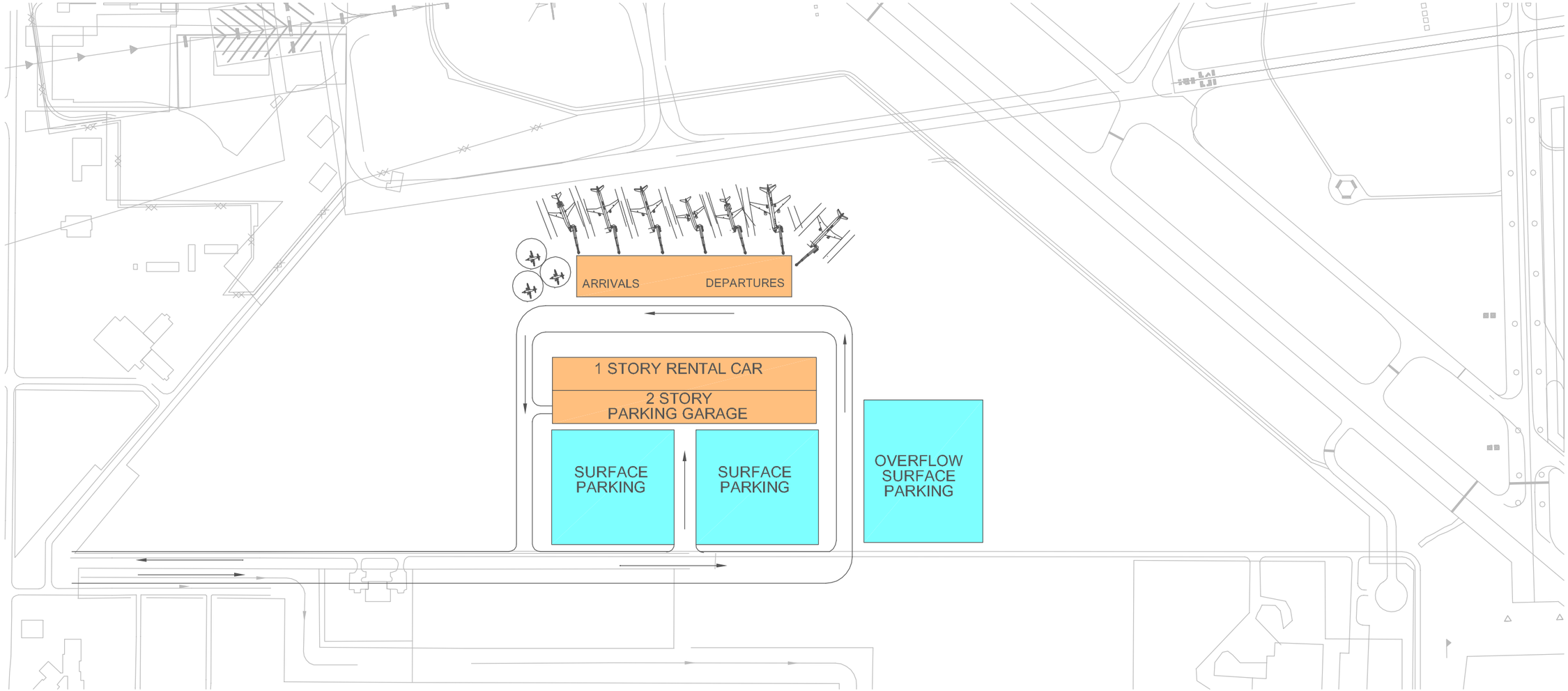
7.4.1.1 Investigation of "Green Field" Replacement Terminal

Preliminary investigation of a replacement terminal on the Airco Golf Course has found that the primary obstacle to the construction of such a project is the negative financial feasibility. A conceptual plan representing a replacement terminal to accommodate passenger traffic to the 2022 planning period was developed, including the required airside and landside infrastructure. As indicated by **Figure 7-9**, the total replacement terminal project would require construction of aircraft ramp and taxiways; terminal roadway/curbside; and parking for the public, rental car agencies, and employee/tenants.

The financial analysis found that the design alternative based on the replacement terminal was not feasible. Preliminary conclusions found that building a new terminal facility complex at the Airco site would not be cost effective, as the County has placed significant investment in the existing terminal location, which can serve adequately for the forecast period. In addition, the cost to develop the Airco site would be more expensive due to all new utilities, roadway infrastructure, terminal building, and related facilities.

7.4.1.2 Terminal Expansion Alternatives at the Existing Terminal Location

Two terminal expansion alternatives were developed and reviewed for PIE. The first alternative explored a linear plan approach for the functional layout of the terminal (**Table 7-6**). The second alternative utilized a pier design for the plan configuration (**Table 7-7**). Each alternative had "Pros" and "Cons" regarding plan organization, site orientation, impact on the existing facility, and project phasing. After a detailed review of both alternatives, the pier concept was selected as the recommended and preferred design solution for the terminal expansion. Refer to **Figure 7-10 and 7-11**.



SITE DIAGRAM - 2022
"GREENFIELD" REPLACEMENT TERMINAL

0 100' 200' 400' 800'

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Greenfield
Alternative

Figure
7-9

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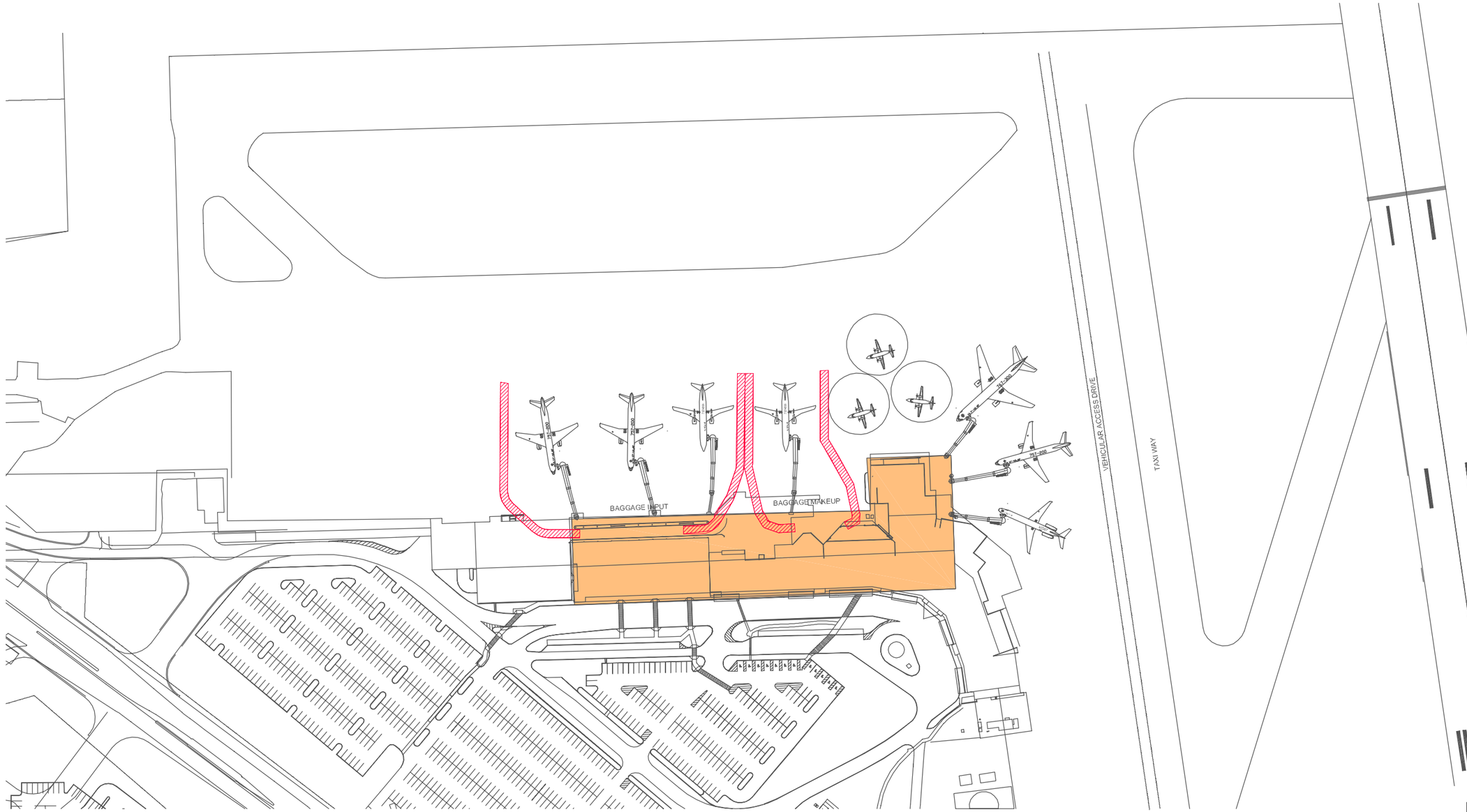
Table 7-6. Linear Plan Pros and Cons

Linear Plan	Pros	Cons
Plan Organization	East to west orientation of passenger hold-rooms on single loaded corridor will provide simple interior plan.	Departing and arriving passenger circulation not reinforced by terminal plan. Passenger way finding is compromised.
Site Orientation	East to west development of aircraft ramp. Minimal impact on existing taxiway.	Poor separation of passenger ground boarding and second level boarding.
Facility Impact	Plan utilizes the existing expansion capabilities over baggage claim for second level boarding gates.	Extensive impact on existing structure and facility systems.
Project Phasing	Expansion plan will use existing corridor along southern façade of terminal.	Second level expansion has major impact on existing terminal. Multiple construction phases required.

Table 7-7. Pier Plan Pros and Cons

Pier Plan	Pros	Cons
Plan Organization	Enhanced passenger way finding with pier plan organized around central security checkpoint.	
Site Orientation	Good separation of ground boarding and second level passenger boarding.	Impact on existing ramp and taxiway will require ramp expansion to the north of the air terminal.
Facility Impact	Administrative offices located over existing second level expansion area of baggage claim.	Impact on existing structure and facility systems.
Project Phasing	Expansion plan will use existing corridor along southern façade of terminal.	Pier plan minimizes some impact of phased expansion over the existing terminal.



AIRPLANE PARKING PLAN - 2022
LINEAR CONCEPT

0 50' 100' 200' 400'

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Linear Terminal Concept

Figure 7-10

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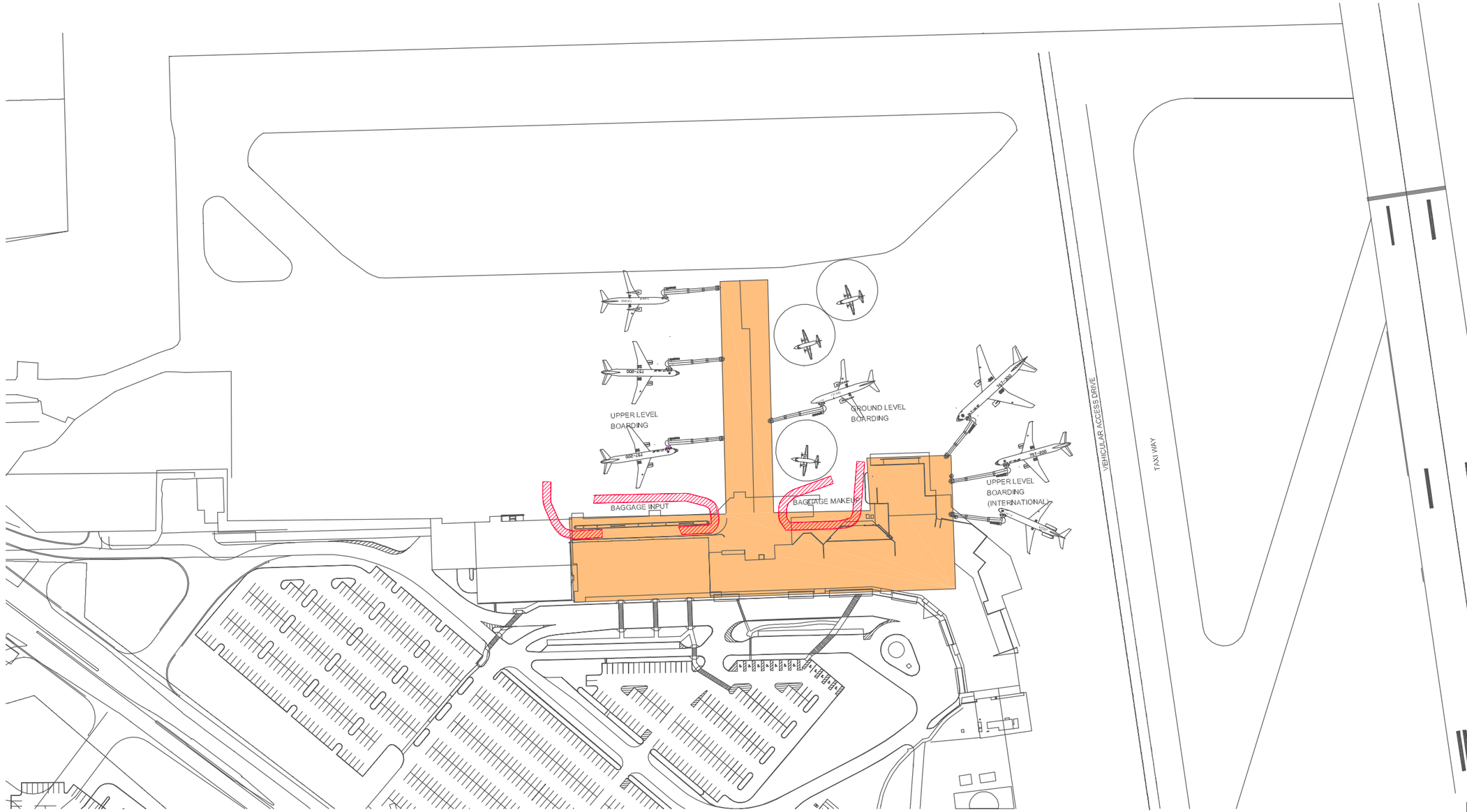

AIRPLANE PARKING PLAN - 2022
PIER CONCEPT

0 50' 100' 200' 400'

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Pier Terminal
Concept

Figure
7-11

7.4.1.3 Refinement of the Preferred Terminal Expansion Alternative

The pier expansion alternative is recommended as the preferred design solution for PIE. Overall, the pier alternative provides enhanced departing and arriving passenger circulation, and the plan, organized around the central security checkpoint, offers improved way finding. This alternative also provides better separation of ground and second level passenger boarding. Although both the linear and the pier plans have a significant impact on the existing structure and terminal systems, the pier alternative will minimize the impact with regard to the proposed expansion of the domestic passenger hold-rooms and gates on the present facility.

The forecast of passenger enplanements and the number of aircraft operations during peak hour (PH/AD/PM) periods of the planning periods are considered conservative, and the gradual growth plan has a profound influence on the space requirements as depicted by the terminal programs. The incremental expansion of the passenger terminal, if matched to the forecast of growth, will be relatively small but numerous over the entire 20-year planning period. The proposed three expansion phases are a result of a consolidation of the incremental expansion plan. This consolidation is a response to the goal established by mutual consensus by the design team and the Airport, to define manageable construction projects that provide both the facilities to meet the growth needs and minimize the disruption of passenger services at PIE. **Figures 7-12 through 7-17** present the detailed terminal floor plans for a three-phased expansion of the terminal building over the planning period spanning 2007 to 2022.

7.4.2 Terminal Area Parking Garages

With the anticipated closure of the remote lot in 2012 and loss of 469 parking spaces, combined with forecasted demand in automobile parking in the terminal area, additional parking capacity is needed. Since the terminal area is finite in area, additional at-grade parking capacity is not possible. Therefore, the only viable alternative is the addition of multilevel parking garage structures to provide the necessary capacity.

Utilizing the existing geometry of the terminal area's parking configuration, two 3-level parking structures are proposed, one each for short and long-term parking areas. The short-term parking garage is proposed to be located where the rental car lot is currently. The rental car lot will assume the location of the current short-term lot and remain an at-grade parking facility. The long-term garage will be located in the current location of the long-term lot. Both garages will be developed one level at a time as demand warrants.

The short-term parking garage total three-level capacity is estimates at 621 parking spaces, 215 spaces each for the second and third level, and 191 spaces for the ground level. The long-term garage three-level capacity is estimated to be 1,500 spaces, 500 spaces per level.

An analysis was conducted to determine when the parking garage capacities would be needed. Reviewing parking demand, (see **Table 7-8**), short-term parking has an immediate demand for additional capacity. Managing the short-term capacity needs can be done through the long-term (including the remote lot), which have extra capacity up to 2007. By 2007, however, the short-term capacity demands of 352 spaces leaves the Airport with little excess capacity (ten spaces). Therefore, the first phase of the short-term parking garage is recommended in 2007. The 406-space garage is proposed to have 191 spaces on the ground level and 215 spaces on the second level. As the short-tem and rental car lots will be exchanging locations, 40 spaces of the long-term lot will be allotted to the rental car lot to maintain its existing capacity of 191 spaces, reducing

overall long-term parking capacity to 992 spaces.

By 2012 when the remote lot is programmed to close, the full build out of the 1,500 space long-term parking garage is recommended. Although this will provide excess capacity initially, this will eliminate the need to further expand the long-term garage in 2017, thereby saving development costs and inconveniences caused by construction activities.

The proposed phasing of the parking garages and parking capacities are shown in **Table 7-8 and Figure 7-12** shows the proposed terminal parking with parking garages.

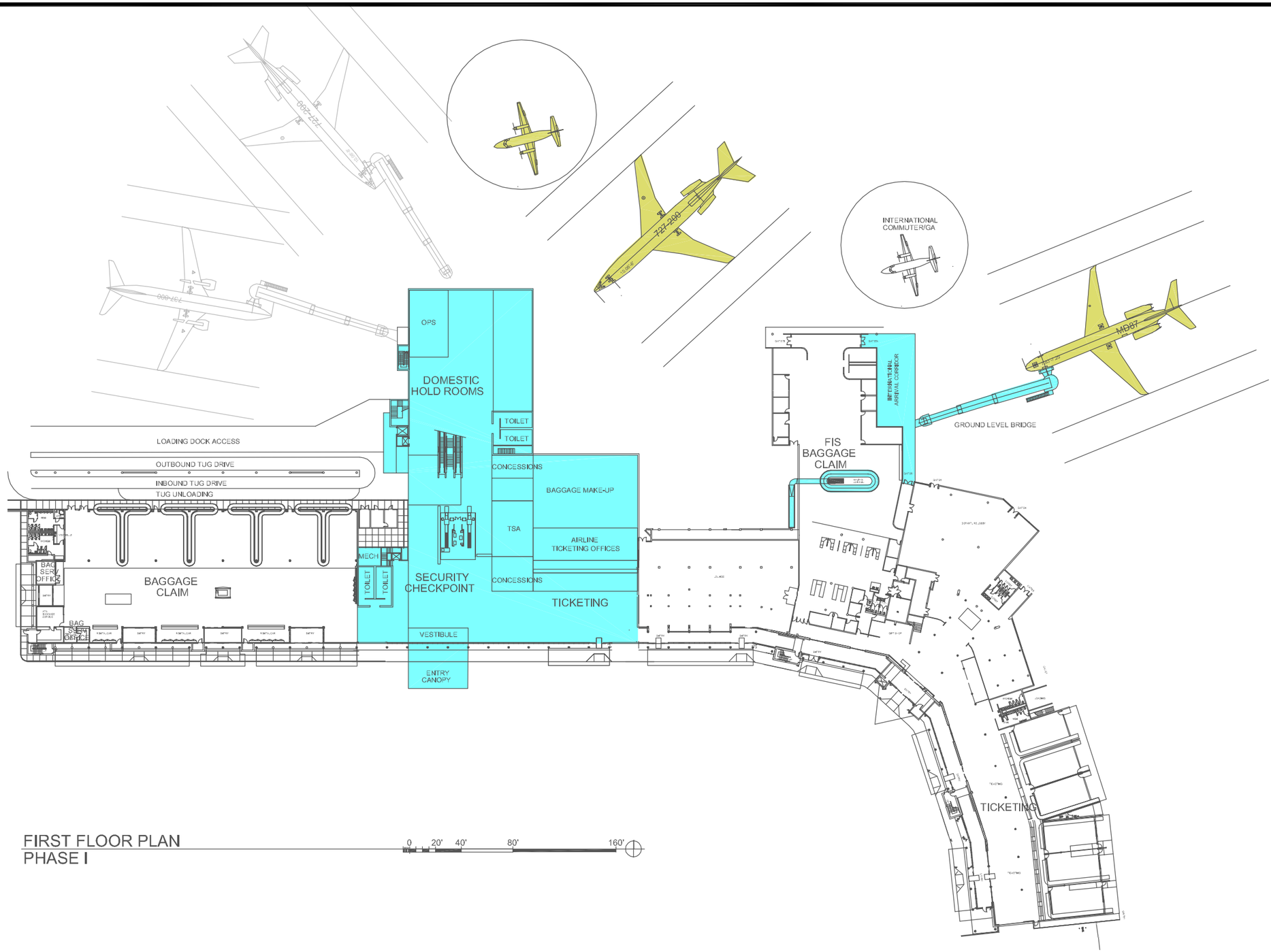
Table 7-8. Total Public Parking Space Requirements

Year	2001	2002	2007	2012	2017	2022
Total Annual Passengers	638,832	695,669	837,742	987,720	1,147,528	1,331,490
Public Parking						
Short-term Capacity	151	151	406	406	406	621
Short-term Parking Spaces Required	268	292	352	415	482	559
Surplus (Deficiency)	**(117)**	**(141)**	**54**	**(9)**	**(76)**	**62**
Long-term Capacity	1,032	1,032	992	1,500	1,500	1,500
Long-term Parking Spaces Required	626	682	821	968	1,125	1,305
Surplus (Deficiency)	**406**	**350**	**171**	**532**	**375**	**195**
Total Public Parking Capacity	1,183	1,183	1,398	1,906	1,906	2,121
Total Public Parking Spaces Required	894	974	1,173	1,383	1,607	1,864
Surplus (Deficiency)	**289**	**209**	**225**	**523**	**299**	**257**

7.4.2.1 Rental Car Parking

With the Rental Car lost exchanging positions with the Short-term garage, the capacity needs for he rental car lot needs to be examined.

The 151-space area to be occupied by the rental lot is shared by the long-term parking area. Clearly from the onset, 58 spaces from the long-term lot will be required to meet maintain rental cars space requirements of 208 spaces for 2007. In 2012 when the long-term parking garage is built, the rental car lot will take over the former portion of the at-grade long-term lot adjacent to the rental car lot. This will provide adequate rental car parking capacity through 2022. See **Figure 7-12**.



FIRST FLOOR PLAN
PHASE I

GS&P
GRESHAM SMITH AND PARTNERS

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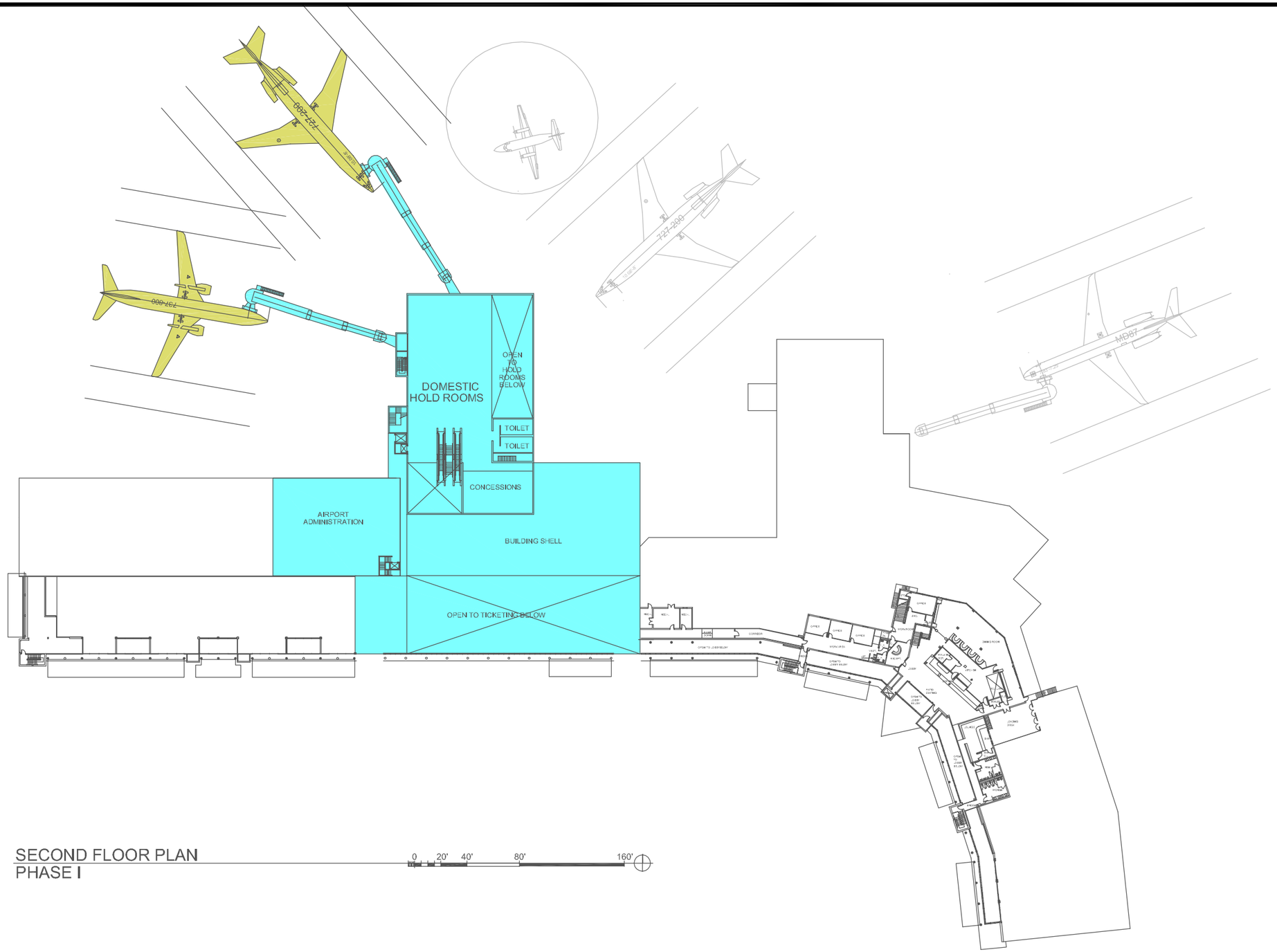
First Floor Plan Phase 1

Figure 7-12



SECOND FLOOR PLAN
PHASE I

0 20' 40' 80' 160'

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Second Floor Plan
Phase 1

Figure
7-13

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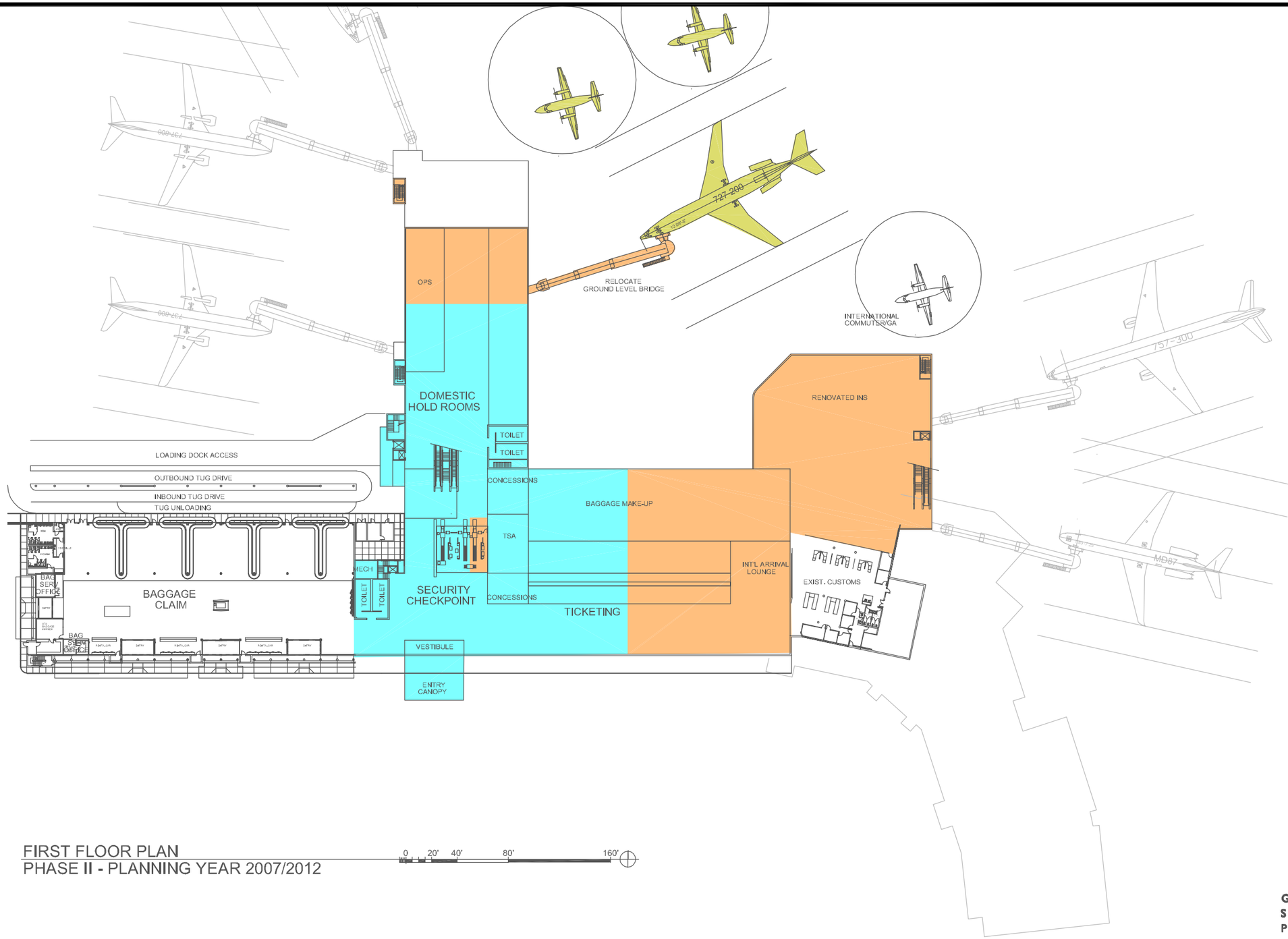

FIRST FLOOR PLAN
PHASE II - PLANNING YEAR 2007/2012

0 20' 40' 80' 160'

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PARTNERS

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International Airport

First Floor Plan
Phase 2

Figure
7-14

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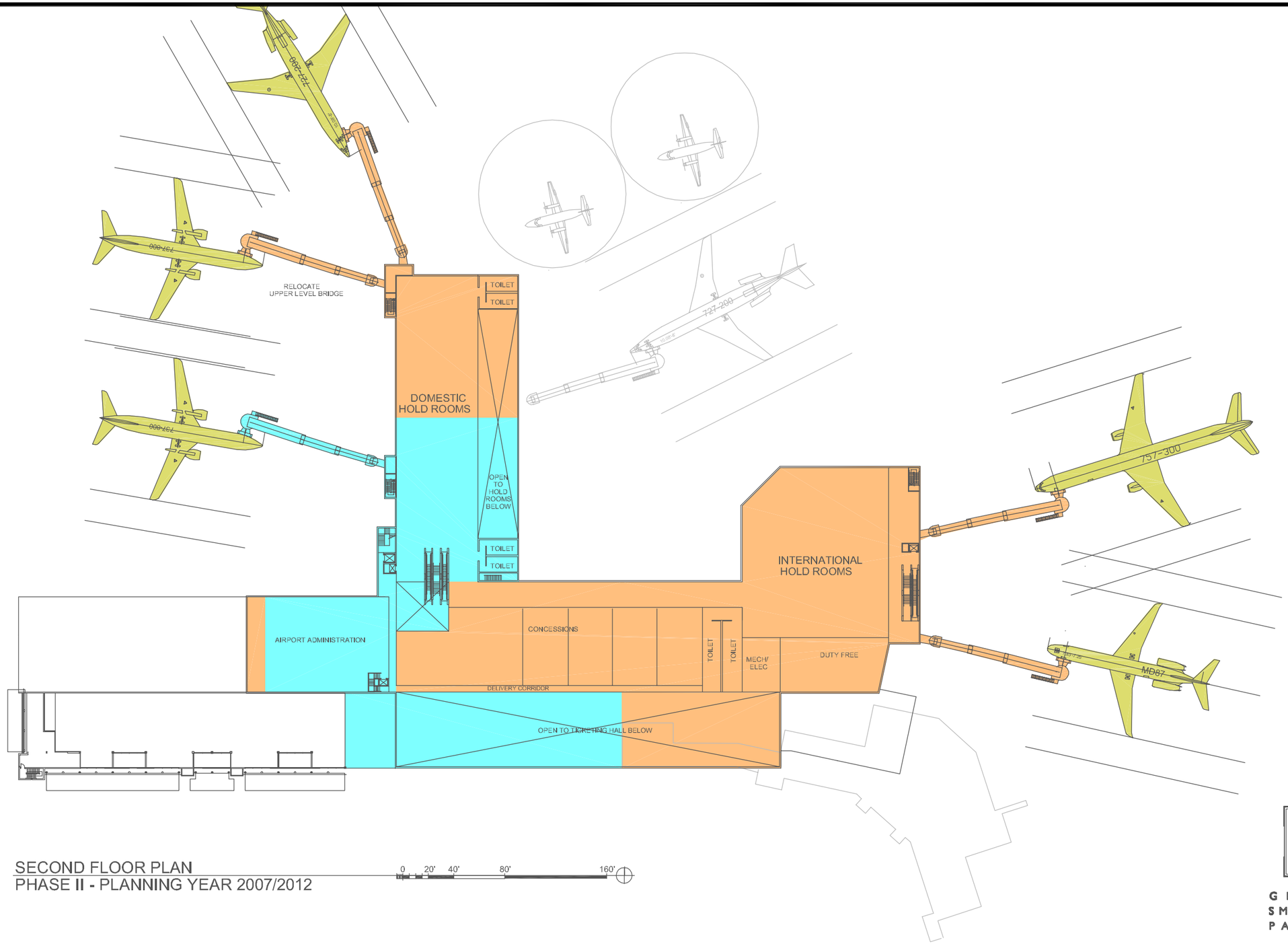

SECOND FLOOR PLAN
PHASE II - PLANNING YEAR 2007/2012

GRESHAM SMITH AND PARTNERS

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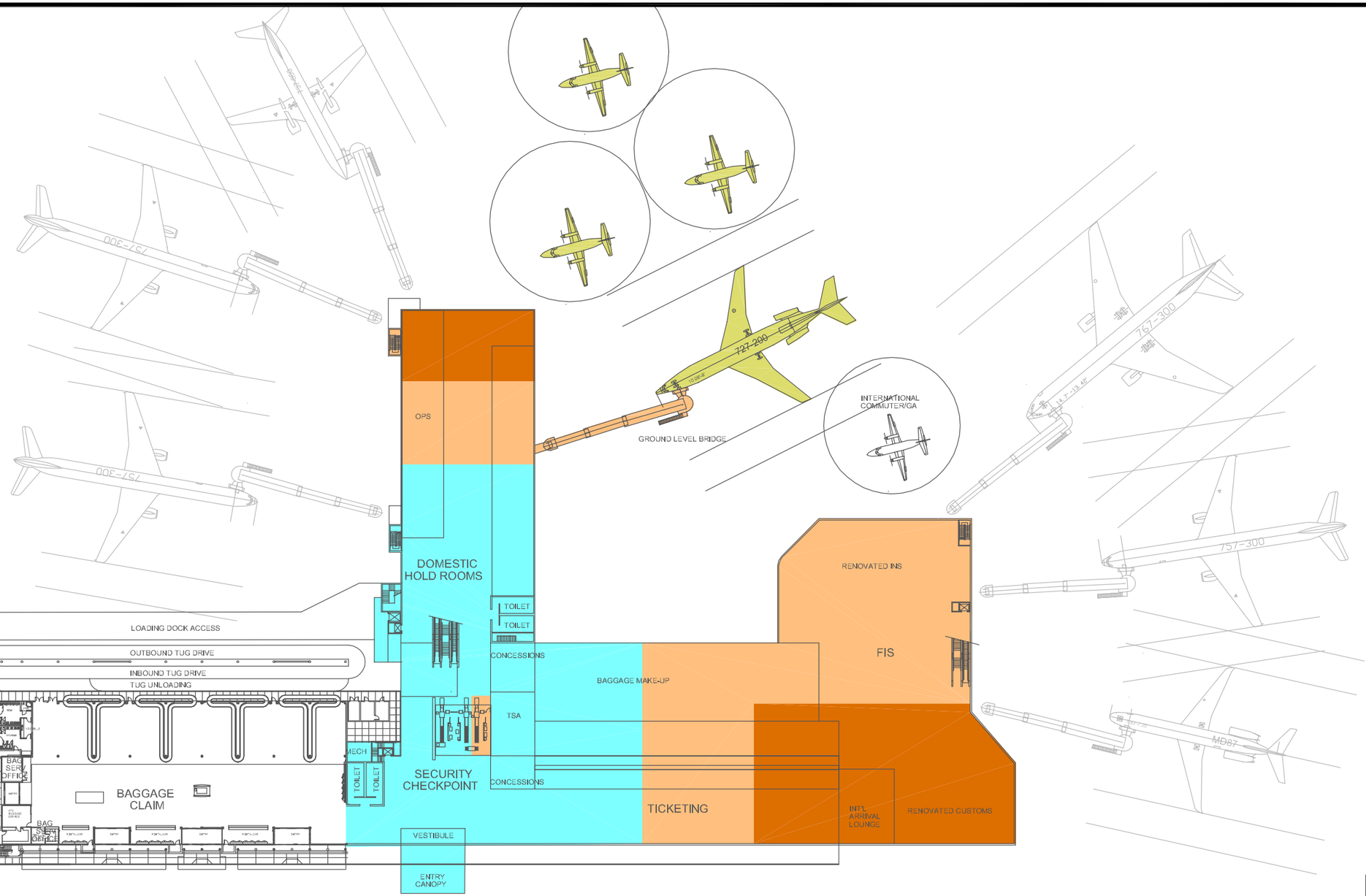
Second Floor Plan
Phase 2

Figure 7-15



FIRST FLOOR PLAN
PHASE III - PLANNING YEAR 2017/2022

0 20' 40' 80' 160'

GS&P
GRESHAM SMITH AND PARTNERS

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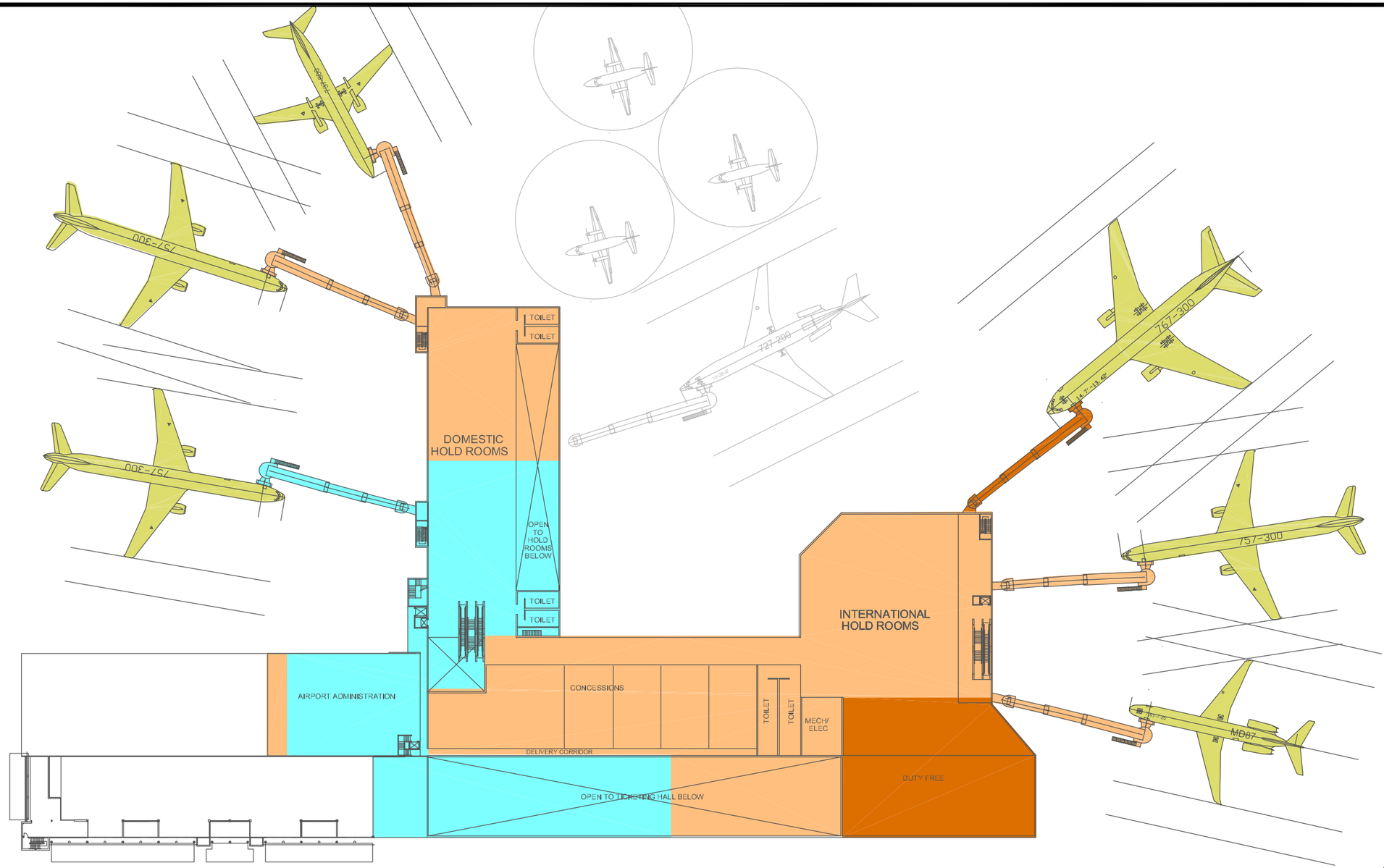
First Floor Plan
Phase 3

Figure 7-16



SECOND FLOOR PLAN
PHASE III - PLANNING YEAR 2017/2022

0 20' 40' 80' 160'

GS&P
GRESHAM SMITH AND PARTNERS

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Second Floor Plan Phase 3

Figure 7-17

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AIRPORT PARKWAY

RENTAL CAR
(AT-GRADE)
17,137 SY.
322

SHORT TERM PRK.
(3 LEVEL GARAGE)
621

LONG TERM PRK.
(3 LEVEL GARAGE)
1500

REMOTE PRK.
18,682 SY.
(TO BE CLOSED)
469

EMPLOYEE PRK.
13,330 SY.
256

ROOSEVELT BLVD.

TERMINAL BLVD.

AIRPORT PARKWAY

TERMINAL B

RETENTION POND

TOTAL PARKING SPACES = 2,570 APPROX.

120 0 120

GRAPHIC SCALE IN FEET

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Proposed Terminal
Parking with Parking
Garages

Figure
7-18

7.4.3 Air Cargo

Air cargo services have grown steadily over the past decade, along with the volume of air cargo moved through the Airport. One goal of Pinellas County Board of Commissioners is to continue to attract new cargo operations by developing new facilities to attract and better accommodate large cargo aircraft.

The cargo development alternatives outlined in the following sections and the selected preferred alternative have been evaluated based on the facility requirements identified in the Air Cargo Analysis as well as the overall needs at PIE. Both alternatives presented have the same following attributes:

- Aircraft apron space: Ultimately provide parking positions for two A-300s and one B767. One of the A300 or B767 positions can also be used by two smaller aircraft such as DC-9/MD80s. The ultimate cargo apron area is 121,000 sq yd.
- Warehouse space: 55,000 sq ft.
- Vehicular parking area: 70 spaces.
- Truck loading bays: 35.

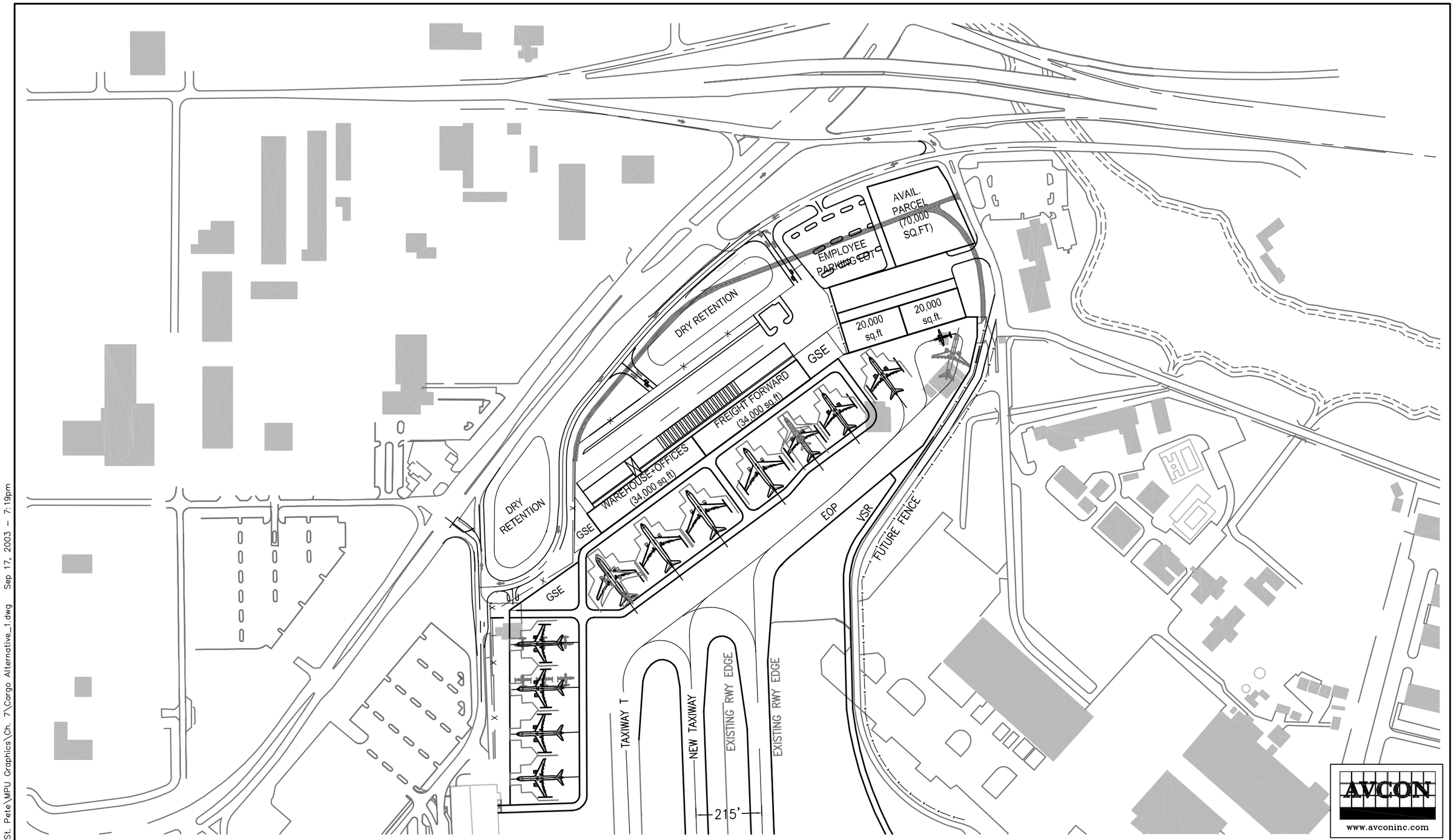
7.4.3.1 Cargo Alternative 1

The first proposed location of the new cargo area lies east of existing Runway 35R, southeast of Runway 4-22, and north of Evergreen Avenue. Depicted in **Figure 7-19,** this layout includes provisions for development of traditional air cargo sortation and storage facilities, apron, and future expansion potential along and parallel to Runway 4-22. However, the location of cargo development in Alternative 1 would necessitate closing the Airco Golf course area, as well as limiting the possibilities for extending the relocated Runway 17R-35L. This cargo area would be accessible to I-275 through Evergreen Avenue and Ulmerton Road.

Under Alternative 1, cargo capacity would be increased while existing terminal development areas remain available for future development. Additionally, the location would also aid in separating cargo operations from larger air carrier and GA traffic. However, significant amounts of developable land in the Airco Golf course area would be used for cargo facilities. This would reduce the overall development possibilities in this area. Additionally, logistics problems with belly freight on commercial airlines would likely exist due to the “cross-field” locations of the cargo facilities and commercial terminal.

7.4.3.2 Cargo Alternative 2

The second possible location for the cargo area is west of Runway 17L-35R, at the end of the existing Runway 9 threshold. This alternative assumes Runway 9-27 will be decommissioned and closed permanently. The proposed layout for the air cargo area is depicted in **Figure 7-20**. This layout provides for the development of apron, air cargo sortation, storage, and U.S. Customs facilities in the passenger terminal area, enabling efficient transportation of belly-haul cargo and other freight to the facility, as well as offering convenient access to I-275 through Roosevelt Boulevard and Ulmerton Road.



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300 0 300 600

SCALE: 1" = 300'

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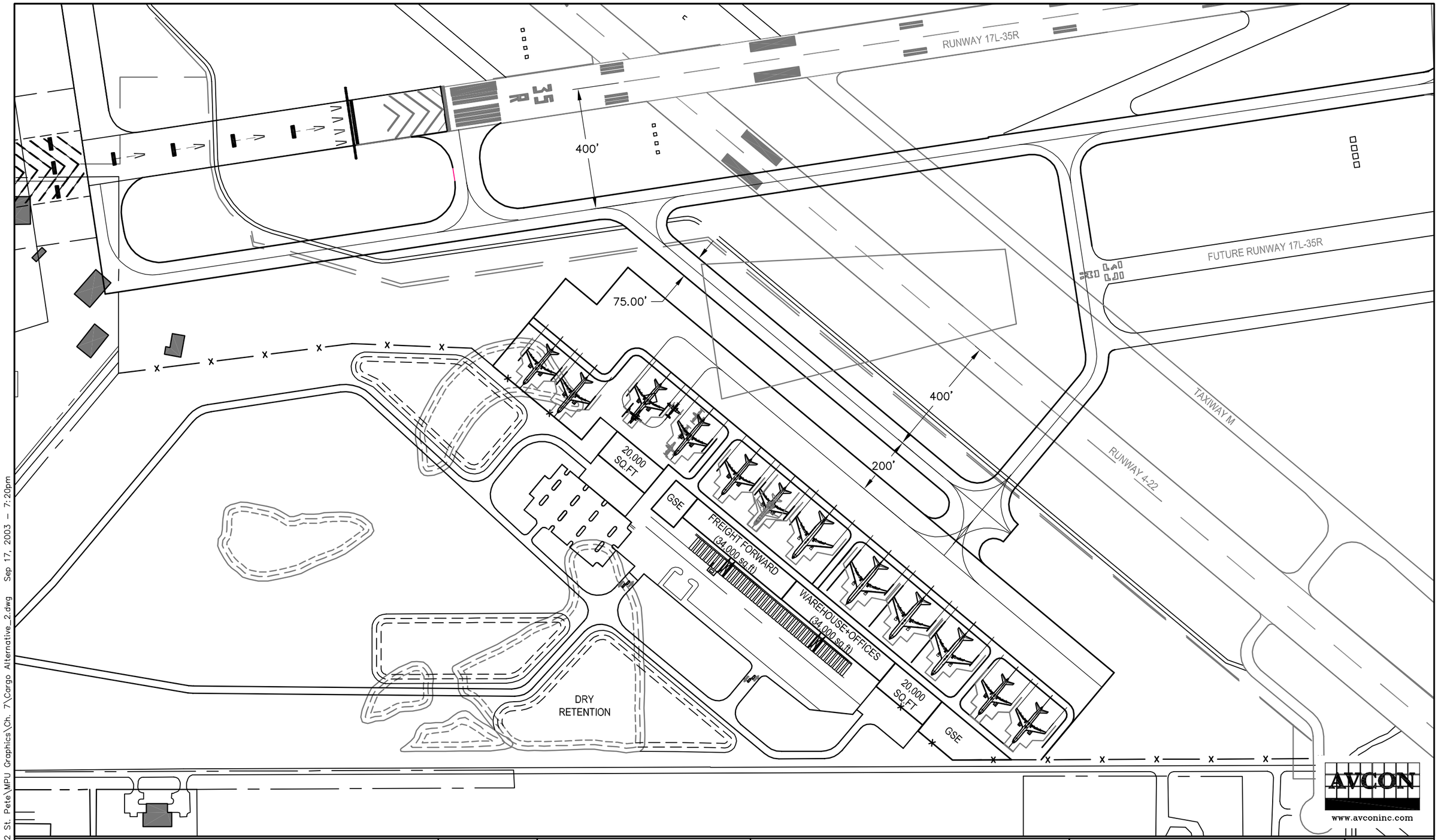
Cargo Alternative 1

Figure 7-19



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SCALE: 1" = 300'

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Cargo Alternative 2

Figure 7-20

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Alternative 2 would expand on the existing cargo facilities and maintain separation of cargo/commercial aircraft from light GA activity. Therefore, Alternative 2 would maintain the overall goal of the airfield and GA alternatives to separate dissimilar aircraft types and operations, and co-locate like facilities, such as commercial operations and air cargo facilities.

7.4.3.3 Preferred Cargo Alternative

Alternative 1 is the preferred cargo alternative. In addition to the efficient accommodation of belly freight and convenient surface access, the closing of Runway 9-27 and its conversion to a taxiway enables aircraft access without the necessity of constructing new pavement. Further, its location maintains larger cargo aircraft away from the noise sensitive neighborhood of Feather Sound and light GA aircraft activity, as would be experienced under Alternative 2. In addition, this location facilitates U.S. Customs inspections of international cargo due to the proximity to terminal where U.S. Custom's offices are located. This alternative best meets short- and long-term space needs in a cost-effective manner with minimal disruption to the existing cargo operation.

The area also provides a good location from the standpoint of proximity to the airfield and passenger terminal complex, and ease of access to both Roosevelt Boulevard and I-275. It appears that the concept would work most effectively to meet the growing air cargo demands, as well as provide a functional operations area for potential future cargo tenants.

7.4.4 General Aviation Development Alternatives

The following sections outline the GA development alternatives and the preferred alternative that have been evaluated based on the facility requirements identified in Chapter 6 and the improvements discussed in previous sections of this chapter. Based on the data presented in Chapter 6, an additional 200,000 sq ft of hangar space, 20,000 sq yd of hangar and tie-down apron, and 71 T-hangar units will be required by 2022. The alternatives discussed in the following sections have been evaluated according to the overall needs at PIE and the development considerations identified previously.

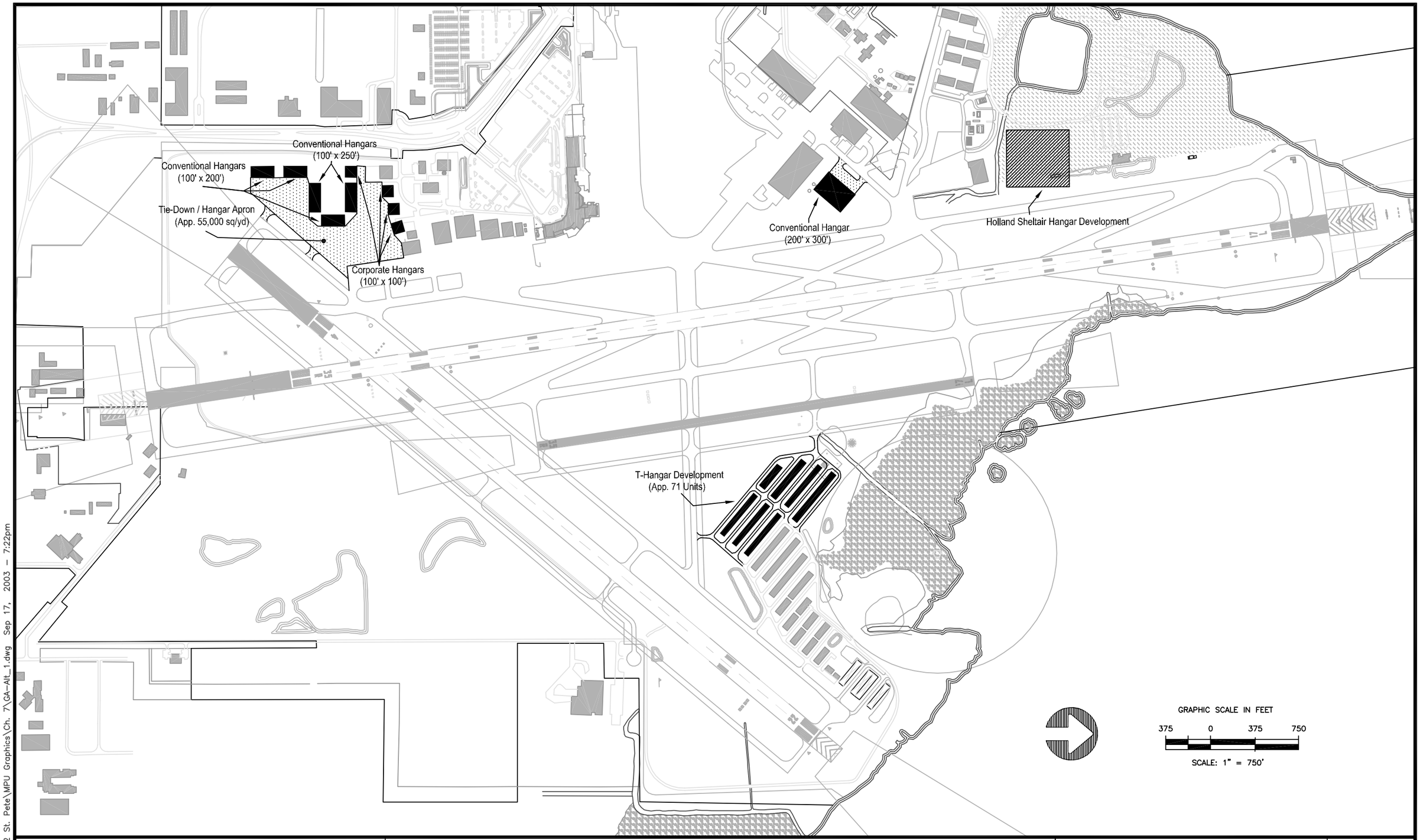
7.4.4.1 GA Alternative 1

The first alternative seeks to maintain GA activities and facilities of similar nature together (e.g., corporate). Alternative 1 proposes to expand existing FBO corporate GA area on the southwest side of the airfield. New corporate and conventional hangars (+/-150,000 sq ft), as well as all required hangar and tie-down apron (+/-55,000 sq yd), are proposed to be constructed in this area. An additional 71 T-hangar units are proposed to be constructed in the same area as the current T-hangar development area, and expand on the existing taxi-lane network. An additional maintenance/conventional hangar (60,000 sq ft) and associated apron (3,500 sq yd) would be constructed in the PEMCO area, which will require special roadway access, as the Pemco area is within the airport operations area and access is gained through the U.S. Coast Guard base. In addition to the requirements cited by this study, a new corporate hangar complex is proposed to be constructed by Holland Sheltair Corporation, located south of the U.S. Army Reserve facility. Specific information on the number, size and layout of the hangar complex was not available. No construction would be required in the Airco Golf Course area on the south east of the airfield.

This alternative expands on existing facilities to keep like operations together in one general area, separating light GA aircraft activity from heavy commercial and cargo operations. Additionally, Alternative 1 would likely minimize the overall

implementation/construction costs by utilizing and expanding on existing pavement and infrastructure. Further, Alternative 1 would maintain all jet activity on the west side of the airfield away from existing noise sensitive neighborhoods. However, it should be noted that expansion in the southwest corner of the airfield is limited due to Runway 4-22 safety area, runway protection zone, and approach surface requirements.

Figure 7-21 illustrates the airfield configuration and GA development included in Alternative 1.



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Development Alternatives
GA Alternative 1

Figure
7-21

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7.4.4.2 GA Alternative 2

Alternative 2 proposed to expand the existing FBO corporate GA area on the southwest side of the airfield from the existing apron west towards the Airport perimeter road. A total of 65,000 sq ft of hangar space and 27,500 sq yd of apron would be constructed in this area. As in Alternative 1, additional 71 T-hangar units would be constructed in the same area as the current T-hangars and expand on the existing taxi-lane network. Additionally, a maintenance/conventional hangar (60,000 sq ft) and associated apron (3,500 sq yd) would be constructed in the Pemco area, and the proposed Holland Sheltair facility to be located south of the U.S. Army Reserve facility.

Alternative 2 also proposes construction of 80,000 sq ft of corporate and conventional hangar space and 22,500 sq yd of associated apron on the southeast side of the airfield. This development would be located along the proposed east parallel to the primary runway, in the current Airco Golf Course area. Further, Alternative 2 would work to separate light GA activity from heavy commercial and cargo aircraft as in Alternative 1. Also, Alternative 2 would preserve area in the southwest corner of the Airport for other development uses, while providing for future expansion along the proposed taxiways of the existing Runways 17L-35R and 4-22.

However, this alternative may slightly increase noise levels on the southeast side of the airfield. Additionally, Alternative 2 would require the construction of new taxiways, apron, and access infrastructure before it could be fully implemented.

Figure 7-22 illustrates the airfield configuration and GA development included in Alternative 2.

7.4.4.3 GA Alternative 3

Under Alternative 3, the existing FBO/corporate GA area on the southwest side of the airfield would not be expanded and would remain as is. A new FBO/corporate GA area would be constructed to the southeast of the airfield in the vicinity of the existing Airco Golf Course area and along the proposed east parallel taxiways to Runways 17L-35R and 4-22. A total of 200,000 sq ft of hangar space and 60,000 sq yd of apron would be constructed in this area. Further, as in Alternatives 1 and 2, additional 71 T-hangar units would be constructed in the same area as the current T-hangars and expand on the existing taxi-lane network. A maintenance/conventional hangar would be constructed in the Pemco area and the proposed but undefined Holland Sheltair corporate hangar facility.

Under this alternative, a significant portion of the existing Airco Golf Course area would be developed for aviation use, thus reducing the amount of land available for other development. Similar to Alternative 1, like operations would be located together in one general area (i.e., corporate/FBO ops together, light GA/T-hangars together, etc.), creating aviation land use types on separate areas of the airfield (i.e., corporate – southeast, commercial/cargo – west, light GA – northeast).

Conventional Hangars
(100' x 250')

Tie-Down / Hangar Apron
(App. 27,500 sq/yd)

Corporate Hangars
(100' x 100')

Conventional Hangar
(200' x 300')

Holland Sheltair Hangar Development

Tie-Down / Hangar Apron
(App. 22,500 sq/yd)

Corporate Hangars
(100' x 100')

Conventional Hangars
(100' x 200')

T-Hangar Development
(App. 71 Units)

GRAPHIC SCALE IN FEET

375 0 375 750

SCALE: 1" = 750'

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Development Alternatives
GA Alternative 2

Figure
7-22

Alternative 3; however, would likely be the most costly alternative to implement due to the new and extensive taxiway, apron, and overall infrastructure requirements. Additionally, increased noise levels from additional jet activity would be evident on the south east side of the airfield and would require additional effort to mitigate impacts on existing noise sensitive neighborhoods in that area.

Figure 7-23 illustrates the airfield configuration and GA development included in Alternative 3.

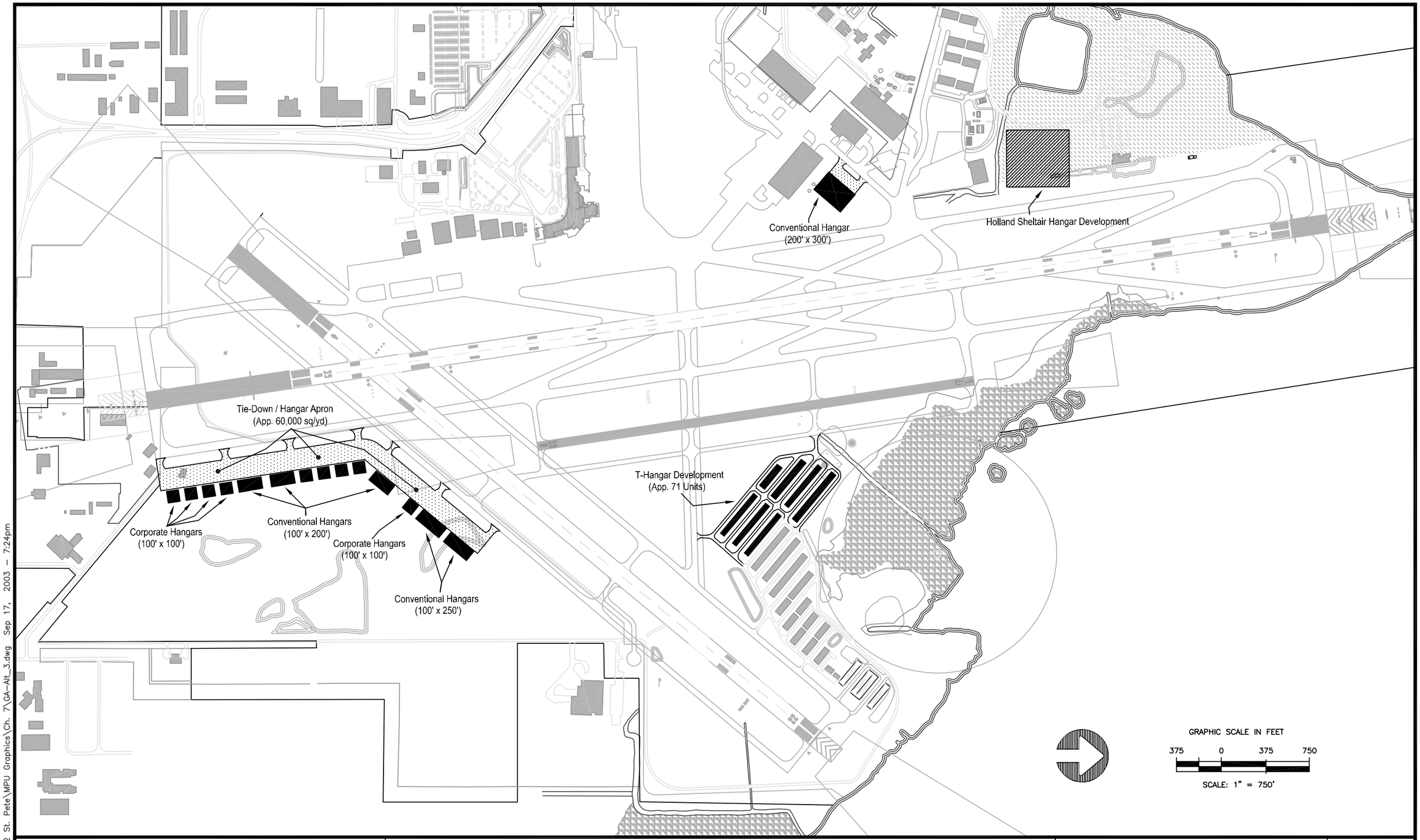
7.4.5 Preferred GA Development Alternative

The selected GA development alternative is a hybrid of Alternatives 1 and 3. The combined alternatives include the expansion of the existing FBO corporate GA area on the southwest side of the airfield, and the development of a new FBO/corporate GA area to the southeast in the Airco Golf Course area. **Figure 7-24** illustrates the airfield configuration and GA development included in the preferred GA development alternative.

Further, as in all three of the alternatives, additional 71 T-hangar units would be constructed in the same area as the current T-hangars and expand on the existing T-hangar taxi-lane network. Also, a maintenance/conventional hangar would be constructed in the Pemco area and new corporate hangars would continue to be constructed as part of the Sheltair hangar development proposal.

This hybrid alternative provides an expansion option that will most effectively meet and/or exceed the identified GA development needs through 2022. Should Albert Witted Airport in St. Petersburg close in the future, GA aircraft owners would likely want to relocate to PIE, and the preferred alternative provides the means to accommodate this potential influx of GA aircraft. This alternative also best preserves and maximizes use of the existing airfield configuration in a cost-effective manner, as well as the general pattern of aircraft parking and hangars in the GA areas, greater than that of the other individual alternatives.

Further, the preferred GA alternative maximizes use of airside development areas in order to increase potential aviation revenue and maintains as much developable land as possible for other higher and better land uses. The preferred alternative will allow the Airport to provide adequate aviation development opportunities for potential tenants while enhancing revenue diversification and increasing non-aviation income sources.



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Development Alternatives
GA Alternative 3

Figure
7-23

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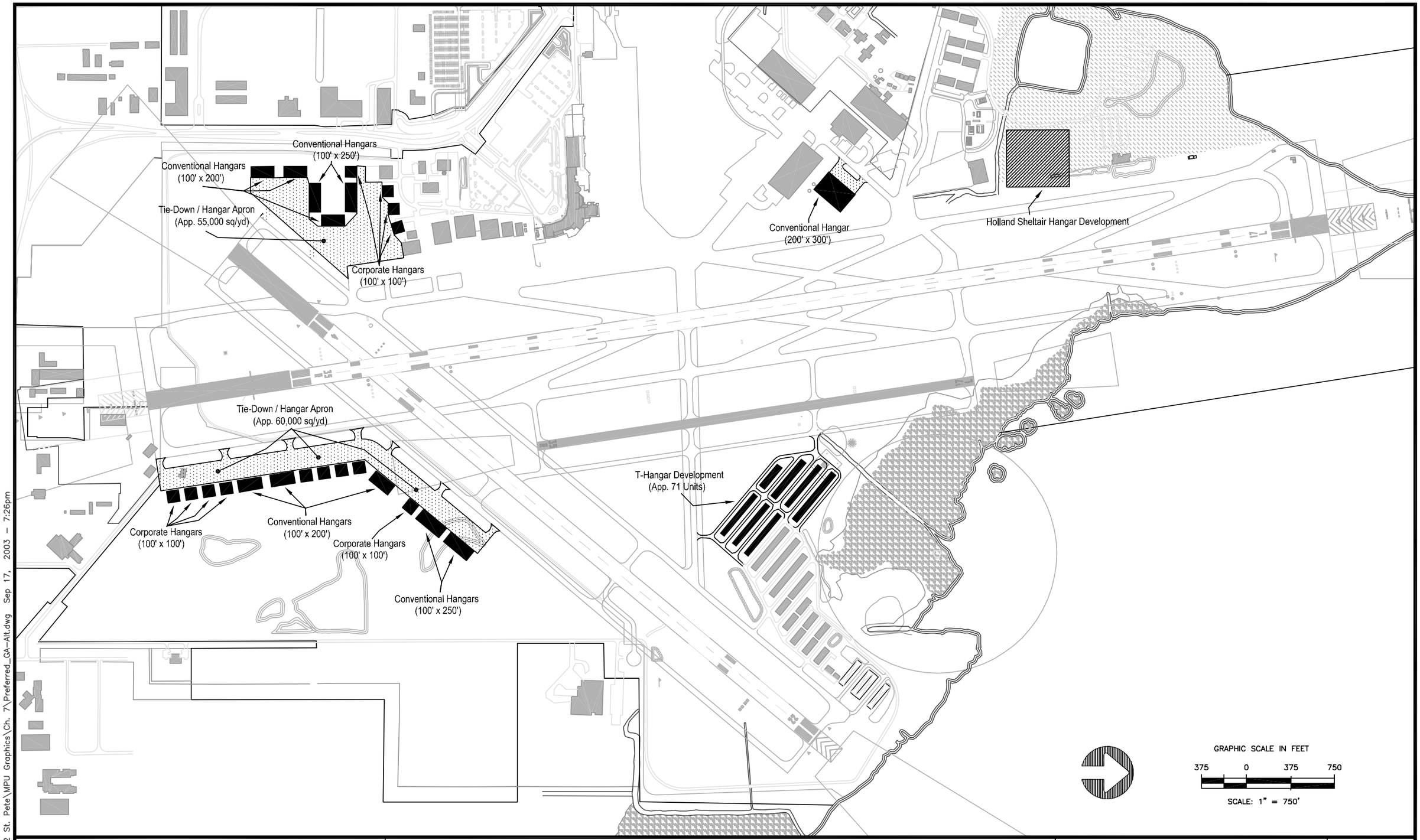

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Development Alternatives
Preferred GA Alternative

Figure
7-24

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7.5 LANDSIDE FACILITIES – SURFACE ACCESS

To provide adequate levels of service to accommodate all Airport users, Pinellas County has been working with the FDOT to ensure adequate vehicular capacity on the primary surface access roads, and reduce overall traffic congestion. Projects underway or in planning phases are discussed in the following sections. Further coordination with appropriate local and state officials will likely be required in order to continue to provide the most appropriate and effective means of ensuring adequate ground access to the Airport.

7.5.1 Roadway Access

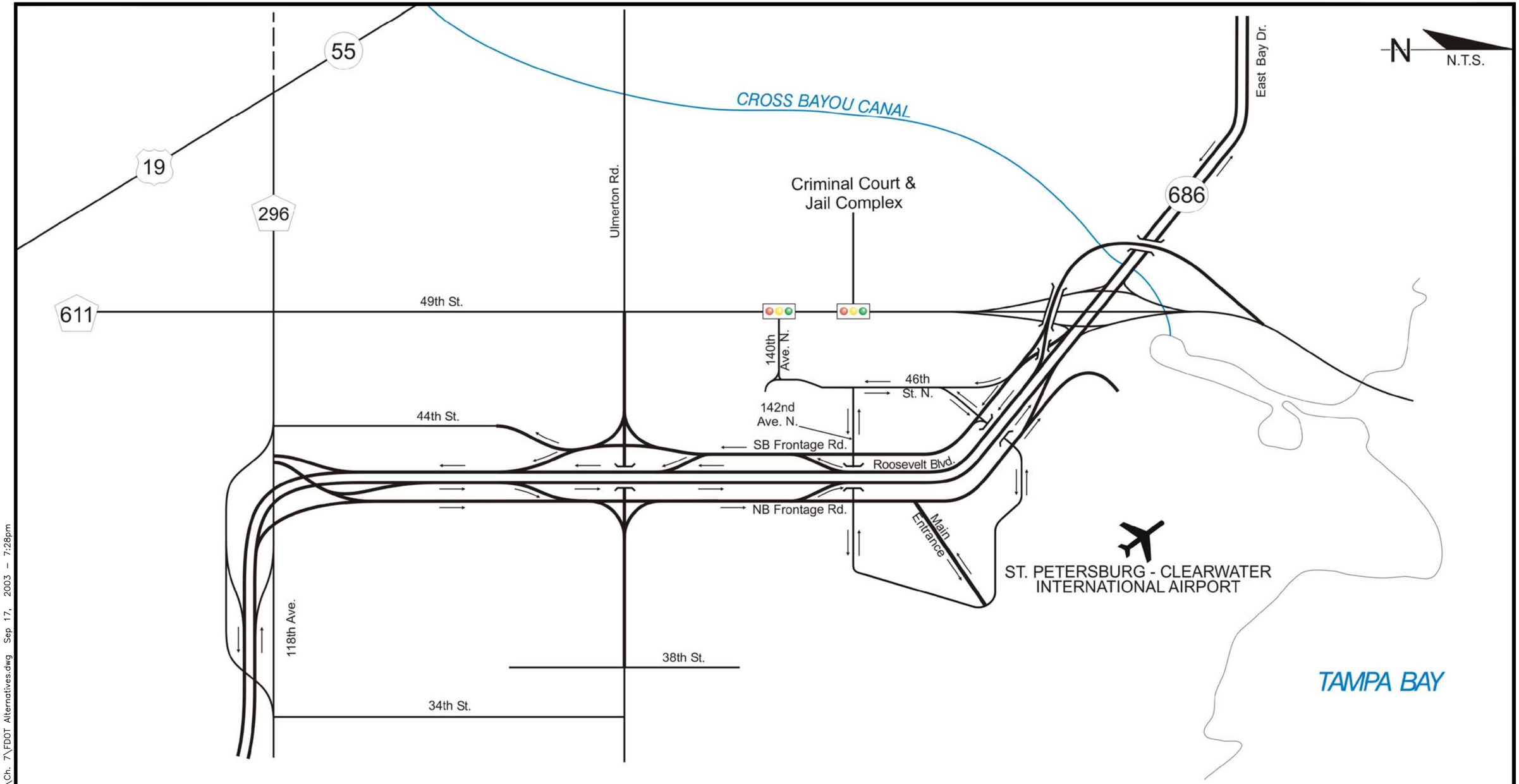
The current roads in this area are at-grade, oft signalized, four-lane, divided highways utilized mostly by commercial and residential traffic. Anticipated increases in industrial and/or commercial traffic associated with development of both aviation and non-aviation facilities will require capacity enhancements to these roadways as the area surrounding the Airport develops over time.

Primary access to the Airport and terminal area is provided via Roosevelt Boulevard. Traffic feeds Roosevelt Blvd via Ulmerton Road from the south and 49th Street from the north. Plans are currently underway by the FDOT to expand Roosevelt Boulevard to an expressway connector, reducing traffic congestion and improving ground access to the Airport. The design concept for this expansion previously approved by the FDOT is included for consideration with the other surface access alternatives as part of the Master Plan effort.

7.5.1.1 FDOT Alternative

The FDOT Alternative (**Figure 7-25**) is the roadway access alternative currently approved by the FDOT. Under this alternative, the Roosevelt Boulevard mainline carries three through lanes in each direction with a frontage road system carrying two one-way through lanes in each direction. Access between the mainline and frontage roads is accomplished via on- and off-ramps. As shown in **Figure 7-25**, the FDOT Alternative features two grade separations to accommodate Airport access, one at 142nd Avenue North and another at the northern Airport entrance. This double grade separation configuration provides a circular two-way access pattern around the landside Airport property on both sides of Roosevelt Boulevard. All Airport access is made from the frontage roads, not the Roosevelt Boulevard mainline.

Traffic from Ulmerton Road enters onto the northbound frontage road and can turn into any of the three existing Airport entrances (south, main, and north). Traffic north of the Airport on Roosevelt Boulevard, East Bay Drive, or the Bayside Bridge exits onto the southbound frontage road system near the north Airport entrance, and can enter the Airport at the north or south entrance, traveling under either of the two proposed grade separations. Traffic on 49th Street North can use Ulmerton Road to the south or Roosevelt Boulevard to the north. The roads through the industrial area located between 49th Street and Roosevelt Boulevard (i.e., 140th Avenue North and 46th Street North) are narrow two-lane roads with limited capacity, although some connectivity does exist.



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International Airport

FDOT Surface Access
Alternative

Figure
7-25

Airport traffic from the Roosevelt Boulevard/CR 296 connector, south of Ulmerton Road, must exit the mainline south of Ulmerton Road, crossing through the at-grade signalized intersection and continuing north along the frontage road. Since the southern grade separation is located at the southern Airport entrance, adequate space does not exist to accommodate a northbound off-ramp north of Ulmerton Road. Such an off-ramp would result in undesirable geometry and create a weaving problem on the northbound frontage road.

7.5.1.2 New Alternatives

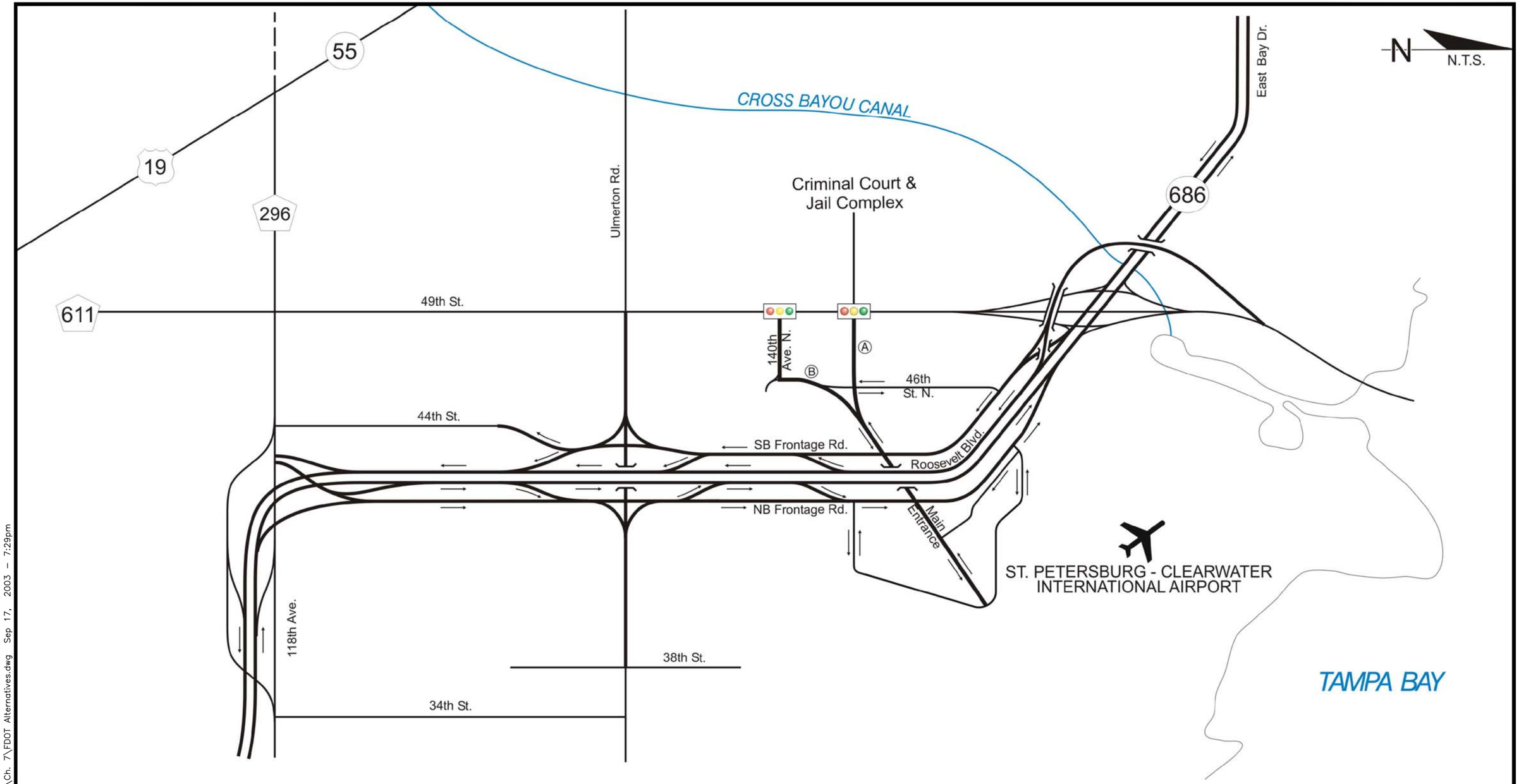
Five new conceptual alternatives were developed, as described in the following paragraphs. Alternatives 1 through 5 all include two options to provide direct access to the Airport from 49th Street. Option A includes a four-lane divided urban roadway connecting the main airport entrance with 49th Street at the traffic signal at the criminal court and jail complex. Option B includes widening the two-lane 46th Street North and 140th Avenue North to three undivided lanes and constructing a new connection from 46th Street North to the main Airport entrance. Option B allows two lanes into the Airport and one-lane out, without requiring additional right-of-way in the industrial park. The addition of a fourth lane would require additional right-of-way through the industrial park, resulting in possible loss of parking spaces. These two 49th Street options are common to all alternatives discussed in the following paragraphs, and are schematically depicted in **Figures 7-26 through 7-30**. Options A and B could also be incorporated into the original FDOT Alternative.

7.5.1.3 Surface Access Alternative 1

Alternative 1 (**Figure 7-26**) was developed incorporating three main differences from the FDOT Alternative. First, the two Roosevelt Boulevard grade separations previously evaluated at the north and south Airport entrances were replaced with a single grade separation located at the main entrance.

Second, a northbound off-ramp was developed to eliminate the need for traffic to enter the signalized intersection on Ulmerton Road. The northbound on-ramp from the frontage road to mainline Roosevelt Boulevard was moved 1,300 feet south, and a new off-ramp was added south of the main Airport entrance. This scenario creates three weaving sections, two on the frontage road and one on mainline Roosevelt Boulevard. The length of these weaving sections, especially on the Roosevelt Boulevard mainline, are inadequate to handle the weaving volumes anticipated. Therefore, Alternative 1 is not viable.

The third and final modification from the FDOT Alternative involves the curve on Roosevelt Boulevard, which was slightly flattened, providing for a gentler ride. This results in additional right-of-way being acquired from the Airport property on the west side of Roosevelt Boulevard.



Options

Ⓐ Connection to 49th Street at Criminal Court and Jail Entrance

Ⓑ Connection to 49th Streetvia 140th Avenue North

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Surface Access
Alternative 1

Figure
7-26

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7.5.1.4 Surface Access Alternative 2

Alternative 2 (**Figure 7-27**) is similar to Alternative 1 with the single grade separation at the main Airport entrance and the flatter curve on Roosevelt Boulevard. However, Alternative 2 switches the location of the northbound Roosevelt Boulevard on- and off-ramps, thereby reducing the number of weaving areas and keeping the weaving on the frontage road instead of the mainline. This results in better traffic operations and improved access to the Airport from the Roosevelt Boulevard/CR 296 connector, south of Ulmerton Road, by eliminating the need to enter the signalized intersection on Ulmerton Road. Traffic travels over Ulmerton Road and immediately exits onto the frontage road. Access to the Airport can then be made at any of the three entrances. Options A and B for access to 49th Street are both possible under Alternative 2.

7.5.1.5 Surface Access Alternative 3

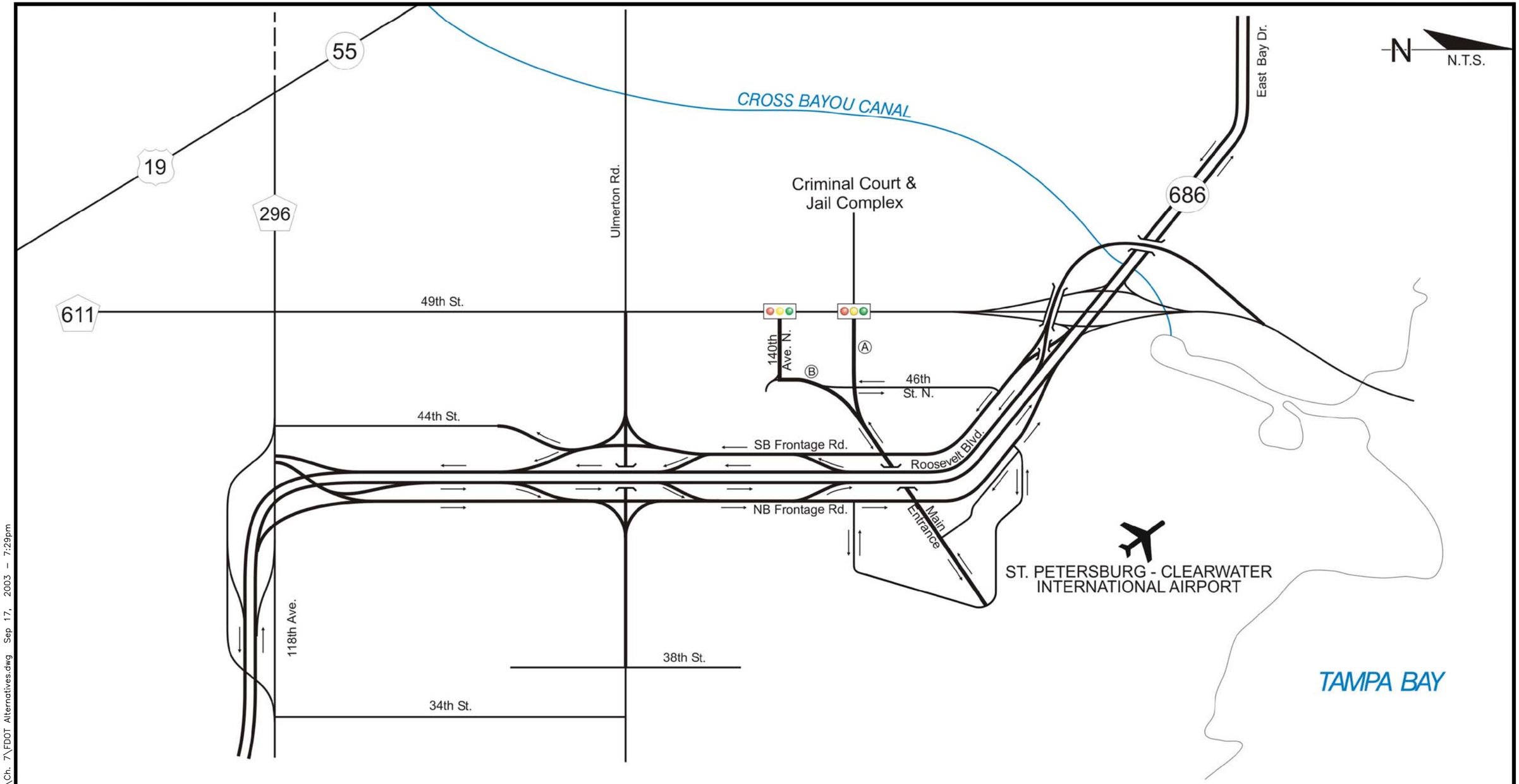
Alternative 3 (**Figure 7-28**) is similar to Alternatives 1 and 2 with the single grade separation at the main Airport entrance and the flatter curve on Roosevelt Boulevard. However, Alternative 3 includes a northbound Roosevelt Boulevard off-ramp south of Ulmerton Road, instead of north of Ulmerton Road as with Alternative 2. The ramp crosses over Ulmerton Road on a bridge structure, allowing the ramp traffic to enter the frontage road in the outside lane, meaning that Airport traffic arriving via CR 296 is not required to weave across other traffic on the frontage road. Due to the skew angle between the ramp structure and the at-grade ramp beneath, the bridge has a required length of approximately 675 feet. The cost of this ramp structure will equal or exceed the cost savings realized by removal of the second Roosevelt Boulevard mainline overpass near the north Airport entrance. Options A and B for access to 49th Street are both possible under Alternative 3.

7.5.1.6 Surface Access Alternative 4

Alternative 4 (**Figure 7-29**) is similar to Alternative 2, with the northbound Roosevelt Boulevard off-ramp located north of Ulmerton Road. The difference is the inclusion of the second grade separation at the north Airport entrance. As with the FDOT Alternative, this double grade separation configuration provides a circular two-way access pattern around the landside Airport property on both sides of Roosevelt Boulevard. Options A and B for access to 49th Street are both possible under Alternative 4.

7.5.1.7 Surface Access Alternative 5

Alternative 5 (**Figure 7-30**) is similar to Alternative 3, with the northbound Roosevelt Boulevard off-ramp south of Ulmerton Road and the ramp crossing over Ulmerton Road on a bridge structure. Alternative 5 will affect a significant increase in structural cost, with the inclusion of the second grade separation at the north Airport entrance, as well as the ramp bridge over Ulmerton Road. As with the FDOT Alternative, this double grade separation configuration provides a circular two-way access pattern around the landside Airport property on both sides of Roosevelt Boulevard. Options A and B for access to 49th Street are both possible under Alternative 5.



Options

Ⓐ Connection to 49th Street at Criminal Court and Jail Entrance

Ⓑ Connection to 49th Streetvia 140th Avenue North

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Surface Access
Alternative 2

Figure
7-27

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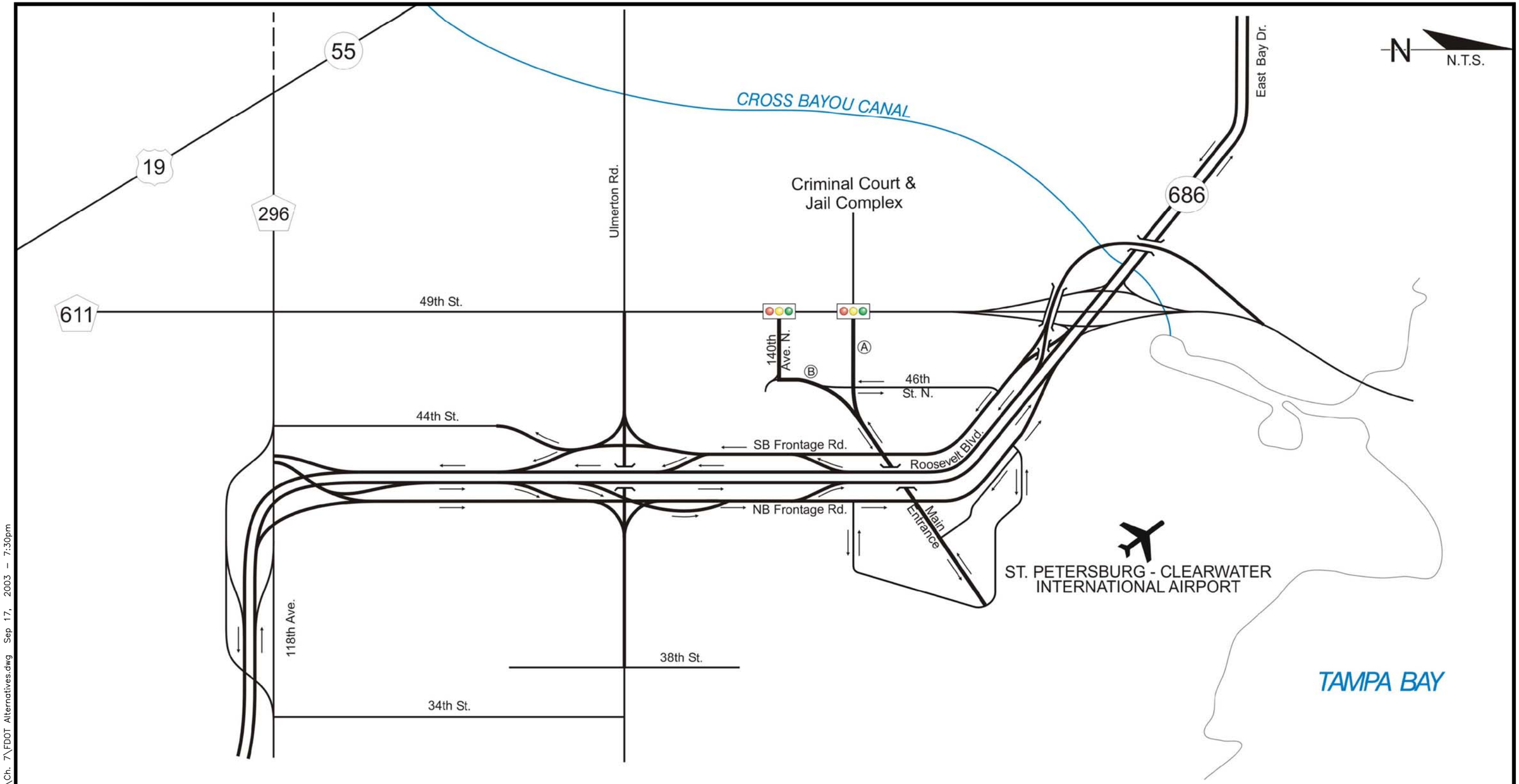

Options

Ⓐ Connection to 49th Street at Criminal Court and Jail Entrance

Ⓑ Connection to 49th Streetvia 140th Avenue North

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Surface Access
Alternative 3

Figure
7-28

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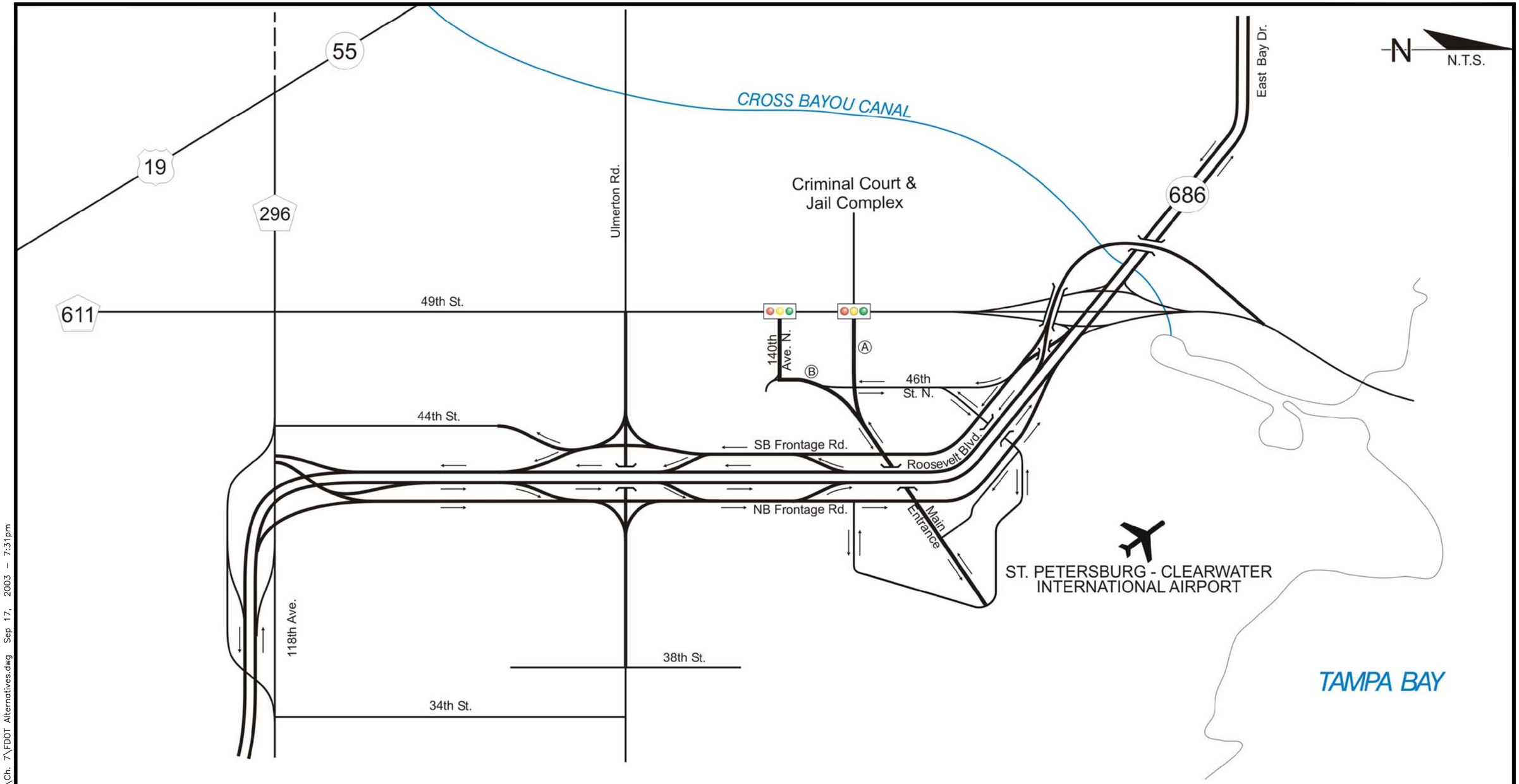

Options

Ⓐ Connection to 49th Street at Criminal Court and Jail Entrance

Ⓑ Connection to 49th Streetvia 140th Avenue North

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International Airport

Surface Access
Alternative 4

Figure
7-29

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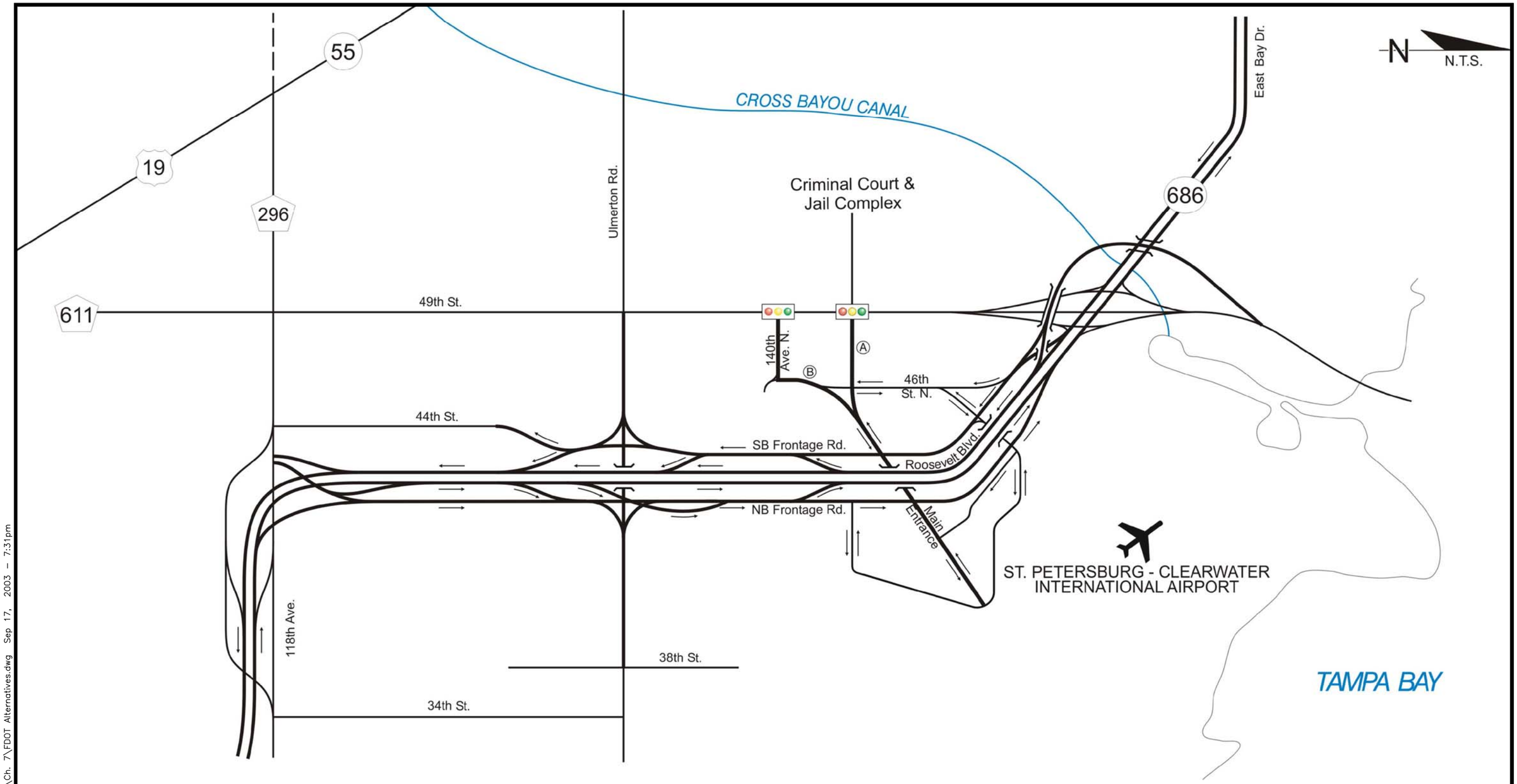

Options

Ⓐ Connection to 49th Street at Criminal Court and Jail Entrance

Ⓑ Connection to 49th Streetvia 140th Avenue North

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International Airport

Surface Access
Alternative 5

Figure
7-30

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7.5.1.8 Preferred Surface Access Alternative

Alternative 4 is the selected surface access alternative. This alternative maintains the Airport's current access to the two main entrances to the Airport, Terminal Boulevard and the north entrance of Airport Parkway, thus eliminating the current problems associated with crossing or entering Roosevelt Boulevard. The double grade separation configuration provides a circular two-way access pattern around the landside Airport property on both sides of Roosevelt Boulevard. Options A and B for access to 49th Street are both possible under Alternative 4. This alternative also eliminates the FDOT's alternative that proposes to route Airport traffic from the Roosevelt Boulevard/CR 296 connector, from exiting the mainline south of Ulmerton Road and having to cross through the at-grade signalized intersection at Ulmerton and Roosevelt, and continue north along the frontage road to enter the Airport.

7.5.2 Northwest Quadrant Access Enhancement

With the county's recent changes to Fairchild Drive to improve late afternoon traffic congestion on Roosevelt Boulevard, directing all of Fairchild's traffic through the Airport's main entrance and exit at Airport Parkway North will cause traffic congestion on-airport. The congestion will result when USCG, U.S. Army, and tenant day shifts leave work between at 4:00 and 5:00 p.m. and mix with terminal traffic, which will cause back ups on Fairchild Drive in the terminal area. Therefore, the Airport, working with the FDOT and the county explored alternative access into the Airport's northwest quadrant to minimize traffic congestion in the terminal area and on Fairchild Drive.

As a result, a viable means of gaining additional access into the Airport's northwest quadrant was to cross the bayou with a bridge structure that would facilitate access into and from the Airport from the north bound lane of the approach to the Bayside Bridge. The benefits to be derived from this alternative access is that the USCG, U.S. Army, Airport tenants, and FBO customers traveling on Roosevelt Boulevard northbound would be able to access the facilities in the Airport's northwest quadrant without having to enter through the Airport's main entrance at Airport Parkway North. Traffic leaving the northwest quadrant would have the option to access Bayside Drive northbound and avoid intermixing with terminal traffic on Airport Parkway North. Although traffic studies would have to be conducted, it is estimated approximately 50 percent of the traffic generated by the northwest quadrant would use the proposed alternative access into the Airport. This in turn would reduce the Fairchild Drive traffic entering and exiting at the Airport's main entrance and exit at Fairchild North by half, thereby reducing traffic congestion on-airport.

Two alternative bridge alternatives were developed. Alternative 1 (see **Figure 7-31**) favors through traffic movements along Fairchild drive. Alternative 2 (see **Figure 7-32**) includes a right turning movement to go southbound on Fairchild. Both alternatives bridge the entire wetland, not just the open water. The waterway is not navigable in that area of the bridge. This would have a bearing on the bridge profile and navigation clearances if it were navigable.

Alternative 1 would operate better from a roadway design perspective, as it has higher design speed and a barrier wall separating traffic on the new bridge. However, the bridge would be complicated to construct since it contains curves and superelevations on the structure, has larger impacts on wetlands and associated mitigation costs, and is, therefore, more expensive to build. Estimate cost to build Alternative 1 is approximately five million dollars. Alternative 2 is a simpler and less expensive bridge to construct as it eliminates the curves and superelevations. It also will have fewer impacts on wetlands.

Therefore, alternative 2 is the preferred alternative as it will be less expensive for both construction cost and wetland impacts (mitigation costs). Estimate cost to build Alternative 2 is approximately 3.9 million dollars.

7.5.3 Rail and Intermodal Access

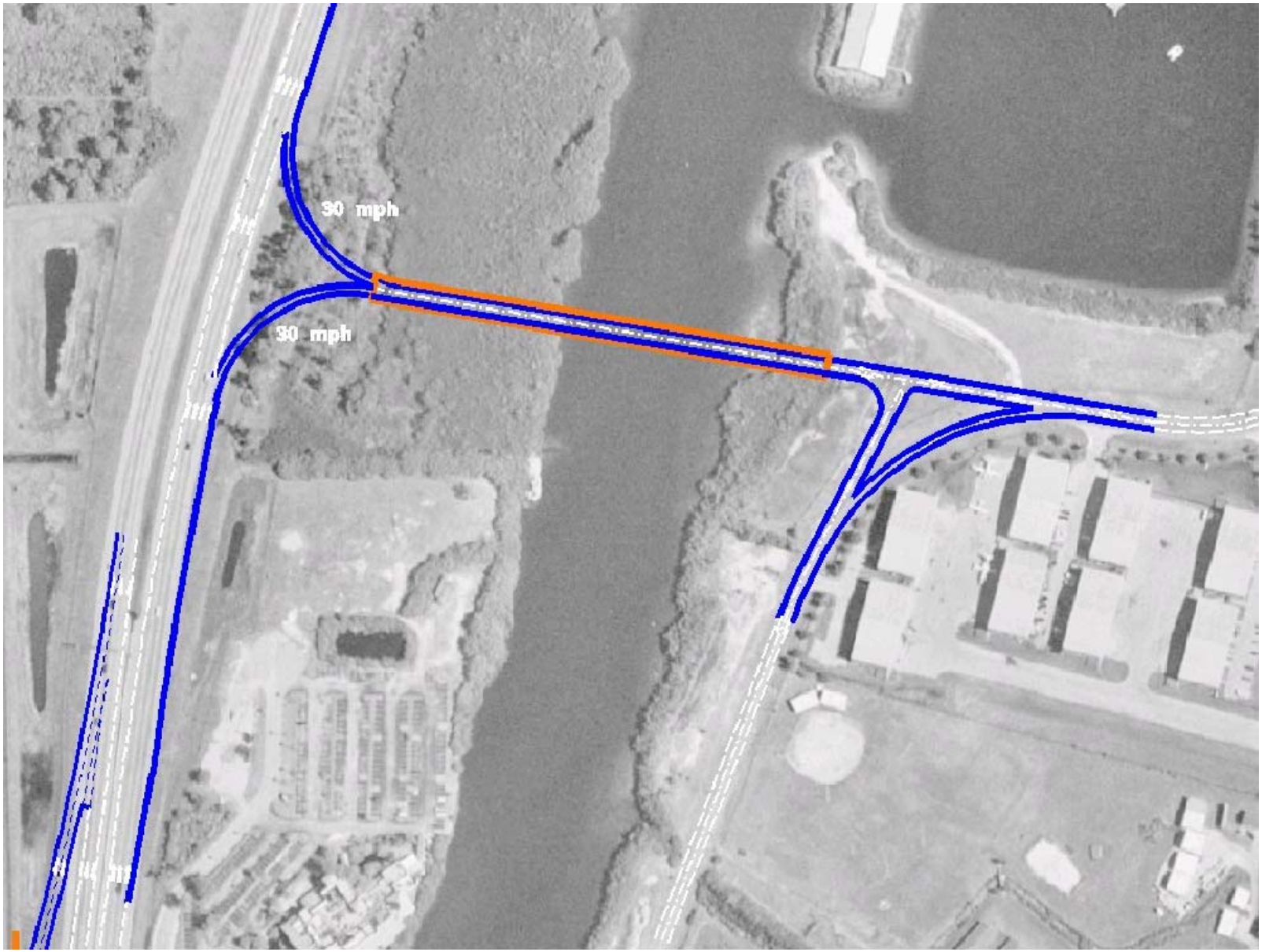
An integral component of the PIE Airport Master Plan Update is the Pinellas County Intermodal Center (PCIC), an innovative intermodal transportation center planned to be adjacent to the Airport and designed to support and enhance international and domestic commerce, improve environmental quality, and enhance accessibility and safety for the traveling public. The PCIC will play a key role in the development not only of the Airport, but also Pinellas County and the greater Tampa Bay area.

7.5.3.1 Project Purpose and Need

The PCIC, to be located south and adjacent to PIE, is envisioned as a consolidated regional transfer center for passengers using the Airport, light rail, local/regional bus service, and rental cars. It can also include high-speed rail when it reaches Pinellas County in the future. The project is anticipated to be developed by the FDOT, with support from Pinellas County and cooperation from Pinellas Suncoast Transit Authority (PSTA), and parties with interest in the facility (e.g., rental car agencies). It is also anticipated that support will come from the Florida High Speed Rail Authority (HSRA). The PCIC is the centerpiece of a series of significant transportation and roadway access improvement projects underway and planned for the Airport area. Its purpose is to improve access to, from, and throughout Pinellas County, by air, rail, and road. **Figure 7-31** illustrates the PCIC as it relates to regional circulation.

Components of the facility are proposed to include:

- Consolidated, multi-level, high-speed rail, light rail, and bus terminal facility.
- Light rail stations located at the Airport and the PCIC, shuttling rail and air passengers between the two facilities.
- A crucial component of critical highway improvements (Ulmerton and Roosevelt) and improved access to I-275.
- Links to Pinellas County beaches, the City of St. Petersburg, City of Tampa, and beyond.
- Important transportation enhancements, PCIC development, and urban renewal projects.



PBS&J

St. Petersburg - Clearwater International Airport

Fairchild Preferred

Figure 7-31

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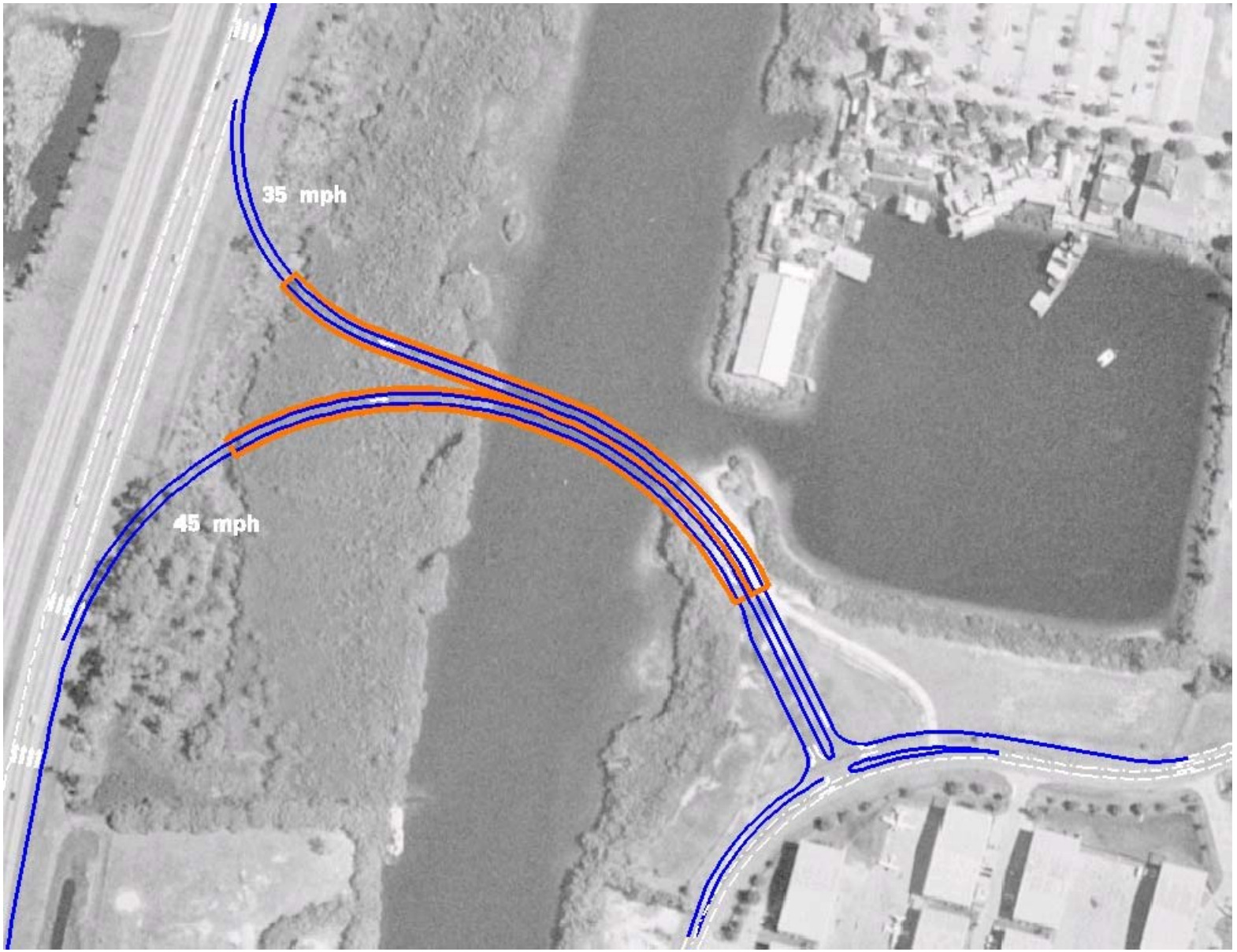

PBS&J

St. Petersburg - Clearwater International Airport

Fairchild
Alternative 1

Figure 7-32

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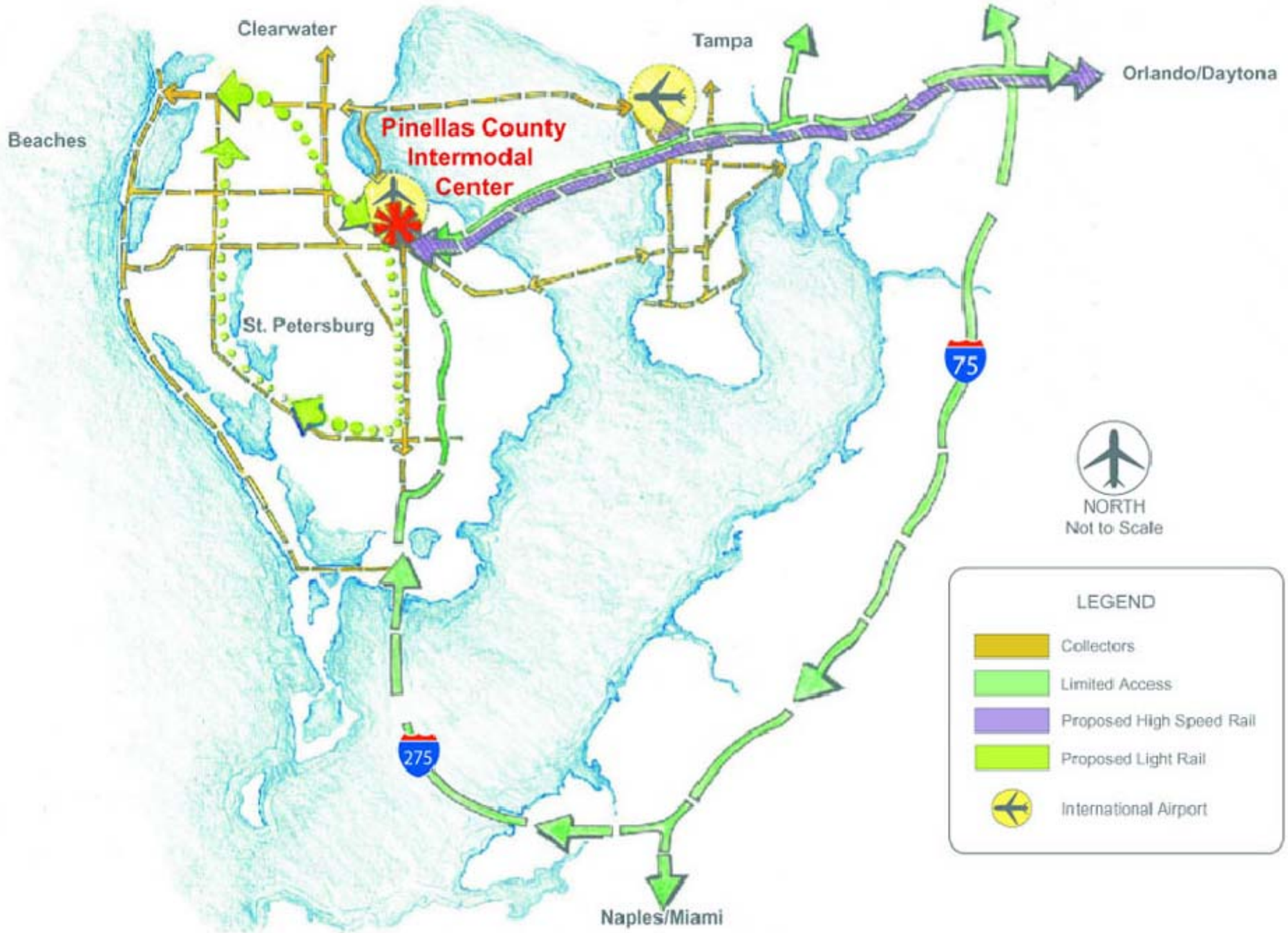

PBS&J	St. Petersburg - Clearwater International Airport	Intermodal Center Regional Circulation	Figure 7-33

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7.5.3.2 Participants

The PCIC would be a cooperative venture between Pinellas County, PSTA, the FDOT, FAA, Federal Highway Administration (FHWA), and Federal Railway Administration (FRA).

7.5.3.3 Intermodal Facilities

The PCIC facility is planned for a 112-acre site just south of the Airport, with immediate access from both Ulmerton Boulevard and 118th Street (CR 296), bordered by 40th and 44th Streets. A schematic design for the PCIC is illustrated in **Figure 7-34**.

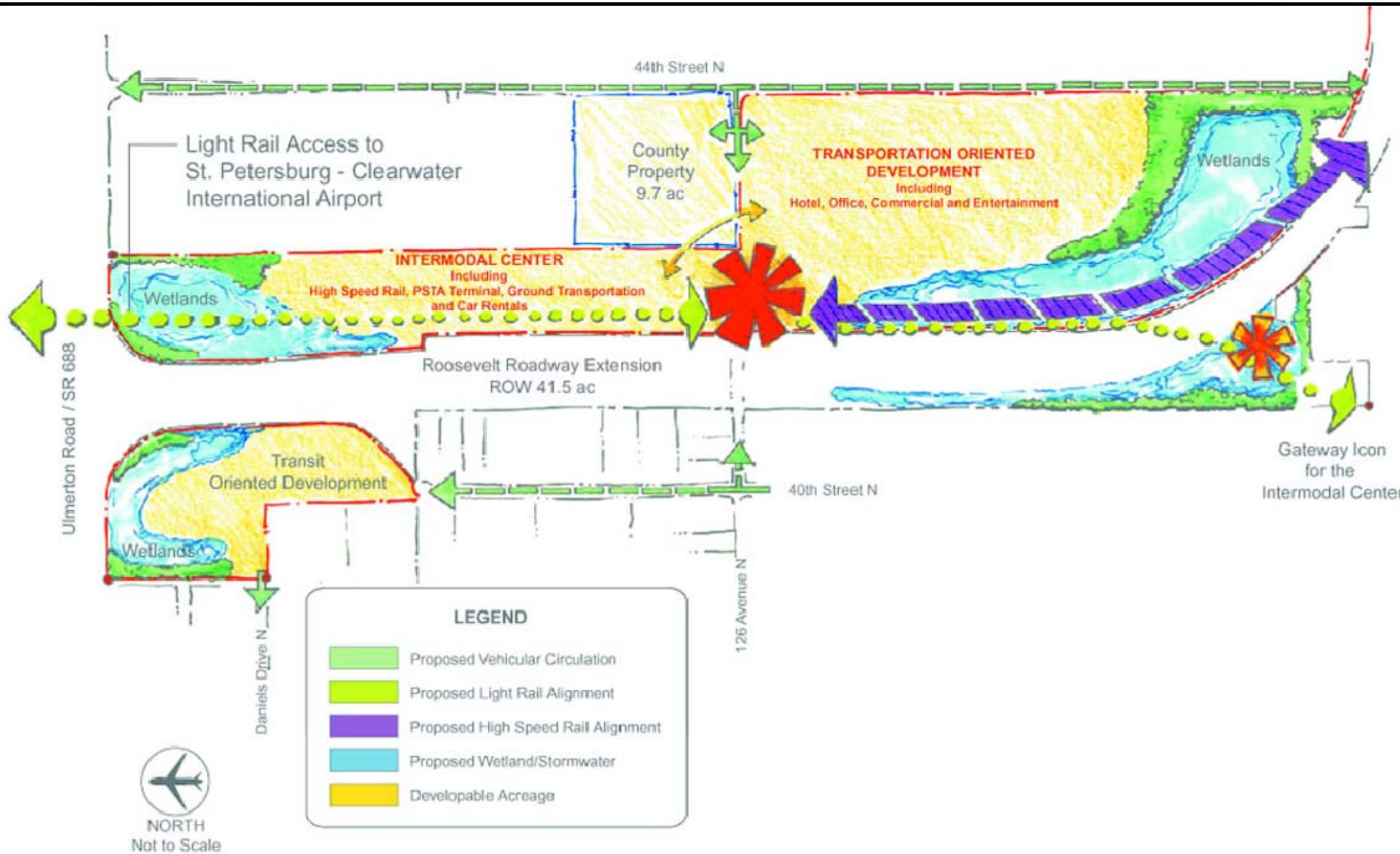
The area will include a multilevel transit center where high-speed rail, light rail, and bus services will come together in a single facility to allow expeditious transfer of passengers from one transportation mode to another. Airport access will be afforded by light rail, with a station located at the Airport to serve as a people mover between the Airport and the PCIC. Initial development includes ticketing offices for light rail, bus, rental car agencies, limousine and taxi services, and public parking facilities. Long-range plans may include office space for high-speed and hotel and convention facilities.

The PCIC is anticipated to also serve as an economic stimulus and urban renewal initiative for the immediate area, which is currently an industrial environment. Parcels surrounding the PCIC facility would be rezoned to allow for more compatible higher scale development. Rental car fees would likely finance the construction of the rental car portion of the facility, and Airport user fees could pay for the light-rail equipment that will serve as a people mover system.

With continued growth in air and surface transportation travel, the two roads serving the Airport, Ulmerton and Roosevelt Boulevards, will be facing increased congestion. Both of these roadways are under study, and in some cases under design, to be upgraded to limited access roadways in order to facilitate access between I-275 and US 19, which is the anticipated central location of PCIC. However, even with the proposed roadway improvements, US 19 will remain severely congested, promoting the need for the PCIC to accommodate some of the surface transportation demand. The PCIC would provide enhanced rail and bus services as an alternative mode of transportation through Pinellas County, as well as to and from Tampa on a daily basis. This will offset a portion of the daily trips generated between Pinellas and Hillsborough Counties. In addition, with light-rail service serving as a people mover between the PCIC and PIE, localized automobile traffic and congestion will be reduced.

7.5.3.4 Project Cost and Funding

Although the cost of the PCIC is not yet determined, it will be significant and may pose a financing challenge for Pinellas County and the State of Florida. Funding will need to come from many sources, including but not limited to, FHWA grants, FAA grants, FDOT state funds, and perhaps Florida State Infrastructure Bank (SIB) loans. Portions of the light rail between the Airport and the PCIC may be eligible for funding from Airport user fees (i.e., passenger facility charges [PFCs]). The proposal will need to be endorsed at the local level (local governments, county, metropolitan planning organizations [MPOs]) on up through the state (FDOT) and federal (FHWA, FAA) levels.



PBS&J		St. Petersburg - Clearwater International Airport	Intermodal Center Schematic Design	Figure 7-34

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The project is eligible for the following various federal and state funding sources:

- **Federal**
  - U.S. Department of Transportation
    - Federal Highway Administration, Federal Rail Administration, Federal Aviation Administration
      - Title 23 CFR
      - Title 49 CFR
      - Transportation Equity Act of the 21st Century (TEA-21, Public Law 105-178)
      - Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (AIR-21, Public Law 106-181)
        - National highway system (intermodal)
        - Surface transportation program (intermodal)
        - Transit programs (light rail)
        - Rail programs (high-speed rail)
          - Federal financing resources
            - Transportation Infrastructure Finance and Innovation Act (TIFIA)
            - Rail Rehabilitation and Improvement Financing (RRIF)
- State
  - Florida Department of Transportation
    - State Transportation Trust Fund (STTF) – funding programs
      - Florida interstate highway system
      - Arterial highway/bridge construction
      - Aviation Program
      - Right-of-Way Program
      - Transit - public transportation
      - Rail
      - Intermodal access
  - Transportation Outreach Program

7.5.3.5 Anticipated End Result

The PCIC would be a critical and significant investment in the region and the state, and would be an integral part of a safe, efficient, economical, and integrated multi-modal transportation system. As a significant component of the region's transportation network, strategically located near and integrated with PIE, the PCIC would help resolve the current and anticipated surface transportation and mobility problems in the greater

Tampa Bay area.

7.6 LAND USE/LAND ACQUISITION

7.6.1 Aviation Land Uses

Airport land areas for aviation use are well defined by previous and proposed developments. With the addition of the Airco Golf Course, additional land area becomes available for aviation uses. Additional land acquisition is required for airside purposes. A small portion of land (1.0 acre +/-) in the right of way for the Old Roosevelt Road will need to be acquired from the FDOT to allow for roadway access and apron at the southern end of the proposed Airco aviation development.

7.6.2 Non-Aviation Land Uses

The only additional land area required for non-aviation land use is the Sunshine Speedway property that is the site of the proposed Pinellas County Intermodal Center (PCIC). The 112-acre parcel is south of Ulmerton Road.

Proposed land use areas are illustrated in **Figure 7-35**.

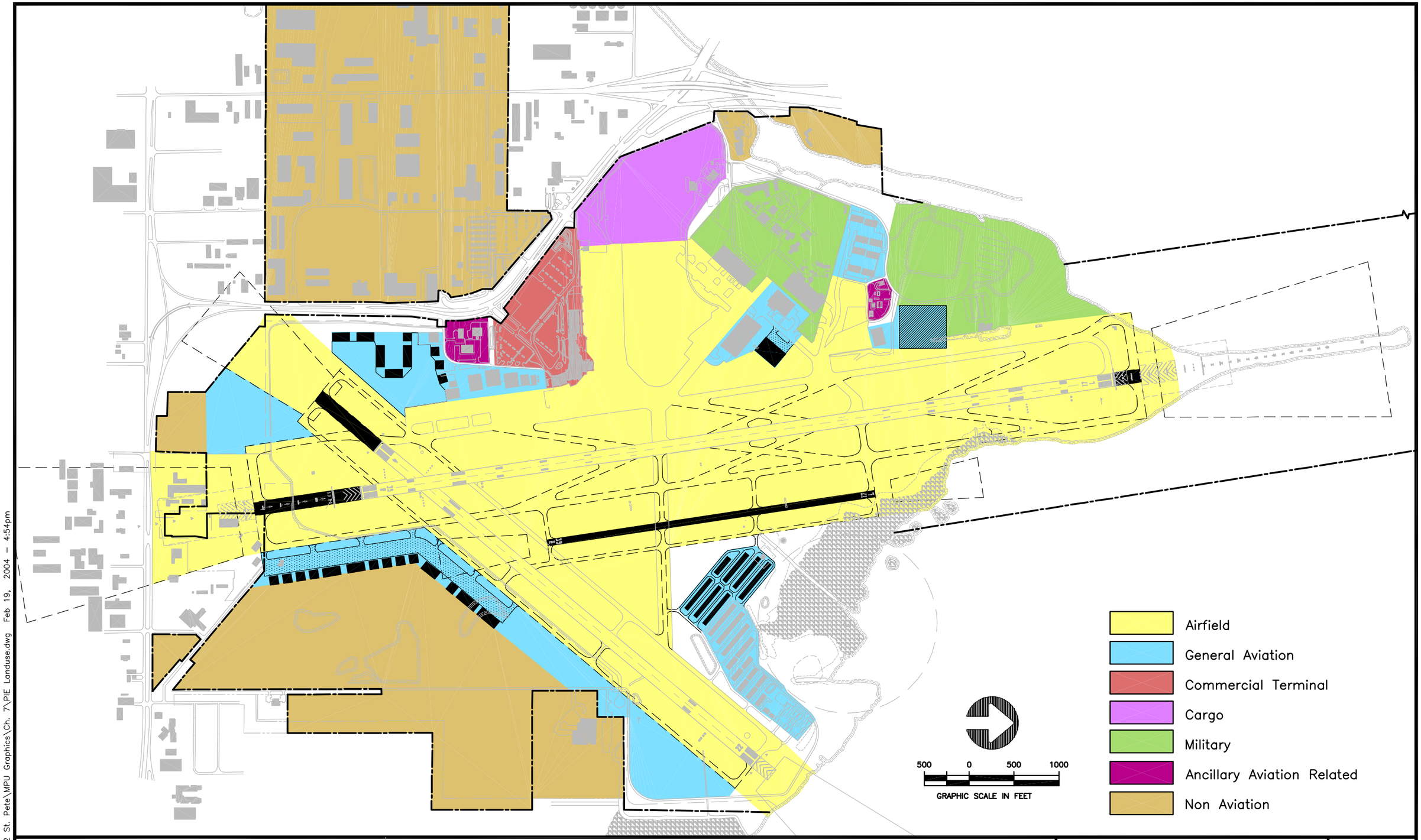
7.7 SUMMARY

The preferred Airport development alternative outlines the necessary development and facility improvements that will not only meet the forecast demand presented in Chapter 4, but also ultimately ensure competitiveness and financial viability for the Airport. Additionally, the overall development plan will provide the Airport and surrounding community with the greatest benefit considering the goals of the Pinellas County Board of Commissioners.

The process utilized in assessing airside and landside development alternatives involved an analysis of long-term requirements and growth potential. Current Airport design standards were reflected in the analysis of runway and taxiway needs, with consideration given to the safety requirements mandated by the FAA. As FAA design standards are modified in the future, revisions to the plan may need to be made that could affect future development options.

As any good, long-range planning tool, the final master-planning concept should remain flexible to unique opportunities that may be presented to the Airport. It should also be noted that changes in market conditions, such as fluctuations in passenger enplanements, may accelerate or delay projects.

The remaining portions of the Master Plan will be directed towards the review of potential environmental issues and impacts that may be associated with the preferred development alternative, preparation and phasing of a detailed implementation program, and an evaluation of funding options currently available to Airport management. A detailed review of the projects, including construction costs and phasing, will be discussed in a later chapter.



PBS&J

St. Petersburg - Clearwater International Airport

Proposed Land Use Areas

Figure 7-35

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ENVIRONMENTAL OVERVIEW

St. Petersburg-Clearwater International Airport

8

The purpose of this chapter is to present an overview of the existing environmental conditions at the St. Petersburg-Clearwater International Airport (PIE). Such an overview does not constitute an Environmental Assessment (EA), as defined by the Federal Aviation Administration (FAA) Order 5050.4A; however, the analysis in this section is conducted in accordance with the guidelines set forth in the FAA Order, entitled *Airport Environmental Handbook*. Under this document, 20 categories have been determined as possible areas of impact and must be addressed. These categories are:

- Airport Noise
- Land Use
- Social Impacts
- Induced Socio-Economic Impacts
- Air Quality
- Water Quality
- Department of Transportation Act, Section 4(f) lands
- Historical, Architectural, Archeological, and Cultural Resources
- Biotic Communities
- Threatened and Endangered Species of Flora and Fauna
- Wetlands
- Floodplains
- Coastal Zone Management
- Coastal Barriers
- Wild and Scenic Rivers
- Prime Farmland
- Energy Supply and Natural Resources
- Light Emissions
- Solid Waste Impacts
- Construction Impacts

For the purposes of this study, the above-mentioned environmental categories will be addressed only as they apply specifically to PIE and will otherwise be noted as not applicable to the Airport. In considering potential environmental impacts within this framework, the following environmental overview points out those categories, which may warrant more detailed analysis in a formal EA for the preferred development alternative.

8.1 AIRPORT NOISE

Noise is the most apparent impact that an airport has on the environment, with the majority of complaints received from nearby residents, and therefore necessitating the majority of mitigation efforts. The FAA recommended the average day-night sound level (DNL) in decibel values, as the national standard for measuring airport noise. The FAA has determined that a sound level of 65 DNL or less is compatible with most residential land uses. Therefore, noise levels greater than this measurement should be contained within the Airport property lines to the greatest extent possible. In areas around the Airport where noise levels exceed 65 DNL, other methods of mitigation such as land acquisition, zoning requirements, and the purchase of easements may be utilized as possible remedies for incompatible land uses.

The noise analysis conducted in this master plan utilizes the FAA Integrated Noise Model (INM) Version 6.1 software. In order to establish a national standard for comparing noise impacts, INM analysis of airport noise levels is required by the FAA. The noise analysis completed in this master plan does not constitute a FAR Part 150 Noise Study.

8.1.1 Major Assumptions

8.1.1.1 Existing/Future Development Scenarios

Two cases for existing/future development were modeled. The base case contours reflect the Airport fleet mix and activity levels, as they exist in the year 2001. The future case contours reflect changes in the noise footprint as influenced by an increase in annual operations. Other significant changes between the existing and future scenarios include the transition to use of FAR Part 36 Stage III aircraft in the corporate jet segment of the fleet mix. Also assumed is an extension of existing Runways 17L-35R and 04-22 as well as the relocation of Runway 17R-35L east of the primary runway. Additionally, deactivation and closure of Runway 09-27 is included in the future case scenario. The following identifies the runway dimensions, as input into the INM model, for the year 2022.

- Runway 17L-35R (relocated parallel) – 3,600 ft x 75 ft
- Runway 17R-35L (primary) – 10,000 ft x 150 ft
- Runway 04-22 – 6,375 ft x 150 ft

The future scenario assumes aviation activity will be accommodated with the full build-out scenario (preferred airfield alternative) of the development plans, as discussed in Chapter 7.

8.1.1.2 Day/Night Operations

The INM computer program computes the impact of night operations by multiplying their perceived sound intensity level by a factor of 10. The FAA, for the purposes of noise modeling, defines night operations as those that take place between the hours of 10 p.m. and 7 a.m. Most traffic to PIE flies during daytime hours; although, a percentage of operations take place at night. The day/night split was calculated from historical operations and information presented in the EA for the Extension of 17L-35R, as published by URS in May 2002. The percentage of day and night operations for each aircraft category, as calculated in the 2014 noise scenario of the above EA, was applied to the 2022 forecast of aircraft operations in order to obtain the future case day/night split. These percentages are listed, for the existing and future cases, in **Table 8-1**.

Table 8-1. Percent Night Operations

Aircraft Category	Existing Operations (2001)	Future Operations (2022)
General Aviation	10.0%	10.0%
Military	5.4%	6.8%
Air Carrier and Cargo	20.0%	12.2%

Source: St. Petersburg-Clearwater International Airport, EA for Extension of Runway 17L-35R; URS, 2002 and PBS&J, 2003

8.1.2 Runway Utilization

The ultimate and final choice of runway is a pilot decision, depending primarily upon prevailing winds, with aircraft generally taking off and landing into the wind. Other considerations include the type or size of aircraft and suitability of the runway for certain types of operations. Small aircraft operations are more sensitive to crosswind conditions than are heavier aircraft. Additionally, the availability of an instrument landing system (ILS) approach system on Runway 17L-35R and a very-high frequency omni directional range (VOR) approach to Runway 04 influences the use of these runways by aircraft during instrument flight rules (IFR) weather. Commercial, corporate, and training aircraft are generally equipped to take advantage of the benefits offered by the instrument approaches.

Additionally, runway utilization may vary for itinerant and local traffic, with itinerant traffic using primary runways and local traffic distributed among all available runways. **Table 8-2** presents the runway use percentages for 2001 as developed in the 2002 EA for the Extension of 17L-35R. Future case (2022) runway utilization is shown in **Table 8-3.** The noise analysis distributes air traffic on the Airport's runways according to these percentages, taking into account the aircraft type and the type of operation, as noted previously.

Table 8-2. Existing Aircraft Runway Utilization

Runway	Air Carrier (%)	Military (%)	General Aviation (%)	Touch and Go (%)
17L	40.0	17.5	33.3	16.7
35R	60.0	27.5	48.0	30.0
17R	--	10.0	--	--
35L	--	2.5	--	1.7
04	--	2.5	17.7	28.3
22	--	--	1.0	20.0
09	--	39.0	--	3.3
27	--	1.0	--	--

Source: St. Petersburg-Clearwater International Airport, EA for Extension of Runway 17L-35R; URS, 2002 and PBS&J, 2003

Table 8-3. Future Aircraft Runway Utilization

Runway	Air Carrier (%)	Military (%)	General Aviation (%)	Touch and Go (%)
17L	--	10.0	--	--
35R	--	2.5	--	1.7
17R	40.0	17.5	33.3	16.7
35L	60.0	27.5	48.0	30.0
04	--	41.5	17.7	31.6
22	--	1.0	1.0	20.0

Source: St. Petersburg-Clearwater International Airport, EA for Extension of Runway 17L-35R; URS, 2002 and PBS&J, 2003

8.1.3 Flight Tracks and Air Traffic Distribution

Improvements in the FAA INM Version 6.1 over the earlier versions allows a more precise modeling of flight tracks and the appropriate distribution of the types of activity along these tracks.

The noise contours resulting from the updated analysis in this report include traffic patterns for small and large aircraft, and allocate training and VFR traffic to VFR pattern approaches, as appropriate. The flight tracks included in the EA for the Extension of Runway 17L-35R, as developed by URS, were used to develop the noise contours for the existing (2001) case. These flight tracks were then modified, as necessary, to represent the change in airfield configuration included in the future case (2022) scenario.

8.1.4 Existing Activity Levels and Fleet Mix (Base Case)

8.1.4.1 Day/Night Distribution by Aircraft Category

Modeling of the noise exposure contours requires the separation of known average annual traffic by aircraft category, type of operation, and the time that the operation takes place. **Table 8-4** categorizes operations, based on the existing level of activity as estimated by forecasts of aviation activity in Chapter 4 of this report.

Table 8-4. Existing Aircraft Operations and Fleet Mix

Type of Service	Aircraft Type (INM Aircraft)	2001 Annual Operations
General Aviation	Single-Piston (GASEPF)	145,260
	Single-Piston (GASEPV)	21,139
	Single-Piston (CNA 172)	5,502
	Single-Piston (CNA 206)	469
	Twin-Piston (BEC58P)	7,285
	Twin –Turboprop (DHC6)	3,416
	Jet - Stage 3 (CNA 500 / EMB145 / CL600 / LEAR35)	4,456
	Jet – Stage 2 (LEAR 25)	3,029
	Total:	**190,556**
Military	C-130 (C130)	5,189
	UH-60	12,423
	Total:	**17,622**
Air Carrier, Air Taxi and Commuter	B-737-300	198
	B-737-700	4
	B-727EM2	2,372
	B-757RR	2,148
	A310	28
	A320	384
	A330	8
	DC93LW	1,386
	L1011	112
	L10115	90
	J-31	7564
	Total:	**14,294**

Source: St. Petersburg-Clearwater International Airport, EA for Extension of Runway 17L-35R; URS, 2002 and PBS&J, 2003

8.1.4.2 Average Daily Operations by Stage Length

Following the day/night distribution by aircraft category, the information in **Table 8-4** is further subdivided to estimate daily operations. The stage length (or distance the aircraft plans to fly on the departure leg) is added, since aircraft weight, including fuel and cargo, impacts aircraft power requirements on takeoff. The FAA INM program applies the following codes to stage lengths:

- Stage length 1: 0 to 500 nautical miles
- Stage length 2: 500 to 1,000 nautical miles
- Stage length 3: 1,000 to 1,500 nautical miles
- Stage length 4: 1,500 to 2,500 nautical miles
- Stage length 5: 2,500 to 3,500 nautical miles
- Stage length 6: Greater than 3,500 nautical miles

The above information for PIE's operations is displayed in **Table 8-5**.

Table 8-5. Percent Aircraft Departures by Stage Length

	Stage Length (percent aircraft departures)					
Type Aircraft	**1**	**2**	**3**	**4**	**5**	**6**
Single-Piston (GASEPF)	100%					
Single-Piston (GASEPV)	100%					
Single-Piston (CNA 172)	100%					
Single-Piston (CNA 206)	100%					
Twin-Piston (BEC58P)	100%					
Twin –Turboprop (DHC6)	100%					
Jet - Stage 3 (CNA 500 / EMB145 / CL600 / LEAR35)	100%					
Jet – Stage 2 (LEAR 25)	100%					
C-130 (C130)	100%					
UH-60	100%					
B-737-300		100%				
B-737-700	100%					
B-727EM2		100%				
B-757RR	20%	68%		12%		
A310		100%				
A320			100%			
A330		100%				
DC93LW	70%	30%				
L1011		100%				
L10115		100%				
J-31	100%					

Source: St. Petersburg-Clearwater International Airport, EA for Extension of Runway 17L-35R; URS, 2002 and PBS&J, 2003

8.1.4.3 Distribution of Traffic by Flight Tracks

The final step in the analysis involved distributing the derived average daily operations on a series of flight tracks to and from each runway. The flight track information discussed previously was used in this process. Since aircraft do not follow single flight tracks in the sky, the INM software utilizes a system of spreading flight operations into corridors to replicate the actual paths of aircraft. Air traffic in the preceding table was distributed along flight tracks as appropriate for each type of operation and aircraft type in accordance with the assumptions outlined in the preceding subsections.

8.1.5 Existing Noise Contours

The noise contours resulting from the aggregated inputs and assumptions detailed in the preceding sections were processed to reveal the average annual noise exposure levels (65, 70, and 75 DNL). This output is represented in the contours shown in **Figure 8-1**. The 65 DNL contour represents the threshold sound exposure level beyond which certain land uses are not compatible with airport operations. In the existing (2001) case, the 65 DNL contour extends beyond the Airport property line to the north and south of Runway 17L-35R and just off of the Runway 22 approach end. FAA guidelines define incompatible land uses in sound exposures areas above 65 DNL. These include residential uses, schools, hospitals, theaters or other uses, which may attract large concentrations of people. All of the off-Airport areas located south of the approach end to Runway 35R and within the 65 DNL noise contour, are designated as vacant, commercial, and/or industrial use. Areas to the north, off the approach end of Runways 17L and 22, within the Airport's 65 DNL contour are portions of Old Tampa Bay. Thus, all land uses within the existing 65 DNL noise contours are considered compatible.

The lands described are adjacent to, but are not all controlled by the Airport. The FAA recommends that airports acquire a property interest, such as easements or outright ownership of such property. Zoning controls can also be effective, but are subject to change by other interests whose goals may not be the same as those of the Airport management.

8.1.6 Future Aircraft Activity Levels and Fleet Mix

Future sound exposure levels at PIE are influenced by several key changes to the existing case. These changes are described in the following sections.

8.1.6.1 Operations Growth

Significant growth is projected for aviation activity at PIE over the 20-year planning period. Operations are forecast to be approximately 43 percent over existing (year 2001) activity levels. Much of the growth is projected in air carrier and commuter operations, as well as moderate growth in training activity. These types of operations can be expected to have the most significant impact on sound exposure levels in areas on and near the Airport.

8.1.6.2 Facilities Improvements

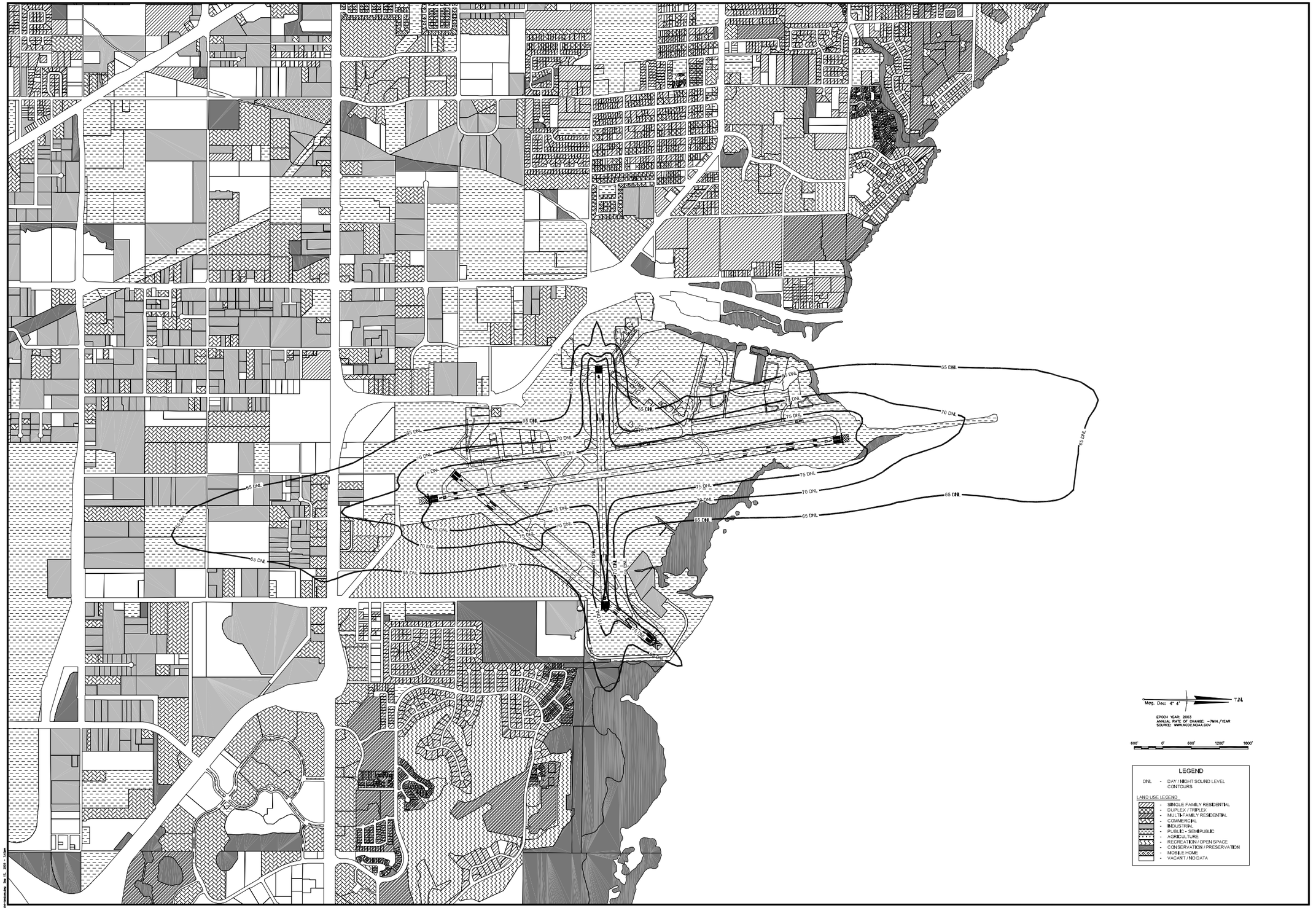
The year 2022 scenario assumes full build-out of the preferred development alternative, which includes two runway extensions (Runways 17L-35R and 04-22) and the relocation of the existing small parallel runway, 17R-35L, east of the primary runway, as described previously. Additionally, Runway 09-27 will be deactivated under the preferred development alternative. The airfield improvements are programmed in response to significant growth in aircraft activity that is forecast over the planning period. Additionally,

The year 2022 scenario assumes full build-out of the preferred development alternative, which includes two runway extensions (Runways 17L-35R and 04-22) and the relocation of the existing small parallel runway, 17R-35L, east of the primary runway.

the airfield improvements will allow PIE to increase overall Airport capacity and accommodate the forecast level of demand.

8.1.6.3 Fleet Mix

In order to estimate the future sound exposure levels, the existing (2001) case was modified to reflect the increased operations in each aircraft type as projected by the forecasts of aviation activity. In addition, certain representative aircraft types in the corporate fleet mix were replaced with new-generation aircraft that are compliant with the more stringent FAR Part 36 Stage III noise emission standards. Though there is no timetable for GA/corporate aircraft compliance at the time of this analysis, it is estimated that such requirements will begin in the mid- to long-term phases of the planning period. The 2022 aircraft operations and fleet mix are presented in **Table 8-6**.



REVISIONS	
DATE	DESCRIPTION

CLIENT

St. Petersburg - Clearwater International Airport
Pinellas County, Florida

PROJECT

Master Plan Update

SHEET TITLE

EXISTING LAND USE AND NOISE CONTOURS (2001)

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DATE: MAY 2002

Figure 8-1

SHEET 12 OF 14

Table 8-6. Future Aircraft Operations and Fleet Mix (2022)

Type of Service	Aircraft Type (INM Aircraft)	2022 Annual Operations
General Aviation	Single-Piston (GASEPF)	200,540
	Single-Piston (GASEPV)	29,195
	Single-Piston (CNA 172)	7,599
	Single-Piston (CNA 206)	727
	Twin-Piston (BEC58P)	10,061
	Twin –Turboprop (DHC6)	4,718
	Jet - Stage 3 (CNA 500 / EMB145 / CL600 / LEAR35)	6,154
	Jet – Stage 2 (LEAR 25)	4,183
	Total:	**263,177**
Military	C-130 (C130)	6,551
	UH-60	15,698
	Total:	**22,249**
Air Carrier, Air Taxi and Commuter	B-737-400	4,308
	B-757RR	3,592
	B-767-300	574
	B-747-20B	73
	A310	186
	A330	59
	DC93LW	1,022
	MD83	1,047
	MD11GE	95
	L10115	268
	J-31 (DHC6)	20,323
	Total:	**31,537**

Source: St. Petersburg-Clearwater International Airport, EA for Extension of Runway 17L-35R, URS, 2002 and PBS&J, 2003

8.1.6.4 Average Daily Operations

As in the existing (2001) case, the average annual operations were subdivided to obtain average daily operations by aircraft category, distribution of traffic by runway, and departure stage lengths. The percentage of aircraft departures presented in **Table 8-5** was maintained and applied to the increased level of activity. As in the existing case, the number of takeoffs (departures) is assumed to equal the number of landings (arrivals).

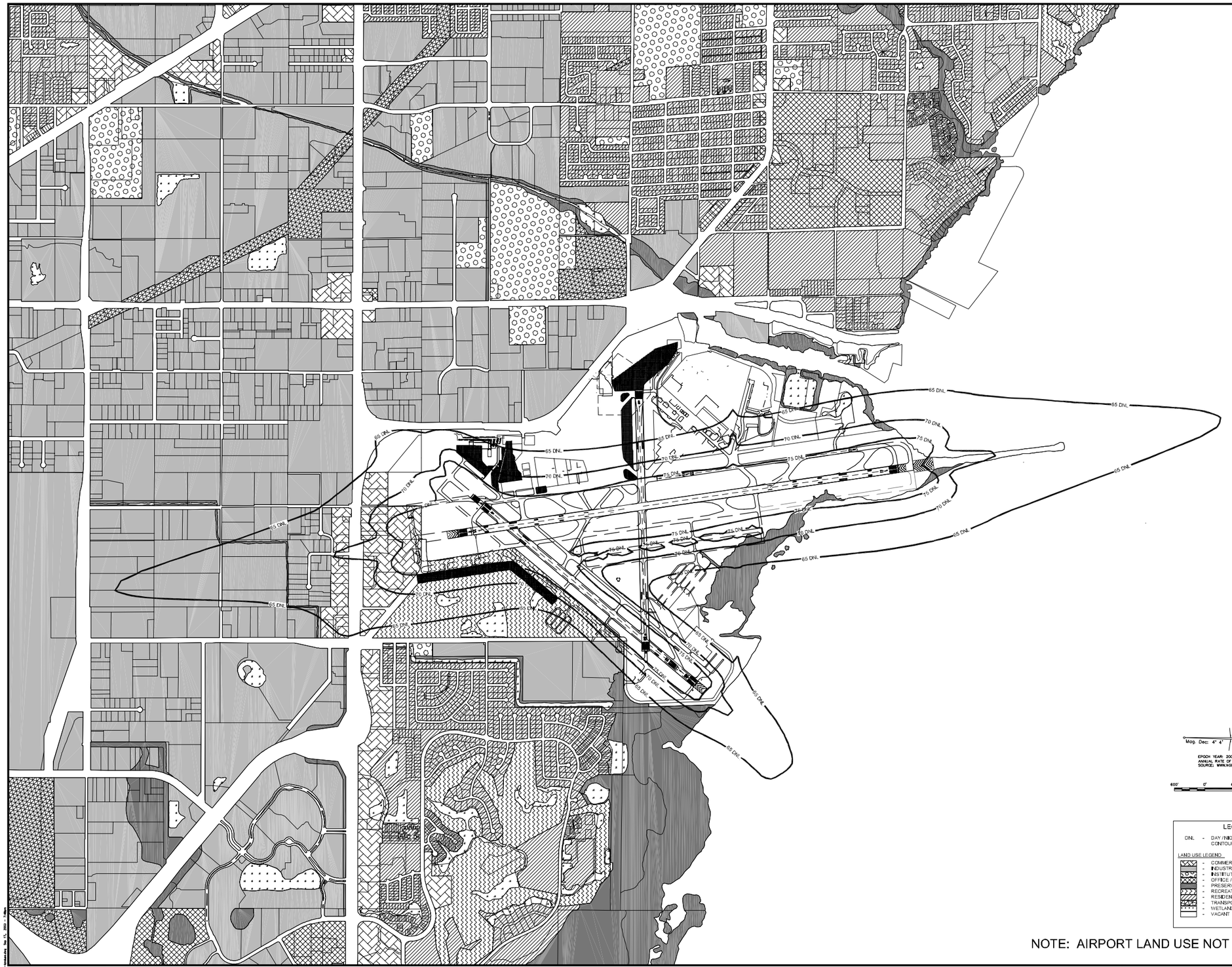
8.1.7 Future Noise Contours

The modifications to the existing case scenario, including growth in aircraft activity, changes to the fleet mix, runway extensions, relocations and closures, were processed by the INM computer program to produce sound exposure level contours. The resulting future-case contours are illustrated in **Figure 8-2**.

Most noteworthy is an increase in the size of the contours, and thus the sound exposure levels on and near the airfield. The total increase in size can be attributed to the significant increase in operations that are forecast over the planning period.

Additionally, larger aircraft will have the ability to operate on the newly extended Runway 04-22, while the majority of training aircraft and touch-and-go activity will be operating on the new Runway 17L-35R (relocated 17R-35L). Further, the closure of Runway 9-27 will shift a percentage of aircraft operations to the other runways. Thus, the average noise exposure, as modeled by the INM software, will increase as frequency of aircraft activity on the remaining runways increase.

It should be noted that the majority of off-Airport noise generated in the future (2022) case is in nonresidential areas, and thus, incompatible land uses will remain low. Additionally, noise exposure benefits will result from the extension of the existing Runways 17L-35R and 04-22.



NOTE: AIRPORT LAND USE NOT SHOWN FOR CLARITY

REVISIONS	
DATE	DESCRIPTION

CLIENT: St. Petersburg - Clearwater International Airport, Pinellas County, Florida

PROJECT: Master Plan Update

SHEET TITLE: FUTURE LAND USE AND NOISE CONTOURS (2022)

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DATE:	MAY 2002

Figure 8-2

SHEET 13 OF 14

8.1.8 Conclusions

Table 8-7 documents an overall increase in size of the noise contours for the future (2022) case scenario. This increase amounts to an average of approximately 17 percent of the area covered by the contours in the existing (2001) case.

Table 8-7. Comparison of Noise Contour Areas

Contour	Existing (2001)	Future (2022)	Expansion/Reduction (+/-)
65 DNL	1.958 sq miles	2.100 sq miles	+ 0.142 sq miles
70 DNL	0.853 sq miles	0.974 sq miles	+ 0.121 sq miles
75 DNL	0.440 sq miles	0.574 sq miles	+ 0.134 sq miles

Source: PBS&J, 2003

As shown in **Figure 8-2**, the future noise contours extend beyond the Airport property line to the south of the Airport. However, the areas off-airport that are impacted by the 65 and 70 DNL noise contours are listed as industrial and commercial land uses. Therefore, no additional non-compatible land uses in the vicinity of the Airport are anticipated in the future (2022) noise scenario. It should be noted, however, if aircraft operations increase beyond that forecast in this document or significant changes in aircraft fleet mix occur, increases in noise exposure will likely also occur and areas to the east of the Airport that are primarily residential could experience additional noise impacts.

Thus, coordination with federal, state, and local officials should be completed in conjunction with the proposed development at PIE in order to minimize the potential for adverse noise impacts and ensure compatible land use within the vicinity of the Airport.

8.2 LAND USE

A key goal of the master planning process is to ensure compatible land uses between the Airport and the surrounding community. During the planning period of this master plan, compatibility issues such as development on- and off-airport, aircraft operations, or changes in aircraft type operating at PIE could arise. **Figures 8-3 and 8-4** illustrate the existing land use and planned future land use plan, as provided by Pinellas County.

8.2.1 Pinellas County Land Use

Chapter 142, Article II of the Code of Ordinances and Land Development Code of Pinellas County addresses restrictions and types of land use on PIE and in the vicinity of the Airport. The county code and comprehensive plan provide land use restrictions and legislative provisions in accordance with FAA regulations and the state guidelines presented in Chapter 333 of Florida Statutes. Restrictions on incompatible land uses and building heights are provided in order to maintain compatibility between the Airport and the local community. Additionally, these restrictions control development on and near the Airport to prevent adverse impacts to Airport operations and ensure the safety of aircraft.

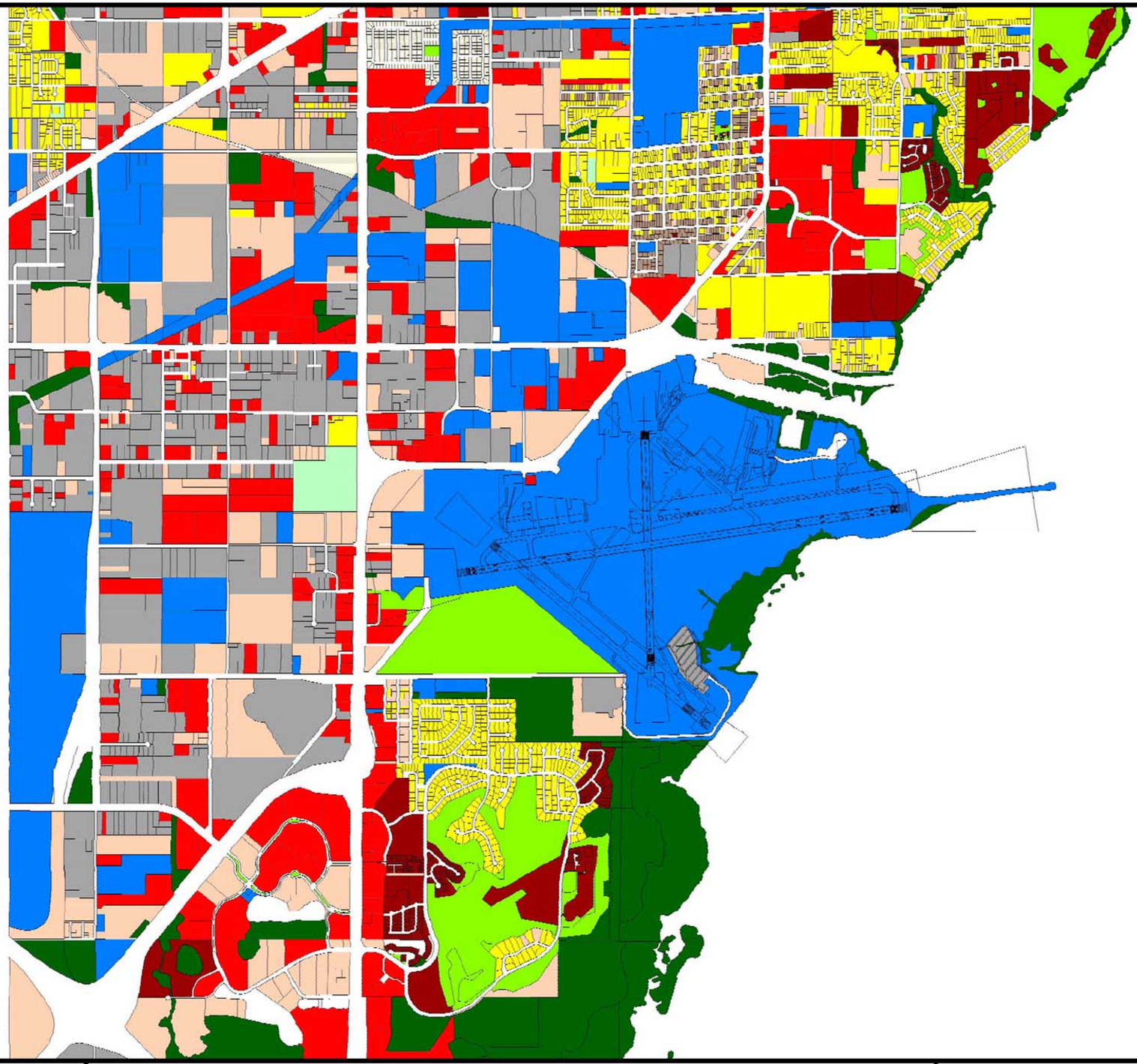
The Airport is designated as “government use – transportation”. Land uses in the vicinity of PIE generally consist of commercial, industrial, and single-family residential uses. Other land uses that could potentially be impacted by Airport operations include recreational, institutional, agricultural, and multi-family residential. The general location of these land uses and their proximity to PIE, as depicted in the existing and future land use plans, is illustrated in **Figures 8-3** and **Figure 8-4** respectively.

N

Existing Land Use Categories

- Single Family Res
- Duplex/Triplex
- Multi-Family Res
- Commercial
- Industrial
- Public-Semi Public
- Agriculture
- Rec/Open Space
- Vacant
- Conservation/ Preservation
- Mobile Home

Scale: 1" = 2,300'



PBSJ

St. Petersburg - Clearwater International Airport

Existing Land Use Plan

Figure 8-3

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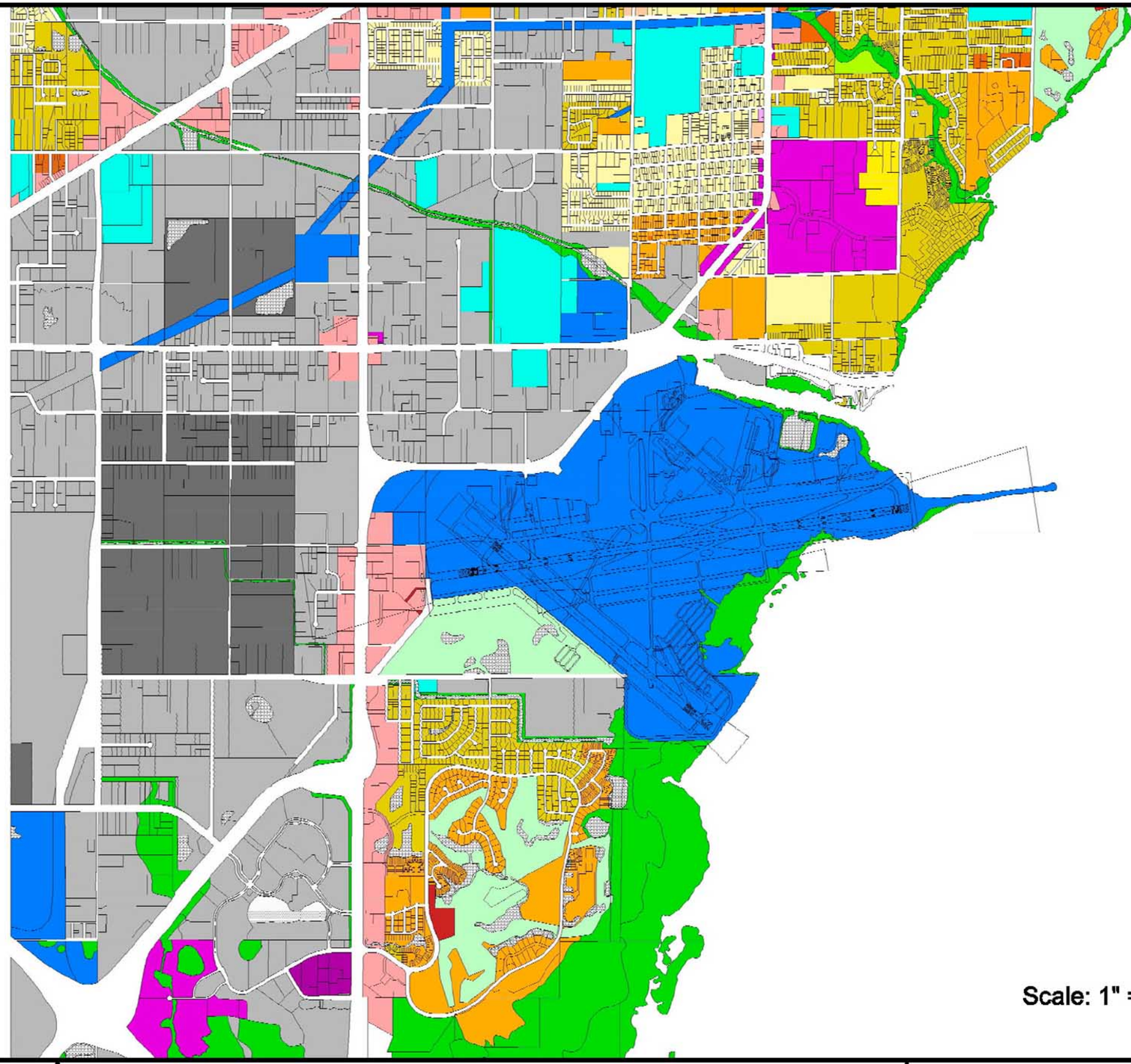
Future Land Use Categories

- Commercial General
- Commercial Neighborhood
- Commercial Recreation
- Institutional
- Industrial General
- Industrial Limited
- Preservation
- Residential/Office/Retail
- Residential/Office General
- Residential/Office Limited
- Recreation/Open Space
- Residential Estate
- Residential Low
- Residential Low Medium
- Residential Medium
- Residential Suburban
- Residential Urban
- Transportation/Utility
- Water/Drainage Feature



Scale: 1" = 2,300'

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St. Petersburg - Clearwater International Airport

Future Land Use Plan

Figure 8-4

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8.3 SOCIAL IMPACTS

The principle social impacts that must be considered are; the relocation of businesses and/or residences, alteration of surface transportation patterns, division or disruption of established communities, disruption of orderly planned development, and the creation of an appreciable change in employment. If any relocation of residential or commercial properties is required, compensation shall be made under the Uniform Relocations Assistance and Real Property Acquisition Policies Act of 1970, as amended by the Surface Transportation and Uniform Relocation Act of 1987 and its implementing regulations (49 CFR Part 24). If potentially impacted properties cannot be acquired through a land acquisition program prior to the start of each specific project, the guidelines set forth in the documents described previously must be followed to mitigate impacts on the affected residences. Additionally, any areas with concentrated populations of people belonging to a single race, national origin, or low income bracket must be identified and evaluated under the requirements of Environmental Justice to ensure that they are not receiving a disproportionate share of adverse environmental impacts (e.g., high levels of noise exposure) in relation to other areas in the vicinity of the Airport.

The proposed development contained in the preferred alternative includes land acquisition south of the existing Runway 35R approach end in order to accommodate the extension of that runway. However, at the time of this writing the majority of affected business has been relocated and the necessary land areas are acquired. Additional property acquisition and business relocations will need to occur for the runway and other purposes, such as the acquisition of the Sunshine Speedway for the proposed Pinellas County Intermodal Center (see **Figure 8-5**). However, if future changes to the development plan require any such relocation, the guidelines of the Uniform Relocations Assistance and Real Property Acquisition Policies Act of 1970, as discussed previously, must be adhered to in order to mitigate potential impacts.

8.4 INDUCED SOCIO-ECONOMIC IMPACTS

Induced socio-economic impacts are those impacts on surrounding communities that are generally produced by large-scale development projects. The scope of such development may create shifts in population movement and growth patterns, public service and demand, and changes in commercial and economic activity.

Airport development on this scale may occur at PIE within the long-term of this study and impacts that may be associated with such development will need to be analyzed. The EA and/or environmental impact statements (EIS), that are required for each major development project, will study the possible impacts of such development and describe in detail the possible induced socio-economic impacts that may be expected. Such impacts that would be expected include increases in public services demand and direct and/or indirect employment associated with the Airport's operation and expansion.

8.5 AIR QUALITY

Guidelines for regulating air quality have been established by the Federal Clean Air Act and all implementation and enforcement of these guidelines is the responsibility of the Environmental Protection Agency (EPA). Section 110 of this act requires that states develop a State Implementation Plan (SIP) in an effort to comply with federal air quality standards. National ambient air quality standards have been established under Section 109 to protect public health. The FAA must ensure that all federal airport actions, such

as financial awards and grants, conform to the state plan for controlling air pollution impacts.

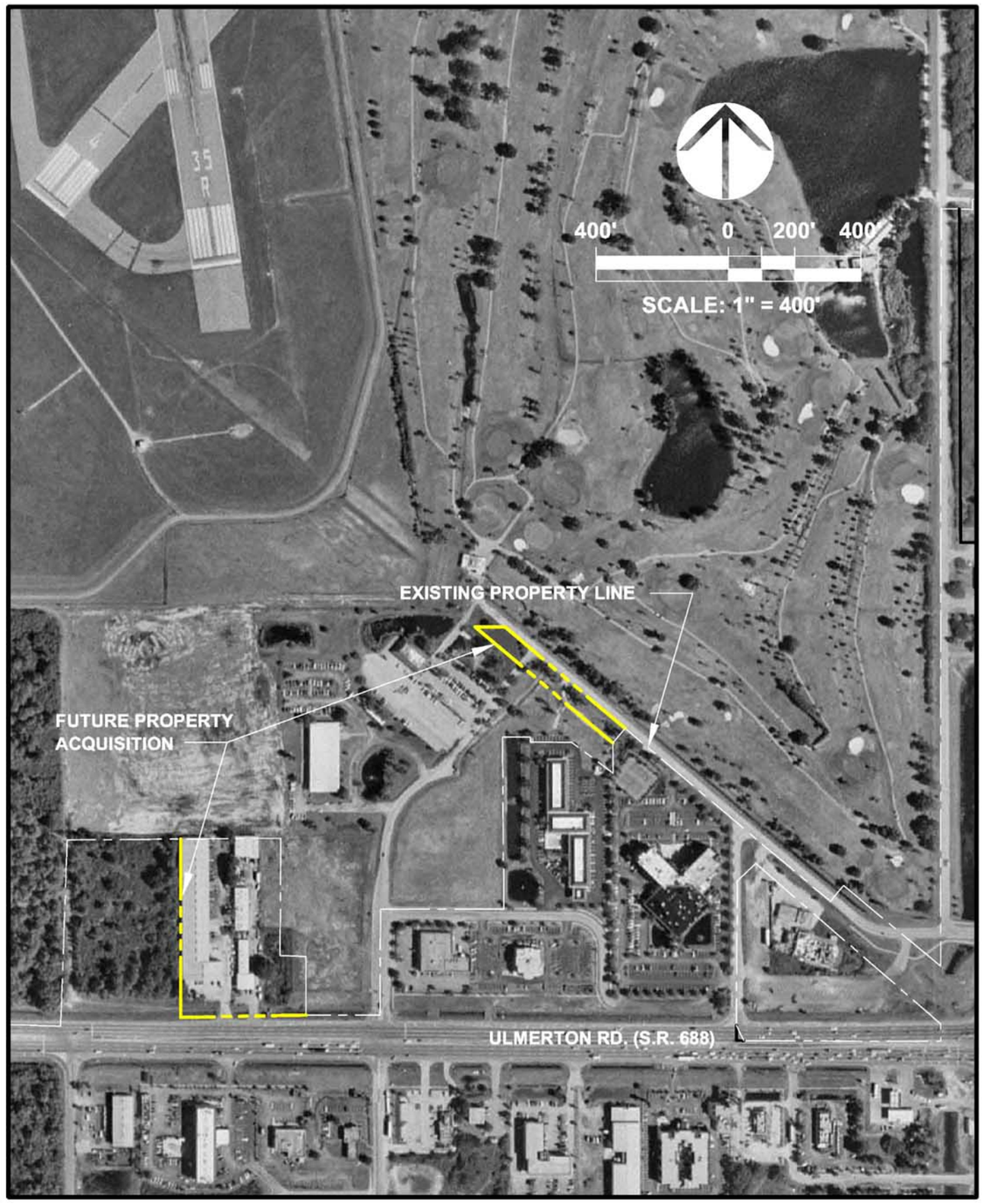
Since the State of Florida does not have indirect source review requirements, compliance with state and federal guidelines is accomplished by reviewing the forecasted operational level of the Airport. No air quality analysis is needed if the projected levels of general aviation (GA) activity are below 180,000 operations and 1.3 million GA passengers. The forecast level of GA operations and passengers at PIE will exceed this level. Therefore, though a detailed air quality analysis is not currently required, such an analysis will be required for future development once the Airport exceeds the previously described activity levels. This analysis must be performed as required by National Environmental Protection Act (NEPA) and will likely be completed during the environmental review and assessment of each major development project.

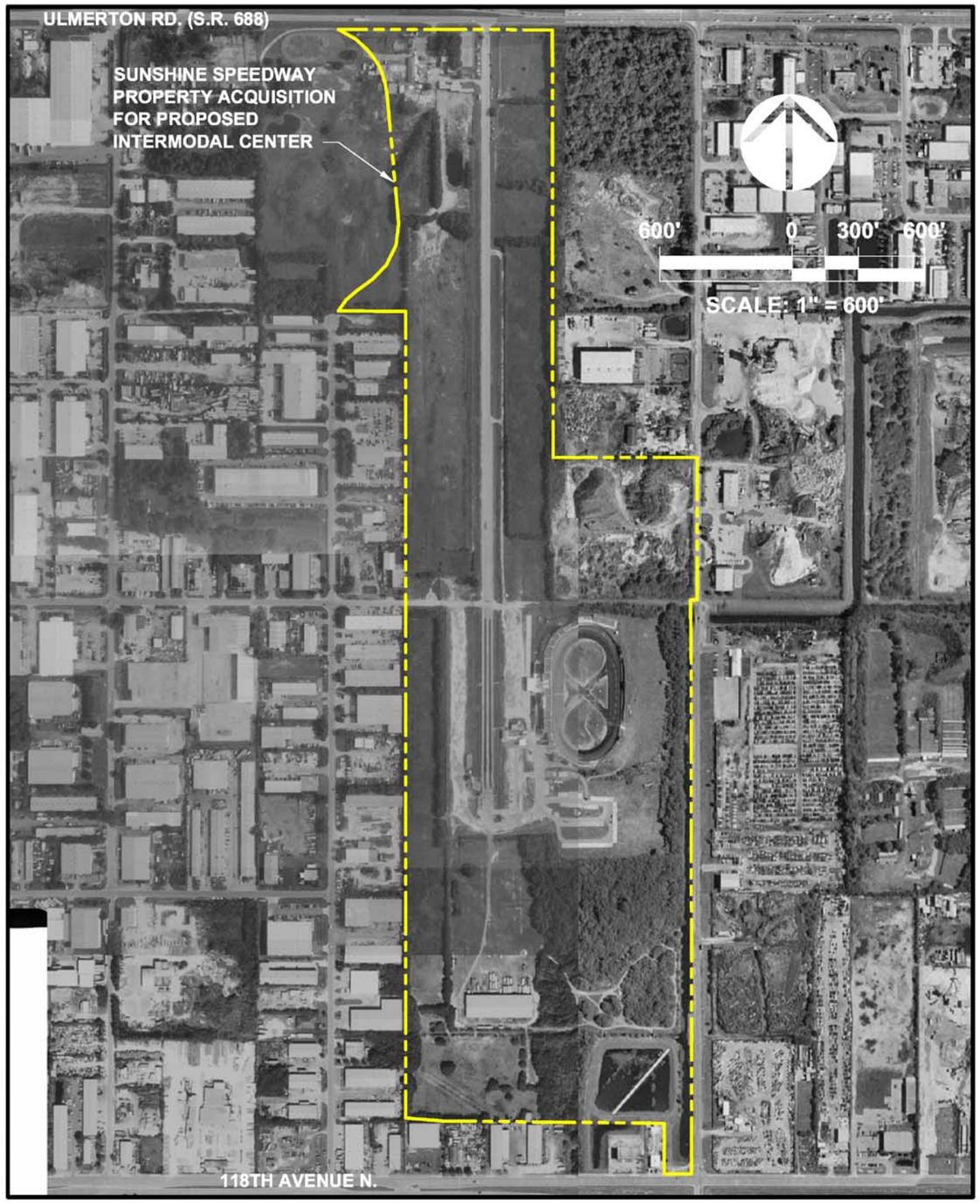
PIE and Pinellas County as a whole are designated as an attainment area for all EPA criteria air pollutants, with the exception of ozone, which is under management until the year 2004 when attainment status for this pollutant is expected. Overall, current air quality standards meet those established by the above-mentioned Federal and State legislation. However, as initiated by the Airport Act of 1982, an air quality certification from the State of Florida is required prior to any construction to ensure that federal and state air quality standards will be met.

8.6 WATER QUALITY

Water quality at PIE is regulated by federal and state legislation. The Federal Water Pollution Control Act, as amended by the Clean Water Act, provides the authority to establish water control standards, control discharges into surface and subsurface waters, develop waste treatment management plans and practices, and issue permits for discharges and for dredged or filled materials into surface waters. The Fish and Wildlife Coordination Act requires consultation with the U.S. Fish and Wildlife Service and appropriate state agency when any alteration and/or impounding of water resources is expected. Additionally, the Federal National Pollution Discharge Elimination System (NPDES) provides regulations that govern the quality of stormwater discharged into the water resources of the U.S.

Permitting requirements for construction that exceeds five acres are specified by NPDES and are administered by the Florida Department of Environmental Protection (FDEP). Coordination with both the FDEP and the South West Florida Water Management District (SWFWMD) will be necessary to ensure water quality. Special consideration must be given to the treatment of stormwater runoff and the associated potential for impacts to Old Tampa Bay, which is considered Outstanding Florida Waters. Such coordination will be completed during the environmental review phases of each project and development of the Airport's stormwater master plan.





PBS&J

St. Petersburg - Clearwater International Airport

Proposed Land Acquisition Areas

Figure 8-5

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8.7 DEPARTMENT OF TRANSPORTATION ACT, SECTION 4(F) LANDS

The Department of Transportation Act, Section 4(f) provides that no project which requires the use of any land from a public park or recreational area, wildlife and waterfowl refuge, or historic site, be approved by the Secretary of the Interior unless there is no viable alternative and provisions to minimize any possible harm are included in the planning. Enforcement of this legislation is the primary responsibility of the Department of the Interior. The U.S. Fish and Wildlife Service and Army Corps of Engineers may give assistance, however.

No known section 4(f) lands have been identified within the immediate vicinity of PIE. Therefore, the proposed Airport development described in this document is not expected to impact any of the previously mentioned lands.

8.8 HISTORICAL, ARCHITECTURAL, ARCHEOLOGICAL, AND CULTURAL RESOURCES

The National Historic Preservation Act of 1966 and the Archeological and Historic Preservation Act of 1974 provide protection against development impacts that would cause change in the historical, architectural, archeological, or cultural qualities of the property. According to the 2002 EA for the Extension of Runway 17L-35R, as prepared by URS, and a review of the National Register of Historic Places, no significant archeological or historical sites are present or eligible for listing in the immediate vicinity of PIE. Thus, no adverse impacts to such locations are anticipated from the proposed Airport development.

8.9 BIOTIC COMMUNITIES

The Fish and Wildlife Coordination Act (48 Statute 401 as amended; 16 USC et seq.) takes into consideration the possible impacts that airport development projects may have on surrounding habitat and wildlife. Section Two of this act requires consultation with the U.S. Fish and Wildlife Service, the U.S. Department of the Interior, and the state agencies that regulate wildlife and water resources. In the case of water resources, this would particularly apply to such instances where proposed development by any public or private agency would result in modification of the flow and/or shape or watershed of any stream or body of water. Under this act the U.S. Fish and Wildlife Service has authority to provide comments and recommendations concerning vegetation and wildlife resources, and the State Department of Fish and Wildlife may provide comments and recommendations if deemed necessary.

According to the 2002 EA for the Extension of Runway 17L-35R, as prepared by URS, proposed airport development would impact areas of upland habitat, wetlands, and open water habitats, including Essential Fish Habitats (EFH) as designated by the Gulf of Mexico Fishery Management Council. The character and existence of such communities is significant because the varying classes of land use and vegetative cover provide habitat for wildlife, some of which are identified as species of note or of special concern by the relevant ecological legislation. Soil types, comparative elevation and drainage characteristics in turn help determine the wetland or upland characteristics, and thereby, the type of dominant vegetation and subsequent habitat provided.

Further site survey to assess specific biotic community types on-site and the possible presence of threatened and endangered species should be completed during the EA and/or EIS process for each project. It is recommended that a species-specific survey methodology be utilized over the entire Airport property to ascertain the definitive

presence, population density, and location of all threatened and endangered species of interest.

8.10 ENDANGERED SPECIES

The Endangered Species Act of 1973 requires each federal agency to ensure that actions authorized, funded, or carried-out by that agency not jeopardize continued existence of any endangered or threatened species, or result in destruction or adverse modification of any endangered or threatened species' habitat. Section Seven of the Act states that federal agencies must review their actions; if those actions will affect a listed species or its habitat they must consult with the U.S. Fish and Wildlife Service. The State Department of Fish and Wildlife has the responsibility of identifying, listing, and protecting endangered and/or threatened species.

During the consultation process, the U.S. Fish and Wildlife Service will determine the significance of potential impacts and methods to mitigate and/or eliminate them so that the involved agency's project may be completed. Prior to the commencement of any development activity, it is recommended that a detailed, site-specific, and species-specific survey be performed in order to establish actual populations of listed species, and thereby, determine what type and degree of mitigation may be required based on the extent of the disturbance represented by any given development project, as listed in the capital improvement program of this master plan.

According to the U.S. Fish and Wildlife Service and a review of the Florida Natural Areas Inventory (FNAI), the following species of animal and plant life are known to occur in Pinellas County.

Common Name	Scientific Name	Classification Status
American Alligator	Alligator mississippienis	Special Concern
Gulf Sturgeon	Acipenser oxyrinchus desoti	Special Concern
Gopher Frog	Rana capito	Special Concern
Gopher Tortoise	Gopheros polyphemus	Special Concern
Roseate Spoonbill	Ajaia ajaia	Special Concern
Limpkin	Aramus guarauna	Special Concern
Little Blue Heron	Egretta caerulea	Special Concern
Osprey	Pandion haliaetus	Special Concern
Sherman's Fox Squirrel	Sciurus niger Shermani	Special Concern
Snowy Egret	Egretta thula	Special Concern
Tricolored Heron	Egretta tricolor	Special Concern
Reddish Egret	Egretta rufescens	Special Concern
White Ibis	Eudocimus albus	Special Concern
Brown Pelican	Pelecanus occidentalis	Special Concern
Black Skimmer	Rynchops niger	Special Concern
Florida Burrowing Owl	Speotyto cunicularia floridana	Special Concern
American Oystercatcher	Haematopus palliates	Special Concern
Bald Eagle	Haliaeetus leucocephalus	Threatened
Eastern Indigo Snake	Drymarchon corais couperi	Threatened
Snowy Plover	Charadrius alexandrinus	Threatened
Piping Plover	Charadrius melodus	Threatened
Least Tern	Sterna antillarum	Threatened
Nodding Pinweed	Lechea cernua	Threatened
Rain Lily	Zephyranthes Simpsonii	Threatened
SE American Kestrel	Falco sparverius paulus	Threatened

Short-tailed Snake	Stilosoma extenuatum	Threatened
Wild Coco Plant	Pteroglossaspis ecristata	Threatened
Curtiss' Milkweed Plant	Asclepias curtissii	Endangered
Golden Leather Fern	Acrostichum aureum	Endangered
Ray Fern	Actinostachys pennula	Endangered
Brittle Maidenhair Fern	Adiantum tenerum	Endangered
Rayless Goldenrod	Bigelowia nuttallii	Endangered
Sand-dune Spurge	Chamaesyce cumulicola	Endangered
Florida Golden Aster	Chrysopsis floridana	Endangered
Sanibel Lovegrass	Eragrostis tracyi	Endangered
Tampa Vervain	Glandularia hirsutum	Endangered
Wild Cotton	Gossypium hirsutum	Endangered
Gulf Coast Florida Lantana	Lantana depressa var sanibelensis	Endangered
Peregrine Falcon	Falco peregrinus	Endangered
Pine Pinweed	Lechea divaricata	Endangered
Wood Stork	Mycteria americana	Endangered
Manatee	Trichechus manatus	Endangered

Of the species of animal and plant life listed, the 2002 EA for the Extension of Runway 17L-35R, as prepared by URS, identifies the following species as likely being present on or adjacent to Airport property.

Common Name	Scientific Name	Classification Status
Roseate Spoonbill	Ajaia ajaia	Special Concern
Little Blue Heron	Egretta caerulea	Special Concern
Reddish Egret	Egretta rufescens	Special Concern
Snowy Egret	Egretta Thula	Special Concern
Tricolored Heron	Egretta Tricolor	Special Concern
White Ibis	Eudocimus albus	Special Concern
American Oystercatcher	Haematopus palliates	Special Concern
Brown Pelican	Pelecanus occidentalis	Special Concern
Black Skimmer	Rynchops niger	Special Concern
Loggerhead Turtle	Caretta caretta	Threatened
Wood Stork	Mycteria americana	Endangered
Green Turtle	Chelonia mydas	Endangered
Leatherback Turtle	Dermochelys coriacea	Endangered
Kemp's Ridley	Lepidochelys kempii	Endangered
Manatee	Trichechus manatus	Endangered

Additional species may be present on the Airport but have not been observed. A detailed flora and fauna review may be necessary for each major development project that requires review by NEPA guidelines in order to identify the specific types and numbers of threatened and endangered species present on Airport property and any associated mitigation measures necessary.

8.11 WETLANDS

The two important federal laws regulating wetlands are the River and Harbors Act (RHA) of 1899, and the Clean Water Act (CWA). The focus of the RHA is protection of water navigation while the focus of the CWA is prevention of water pollution. Additionally, the North American Wetlands Conservation Act of 1989 assigns preservation responsibilities

to all federal agencies whose jurisdiction may involve the management or disposal of lands and waters under their control. The U.S. Army Corps of Engineers and EPA have very broad definitions of navigable waterways and may encompass any wetland contiguous with waters of the U.S. Other agencies with non-regulatory responsibilities to create or protect wetlands include the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, and the Soil Conservation Service.

A number of wetland areas on and adjacent to PIE, including Old Tampa Bay, will likely be impacted by the proposed Airport development included in this document. Such impacts would require mitigation according to the appropriate legislation. Further review of possible wetland impacts on and in the vicinity of the Airport will be conducted during the EA and/or EIS process for each project.

8.12 FLOODPLAINS

Floodplains are defined in Executive Order 11988, "Floodplain Management." They include lowland areas adjoining inland and coastal waters, especially those areas subject to a one percent or greater chance of flooding in any given year.

The Federal Emergency Management Agency (FEMA) has produced flood insurance rate maps for communities participating in the National Flood Insurance Program. Detailed maps illustrate the 100- and 500-year base flood elevations. Descriptions of zones delineated on these maps include, Zone VE – coastal flood with velocity hazard, Zone A and AE – areas of 100-year flood, Zone X500 – areas in the 500-year floodplain, and Zone X – areas outside of the 500-year floodplain.

According to the 2002 EA for the Extension of Runway 17L-35R and The Flood Insurance Rate Map (FIRM) of Pinellas County, Florida (Map Numbers 1251390137C, 1251390139C, 1251390141C and 1251390143C, dated June 1, 1983), PIE is located in Zones VE, AE, and X500. Additionally, portions of Airport property west of Roosevelt Blvd. are in Zone X and not impacted by any floodplain. Thus, areas within the 100- and/or 500-year floodplain are expected to be impacted by the development proposed in this document, and coordination with the appropriate federal and state agencies will be necessary. Further investigation of the potential impacts to the 100- and 500-year floodplains should be completed during the EA and/or EIS phase(s) of each project.

8.13 COASTAL ZONE MANAGEMENT

The Coastal Zone Management Act requires that all federal projects occurring in applicable coastal zone areas comply with management guidelines established in the Coastal Zone Management Program. Procedures for determining consistency with approved coastal zone management programs are contained in the National Oceanic and Atmospheric Administration (NOAA) Regulations (15 CFR Part 930).

Pinellas County is contiguous with the Gulf of Mexico and could be subject to high water. Therefore, the county is under the jurisdiction of the coastal zone management program and a coastal zone consistency determination will be required. Such a determination would be obtained during the EA and/or EIS phase(s) of each project.

8.14 COASTAL BARRIERS

The Coastal Barriers Act of 1982 prohibits federal financial assistance for development within the coastal barrier resources system, which consists of undeveloped coastal barriers along the Atlantic and Gulf coasts. Maps that identify lands included in this system are available for inspection in the offices of the U.S. Fish and Wildlife Service.

According to the 2002 EA for the Extension of Runway 17L-35R, as prepared by URS, PIE is not located within the Coastal Barrier Resource System (CBRS). However, since the entire state of Florida is within the coastal zone, a coastal zone consistency determination that addresses the CBRS will likely be required for major development projects.

8.15 WILD AND SCENIC RIVERS

The National Wild and Scenic Rivers Act of 1968 preserves certain rivers with outstanding natural, cultural, or recreational features. Under provisions of this act, federal agencies cannot assist, by loan, grant, license, or otherwise, in construction of any water resources project that would have direct and adverse impacts on river values. River segments protected under this legislation are administered by the U.S. Park Service.

The Florida Department of Natural Resources is the state agency charged with oversight of the wild and scenic rivers in the state. According to the official Federal National List of Inventory Rivers and the 2002 EA for the extension of Runway 17L-35R, as prepared by URS, no rivers that are designated as “wild and scenic” are located in the vicinity of PIE or Pinellas County.

8.16 PRIME FARMLAND

Prime farmland is defined as land best suited for producing food, feed, forage, fiber, and oilseed crops. This land has the quality, growing season, and moisture supply necessary to produce sustained crop yields with minimal energy and economic input. If farmland is to be converted to a nonagricultural use by a federally funded project, consultation with the U.S. Department of Agriculture Soil Conservation Service is necessary to determine whether the farmland is classified as “prime” or “unique”. If it is, the Farmland Protection Act requires rating the farmland conversion impacts based on length of time farmed, amounts of farmland remaining in the area, level of local farm support services, and the level of urban land in the area.

According to the 2002 EA for the extension of Runway 17L-35R, no designated farmlands are located on Airport property. Additionally, since PIE is committed to urban development, the protection for farmland in such an area is limited. Therefore, the land on and in the immediate vicinity of PIE is not considered to be subject to the regulations for “prime” or “unique” farmland according to the previously mentioned legislation.

8.17 ENERGY SUPPLY AND NATURAL RESOURCES

Energy supply and natural resources may be affected by increased development at PIE. Changes will likely occur in demand for electrical power due to increased electrical requirements from airfield lighting, navigational equipment, and tenant facilities. Proper planning and coordination with the appropriate city and county officials will limit and/or eliminate any possible negative impacts associated with increased energy demands from the proposed development.

8.18 LIGHT EMISSIONS

Standards do not exist for light emission impacts on residential areas. However, measures can and should be taken to mitigate any impacts on such incompatible areas within the vicinity of the Airport. Buffer zones consisting of vegetation or earthen berms should be constructed to shield residential areas. Likewise, non-Airport light emissions must be prevented from creating misleading and/or dangerous situations for aircraft

operating at or in the immediate vicinity of PIE. This can be accomplished through the use of zoning and land-use planning in addition to local ordinances to reduce and/or eliminate off-airport light sources that may create a hazard to aircraft operations.

8.19 SOLID WASTE IMPACT

Laws that control solid waste management include the Resource Conservation and Recovery Act and FAA Order 5200.5A. The Resource Conservation and Recovery Act provides for safe disposal of discarded materials, regulates hazardous waste, promotes recycling, and establishes criteria for sanitary landfills. FAA Order 5200.5A provides guidance concerning establishment, elimination, or monitoring of landfills, open dumps, or waste disposal facilities on or near airports. Under this order, waste disposal sites within 10,000 feet of any runway end used by turbine-powered aircraft, are considered incompatible with Airport operations. However, the State Department of Environmental Protection has primary responsibility for regulating landfills and overseeing programs associated with solid wastes.

Increases in solid waste will likely be seen during periods of construction and upon completion of the proposed commercial, corporate, and GA facilities. These facilities will likely increase the production of solid waste and solid waste disposal at the Airport. Coordination with state and local officials should be completed to ensure that adequate capacity for the increase in solid waste disposal exists and is readily available to support the new facilities at PIE. In addition, the Bridgeway Acres Landfill, which is located approximately 7,600 feet south of the Airport, should be monitored to ensure its operations do not create increases in bird attractants and subsequent bird-strike hazards.

8.20 CONSTRUCTION IMPACTS

During periods of development, extensive construction activities may occur. Construction activities may include but are not limited to earthmoving activities, delivery of equipment and materials, and removal of debris associated with runways and taxiways. The potential for impacts to off-Airport communities in the vicinity of the Airport is greatest during the initial phases of development. These impacts may consist of increased traffic on local roads, noise, mud, dust, and other effects associated with the activity of heavy construction vehicles. All potential impacts related to development projects are minor and temporary. Nevertheless, Airport management should exercise best practices to contain and minimize the impact of construction during building phases of projects proposed in the development plan.

8.21 HAZARDOUS WASTE IMPACTS

The potential to create or require the handling of hazardous waste must be evaluated when determining the impacts associated with Airport development. None of the proposed development projects contained in this document are anticipated to create or require the handling of hazardous materials other than normal fueling and operational procedures conducted on an airport. However, proper coordination with federal, state, and local officials should be completed during the EA and/or EIS phases of each project to identify the potential hazardous waste impacts and ensure proper mitigation is completed if required.

According to the recently completed Environmental Assessment for the Extension of Runway 17L-35R from 8,800 feet to 10,000 feet, several known or suspected hazardous waste sites are reported to be on or near the Airport. **Table 8-8** depicts these sites.

Table 8-8. Sites and Facilities Reported; Suspected; or With Potential to Contain Hazardous Materials, Environmental Contamination, and/or Other Regulated Substances in the Vicinity of St. Petersburg-Clearwater International Airport

ID No.	Name	Location	Description
1	Airport Fuel Farm	West of Runway 17L-35R and north of Runway 6 near the U.S. Coast Guard property	Site of several existing and former USTs/ASTs containing jet fuel, diesel, avgas, and other petroleum-based products
2	U.S. Coast Guard Property	West of Runway 17L-35R and north of Runway 6	Site of several existing and former USTs/ASTs containing gasoline, diesel, and used oil.
3	Airport Flight Support Services	West of Runway 17L-35R and south of the Main Terminal Building	Site if several small USTs/ASTs containing oil and other petroleum-based substances
4	Airport Terminal Building	West of Runway 17L-35R	Site of former USTs for backup emergency generator(s)
5	Off-Airport landfills	South of Runway 35R opposite Ulmerton Road	Site of former municipal solid waste landfills

Source, St. Petersburg-Clearwater International Airport Environmental Assessment, URS Corporation, 2002

Another potential site that came to the Airport's attention recently, trace contaminates were found in a test well in the Pemco hangar area. No further action has been taken by the Airport to explore the site as it is under the concrete apron.

8.22 CUMULATIVE IMPACTS

The NEPA requires the evaluation of the environmental consequences, including secondary and cumulative impacts, of all federal actions. Secondary impacts are defined as those that are "caused by an action and are later in time or farther removed in distance but are reasonably foreseeable" (40 CFR 1508.8). Cumulative impacts are broadly defined as those that "result from the incremental impacts of an action when added to other past and reasonably foreseeable future actions" (40 CFR 1508.7).

The development plan included in the preferred alternative, as presented in the preceding pages of this document, will likely result in some level of future secondary and cumulative impacts as Airport capacity, operations, and aircraft activity increases. Temporary impacts to local transportation routes and traffic volumes, land use and community growth, industrial and commercial business activity, and overall demand for public services are likely. Additionally, disruptions to area residences and businesses from periodic construction associated with Airport development is anticipated. Coordination with state and local officials will be necessary during each project to ensure any future secondary and/or cumulative impacts are identified and adequate public facilities and services planned to meet the long-term needs of the Airport and local community.

8.23 SUMMARY

This chapter serves as a cursory review of the potential for environmental impacts that may be associated with the proposed development in this document. Further environmental studies, such as an EA or EIS, will likely be necessary for some of the proposed development within this master plan as required by the NEPA. Project specific impacts and necessary mitigation measures will be determined and identified in these environmental documents.

AIRPORT LAYOUT PLAN SET
ST. PETERSBURG-CLEARWATER INTERNATIONAL AIRPORT

9

9.1 GENERAL

The airport plan set for St. Petersburg-Clearwater International Airport (PIE) presents in graphic format, the proposed development of the Airport to meet forecast aviation demand and the overall goals of PIE and Pinellas County. The complete set of plans include the following:

- Cover Sheet
- Existing Facilities Drawing
- Airport Layout Plan (ALP)
- Terminal Area Plan
- South General Aviation Areas Plan
- North General Aviation Areas Plan
- Cargo Area Plan
- Approach and RPZ Profiles
  - 17R/35L and Runway 17L/35R (Future 17R/35L)
  - 4/22, 9/27, and Future Runway 17L/35R
- FAR Part 77 Airport Airspace
- Existing Land Use Plan
- Future Land Use Plan
- Exhibit 'A' Property Map

This chapter will present the drawings with a brief discussion of each. The ALP set is provided in conjunction with this report document and has been prepared according to the design requirements set forth in this document, the Federal Aviation Administration (FAA) Advisory Circulars, and Florida Department of Transportation (FDOT) Guidebook for Airport Master Planning.

9.2 COVER SHEET

The cover sheet (**Figure 9-1**) serves as an introduction to the ALP set. It includes the name of the Airport, location map, vicinity map, and an index of drawings.

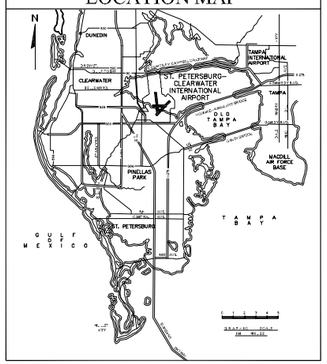
9.3 EXISTING FACILITIES DRAWING

The Existing Facilities drawing is a graphic representation, to scale, of the Airport in its current configuration (year 2002). This drawing shows all existing Airport facilities, their location, pertinent dimensions and clearance information, and the runway and taxiway infrastructure. The Existing Facilities drawing is shown in **Figure 9-2**.

AIRPORT LAYOUT PLANS

St. Petersburg - Clearwater International Airport

LOCATION MAP



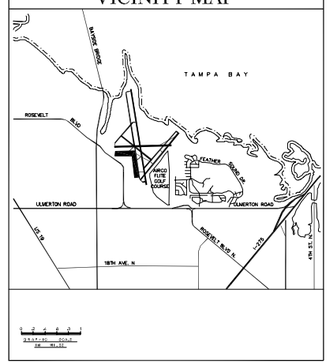
OPERATED BY

Pinellas County Government

PREPARED BY

PBS&J

VICINITY MAP



INDEX OF DRAWINGS

TITLE	SHEET NO.
Cover Sheet	1 OF 14
Existing Facilities Plan	2 OF 14
Airport Layout Plan	3 OF 14
Airport Layout Plan (Continued)	4 OF 14
Terminal Area Plan	5 OF 14
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Cargo Area Plan	8 OF 14
Approach and RPZ Profiles - 17R/35L and Runway 17L/35R (Future 17R/35L)	9 OF 14
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FAR Part 77 Airspace Drawing	11 OF 14
Existing Land Use and Noise Contours (2001)	12 OF 14
Future Land Use and Noise Contours (2022)	13 OF 14
Exhibit 'A' Property Map	14 OF 14

Figure 9-1

LEGEND

EXISTING	ITEM
	CONTOURS
	AGREEMENT LIMITS (LEASE, R.O.W., EASEMENTS, ETC.)
BRL	BUILDING RESTRICTION LINE (BRL)
	AIRPORT PROPERTY LINE
	APPROACH SURFACE
N/A	LAND ACQUISITION
	PERIMETER SECURITY FENCE
	ACCESS ROAD
	AIRFIELD PAVEMENT
N/A	AVIATION LAND TO BE DEVELOPED
	BUILDINGS
N/A	AVIGATION EASEMENT OR INTEREST CONTROLLED THRU ZONING
	WIND CONE
	ARP
	VORTAC
	RVR
	GLIDE SLOPE ANTENNA
	LOCALIZER ANTENNA
	PAPI
	VASI
	REIL
BRL	BUILDING RESTRICTION LINE
ROFA	RUNWAY OBJECT FREE AREA
RSA	RUNWAY SAFETY AREA
RVZ	RUNWAY VISIBILITY ZONE

BUILDING TABLE

ID	FACILITY	HEIGHT
1	HANGAR	39.9'
2	BOOKSTORE	35.4'
3	AT&T	31.8'
4	AFSS	33.8'
5	HANGAR	28.5'
6	HANGAR	46.4'
7	HANGAR	46.1'
8	HANGAR	41.1'
9	HANGAR	46.1'
10	HANGAR	43.8'
11	HANGAR	36.2'
12	PASSENGER TERMINAL	50.0'
13	CARGO BUILDING	33.1'
14	SHERIFF'S DEPARTMENT	31.8'
15	BOAT GARAGE	30.2'
16	ARFF	33.8'
17	NAVAL RESERVE CENTER	30.5'
18	T-HANGARS	26.8'
19	HANGAR	31.2'
20	US ARMY RESERVE	29.2'
21	USCG HANGAR	62.2'
22	USCG HANGAR	61.1'
23	USCG HANGAR	64.2'
24	USCG HANGAR	61.2'
25	USCG FACILITIES	33.8'
26	T-HANGARS	29.8'

RUNWAY DATA

ITEM	RUNWAY 9-27	RUNWAY 4-22	RUNWAY 17R-35L	RUNWAY 17L-35R
	EXISTING	EXISTING	EXISTING	EXISTING
RUNWAY CATEGORY	GENERAL AVIATION	GENERAL AVIATION	UTILITY	COMMERCIAL
RUNWAY DIMENSIONS (L X W)	3,183' X 150'	3,300 X 150'	4,000' X 75'	8,890' X 150'
TRUE BEARING	88.13°	39.75°	171.31°	171.31°
EFFECTIVE GRADIENT (%)	.092 +/-	.094%	.049%	.041%
RUNWAY SAFETY AREA DIMENSIONS (WIDTH / LENGTH BEYOND RW END)	150' X 300'	150' X 300'	150' X 300'	500' X 1000'
MAX RUNWAY ELEVATION (AMSL)	9.6'	9.3'	8.4'	9.7'
PAVEMENT TYPE	ASPHALT	ASPHALT	ASPHALT	ASPHALT
PAVEMENT STRENGTH (X 1,000 LBS) S - SINGLE WHEEL, D - DUAL WHEEL DT - DUAL TANDEM WHEEL	S-60, D-115, DT-200	S-60, D-130, DT-235	S-75, D-150, DT-220, DDT-500	S-75, D-150, DT-220, DDT-500
DESIGN AIRCRAFT	DASSAULT FALCON 50	DASSAULT FALCON 2000	BEECHCRAFT KINGAIR	L-1011
RUNWAY LIGHTING	MIRL	MIRL	NONE	HIRL
RUNWAY MARKING	NONPRECISION	NONPRECISION	VISUAL	PRECISION
ASSOCIATED TAXIWAY LIGHTING	MITL	MITL	MITL	MITL
AIRCRAFT REFERENCE CODE	B-II	B-II	B-II	C-IV

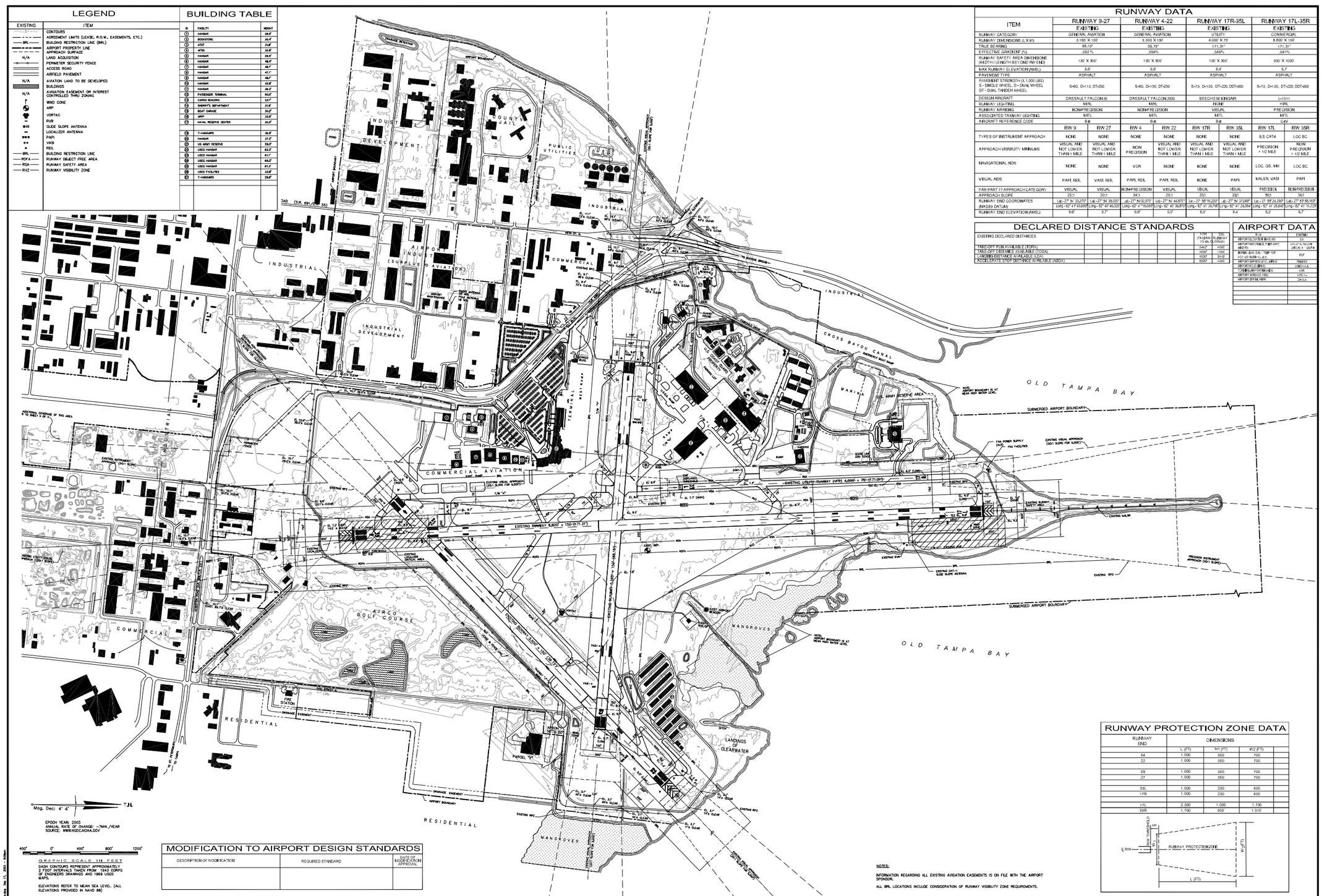
	RW 9	RW 27	RW 4	RW 22	RW 17R	RW 35L	RW 17L	RW 35R
TYPES OF INSTRUMENT APPROACH	NONE	NONE	NONE	NONE	NONE	NONE	ILS CAT-I	LOC BC
APPROACH VISIBILITY MINIMUMS	VISUAL AND NOT LOWER THAN 1 MILE	VISUAL AND NOT LOWER THAN 1 MILE	NON PRECISION	VISUAL AND NOT LOWER THAN 1 MILE	VISUAL AND NOT LOWER THAN 1 MILE	VISUAL AND NOT LOWER THAN 1 MILE	PRECISION > 1/2 MILE	NON PRECISION > 1/2 MILE
NAVIGATIONAL AIDS	NONE	NONE	VOR	NONE	NONE	NONE	LOC, GS, MM	LOC BC
VISUAL AIDS	PAPI, REIL	VASI, REIL	PAPI, REIL	PAPI, REIL	NONE	PAPI	MALSR, VASI	PAPI
FAR PART 77 APPROACH CATEGORY	VISUAL	VISUAL	NONPRECISION	VISUAL	VISUAL	VISUAL	PRECISION	NONPRECISION
APPROACH SLOPE	20:1	20:1	34:1	20:1	20:1	20:1	50:1	34:1
RUNWAY END COORDINATES (NAD83 DATUM)	Lat - 27° 54' 33.370" Long - 82° 31' 40.329"	Lat - 27° 54' 39.535" Long - 82° 32' 00.335"	Lat - 27° 54'02.375" Long - 82° 31' 36.870"	Lat - 27° 54' 44.870" Long - 82° 31' 55.790"	Lat - 27° 55' 15.220" Long - 82° 31' 30.790"	Lat - 27° 54' 37.088" Long - 82° 31' 24.284"	Lat - 27° 54' 29.339" Long - 82° 31' 29.240"	Lat - 27° 53' 55.167" Long - 82° 31' 11.229"
RUNWAY END ELEVATION (AMSL)	9.6'	3.7'	9.9'	3.0'	8.0'	8.4'	6.2'	9.7'

DECLARED DISTANCE STANDARDS

EXISTING DECLARED DISTANCES							TYPE OF RUNWAY (UTILITY/ NON-UTILITY)	RUNWAY END
TAKE-OFF RUN AVAILABLE (TORA)							3442'	4000'
TAKE-OFF DISTANCE AVAILABLE (TODA)							4000'	4000'
LANDING DISTANCE AVAILABLE (LDA)							4000'	3442'
ACCELERATE STOP DISTANCE AVAILABLE (ASDA)							4000'	4000'

AIRPORT DATA

ITEM	EXISTING
AIRPORT ELEVATION (NAVD 88)	10
AIRPORT REFERENCE TEMPERATURE (NAVD 88)	91.0° F / 32.8° C AVG OF HOTTEST MONTH
RUNWAY END ELEVATION - TEMPERATURE (NAVD 88)	91° F
AIRPORT REFERENCE CODE	B-II / C-IV
AIRPORT REFERENCE POINT (NAD 83)	27°54'48.4"N 82°31'37.9"W
TRANSIENT AIRCRAFT PARKING	109
AIRPORT ACREAGE (FEE)	2,650 +/-
AIRPORT ACREAGE (LEASE)	234.5 +/-


AIRPORT INDUSTRIAL (SURPLUS TO AVIATION)
INDUSTRIAL DEVELOPMENT
COUNTY JAIL
PUBLIC UTILITIES
INDUSTRIAL
COMMERCIAL AVIATION
AIRPORT MAINTENANCE
TERMINAL WEST RAMP
EXISTING TERMINAL BUILDING
EXISTING RUNWAY 9-27 x 150' (3,183')
EXISTING RUNWAY 4-22 x 150' (3,300')
EXISTING UTILITY RUNWAY (VFR) 4,000' x 75' (1,219')
EXISTING RUNWAY 17R-35L x 75' (4,000')
EXISTING RUNWAY 17L-35R x 150' (8,890')
CROSS BAYOU CANAL
MARINA
U.S. ARMY RESERVE AREA
OLD TAMPA BAY
SUBMERGED AIRPORT BOUNDARY
AIRCO GOLF COURSE
COMMERCIAL
RESIDENTIAL
MANGROVES
LANDINGS OF CLEARWATER
PARCEL "F"
FIRE STATION
EXISTING VISUAL APPROACH (30:1 SLOPE FOR SUNSET)
PRECISION INSTRUMENT APPROACH (50:1 SLOPE)
EXISTING INSTRUMENT APPROACH (20:1 SLOPE)
EXISTING VISUAL APPROACH (20:1 SLOPE FOR SUNSET)
EXISTING VISUAL APPROACH (20:1 SLOPE FOR SUNSET)
FAA POWER SUPPLY (ASR) FAA FACILITIES
EXISTING GA T-HANGARS
EXISTING GA I-HANGARS
EXISTING GLIDE SLOPE ANTENNA
EXISTING LOCALIZER ANTENNA
EXISTING VASI
EXISTING RPZ
EXISTING RSA
EXISTING ROFA
EXISTING BRL
EXISTING BUILDING
EXISTING AIRPORT PROPERTY LINE
EXISTING SECURITY FENCE
EXISTING ACCESS ROAD
EXISTING AIRFIELD PAVEMENT
EXISTING RUNWAY SAFETY AREA
EXISTING WALL
EXISTING BRIDGE
EXISTING POND
EXISTING DRAINAGE DITCH
EXISTING DRAINAGE EASEMENT
EXISTING AIRPORT BOUNDARY
EXISTING RUNWAY OBJECT FREE AREA
EXISTING RUNWAY PROTECTION ZONE
EXISTING RUNWAY VISIBILITY ZONE
EXISTING RUNWAY SAFETY AREA

9.4 AIRPORT LAYOUT PLAN

The ALP is the primary planning document for the Airport and is a graphic representation, to scale, of existing and proposed Airport facilities, their location, dimensional and clearance data, and the overall infrastructure of the Airport including runways, taxiways, and aprons. Additionally, FAA and FDOT officials refer to the ALP set when considering grant applications for development assistance and off-airport development within the vicinity of the Airport.

FAA and FDOT officials refer to the ALP set when considering grant applications for development assistance and off-airport development within the vicinity of the Airport.

The ALP was developed in accordance with the design criteria and guidelines contained in FAA Advisory Circular 150/5300-13, Change 7, "Airport Design" and FDOT *Guidebook for Airport Master Plans*. **Figures 9-3a** and **Figure 9-3b** illustrate the ALP for PIE.

9.5 TERMINAL AREA PLAN

The Terminal Area Plan presents an enlarged area of the ALP at a scale of 1" = 100', and illustrates existing and proposed facilities. This area is currently comprised of the terminal building, gates, aircraft parking apron, automobile parking, rental car parking and ready/return, the FAA air traffic control tower (ATCT), and corporate hangars. The Terminal Area Plan is shown in **Figure 9-4**.

The Terminal Area Plan includes the airfield to the south and west of the intersection of Runways 9-27 and 17R-35L. The proposed terminal renovation includes construction of a new pier concourse on the west side of the terminal, and demolition of the terminal's east side. This new configuration is designed to more efficiently accommodate both domestic and international traffic growth at PIE. In addition, the plan proposes constructing two new parking garages, as well as expansion of roadway access and remote auto parking.

9.6 GENERAL AVIATION AREA PLANS

The General Aviation Terminal Area Plans delineate the existing and planned improvements in general aviation (GA) facilities in terms of their specific locations, and concept of development at the Airport. Included are hangars, taxiways, fueling facilities, access roadways, vehicle parking, and aircraft parking areas. The General Aviation Area Plans depict the areas described in the next two sections.

9.6.1 South General Aviation Area Plan

This plan identifies existing and proposed apron and hangar expansion in the area just south of the terminal area, west of Taxiways A and N, and adjacent to the Runway 4 threshold. The plan also identifies the proposed fixed base operator (FBO)/Corporate GA development to the southeast in the Airco Golf Course area. Both of these areas include apron, taxiways, roadways, utility development, proposed structures, and other services necessary to attract tenants that are compatible with current Airport development. The South General Aviation Area Plan is shown in **Figure 9-5**.

LEGEND

EXISTING	FUTURE	ITEM
	N/A	CONTOURS
	N/A	AGREEMENT LIMITS (LEASE, R.O.W., EASEMENTS, ETC.)
BRL	(BRL)	BUILDING RESTRICTION LINE (BRL)
		AIRPORT PROPERTY LINE
		APPROACH SURFACE
N/A		LAND ACQUISITION
		PERIMETER SECURITY FENCE
		ACCESS ROAD
		AIRFIELD PAVEMENT
		BUILDINGS
N/A		AVIGATION EASEMENT OR INTEREST CONTROLLED THRU ZONING
		WIND CONE
		ARP
		VORTAC
		RVR
		GLIDE SLOPE ANTENNA
		LOCALIZER ANTENNA
		PAPI
		VASI
		REIL
BRL	(BRL)	BUILDING RESTRICTION LINE
ROFA	(ROFA)	RUNWAY OBJECT FREE AREA
RSA	(RSA)	RUNWAY SAFETY AREA
RVZ	(RVZ)	RUNWAY VISIBILITY ZONE
N/A		PAVEMENT TO BE REMOVED
		APRON
		NAVAID CRITICAL AREA

BUILDING DATA TABLE

ID	EXISTING FACILITIES	HEIGHT (AMSL)	ID	FUTURE FACILITIES	HEIGHT (AMSL)
1	HANGAR	39.6'	A	TERMINAL EXPANSION	50.0'
2	BOOKSTORE	34.4'	B	MAINTENANCE FACILITY	29.0'
3	ATCT	31.8'	C	ARFF FACILITY	29.0'
4	AFSS	33.8'	D	SW GA HANGARS	40.0'
5	HANGAR	29.5'	E	SE GA HANGARS	40.0'
6	HANGAR	46.4'	F	SE T-HANGARS	30.0'
7	HANGAR	48.1'	G	NE T-HANGARS	30.0'
8	HANGAR	47.1'	H	NW RANGE	50.0'
9	HANGAR	46.1'	I	CARGO FACILITY	46.0'
10	HANGAR	43.8'	J	INTERMODAL FACILITY	46.0'
11	HANGAR	36.3'			
12	PASSENGER TERMINAL	50.0'			
13	CARGO BUILDING	33.1'			
14	SHERIFF'S DEPARTMENT	31.8'			
15	BOAT GARAGE	30.2'			
16	ARFF	33.8'			
17	NAVAL RESERVE CENTER	30.5'			
18	CORPORATE HANGARS	36.8'			
19	HANGAR	31.3'			
20	US ARMY RESERVE	29.0'			
21	USCG HANGAR	43.2'			
22	USCG HANGAR	41.1'			
23A	USCG HANGAR	46.0'			
23B	USCG HANGAR	41.3'			
24	USCG FACILITIES	33.8'			
25	T-HANGARS	28.8'			

* FUTURE ELEVATIONS ARE ESTIMATED

RUNWAY DATA

ITEM	RUNWAY 9-27 EXISTING	RUNWAY 9-27 FUTURE	RUNWAY 4-22 EXISTING	RUNWAY 4-22 FUTURE	RUNWAY 17R-35L EXISTING	RUNWAY 17R-35L FUTURE	RUNWAY 17L-35R (Future GA Runway)	RUNWAY 17L-35R (FUTURE 17R-35L) EXISTING	RUNWAY 17L-35R (FUTURE 17R-35L) FUTURE
RUNWAY CATEGORY	GENERAL AVIATION	RUNWAY TO BE CLOSED AND UTILIZED AS A TAXIWAY IN THE FUTURE	GENERAL AVIATION	SAME	UTILITY	RUNWAY TO BE CLOSED AND UTILIZED EXCLUSIVELY AS A TAXIWAY IN THE FUTURE	UTILITY	COMMERCIAL	COMMERCIAL
RUNWAY DIMENSIONS (L X W)	3,183' X 150'		3,300 X 150'	6,373 X 100'	4,000' X 75'		3,600' X 75'	8,800' X 150'	10,030'
TRUE BEARING	88.13°		30.73°	SAME	171.31°		171.31°	171.31°	171.31°
EFFECTIVE GRADIENT (%)	.092 %		.094%	SAME	.049%		< 1%	.041%	SAME
RUNWAY SAFETY AREA DIMENSIONS (WIDTH / LENGTH BEYOND RW END)	150' X 300'		150' X 300'	SAME	150' X 300'		120' X 240'	500' X 1000'	SAME
MAX RUNWAY ELEVATION (AMSL)	9.6'		9.9'	SAME	8.4'		7.1'	9.7'	SAME
PAVEMENT TYPE	ASPHALT		ASPHALT	SAME	ASPHALT		ASPHALT	ASPHALT	SAME
PAVEMENT STRENGTH (X 1,000 LBS) S - SINGLE WHEEL, D - DUAL WHEEL DT - DUAL TANDEM WHEEL	S-60, D-115, DT-200		S-80, D-150, DT-235	SAME	S-75, D-150, DT-220, DDT-600		S-30	S-75, D-150, DT-300, DDT-700	SAME
DESIGN AIRCRAFT	DASSAULT FALCON 50		DASSAULT FACON 2000	ATR 72	BEECHESKINGAIR		BEECHESS BARON	L-1011	B-747
RUNWAY LIGHTING	MIRL		MIRL	SAME	NONE		NONE	HIRL	SAME
RUNWAY MARKING	NONPRECISION		NONPRECISION	SAME	VISUAL		VISUAL	PRECISION	PRECISION
ASSOCIATED TAXIWAY LIGHTING	MITL		MITL	SAME	MITL		MITL	MITL	MITL
AIRCRAFT REFERENCE CODE	B-II		B-II	B-II	B-II		B-I (small)	C-IV	D-V
	RW 9	RW 27	RW 4	RW 22	RW 17R	RW 35L	RW 17L	RW 35R	RW 17L	RW 35R	RW 17R	RW 35L
TYPES OF INSTRUMENT APPROACH	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	ILS CAT-II	LOC BC	ILS CAT-II	ILS CAT-II
APPROACH VISIBILITY MINIMUMS	VISUAL AND NOT LOWER THAN 1 MILE	VISUAL AND NOT LOWER THAN 1 MILE	NON PRECISION >1 MILE	VISUAL AND NOT LOWER THAN 1 MILE	SAME	SAME	VISUAL AND NOT LOWER THAN 1 MILE	VISUAL AND NOT LOWER THAN 1 MILE	PRECISION >1/2 MILE	NON PRECISION >1 MILE	PRECISION >1/2 MILE	PRECISION >1/2 MILE
NAVIGATIONAL AIDS	NONE	NONE	VOR	NONE	VOR, GPS	GPS	NONE	NONE	NONE	NONE	LOC, GS, OM	LOC BC	LOC, GS, RVR	LOC, GS, RVR
VISUAL AIDS	PAPI, REIL	VASI, REIL	PAPI, REIL	PAPI, REIL	SAME	SAME	NONE	PAPI	PAPI	PAPI	MALSR, VASI	PAPI	ALSF-2	MALSR
FAR PART 77 APPROACH CATEGORY	VISUAL	VISUAL	NONPRECISION	VISUAL	SAME	SAME	VISUAL	VISUAL	VISUAL	NONPRECISION	PRECISION	NONPRECISION	PRECISION	PRECISION
APPROACH SLOPE	20:1	20:1	34:1	20:1	SAME	SAME	20:1	20:1	50:1	34:1	50:1	34:1	50:1	50:1
RUNWAY END COORDINATES (NAD83 DATUM)	Lat - 27° 54' 53.370" Long - 82° 41' 44.289"	Lat - 27° 54' 38.225" Long - 82° 42' 49.025"	Lat - 27° 53' 59.306" Long - 82° 41' 54.282"	Lat - 27° 54' 44.870" Long - 82° 41' 38.875"	Lat - 27° 55' 16.220" Long - 82° 41' 30.705"	Lat - 27° 54' 37.206" Long - 82° 41' 51.249"	Lat - 27° 55' 16.813" Long - 82° 41' 12.964"	Lat - 27° 54' 22.587" Long - 82° 41' 59.261"	Lat - 27° 55' 16.953" Long - 82° 41' 25.540"	Lat - 27° 54' 08.372" Long - 82° 41' 27.235"	Lat - 27° 55' 49.009" Long - 82° 41' 10.316"
RUNWAY END ELEVATION (AMSL)	9.6'	5.7'	9.9'	5.3'	8.0'	8.4'	4.0'	7.1'	8.2'	9.3'	8.2'	7.1'

DECLARED DISTANCE STANDARDS

EXISTING DECLARED DISTANCES					17R (TAXIWAY RUNWAY TO BE CLOSED)	35L
TAKE-OFF RUN AVAILABLE (TORA)					3442'	4007'
TAKE-OFF DISTANCE AVAILABLE (TODA)					4007'	4007'
LANDING DISTANCE AVAILABLE (LDA)					4007'	3442'
ACCELERATE STOP DISTANCE AVAILABLE (ASDA)					4007'	4007'

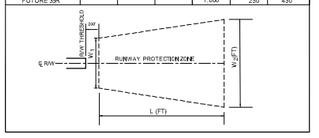
FUTURE DECLARED DISTANCES	4	22	17R (PRECISION)	35L (PRECISION)	RW 17L (NON-GA RUNWAY)	RW 35R (NON-GA RUNWAY)
TAKE-OFF RUN AVAILABLE (TORA)	5575'	5785'	9135'	9135'	3316'	3600'
TAKE-OFF DISTANCE AVAILABLE (TODA)	5575'	5785'	10030'	10030'	3600'	3600'
LANDING DISTANCE AVAILABLE (LDA)	5280'	5610'	9325'	9135'	3600'	3316'
ACCELERATE STOP DISTANCE AVAILABLE (ASDA)	5575'	5785'	9620'	10030'	3600'	3600'

AIRPORT DATA

Item	EXISTING	FUTURE
AIRPORT ELEVATION (NAVD 88)	9.9	9.9
AIRPORT REFERENCE POINT (ARP) (NAD 83)	27°-54'-31.56"(N) 082°-41'-33.01"(W)	27°-54'-31.56"(N) 082°-41'-33.01"(W)
RUNWAYS (MAG. DIRECTION)	9/27, 4/22, 17R/35L, 17L/35R	9/27, 4/22, 17R/35L, 17L/35R
AIRPORT REFERENCE CODE (APRC)	B-II/D-V	B-II/D-V
AIRPORT REFERENCE CODE (PRC)	C/D/II-A/A	C/D/II-A/A
PUBLIC AIRPORT FACILITIES	YES	YES
AIRPORT CATEGORY	GA/CARGO	GA/CARGO
AIRPORT CLASS	PUBLIC	PUBLIC

RUNWAY PROTECTION ZONE DATA

RUNWAY END	EXISTING L (FT)	EXISTING W1 (FT)	EXISTING W2 (FT)	FUTURE L (FT)	FUTURE W1 (FT)	FUTURE W2 (FT)
04	1,000	500	700	1,000	500	700
22	1,000	500	700	1,000	500	700
09	1,000	500	700	N/A	N/A	N/A
27	1,000	500	700	N/A	N/A	N/A
35L	1,000	250	450	N/A	N/A	N/A
17R	1,000	250	450	N/A	N/A	N/A
17L (FUTURE 17R)	2,500	1,000	1,750	2,500	1,000	1,750
35R (FUTURE 35L)	1,700	500	1,010	2,500	1,000	1,750
FUTURE 17L				1,000	250	450
FUTURE 35R				1,000	250	450



NOTES:

ALL NAVIGABLE AIRSPACE SURFACES CONFORM TO FAA'S FEDERAL AVIATION REGULATION PART 77.

MARKINGS, NAVAIDS, ETC. SHOWN ON THIS PLAN CONFORM TO FAA AIRPORT DESIGN STANDARDS SPECIFIED IN AC 150/5300-13 CG.7.

ALL FINAL NAVIGATIONAL FACILITY LOCATIONS SUBJECT TO VERIFICATION BY FEDERAL AVIATION ADMINISTRATION AIR TRAFFIC AND AIRWAY FACILITIES.

WHEN THE TERMINOLOGY "FUTURE" IS INDICATED, THIS REFERS TO PROJECTS THAT ARE IN THE PRELIMINARY PLANNING STAGE.

SLANT LETTERING IS USED TO INDICATE INFORMATION REGARDING A FUTURE OR PROPOSED PROJECT.

VERTICAL LETTERING IS USED TO INDICATE INFORMATION REGARDING EXISTING CONDITIONS.

INFORMATION REGARDING ALL EXISTING AVIATION EASEMENTS IS ON FILE WITH THE AIRPORT SPONSOR.

ALL FUTURE ARP'S EXTENDING BEYOND EXISTING PROPERTY BOUNDARIES TO BE COVERED BY AVIGATION EASEMENTS OR FEE SIMPLE OWNERSHIP.

ALL BRL LOCATIONS INCLUDE CONSIDERATION OF RUNWAY VISIBILITY ZONE REQUIREMENTS.

CONSTRUCTION NOTICE REQUIREMENT

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

Mag. Decc: 4° 4'

EPOCH YEAR: 2003
ANNUAL RATE OF CHANGE: -.7MIN./YEAR
SOURCE: WWW.NGDC.NOAA.GOV

400' 0' 400' 800' 1200'
GRAPHIC SCALE IN FEET

DASH CONTOURS REPRESENT APPROXIMATELY 2 FOOT INTERVALS TAKEN FROM 1943 CORPS OF ENGINEERS DRAWINGS AND 1969 USGS MAPS.

ELEVATIONS REFER TO MEAN SEA LEVEL. (ALL ELEVATIONS PROVIDED IN NAVD 88)

MODIFICATION TO AIRPORT DESIGN STANDARDS

DESCRIPTION OF MODIFICATION	REQUIRED STANDARD	DATE OF MODIFICATION APPROVAL
1. X	X	X

AIRPORT SPONSOR APPROVAL

THIS AIRPORT DRAWING IS APPROVED BY:

(SIGNATURE) _____ DATE: _____

NAME: _____

TITLE: _____

FAA APPROVAL

REVISIONS	
DATE	DESCRIPTION

CLIENT: St. Petersburg - Clearwater International Airport, Pinellas County, Florida

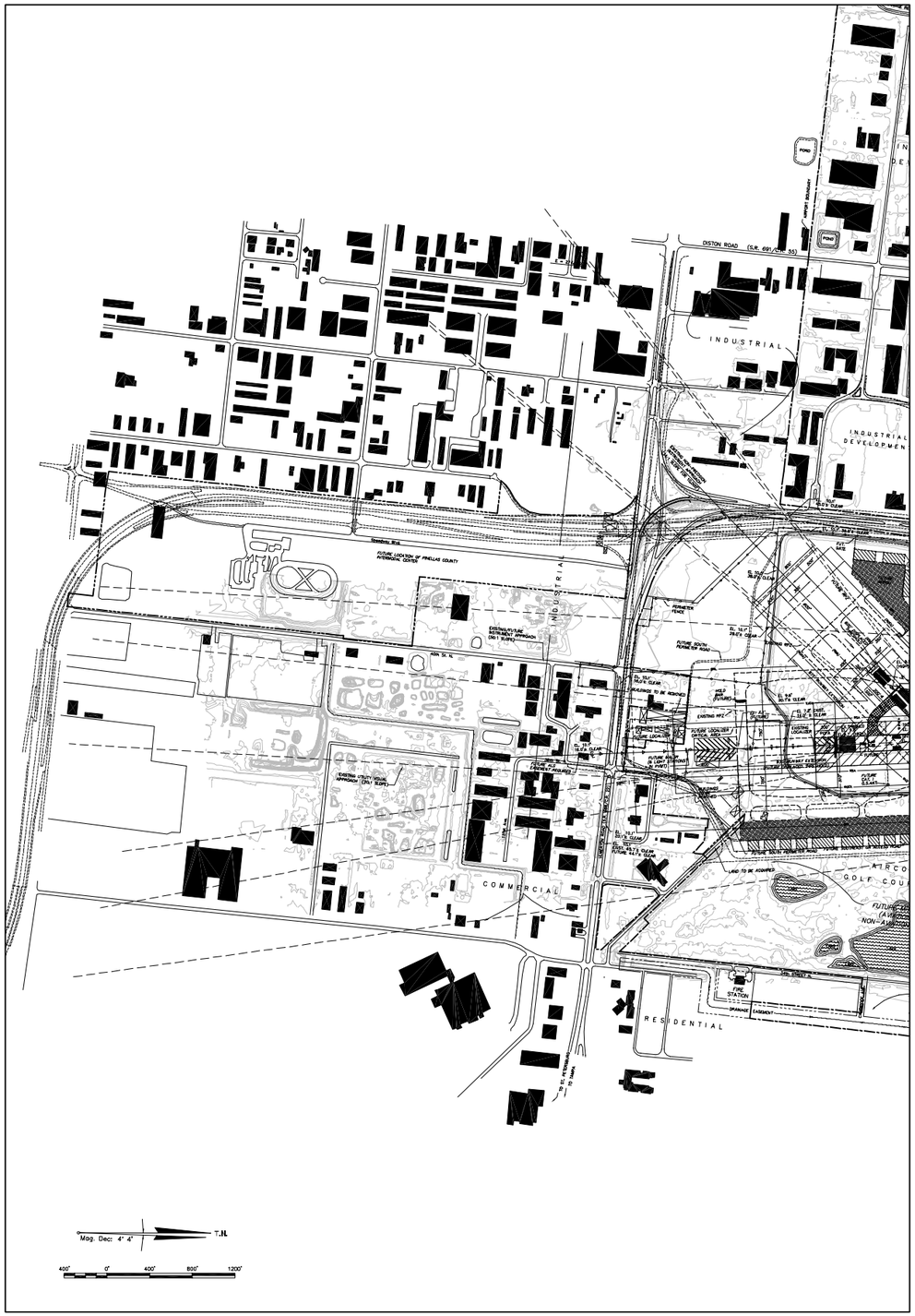
PROJECT: Master Plan Update

SHEET TITLE: AIRPORT LAYOUT PLAN

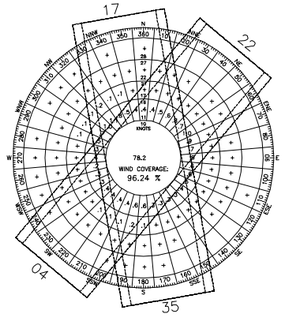
PBSJ NATIONAL AVIATION
482 South Keller Road
Orlando, Florida 32810-6101
TEL. (407) 647-7275
FAX. (407) 740-8710
www.pbsj.com

JOB NO.: 071068.02
DRAWN: RWO
DESIGN: RWO
CHECKED: JWM
DATE: MAY 2002

Figure 9-3a
SHEET 3 OF 14

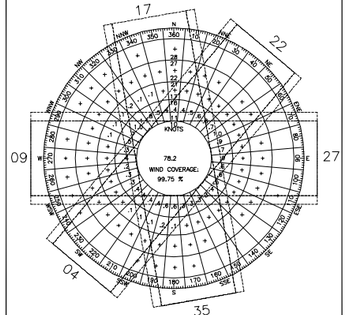


ALL WEATHER WINDROSE W/O RWY 9-27



CROSSWIND COMPONENT	17-35	04-22	COMBINED
10.5 KNOTS (12 MPH)	95.32%	95.1%	96.24%
13 KNOTS (15 MPH)	95.27%	94.72%	98.8%
16 KNOTS (18 MPH)	99.23%	98.83%	99.76%
20 KNOTS (23 MPH)	99.86%	99.77%	99.96%

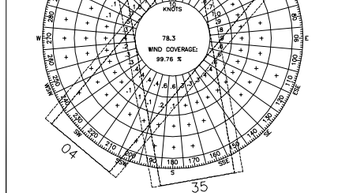
ALL WEATHER WINDROSE W/ RWY 9/27



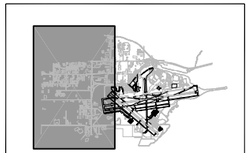
CROSSWIND COMPONENT	17-35	04-22	09-27	COMBINED
10.5 KNOTS (12 MPH)	96.32%	96.1%	91.01%	99.79%
13 KNOTS (15 MPH)	98.27%	96.72%	93.32%	99.99%
16 KNOTS (18 MPH)	99.23%	98.83%	95.87%	99.99%
20 KNOTS (23 MPH)	99.86%	99.77%	99.74%	100.0%

Station: Orlando-INTL#12816
Source: National Climatic Data Center
Period: 1/1/82 - 12/31/01
All Weather Observations: 166,961
IFR Observations: 6,958

IFR WINDROSE



CROSSWIND COMPONENT	17-35	04-22	COMBINED
10.5 KNOTS (12 MPH)	99.31%	99.05%	99.90%
13 KNOTS (15 MPH)	99.29%	94.7%	99.90%
16 KNOTS (18 MPH)	99.28%	99.86%	99.98%
20 KNOTS (23 MPH)	99.89%	99.79%	99.93%



KEYMAP

REVISIONS	
DATE	DESCRIPTION

CLIENT: St. Petersburg - Clearwater International Airport, Pinellas County, Florida

PROJECT: Master Plan Update

SHEET TITLE: ALP SHEET (CONTINUED)

PBSJ NATIONAL AVIATION
482 South Keller Road
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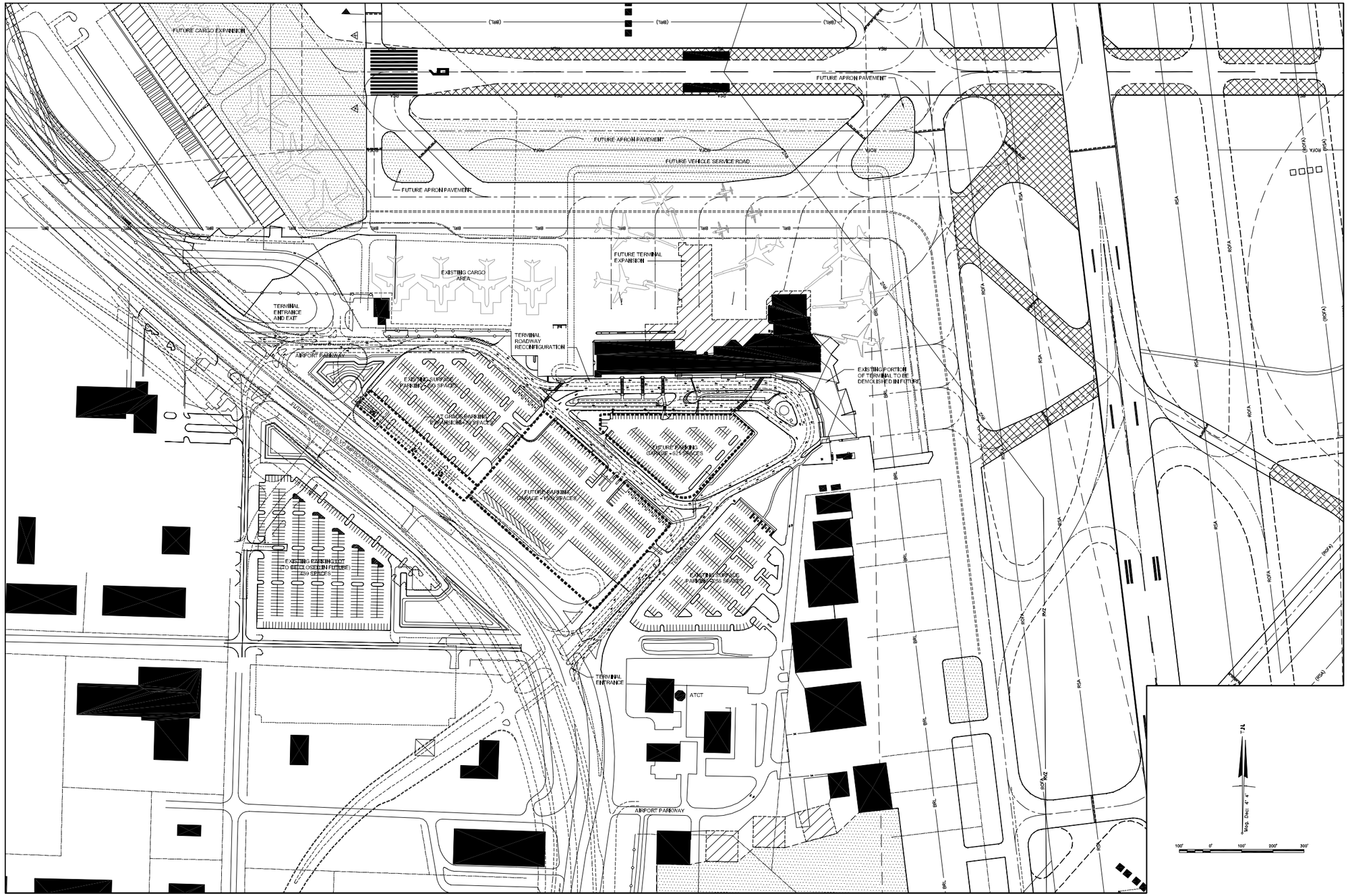
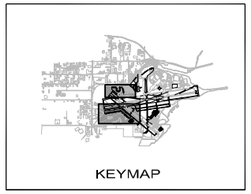
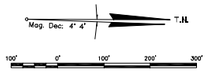
JOB NO.: 071088.02
DRAWN: RWO
DESIGN: RWO
CHECKED: JWM
DATE: MAY 2002

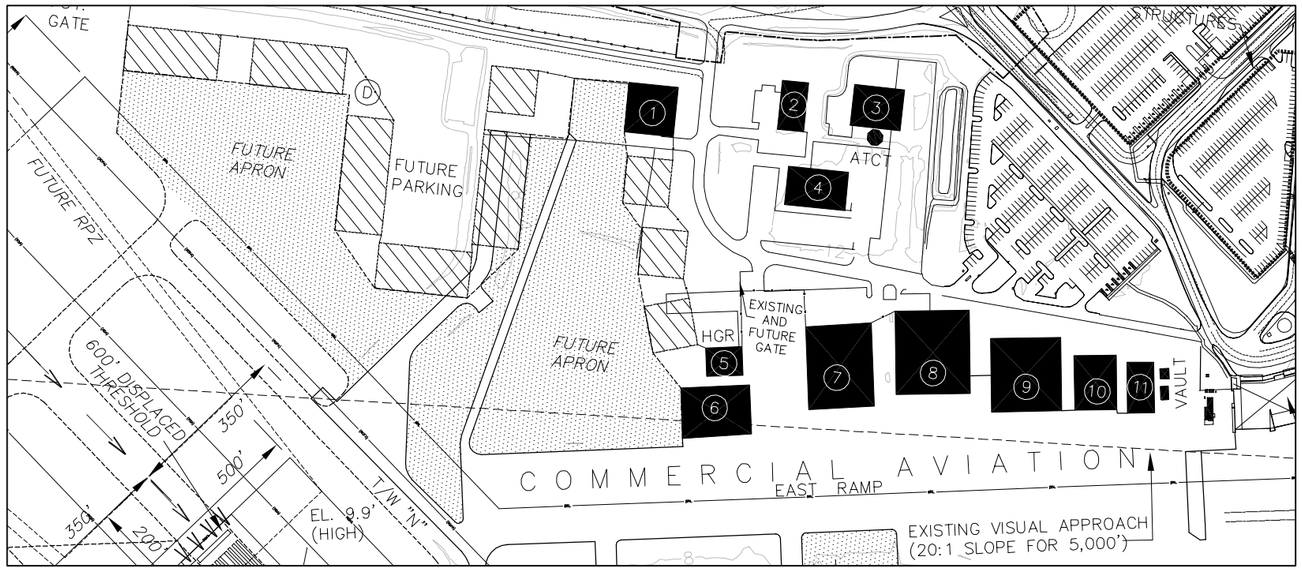
Figure 9-3b

SHEET 4 OF 14

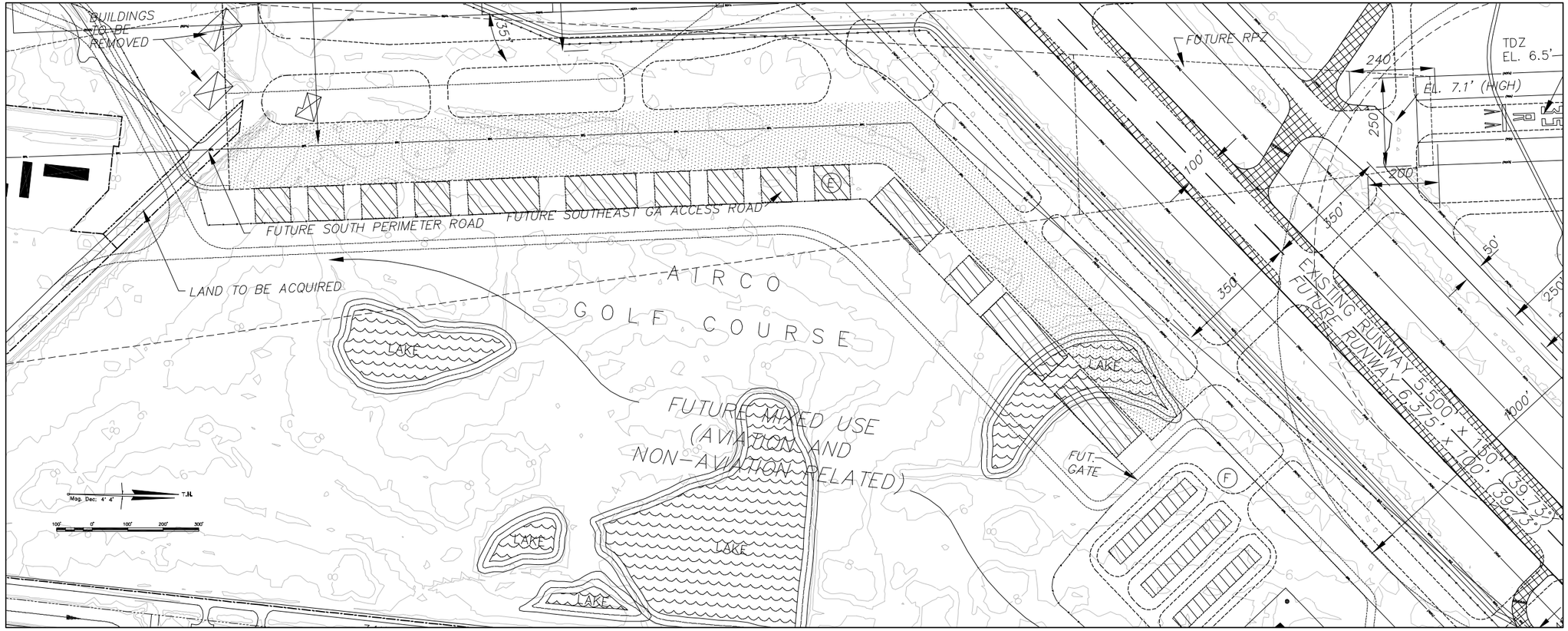

FUTURE CARGO EXPANSION
FUTURE APRON PAVEMENT
FUTURE APRON PAVEMENT
FUTURE VEHICLE SERVICE ROAD
FUTURE APRON PAVEMENT
FUTURE TERMINAL EXPANSION
EXISTING CARGO AREA
TERMINAL ENTRANCE AND EXIT
TERMINAL ROADWAY RECONFIGURATION
AIRPORT PARKWAY
EXISTING SURFACE PARKING (1,291 SPACES)
FUTURE GOOSENECK BLVD IMPROVEMENTS
AT GRADE PARKING (1,200 ADDITIONAL SPACES)
FUTURE PARKING GARAGE - 624 SPACES
FUTURE PARKING GARAGE - 1,500 SPACES
EXISTING PORTION OF TERMINAL TO BE DEMOLISHED IN FUTURE
EXISTING PARKING TO BE RELOCATED IN FUTURE (259 SPACES)
CANOPY SURFACE PARKING (1,236 SPACES)
TERMINAL ENTRANCE
ATCT
AIRPORT PARKWAY
TERMINAL DRIVE
TERMINAL DRIVE
TERMINAL DRIVE







SOUTHWEST



SOUTHEAST

REVISIONS	
DATE	DESCRIPTION

CLIENT: St. Petersburg - Clearwater International Airport, Pinellas County, Florida

PROJECT: Master Plan Update

SHEET TITLE: SOUTHEAST AND SOUTHWEST GENERAL AVIATION PLAN

PBSJ NATIONAL AVIATION
482 South Keller Road
Orlando, Florida 32810-6101
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FAX. (407) 740-8710
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JOB NO.:	071088.02
DRAWN:	RWO
DESIGN:	RWO
CHECKED:	JWM
DATE:	MAY 2002

Figure 9-5

SHEET 6 OF 14

9.6.2 North General Aviation Area Plan

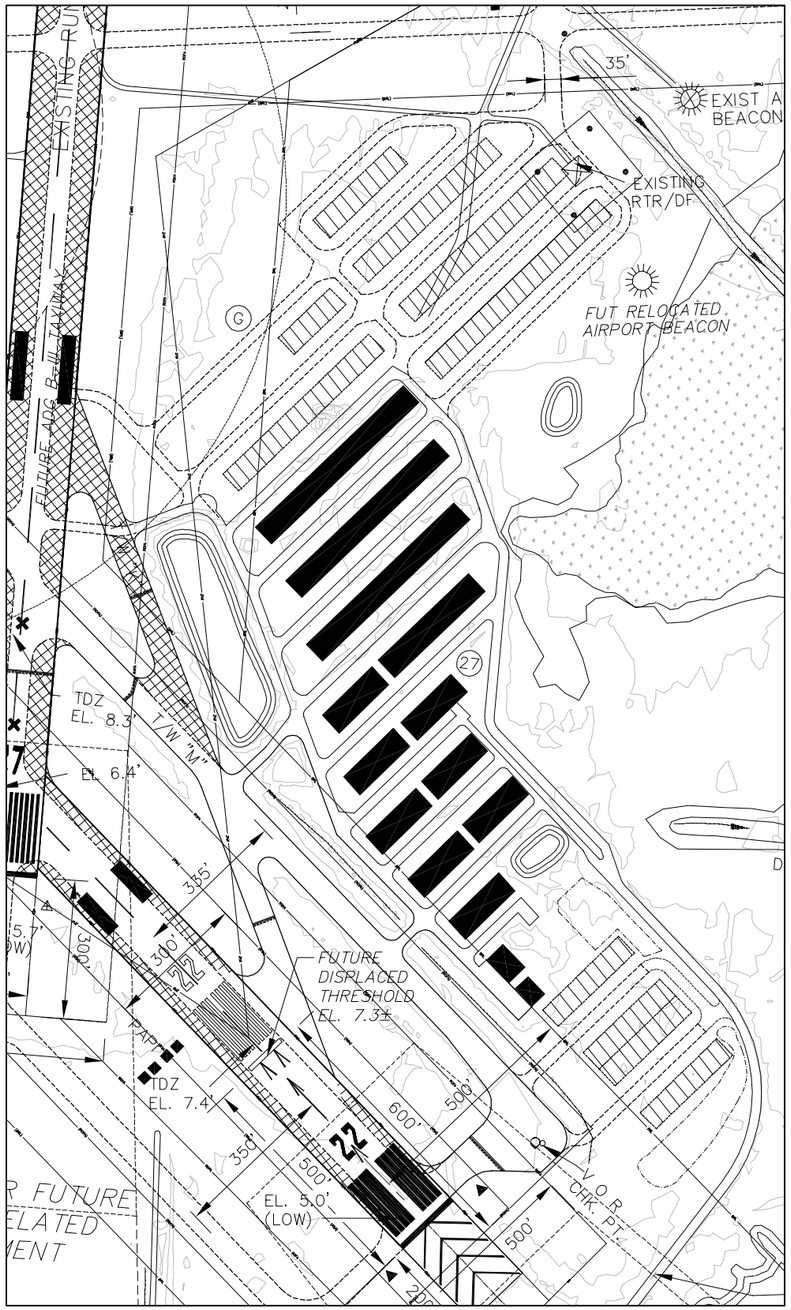
This plan identifies the proposed GA expansion on the north and northeast sides of the Airport. A total of 71 T-hangar units are proposed to be constructed in the same area as the current T-hangar development area, and expand on the existing taxilane network. In addition, a new corporate hangar complex is proposed by the Holland Sheltair Corporation, located south of the U.S. Army Reserve Facility. The North General Aviation Area Plan is shown in **Figure 9-6**.

9.7 CARGO AREA PLAN

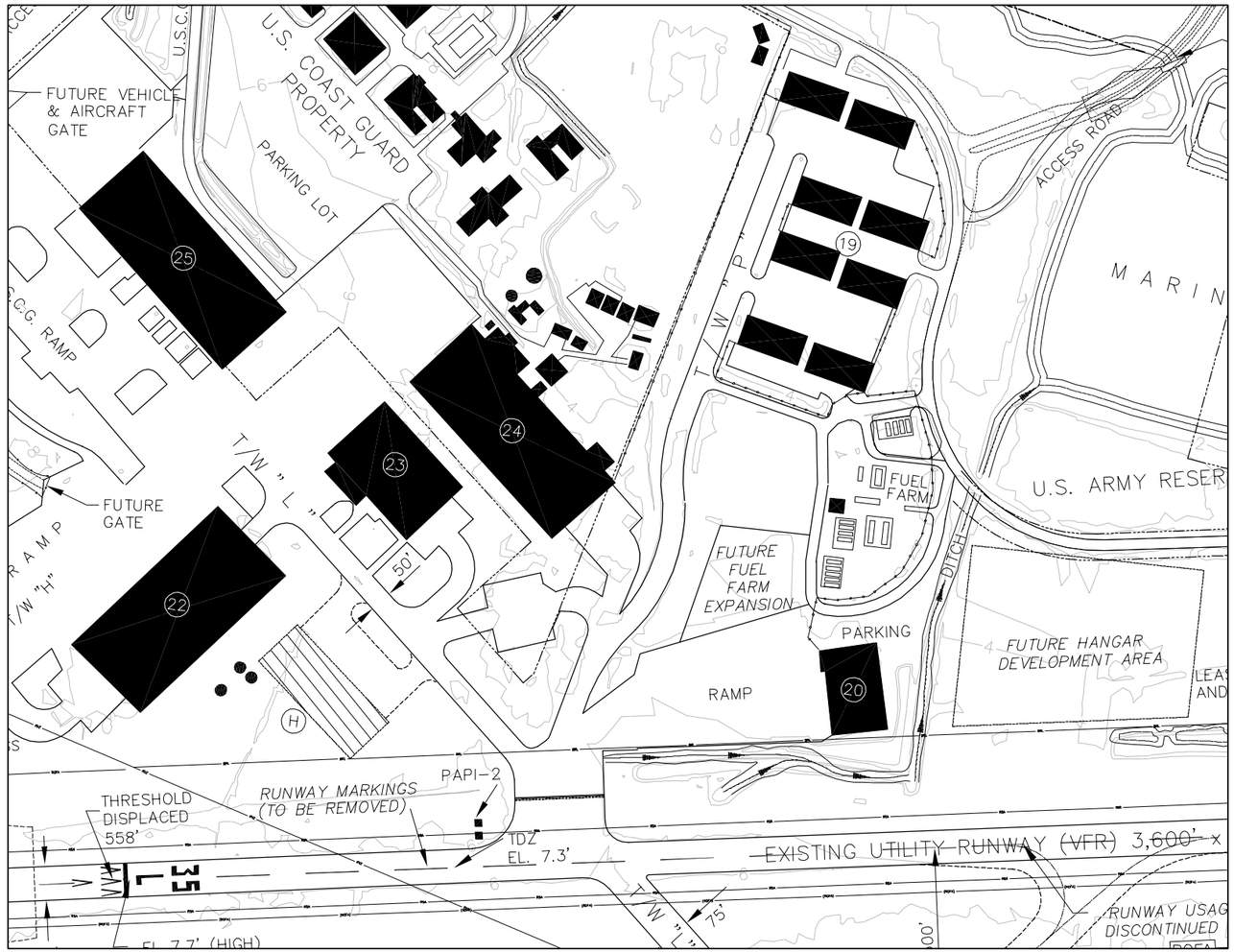
The Cargo Area Plan identifies proposed expansion of current cargo facilities northwestward along Roosevelt Blvd. and the west service road, adjacent to Taxiway B and the former Runway 9 threshold. This expansion would eventually require the relocation of the aircraft rescue and fire fighting (ARFF) and both Sheriff's Department offices and boat garage. The Cargo Area Plan is shown in **Figure 9-7**.

9.8 APPROACH AND RUNWAY PROTECTION ZONE PLANS

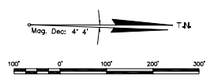
The Approach and Runway Protection Zone drawings show both plan and profile views for each runway protection zone (RPZ) and associated approaches as shown on the ALP. The purpose of these plans is to locate and document existing objects, which represent obstructions to navigable airspace, as well as the existing and proposed approach slopes for each runway. Additionally, the drawing shows the proposed runway extensions and the ground profile along the extended centerline at each runway end. The Approach and Runway Protection Zone Plans for all runways are shown in **Figures 9-8 and 9-9**.

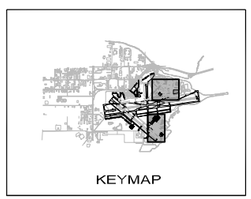


NORTHEAST



NORTHWEST





REVISIONS	
DATE	DESCRIPTION

CLIENT: St. Petersburg - Clearwater International Airport, Pinellas County, Florida

PROJECT: Master Plan Update

SHEET TITLE: NORTHEAST AND NORTHWEST GENERAL AVIATION PLAN

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DRAWN: RWO
DESIGN: RWO
CHECKED: JWM
DATE: MAY 2002

Figure 9-6

SHEET 7 OF 14

REVISIONS	
DATE	DESCRIPTION

CLIENT

St. Petersburg - Clearwater International Airport
Pinellas County, Florida

PROJECT

Master Plan Update

SHEET TITLE

CARGO AREA PLAN

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FAX. (407) 740-8710
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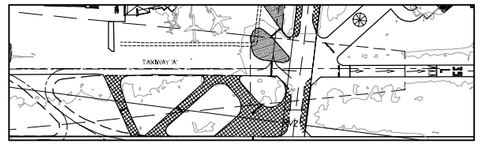
JOB NO.:	071088.02
DRAWN:	RWO
DESIGN:	RWO
CHECKED:	JNM
DATE:	MAY 2002

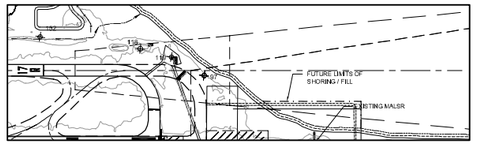
Figure 9-7

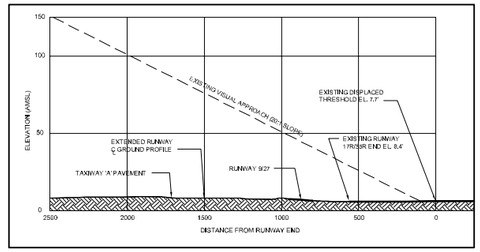
SHEET 8 OF 14

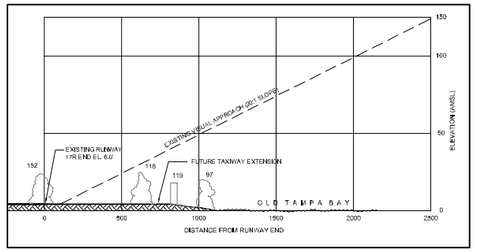
APPROACH CLEARANCE DATA TABLE

KEY # / LETTER	DESCRIPTION	TOP ELEVATION (AMSL)	REQUIRED CLEARANCE	APPROACH CLEARANCE	REQUIRED ACTION
AA	SERVICE ROAD	8.3'	10'	9.8'	REALIGN IN FUT
BB	SERVICE ROAD	7.8'	10'	7.8'	REALIGN IN FUT
CC	SERVICE ROAD	7.2'	10'	2.4'	REALIGN IN FUT
DD	FUT SERVICE ROAD	8.0'	10'	24.4'	-
EE	FUT SERVICE ROAD	7.0'	10'	37.7'	-
FF	FUT SERVICE ROAD	7.0'	10'	21.0'	-
GG	ROAD	11.3'	15'	39.7'	-
HH	ROAD	8.7'	15'	38.3'	-
II	ROAD	7.3'	15'	40.7'	-
97	BUSH	25'	-	-8.7'	REMOVE
105	TREE	24'	-	+14.3'	REMOVE
106	ROD ON BLDG	23'	F.B.F.	-	-
107	GL ON LOC	19'	F.B.F.	-	-
108	TREE	50'	-	-29.8'	TRIM / REMOVE
109	TREE	43'	-	-24.2'	TRIM / REMOVE
110	TREE	56'	-	-32.1'	TRIM / REMOVE
112	TREE	55'	-	-28.1'	TRIM / REMOVE
113	TREE	64'	-	-32.9'	TRIM / REMOVE
114	TREE	57'	-	-22.9'	TRIM / REMOVE
115	TREE	67'	-	-29.5'	TRIM / REMOVE
116	ANT ON HOPPER	92'	-	+14.1'	OBS LIGHT
118	BUSH	23'	-	1.0	REMOVE
119	FAA BLDG	18'	-	4'	-
152	BUSH	24'	-	13'	-







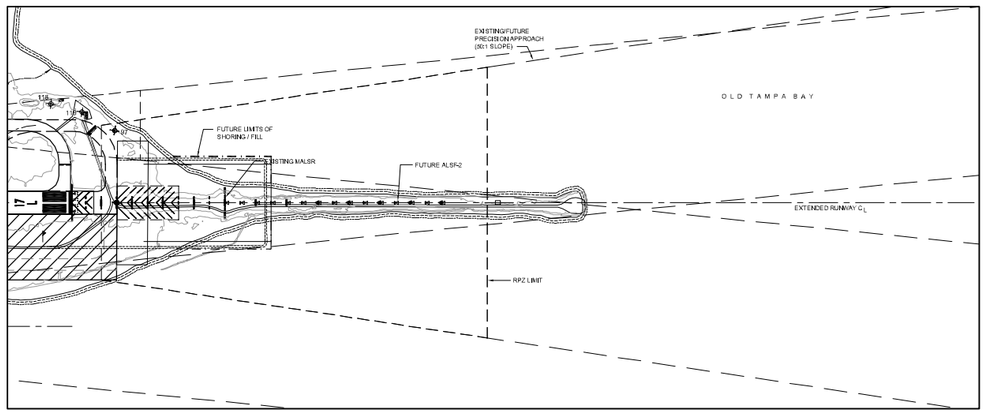


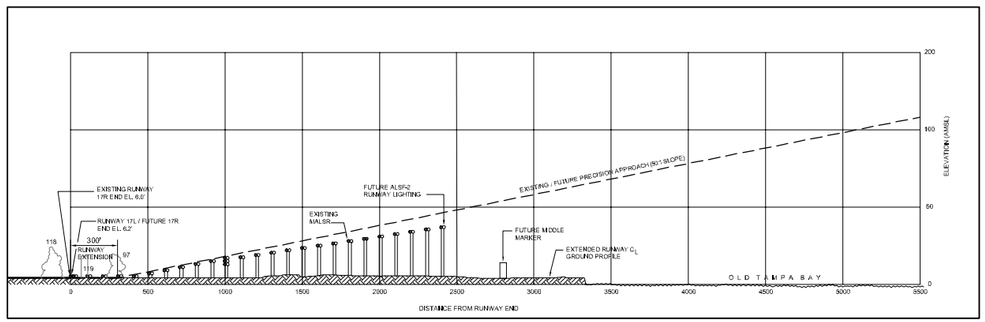
RUNWAY 17R/35L APPROACH
PLAN AND PROFILE

NOTES

1. All Elevations Shown Are Above Mean Sea Level (AMSL).
2. All existing obstructions or structures located within the proposed Runway Protection Zones (RPZ's), to be lowered or removed prior to the implementation of all future approaches.
3. Clearances shown in the Obstruction Data Tables are measurements to the nearest applicable approach. Existing features are measured to existing approaches and future features are measured to future approaches.
4. A tree maintenance program should be incorporated into airport policy to ensure that all trees located within active approaches remain below the approach surfaces.
5. The construction of future buildings located within the approach surfaces for runway 9-27 will occur after the closure of this runway, therefore clearances are not calculated for these objects.
6. Numerically identified objects were obtained from the FAA Digital Aeronautical Information (DAI) CD - effective 11/28/02 to 1/23/03. These objects are also shown on sheet 11 of 14, FAR Part 77 Airspace drawing.
7. Objects labeled with alpha characters pertain to clearance requirements specified in FAA Advisory Circular 150/5300-13 Ch.7.
8. Negative clearances represent an obstruction to the approach surface requiring corrective action.

VERT: 30' 0'
HORIZ: 0 300'





RUNWAY 17L/35R (FUTURE 17R/35L)
APPROACH PLAN AND PROFILE

REVISIONS	
DATE	DESCRIPTION

CLIENT: St. Petersburg - Clearwater International Airport, Pinellas County, Florida

PROJECT: Master Plan Update

SHEET TITLE: APPROACH AND RPZ PROFILES 17R/35L AND RUNWAY 17L/35R (FUTURE 17R/35L)

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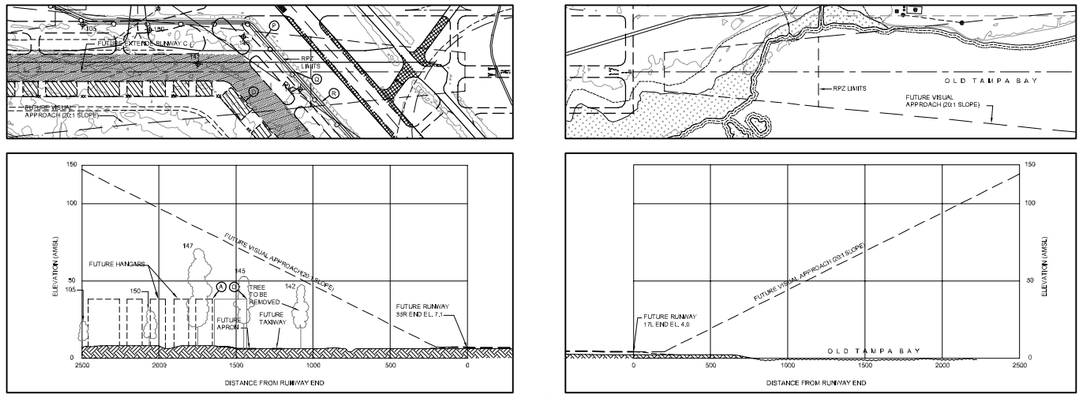
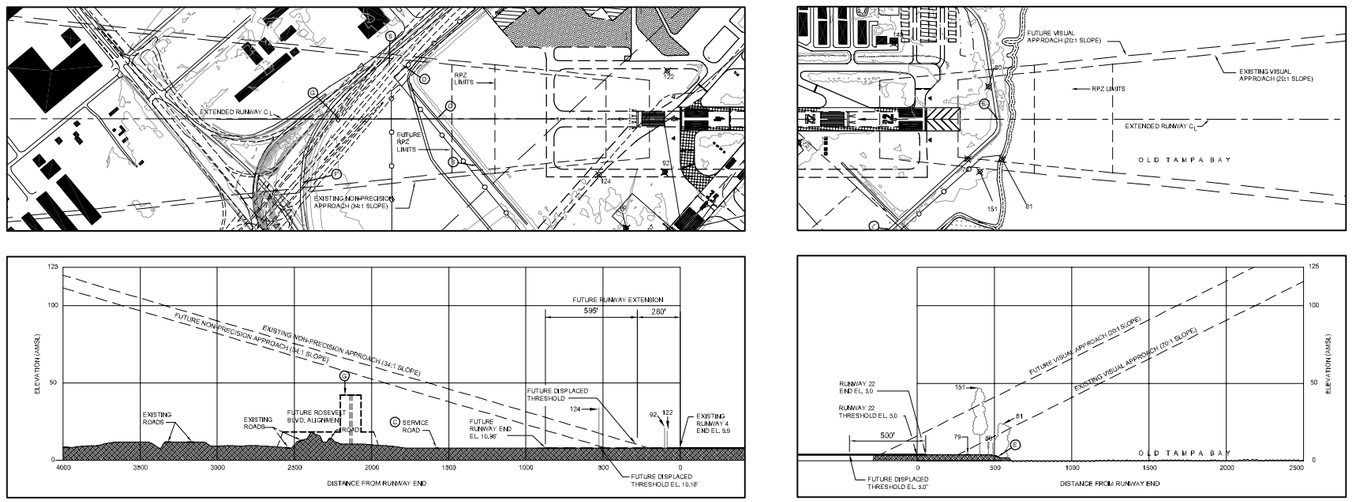
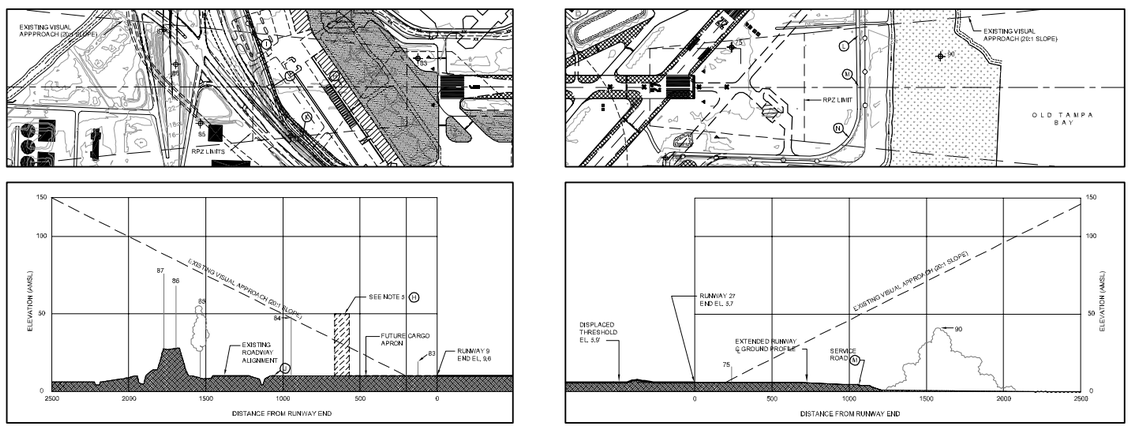
DRAWN: RWO
DESIGN: RWO
CHECKED: JWM
DATE: MAY 2002

Figure 9-8







APPROACH CLEARANCE DATA TABLE

KEY # / LETTER	DESCRIPTION	TOP ELEVATION (A.M.S.L.)	REQUIRED CLEARANCE	APPROACH CLEARANCE	REQUIRED ACTION
A	HANGAR	30'	-	SEE NOTE 3	SEE NOTE 3
B	SERVICE ROAD	8'	10'	18.4'	-
C	SERVICE ROAD	8'	10'	27.0'	-
D	FUTURE ROAD	9.8'	15'	15.0'	-
E	SERVICE ROAD	3.1'	10'	15.0'	-
F	FUTURE ROAD	44.7'	15'	22.2'	-
G	FUTURE ROAD	42.2'	15'	17.9'	-
H	HANGAR	29'	-	SEE NOTE 3	SEE NOTE 3
I	SERVICE ROAD	6.4'	10'	53.1'	-
J	SERVICE ROAD	7.2'	10'	43.4'	-
K	SERVICE ROAD	8.3'	10'	34.7'	-
L	SERVICE ROAD	2.9'	10'	43.2'	-
M	SERVICE ROAD	2.3'	10'	43.0'	-
N	SERVICE ROAD	2.3'	10'	42.9'	-
O	HANGAR	28'	-	61.8'	-
P	SERVICE ROAD	7.8'	10'	55.6'	-
Q	SERVICE ROAD	7.4'	10'	53.1'	-
R	SERVICE ROAD	7.1'	10'	44.9'	-
S	FUTURE ROAD	33.4'	15'	13.6'	-
75	WINDSOCK	16	F.B.F.	-	-
79	SERVICE ROAD	3.4'	10'	28.5'	-
80	SIGN	12	-	3.5'	-
81	BUSH	24	-	-4.9'	TRIM / REMOVE
83	WINDSOCK	19	F.B.F.	-	-
84	POLE	48	-	-.7'	OBS LIGHT
85	TREE	53	-	21.5'	-
86	LT POLE	68	-	16.3'	-
87	LT POLE	76	-	12.2'	-
90	TREE	41	-	34.9'	-
92	WINDSOCK	21	F.B.F.	-	TO BE RELOCATED
100	TREE	24	-	121.7'	-
122	OL ON POST	19	F.B.F.	-	TO BE RELOCATED
124	ROD ON OL OF	34	F.B.F.	-	TO BE RELOCATED
142	TREE	47	-	44.2'	TRIM / REMOVE
145	TREE	53	-	69.6'	-
147	TREE	71	-	84.3'	-
130	TREE	31	-	99.9'	-

* CLEARANCE CALCULATED AFTER THRESHOLD DISPLACEMENT

NOTES

1. All Elevations Shown Are Above Mean Sea Level (AMSL).
2. All existing obstructions or structures located within the proposed Runway Protection Zones (RPZ's), to be lowered or removed prior to the implementation of all future approaches.
3. Clearances shown in the Obstruction Data Tables are measurements to the nearest applicable approach. Existing features are measured to existing approaches and future features are measured to future approaches.
4. A tree maintenance program should be incorporated into airport policy to ensure that all trees located within active approaches remain below the approach surfaces.
5. The construction of future buildings located within the approach surfaces for runway 9-27 will occur after the closure of this runway, therefore clearances are not calculated for these objects.
6. Numerically identified objects were obtained from the FAA Digital Aeronautical Information (DAI) CD - effective 11/28/02 to 1/23/03. These objects are also shown on sheet 11 of 14, FAR Part 77 Airspace drawing.
7. Objects labeled with alpha characters pertain to clearance requirements specified in FAA Advisory Circular 150/5300-13 Ch.7.
8. Negative clearances represent an obstruction to the approach surface requiring corrective action.

VERT: 30' 0'
HORIZ: 0 300'

REVISIONS	
DATE	DESCRIPTION

CLIENT: St. Petersburg - Clearwater International Airport, Pinellas County, Florida

PROJECT: Master Plan Update

SHEET TITLE: APPROACH AND RPZ PROFILES 4/22, 9/27, AND FUTURE RUNWAY 17L/35R

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JOB NO.:	071088.02
DRAWN:	RWO
DESIGN:	RWO
CHECKED:	JWM
DATE:	MAY 2002

Figure 9-9
SHEET 10 OF 14

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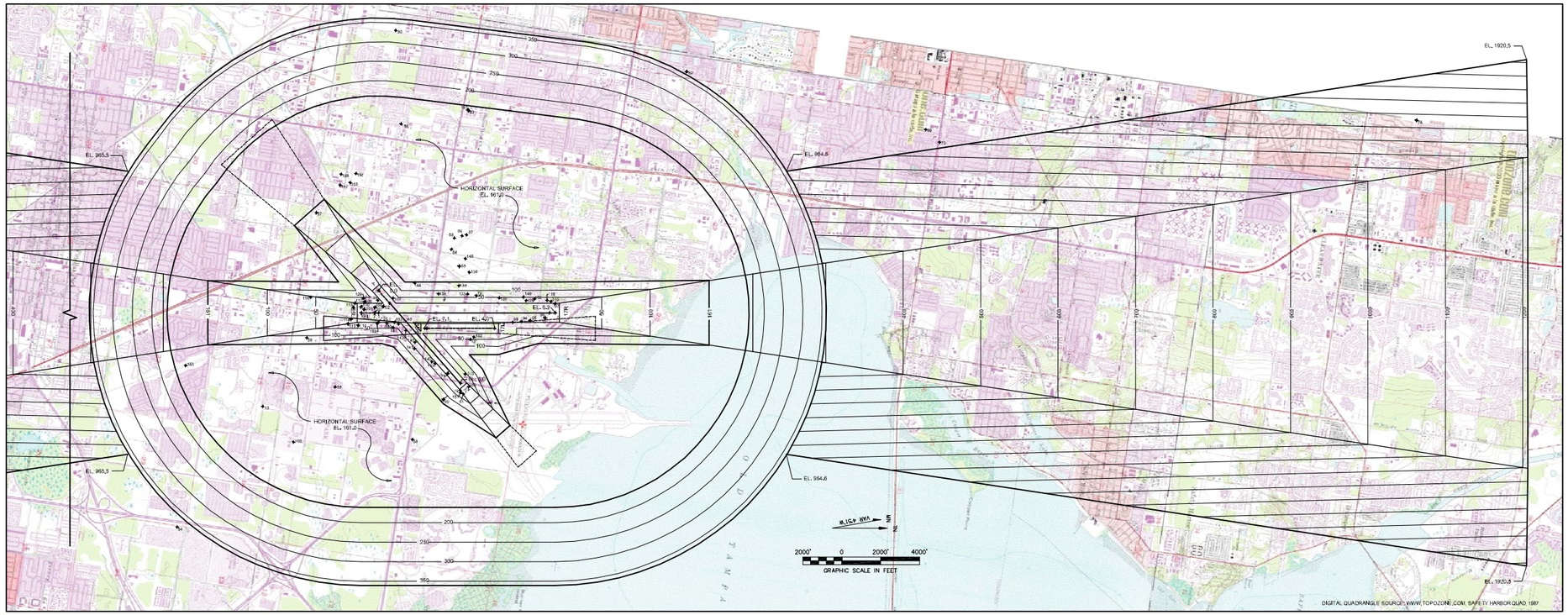
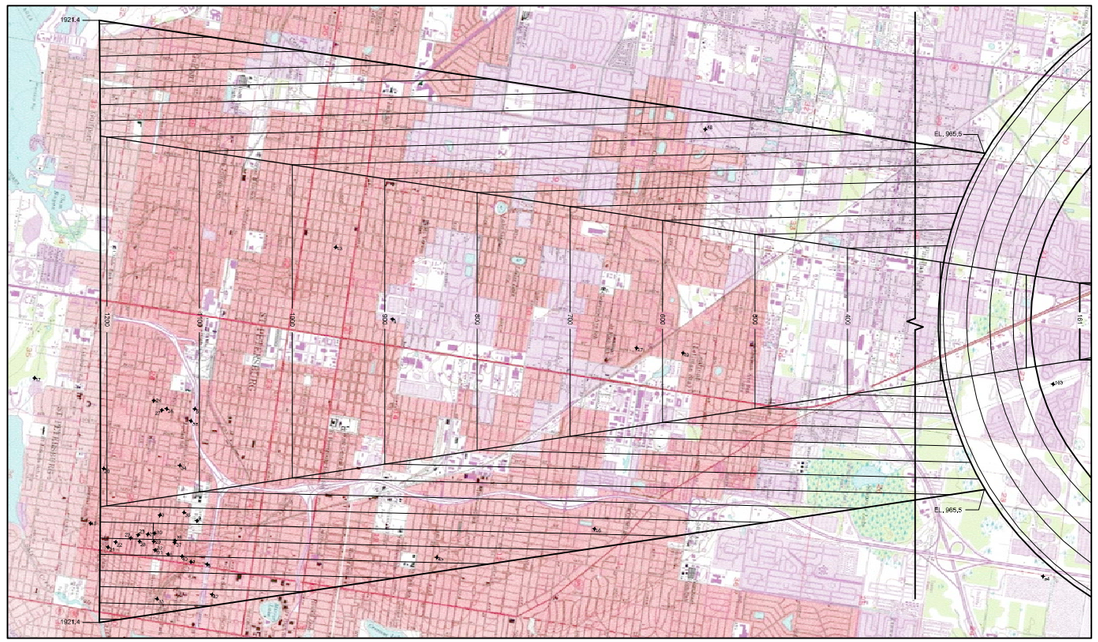
9.9 PART 77 AREA SURFACES PLAN

Federal Aviation Regulation (FAR) Part 77, "Objects Affecting Navigable Airspace," prescribes airspace standards, which establish criteria for evaluating navigable airspace. Airport imaginary surfaces are established relative to the Airport and runways. The size of each imaginary surface is based on the runway category with respect to the existing and proposed visual, non-precision, or precision approaches for that runway. The slope and dimensions of the respective approach surfaces are determined by the most demanding, existing or proposed, approach for each runway. The imaginary surfaces definitions include:

- Primary Surface – A rectangular area symmetrically located about the runway centerline and extending a distance of 200 feet beyond each runway threshold. Its elevation is the same as that of the runway.
- Horizontal Surface – An oval shaped, flat area situated 150 feet above the published airport elevation. Using a 10,000-foot arc, which is centered 200 feet beyond each runway end, then connecting the arcs with a line tangent to those arcs determines its dimensions. The horizontal surface elevation for PIE is 161 feet above mean sea level (AMSL).
- Conical Surface – A sloping area whose inner perimeter conforms to the shape of the horizontal surface. It extends outward for a distance of 4,000 feet measured horizontally, and slopes upward at 20:1. PIE's conical surface extends upward to an elevation of 965 feet AMSL.
- Transitional Surface – There are three different transitional surfaces. The first is off the sides of the primary surface, the second is off the sides of the approach surface, and the last is outside the conical surface and pertains to precision runways only. All transitional surfaces have slopes of 7:1 that are measured perpendicular to the runway centerline.
- Approach Surface – This surface begins at the ends of the primary surface and slopes upward at a predetermined ratio while at the same time flaring out horizontally. The width and elevation of the inner ends conform to that of the primary surface, while the slope, length, and outer width are determined by the runway service category and existing or proposed instrument approach procedures.

Existing objects, which penetrate above Part 77 surfaces, are tabulated on the drawings. The table contains data on the object elevation, elevation of the imaginary surface, and any action to be taken to mitigate the penetration. **Figure 9-10** shows all Part 77 Area Surfaces for the Airport.





OBSTRUCTION DATA TABLE

POINT	OBSTACLE TYPE	AMSL	CLEARANCE	ACTION
2	BLDG	129	1246	NONE
3	BLDG	309	946	NONE
4	BLDG	289	1200	NONE
5	TOWER	355	731	NONE
6	BLDG	172	1107	NONE
7	BLDG	186	1346	NONE
8	BLDG	206	1339	NONE
9	TOWER	372	529	NONE
13	TOWER	183	-2	OBS LIGHT
17	TANK	182	N/A	NONE
18	BLDG	60	N/A	NONE
19	STACKS 2	217	N/A	NONE
20	BLDG	122	1085	NONE
21	CRANE	176	1029	NONE
22	TOWER	305	1118	NONE
23	BLDG	194	1200	NONE
24	BLDG	249	892	NONE
25	BLDG	173	1199	NONE
26	BLDG	183	1293	NONE
27	TANK 2	228	914	NONE
28	DOME	278	839	NONE
29	BLDG 2	194	1219	NONE
30	BLDG	410	951	NONE
31	BLDG	344	1122	NONE
32	TOWER	337	1129	NONE
33	POLE	81	1688	NONE
34	TOWER	232	891	NONE
35	TOWER	183	923	NONE
36	BLDG	279	1128	NONE
37	TOWER	231	1186	NONE
38	TOWER	239	996	NONE
40	BLDG	211	1289	NONE
42	BLDG	110	1621	NONE
43	TOWER	370	384	NONE
45	TOWER	220	1246	NONE
46	BLDG	232	1036	NONE
47	TOWER	248	980	NONE
48	TOWER	121	1098	NONE
49	TOWER	426	132	NONE
54	TOWER	145	N/A	NONE
55	CRANE	228	-67	OBS LIGHT
56	CRANE	193	-34	OBS LIGHT
57	TOWER	168	-13	OBS LIGHT
58	TOWER	140	+23	OBS LIGHT
59	TOWER	220	111	NONE
60	T-L TWR	153	6	NONE
62	TOWER	213	N/A	NONE
69	TOWER	304	N/A	NONE
70	TOWER	282	N/A	NONE
73	TOWER	353	1101	NONE
73	WTSK	16	+10	FBF
76	TREE	71	+10	TRIM/REM
79	ROAD (N)	19	+10	DEP. TREM
80	SIGN	12	3.4	NONE
81	BUSH	24	-5	TRIM/REM
83	WTSK	19	142	FBF
84	POLE	48	113	NONE
85	TREE	53	108	NONE
86	LT POLE	68	93	NONE
87	LT POLE	76	85	NONE
90	TREE	41	99	NONE
92	WTSK	21	+12	FBF
93	TREE	33	-27	TRIM/REM
94	TREE	32	-25	TRIM/REM
95	ROD ON OL GS	38	-32	FBF
96	WTSK	18	+10	FBF
97	BUSH	29	+14	TRIM/REM
101	FENCE	15	-8	OBS LIGHT
103	TREE	24	-9	TRIM/REM
106	ROD ON BLDG	23	+16	OBS LIGHT
107	OL ON LOC	19	+10	FBF
108	TREE	50	-33	TRIM/REM
109	TREE	43	-37	TRIM/REM
110	TREE	56	+49	TRIM/REM
111	TREE	69	-62	TRIM/REM
112	TREE	59	-50	TRIM/REM
113	TREE	64	+33	TRIM/REM
114	TREE	57	-21	TRIM/REM
115	TREE	67	-50	TRIM/REM
116	ANT ON HOPPER	50	+33	OBS LIGHT
118	BUSH	23	1	NONE
119	BLDG	18	4	NONE
122	OL ON P.OST	19	-2	NONE
124	ROD ON OL DF	34	-6	FBF
129	TREE	57	-4	TRIM/REM
131	ANT ON OL RTR TWR	77	-27	FBF
132	ROD ON OL APRN	67	-35	FBF
133	VENT ON HANGAR	64	8	NONE
134	LIGHT	61	12	NONE
135	LIGHT	91	102	NONE
136	HANGAR	82	12	NONE
137	TREE	53	-34	TRIM/REM
138	VENT ON HANGAR	64	97	NONE
139	ROAD (N)	21	-7	SCALLOM SE
140	TREE	47	-24	TRIM/REM
141	TREE	79	+24	TRIM/REM
142	TREE	47	+30	TRIM/REM
143	HANGAR	28	10	NONE
144	ROD ON OL ATCT	173	+19	FBF
145	TREE	53	+55	TRIM/REM
146	OL ON HANGAR	55	126	NONE
147	TREE	71	+29	TRIM/REM
148	OL ON BLDG	45	3	NONE
149	BUSH	18	6	NONE
150	TREE	51	-24	TRIM/REM
151	TREE	47	-23	NONE
152	BUSH	24	13	NONE
153	TREE	43	-31	TRIM/REM
155	ANT ON NCMV TWR	157	4	FBF
156	ROD ON OL ANT	210	+49	OBS LIGHT
157	TRMSN TWR	153	8	NONE
158	TRMSN TWR	152	9	NONE
159	TRMSN TWR	160	1	NONE
160	BELL TWR	155	6	NONE
161	TRMSN TWR	166	+5	OBS LIGHT
163	LADDER ON STROBE LTD STAC	174	+13	NONE

NOTES

CLEARANCE REFERS TO THE CLEARANCE FROM HIGHEST POINT ON OBJECT TO NEAREST FAR PART 77 SURFACE.

CLEARANCES INDICATED WITH A NEGATIVE VALUE INDICATE OBJECT PENETRATIONS TO THE FAR PART 77 SURFACE.

FBF - FIXED BY FUNCTION, NO ACTION REQUIRED

SOME OBSTRUCTION NUMBERS ARE MISSING FROM TABLE DUE TO COVERAGE LIMITATIONS. ALL OF THESE OBJECTS FALL OUTSIDE THE FAR PART 77 SURFACE FOR PIE.

OBSTACLE CLEARANCES WITH THE LABEL N/A DID NOT FALL WITHIN THE FAR PART 77 SURFACE FOR PIE AND THEREFORE COULD NOT BE ANALYZED IN RELATION TO PART 77.

DUE TO THE VARIOUS ONGOING CONSTRUCTION PROJECTS WITHIN THE AIRPORT VICINITY, THIS PLAN MAY NOT ACCURATELY REFLECT ALL TEMPORARY CONSTRUCTION CRANE LOCATIONS.

REVISIONS	
DATE	DESCRIPTION

CLIENT

St. Petersburg - Clearwater International Airport
Pinellas County, Florida

PROJECT

Master Plan Update

SHEET TITLE

FAR PART 77 AIRSPACE DRAWING

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DESIGN: RWO
CHECKED: JWM
DATE: MAY 2002

Figure 9-10
SHEET 11 OF 14

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9.10 NOISE CONTOURS/LAND USE

Noise Contour drawings are used by Pinellas County for coordination of compatible land uses in and within the vicinity of the Airport. The utilization of this land is represented by several use categories, which are labeled in the legend of each drawing. The land use plans have been developed through coordination with the Pinellas County to include existing city and county plans and ensure accuracy. These drawings will give local authorities guidance and help ensure appropriate aviation-compatible zoning is maintained in the future.

9.10.1 Existing Land Use With Year 2002 Contours

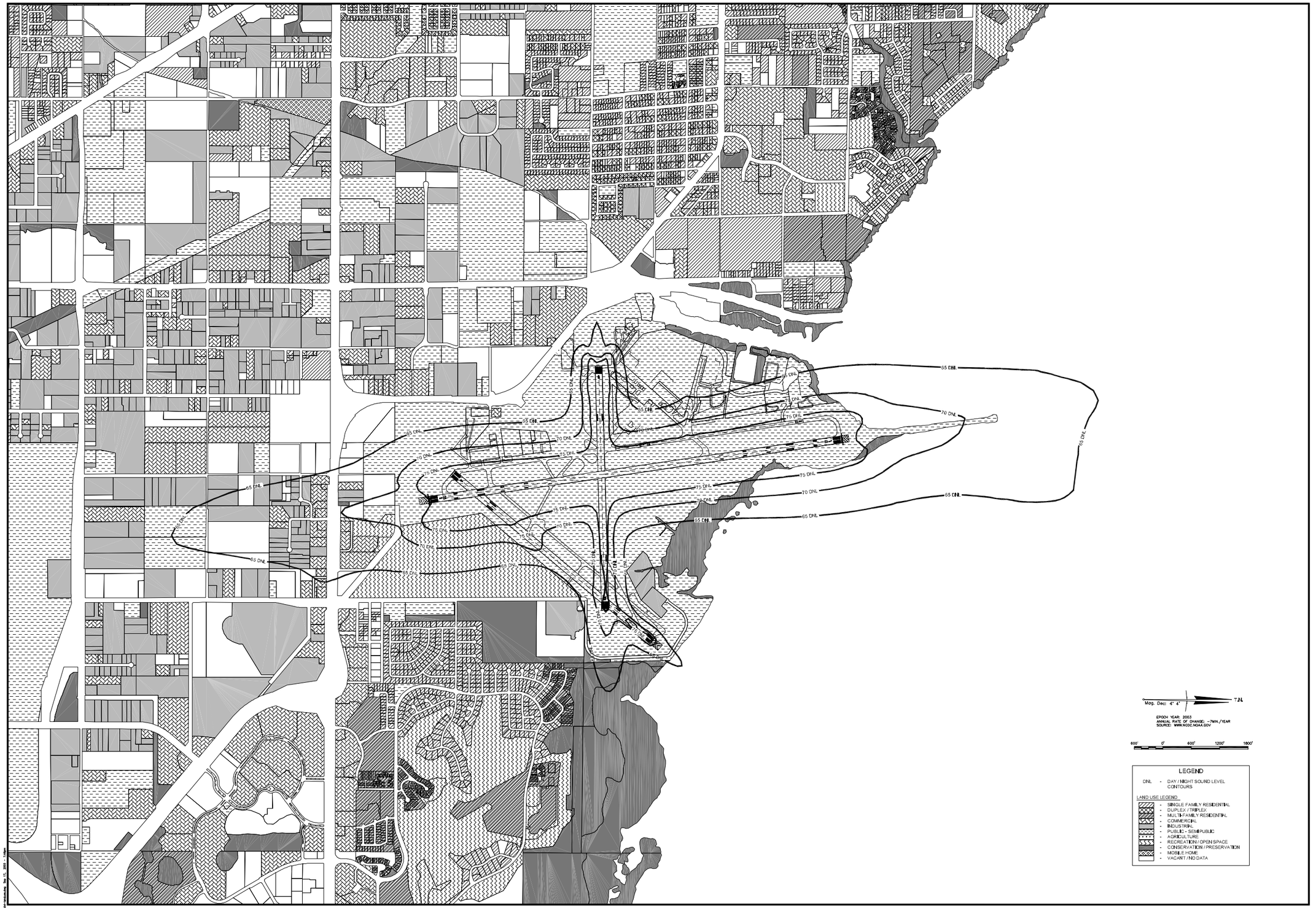
This drawing, shown in **Figure 9-11**, depicts land uses outside the confines of the Airport boundary, with the base case noise contours discussed in Chapter 8, "Environmental Overview," superimposed over the existing land use plan.

9.10.2 Future Land Use With Year 2022 Contours

This drawing, shown in **Figure 9-12**, depicts land uses outside the confines of the Airport boundary, with the year 2022 noise contours discussed in Chapter 8, "Environmental Overview," superimposed over the existing and proposed future land use plan.

9.11 EXHIBIT 'A' PROPERTY MAP

The Airport Property Map presents the Airport property line and a history of Airport land purchases and acquisitions. Bearings and approximate distances from cardinal points define the Airport property line. The types of property acquisitions or transactions are presented in tables on the Exhibit 'A' Data Sheet and include the date of each property acquisition and the federal project number where applicable. Aviation easements, to be acquired in perpetuity, are also indicated. The Exhibit 'A' Property Map and Data Sheet for PIE are shown in **Figure 9-13**.



REVISIONS	
DATE	DESCRIPTION

CLIENT

St. Petersburg - Clearwater International Airport
Pinellas County, Florida

PROJECT

Master Plan Update

SHEET TITLE

EXISTING LAND USE AND NOISE CONTOURS (2001)

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JOB NO.:	071088.02
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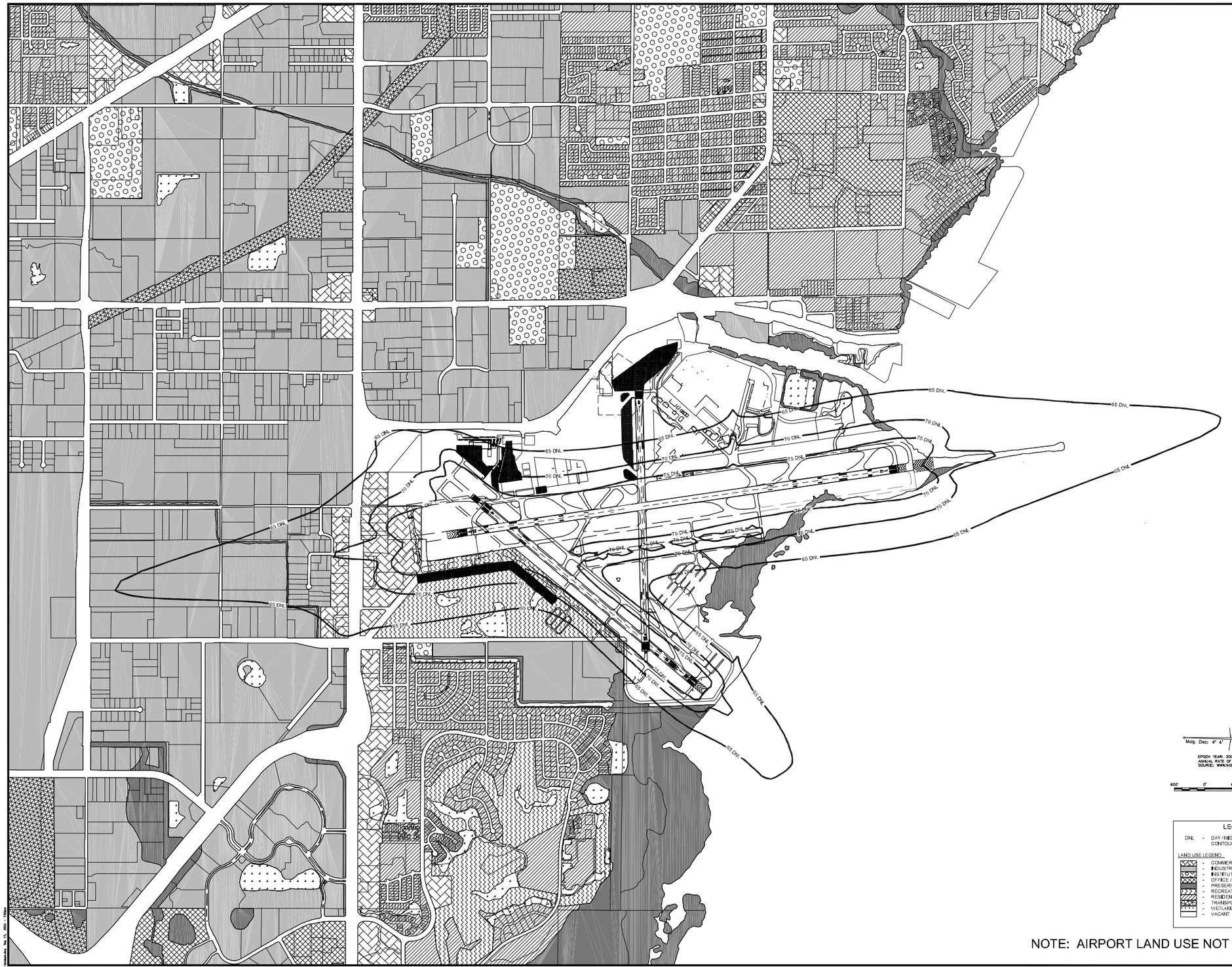
DESIGN:	RWO
CHECKED:	JWM
DATE:	MAY 2002

Figure 9-11

SHEET 12 OF 14



NOTE: AIRPORT LAND USE NOT SHOWN FOR CLARITY

REVISIONS	
DATE	DESCRIPTION

CLIENT: St. Petersburg - Clearwater International Airport, Pinellas County, Florida

PROJECT: Master Plan Update

SHEET TITLE: FUTURE LAND USE AND NOISE CONTOURS (2022)

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482 South Keller Road
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JOB NO.:	071088.02
DRAWN:	RWO
DESIGN:	RWO
CHECKED:	JWM
DATE:	MAY 2002

Figure 9-12
SHEET 13 OF 14

AIRPORT BOUNDARY DESCRIPTION

A TRACT OF LAND COMMONLY KNOWN AS THE ST. PETERSBURG/CLEARWATER INTERNATIONAL AIRPORT, SITUATED WITHIN SECTIONS 21, 22, 27, 28, 33, 34 AND 35, TOWNSHIP 29 SOUTH, RANGE 16 EAST, AND SECTIONS 2, 3 AND 4, TOWNSHIP 30 SOUTH, RANGE 16 EAST, PINELLAS COUNTY, FLORIDA, TOGETHER WITH SUBMERGED LANDS LYING WITHIN THE WATERS.

Parcel "A"

Commencing at the SE corner of Section 4, , run thence N 00Deg 30'53" W along the East line of said Section 4, for a distance of 1,320.27 feet to the NE corner of the SE ¼ of said Section 4, the same being a point on the North line of the South ½ of the SE ¼ of said Section 4 thence S 89Deg 54' 44"W along said line, for a distance of 1,667.10 feet to a point on the West right-of-way line of Weir Street/Earth, and the POINT OF BEGINNING thence continue S 89Deg 54' 44"W along said North line, for a distance of 1,092.28 feet to the SW corner of the E ½ of the SW ¼ of aforesaid Section 4 thence N 00Deg 30'53" W along the West line of said Section 4, for a distance of 1,320.27 feet to the NW corner of the E ½ of the SW ¼ of aforesaid Section 4 thence N 89Deg 54' 44"E along the North line of the South ½ of the SE ¼ of said Section 4, for a distance of 1,092.28 feet to the NE corner of the E ½ of the NW ¼ of the SE ¼ of aforesaid Section 4 thence S 89Deg 31'37" E along said North line, for a distance of 1,667.10 feet to the POINT OF BEGINNING.

Parcel "A" Containing 142 Acres M.O.L.

Parcel "B"

Commencing at the SW corner of Section 4, , run thence N 00Deg 30'53" W along the West line of said Section 4, for a distance of 1,322.27 feet to the NW corner of the SW ¼ of said Section 4, and the POINT OF BEGINNING thence N 89Deg 54'44" E along said North line of the SW ¼ of said Section 4, for a distance of 1,092.28 feet to a point on the West right-of-way line of 16th Street North (Weir Street) thence S 00Deg 30'53" E along said West right-of-way line, for a distance of 1,320.27 feet to a point on the South line of the SW ¼ of said Section 4 thence S 89Deg 54' 44"W along said South line, for a distance of 1,092.28 feet to the SE corner of the SE ¼ of said Section 5, the same being the NE corner of Section 8, Township 30 South, Range 16 East, Pinellas County, Florida thence S 89Deg 31'37" E along said North line of the NE ¼ of said Section 8, for a distance of 1,667.10 feet to the POINT OF BEGINNING.

Parcel "B" Containing 42 Acres M.O.L.

Parcel "C"

Commencing at the SE corner of Section 3, Township 30 South, Range 16 East, run N 00deg 47'04" W along the East line of the SE ¼ of said Section 3, for a distance of 1,322.27 feet to the NE corner of the SE ¼ of said Section 3, and the POINT OF BEGINNING thence continue N 00Deg 47' 04" W along said East line, for a distance of 1,320.02 feet to a point on the North line of the SE ¼ of aforesaid Section 3; thence N 89Deg 59' 58" W along said North line, for a distance of 1,667.10 feet to the NW corner of the E ½ of the SE ¼ of the SE ¼ of aforesaid Section 3; thence S 00Deg 47' 04" E along the West line of the E ½ of the SE ¼ of the SE ¼ of said Section 3, for a distance of 1,320.02 feet to the SW corner of the E ½ of the SE ¼ of the SE ¼ of said Section 3; thence N 89Deg 59' 58" E along the South line of the SE ¼ of said Section 3, for a distance of 1,667.10 feet to the POINT OF BEGINNING.

Parcel "C" Containing 50.5 Acres M.O.L.

Parcel "D"

Commencing at the SE corner of Section 3, Township 30 South, Range 16 East, run thence N 00deg 47' 04" W along the East line thereof, for a distance of 1,322.27 feet to the NE corner of the SE ¼ of said Section 3, and the POINT OF BEGINNING thence continue N 00Deg 47' 04" W along said East line, for a distance of 1,320.02 feet to a point on the North line of the SE ¼ of aforesaid Section 3; thence N 89Deg 59' 58" W along said North line, for a distance of 1,667.10 feet to the NW corner of the E ½ of the SW ¼ of the SE ¼ of aforesaid Section 3; thence S 00Deg 47' 04" E along the West line of the E ½ of the SW ¼ of the SE ¼ of said Section 3, for a distance of 1,320.02 feet to the SW corner of the E ½ of the SW ¼ of the SE ¼ of said Section 3; thence N 89Deg 59' 58" E along the South line of the SE ¼ of said Section 3, for a distance of 1,667.10 feet to the POINT OF BEGINNING.

Parcel "D" Containing 50.5 Acres M.O.L.

Parcel "E"

Commencing at the SE corner of Section 3, Township 30 South, Range 16 East, run thence N 00deg 47' 04" W along the East line thereof, for a distance of 2,642.29 feet to the NE corner of the SE ¼ of said Section 3, and the POINT OF BEGINNING thence continue N 00Deg 47' 04" W along said East line, for a distance of 1,320.02 feet to a point on the North line of the SE ¼ of aforesaid Section 3; thence N 89Deg 59' 58" W along said North line, for a distance of 1,667.10 feet to the NW corner of the E ½ of the SW ¼ of the SE ¼ of aforesaid Section 3; thence S 00Deg 47' 04" E along the West line of the E ½ of the SW ¼ of the SE ¼ of said Section 3, for a distance of 1,320.02 feet to the SW corner of the E ½ of the SW ¼ of the SE ¼ of said Section 3; thence N 89Deg 59' 58" E along the South line of the SE ¼ of said Section 3, for a distance of 1,667.10 feet to the POINT OF BEGINNING.

Parcel "E" Containing 50.5 Acres M.O.L.

Parcel "F"

Commencing at the SW corner of Section 34, Township 29 South, Range 16 East, run N 00deg 43' 31" W along the West line of said Section 34, for a distance of 2,654.43 feet; thence N 89deg 29' 10" E, for a distance of 511.80 feet to the POINT OF BEGINNING said point hereafter established as Point "A"; thence N 89deg 27'42" W, for a distance of 716.82 feet; thence N 89deg 29' 10" W, for a distance of 805.97 feet; thence N 00deg 49'06" E, for a distance of 1,042.27 feet; thence S 89deg 18' 11" E, for a distance of 1,512.62 feet; thence S 45deg 29' 24" S, for a distance of 12.74 feet; thence S 00deg 31'54" E, for a distance of 1,042.27 feet; thence S 89deg 18' 11" E, for a distance of 462.22 feet; thence S 49deg 35' 49"E, for a distance of 36.24 feet; thence S 00deg 31'54" E, for a distance of 21.83 feet; thence N 49deg 57' 24" E, for a distance of 244.20 feet; thence S 49deg 28' 09" E, for a distance of 599.63 feet; thence S 49deg 57' 24" E, for a distance of 245.43 feet; thence S 1 deg 28' 18" W, for a distance of 624.72 feet, to the POINT OF BEGINNING.

(Controlling 30 acres more or less)

(All lots and areas excluding the following: (U.S. Coast Guard Tract)

Commencing at a re-established Point "A", run S 89deg 42' 18" E, for a distance of 209.56 feet for a POINT OF BEGINNING thence N 89deg 42' 18" E, for a distance of 600.00 feet; thence S 49deg 30' 57" E, for a distance of 600.00 feet; thence N 49deg 30' 57" W, for a distance of 780.00 feet to the POINT OF BEGINNING.

(Controlled 2 acres more or less)

TOTAL PARCEL "F" Containing 1,906 Acres M.O.L.

Parcel "G"

Commencing at the SE corner of Section 3, Township 30 South, Range 16 East, run thence N 00deg 54 04" W along the East line thereof, for a distance of 1119.66 feet; thence N 89deg 21' 36" W, 97.58 feet to the POINT OF BEGINNING thence continue N 89deg 21' 36" W, for a distance of 1427.62 feet; thence N 00deg 19' 19" W, for a distance of 1512.24 feet; thence S 89deg 58' 17" E, for a distance of 1444.68 feet; thence S 00deg 54' 04" E, for distance of 1511.66 feet to the POINT OF BEGINNING.

Parcel "G" Containing 50 Acres M.O.L.

Parcel "H"

Being a portion of the Northwest ¼ of Section 2, Township 30 South, Range 16 East, Pinellas County, Florida, described as follows:

Commencing at the West ¼ corner of said Section 2; run N 00deg 11' 36" W, 674.24 feet along the West line of said Section 2 thence S 89deg 47'48" E, 30.00 feet for a Point of Beginning thence N 00deg 11'36" W, 200.89 feet thence S 89deg 37' 49"E, 713.65 feet thence N 00deg 37'52" E, 835.58 feet; thence S 89deg 22' 08" E, 1848 feet; thence N 00deg 38' 58" E, 623 feet; thence N 00deg 22' 10" E, 0' 20 feet; thence N 00 deg 42' 49" E, 1549 feet; thence N 89 deg 07' 28"W, 449' feet; thence S 89deg 58' 40" W, 2' 20 feet; thence S 89deg 58' 40" W, 2' 20 feet; thence N 89deg 58' 40" E, 25.34 feet; thence N 89deg 58' 40" E, 25.34 feet; thence N 89deg 58'40" W, 33' 47' feet; thence N 89deg 58' 40" W, 25.34 feet; thence N 00deg 58' 40" E, 1675.91 feet; thence N 64deg 51' 51" E, 35.86 feet; thence N 75deg 28' 58" W, 51.' 4 feet; thence N 89deg 36' 17" W, 75.84 feet to the East line of said Section 11; thence S 89deg 13'37" E, for 25 feet, along said East line to the POINT OF BEGINNING.

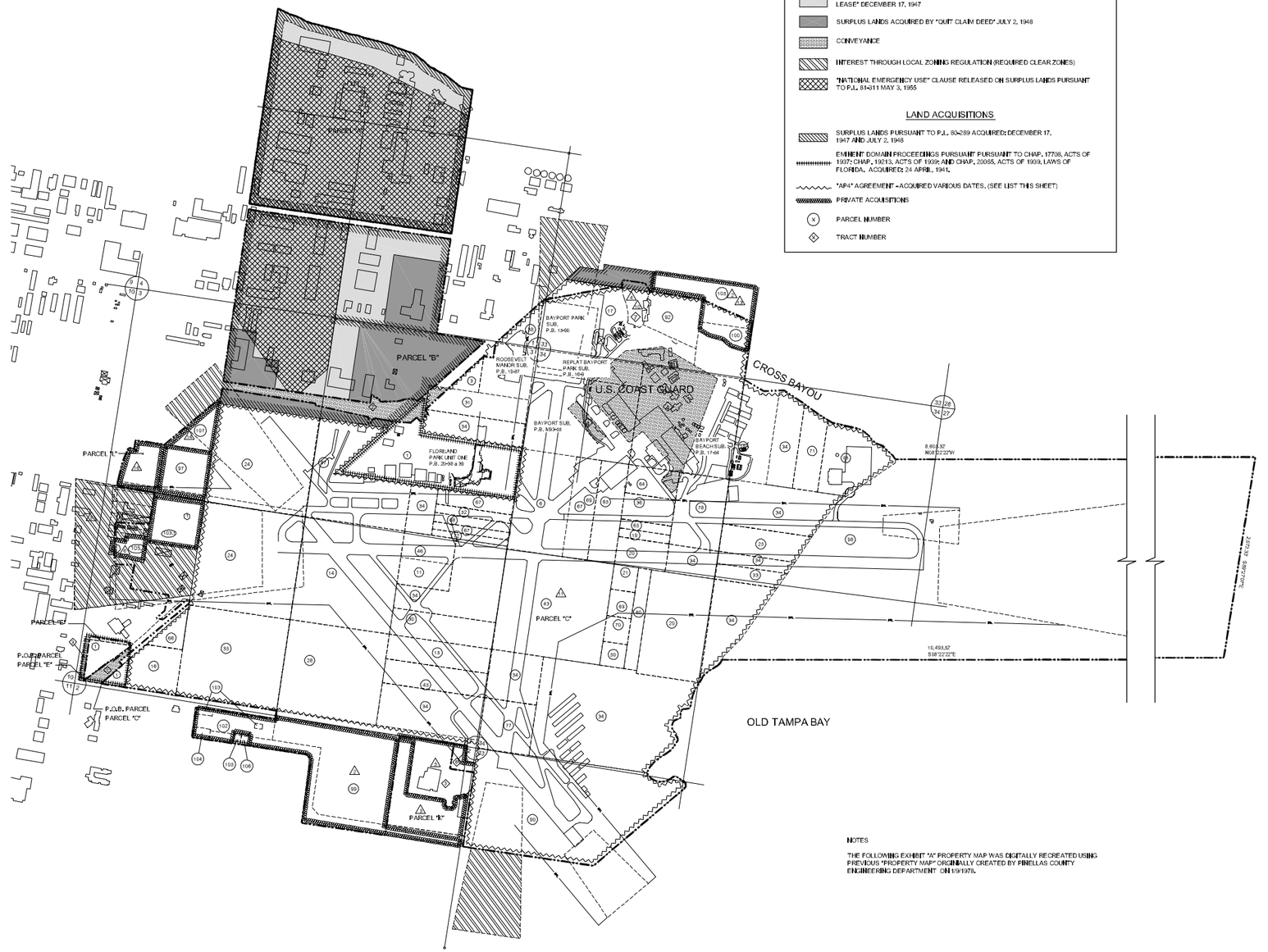
Parcel "H" Containing 14.2 acres more or less.

CONVEYANCES

TRACT NO.	PARTY	DATE	RECORD
1	FLORIDA DEPT. OF TRANSPORTATION	JAN. 31, 1961	O.R. 1107-536
2	FLORIDA DEPT. OF TRANSPORTATION	JAN. 7, 1964	O.R. 1898-284
3	FLORIDA DEPT. OF TRANSPORTATION	AUG. 16, 1954	O.R. 1990-559
4	U.S. COAST GUARD	SEPT. 28, 1973	O.R. 4083-1857
5	MIDDG, INC	NOV. 7, 1986	O.R. 6332-2200
6	MIDDG, INC	JUN. 28, 1988	O.R. 6783-2146
7	NAVAL RESERVE CENTER	JAN. 29, 1989	O.R. 7034-306

AP-4 ACQUISITIONS

NO.	PARTY	DATE	SUBDIVISION	RECORDS
1	PUBLIC LAW NO. 10044	MAR. 11, 1941	FLORILAND PARK	MB-29-345
2	SCOTT	JAN. 23, 1941	BAYPORT	DB-879-397
3	NOLAND	JAN. 23, 1942	ROOSEVELT MANOR	DB-879-399
4	TSIRIGAKIDAS	JAN. 21, 1949	BAYPORT	DB-879-401
5	CHURCHILL	JAN. 31, 1941	BAYPORT BEACH	DB-879-403
6	POWERS	JAN. 27, 1941	PINELLAS GROVES	DB-879-405
7	EDGERTON	JAN. 2, 1941	BAYPORT	DB-879-407
8	KILBIRTH	JAN. 13, 1941	BAYPORT BEACH	DB-879-409
9	JONES	JAN. 10, 1941	BAYPORT REPLAT	DB-879-411
10	BEHYMER	JAN. 17, 1941	BAYPORT REPLAT	DB-879-413
11	DEWLIT	FEB. 1, 1941	PINELLAS GROVES	DB-879-415
12	GOSSETT	JAN. 23 1941	BAYPORT	DB-879-417
13	MACLEAN	JAN. 10 1941	BAYPORT	DB-879-419
14	HAERLE	JAN. 14, 1941	N/A	DB-879-421
15	MILLER	JAN. 24, 1941	PINELLAS GROVES	DB-879-423
16	BASKIN	JAN. 23, 1941	PINELLAS GROVES	DB-879-425
17	HUTH	JAN. 24 1941	PINELLAS GROVES	DB-879-427
18	CLARK	JAN. 25 1941	PINELLAS GROVES	DB-879-429
19	HEGAN	JAN. 21 1941	PINELLAS GROVES	DB-879-431
20	BRIGHTON	JAN.7, 1941	PINELLAS GROVES	DB-879-433
21	MOFFETT	JAN. 22 1941	PINELLAS GROVES	DB-879-435
22	BANFIELD	FEB. 4, 1941	BAYPORT REPLAT	DB-879-437
23	GENTILE	JAN. 29, 1941	BAYPORT	DB-879-439
24	SMITH	FEB. 1, 1941	N/A	DB-879-441
25	BELL	FEB. 6, 1941	PINELLAS GROVES	DB-879-443
26	HOLMES	FEB. 3, 1941	BAYPORT	DB-879-445
27	MAYS	FEB. 3, 1941	BAYPORT	DB-879-447
28	MCMULLEN	FEB. 7, 1941	N/A	DB-879-449
29	CARTWELL/MYLES	FEB. 11, 1941	BAYPORT	DB-879-451
30	MEADOWCRAFT	JAN. 29, 1941	PINELLAS GROVES	DB-879-453
31	KARB	FEB. 6, 1941	PINELLAS GROVES	DB-879-455
32	HAST	FEB. 6, 1941	BAYPORT	DB-879-457
33	STRICKLAND	JAN. 28, 1941	PINELLAS GROVES	DB-879-459
34	LK. LARGO CROSS BAYOU	DEC. 31, 1940	BAYPORT BAYPORT BEACH	DB-879-461
35	CHADWICK	FEB. 1, 1941	N/A	DB-879-535
36	TAYLOR	JAN. 28 1941	PINELLAS GROVES	DB-879-663
37	SILVA	JAN. 22 1941	BAYPORT	DB-879-667
38	MCLEAN		PINELLAS GROVES	DB-879-573
39	SCHNEIDER	JAN. 31, 1941	BAYPORT	DB-879-573
40	BERGMANN	FEB. 20, 1941	BAYPORT BEACH	DB-880-97
41	MINNICK	FEB. 19,1941	BAYPORT	DB-880-103
42	MINNICK	FEB. 19,1941	BAYPORT REPLAT	DB-880-107
43	LEVERETT	FEB. 21, 1941	PINELLAS GROVES	DB-880-205
44	DAVIS	FEB. 13, 1941	BAYPORT	DB-880-413
45	BRADY	FEB. 6, 1941	PINELLAS GROVES	DB-880-415
46	VONDER HYDE	JAN. 31, 1941	PINELLAS GROVES	DB-880-417
47	HARMON	FEB. 17, 1941	BAYPORT	DB-880-419
48	GLENN	FEB. 19,1941	BAYPORT REPLAT	DB-880-421
49	MAYS	FEB. 17, 1941	BAYPORT	DB-880-423
50	KEELER	JAN. 23, 1941	PINELLAS GROVES	DB-880-423
51	HOYT	FEB. 1, 1941	BAYPORT REPLAT	DB-880-427
52	MACLEAN	FEB. 14, 1941	PINELLAS GROVES	DB-880-429
53	SHENTON	FEB. 19,1941	BAYPORT	DB-880-431
54	WALTER	JAN. 8,1941	BAYPORT REPLAT	DB-880-433
55	HARRIS	FEB.10,1941	BAYPORT	DB-880-435
56	HARRIS	FEB. 10,1941	BAYPORT	DB-880-435
57	TAX SECUR. CORP.	FEB. 19,1941	BAYPORT	DB-880-439
58	WILKES	FEB. 18,1941	BAYPORT	DB-880-813
59	SZOLLOSY	FEB. 10,1941	BAYPORT	DB-880-815
60	BROWN	FEB. 26,1941	PINELLAS GROVES	DB-881-081
61	COX	FEB. 24,1941	PINELLAS GROVES	DB-881-403
62	WALLETT	DEC. 16,1941	PINELLAS GROVES	DB-881-405
63	COUTURE	FEB. 23,1941	PINELLAS GROVES	DB-881-413
64	GOLD	FEB. 23,1941	PINELLAS GROVES	DB-881-415
65	TRUE REALTY CO.	FEB. 20,1941	PINELLAS GROVES	DB-881-417
66	HOFFMAN	MAR. 10,1941	PINELLAS GROVES	DB-881-439
67	ROSENBERGER	MAR. 11,1941	PINELLAS GROVES	DB-881-529
68	TAX SECUR. CORP.	FEB. 17,1941	PINELLAS GROVES	DB-882-47
69	HOBSON	MAR. 11,1941	PINELLAS GROVES	DB-882-49
70	LEE	MAR. 11,1941	PINELLAS GROVES	DB-882-529
71	LIVINGSTON	MAR. 13,1941	PINELLAS GROVES	DB-882-109
72	HOMEWOOD	MAR. 13,1941	PINELLAS GROVES	DB-882-383
73	PARRISH	MAR. 19,1941	BAYPORT	DB-883-319
74	HANSEN	MAR. 20,1941	BAYPORT BEACH	DB-883-321
75	HANSEN	MAR. 20,1941	BAYPORT	DB-883-323
76	THOMAS	MAR. 14, 1941	BAYPORT	DB-883-325
77	WALLETT	MAR. 22,1941	PINELLAS GROVES	DB-883-327
78	TAPLICK	APR. 4,1941	PINELLAS GROVES	DB-884-427
79	THOMAS	APR. 8,1941	BAYPORT	DB-885-329
80	AMBROSE	MAR. 20,1941	BAYPORT PARK	DB-885-331
81	FULLERTON	APR. 10,1941	BAYPORT	DB-885-333
82	BATEMAN	MAR. 21,1941	BAYPORT BAYPORT BEACH	DB-885-466
83	JOHNSON	MAR. 12,1941	BAYPORT BEACH	DB-886-437
84	CANNIZARO	APR. 18,1941	PINELLAS GROVES	DB-886-459
85	HUGHES	APR. 22,1941	ROOSEVELT MANOR	DB-886-461
86	TOLL	APR. 23,1941	BAYPORT	DB-886-463
87	STATE OF FLA	APR. 26, 1941	PINELLAS GROVES BAYPORT	DB-886-533
88	LARGO DEPOSITORS	APR. 17, 1941	BAYPORT	DB-886-489
89	RAWSON GROVE LAND AND TIMBER CO.	May 15, 1941	BAYPORT BEACH	DB-889-11
90	FOALE	May 22, 1941	N/A	DB-890-87
91	FOALE	May 10, 1941	BAYPORT BEACH	DB-890-365
92	RUTH	AUG. 26, 1941	PINELLAS GROVES	DB-897-97
93	KING	JUN. 13, 1941	BAYPORT BEACH	DB-911-1498
94	STATE OF FLA	JAN. 4, 1947	PINELLAS GROVES	DB-1114-256
95	CASEY	DEC.26, 1946	N/A	DB-1208-475
96	STATE OF FLA	May 14, 1930	BAYPORT	DR-749-1
97	STATE OF FLA	OCT. 8, 1929	PINELLAS GROVES	DR-749-302
98	STATE OF FLA	OCT. 17, 1936	N/A	DR-830-361
99	LEMASTER & SMITH	SEP. 4, 1974	N/A	DR-4211-1161
100	STATE OF FLA	JAN. 4, 1947	PINELLAS GROVES	DB-1114-256 BY RESOLUTION OF THE B.C.C. BK. NO. 18 PGS. 61-65
101	LAKE LARGO-CROSS BAYOU & PINELLAS PARK DRAINAGE DISTRICT	JUN. 18, 1949	PINELLAS GROVES	
102	ALLISON	MAR. 22, 1978	EVERGREEN ACRES REPLE	DR-4678-1110
103	DESPER	MAR. 10, 1978	"	DR-4678-1111
104	BULLARD	JUN. 13, 1978	"	DR-4713-901
105	BRION	SEP. 12, 1978	"	DR-4745-306
106	DANIELS	SEP. 12, 1978	"	DR-4745-306 DECLARATION PENDING
107	B.C.C.		PINELLAS GROVES	



LEGEND

- REVISIONS
- PARCEL NUMBERS - REFER T O A.I.P. GRANT #'S 03-12-0075-01 AND 03-12-0075-02
- AIRPORT PROPERTY LINE
- EASEMENT
- PARCELS
- SURPLUS LANDS ACQUIRED BY "QUIT" CLAIM DEED AND SURRENDER OF LEASE" DECEMBER 17, 1947
- SURPLUS LANDS ACQUIRED BY "QUIT" CLAIM DEED" JULY 2, 1948
- CONVEYANCE
- INTEREST THROUGH LOCAL ZONING REGULATION (REQUIRED CLEAR ZONES)
- "NATIONAL EMERGENCY USE" CLAUSE RELEASED ON SURPLUS LANDS PURSUANT TO P.L. 81-311 MAY 3, 1955

LAND ACQUISITIONS

- SURPLUS LANDS PURSUANT TO P.L. 80-289 ACQUIRED: DECEMBER 17, 1947 AND JULY 2, 1948
- EMINENT DOMAIN PROCEEDINGS PURSUANT PURSUANT TO CHAP. 17708, ACTS OF 1937; CHAP., 19213, ACTS OF 1939; AND CHAP. 20065, ACTS OF 1939, LAWS OF FLORIDA. ACQUIRED: 24 APRIL, 1941.
- "AP4" AGREEMENT - ACQUIRED VARIOUS DATES, (SEE LIST THIS SHEET)
- PRIVATE ACQUISITIONS
- PARCEL NUMBER
- TRACT NUMBER

NOTES

THE FOLLOWING EXHIBIT "A" PROPERTY MAP WAS DIGITALLY RECREATED USING PREVIOUS "PROPERTY MAP" ORGINALLY CREATED BY PINELLAS COUNTY ENGINEERING DEPARTMENT ON 1/9/1978.

REVISIONS	
DATE	DESCRIPTION

CLIENT

St. Petersburg - Clearwater International Airport
Pinellas County, Florida

PROJECT

Master Plan Update

SHEET TITLE

EXHIBIT "A" PROPERTY MAP

PBSJ NATIONAL AVIATION
482 South Keller Road
Orlando, Florida 32810-6101
TEL. (407) 647-7275
FAX. (407) 740-8710
www.pbsj.com

JOB NO.: 071088.02
DRAWN: RWO
DESIGN: RWO
CHECKED: JWM
DATE: MAY 2002

Figure 9-13
SHEET 14 OF 14

J:\Jobs\071088.02 St. Pete\Dwg\ALP\...\14.dgn smartsketch dwg Sep 15, 2003 - 8:30am

CAPITAL IMPROVEMENT PROGRAM AND DEVELOPMENT PHASING

10

St. Petersburg-Clearwater International Airport

The preceding chapters, including the Facility Requirements and Development Plans, identified the projects needed for the St. Petersburg-Clearwater International Airport (PIE) to maintain current and projected levels of service. As discussed in Chapter 7, Identification and Evaluation of Alternatives, the preferred alternatives for the airfield, terminal area, general aviation, and air cargo were recommended for development. Combined, the preferred alternatives were selected as the ideal development plan due to its aggregated ability to meet the projected demand and goals of the Airport and Pinellas County. The development costs and development phasing for the combined alternatives culminate in to the Airport Capital Development Program (CIP) for the 20-year planning period as presented herein.

Based on the full build-out scenario as depicted on the Airport Layout Plan (ALP), the development costs in current dollars (2002) are summarized in **Table 10-1**. The federal and state columns represent share of eligible project costs. The local column depicts the airport share of the costs as well as the shared cost to be borne by others (i.e., current and future tenants). The detail 20-year capital improvement program cost estimates, by short- (2002 – 2007), medium- (2008 – 2012), and long-term (2013 – 2022) development phases, are depicted in **Tables 10-2 through 10-09,** respectively. The cost estimates include the land acquisition, planning, construction, engineering, and total development costs. **Tables 10-1 through 10-09** depict project eligibility costs based on current federal and state eligibility criteria only, and do not represent a commitment for funding by the respective funding sources.

Table 10-10 is a consolidation of the CIP without costs depicting the phased development of PIE in correlation with **Figure 10-1** graphically depicting the development of PIE for the next 20 years.

Table 10-1. Summary of Cost Estimates – Full Build-Out (2002 Dollars), Financial Feasibility Analysis

Development Period	Total	Federal	State	Local	
				PIE	Other
Short–Term (2003– 2007)	$97,225,396	$41,200,988	$14,216,364	$14,216,364	$7,591,680
Medium – Term (2008 – 2012)	$64,635,662	$22,548,259	$18,710,902	$17,265,502	$6,111,000
Long-Term (2013 – 2022)	$60,385,700	$30,551,150	$12,267,675	$10,744,875	$6,822,000
Total Development Costs	$222,246,759	$94,300,397	$45,194,941	$42,226,741	$20,524,680

Table 10-2. Cost Estimates
Phase I: Short-Term Improvements 2003

Development Items	Units	Unit Type	Unit Cost	Est. Development Cost	Eligible Share of Development Costs			
					Federal	State	Local	
							PIE	Other
2002-2022 Master Plan								
Land Acquisition								
Acquire Land for Approach RWY 35R (FIN402985)	1	LS	$ 1,537,680	$ 1,537,680	$ 1,367,680	$ 85,000	$ 85,000	$ -
Planning / Design / Permitting								
Airside								
Runways								
Construct 17L/35R RSA and Extend by 1,500 Ft.(FIN412499)*	1	LS	$ 10,300,000	$ 10,300,000	$ 9,270,000	$ 515,000	$ 515,000	$ -
Taxiways								
Markings								
Lighting								
RWY/TWY Signage								
NAVAIDS								
Terminal Area								
Apron Expansion								
Apron Marking								
Terminal Building Expansion/Renovation								
Parking / Garage								
Primary Terminal Access Roadways								
Terminal Area Access Roads								
Terminal Frontage Road								
Terminal Curb								
Cargo Area								
Cargo Buildings								
Apron Expansion								
Apron Marking								
Cargo Area Access Roads								
Parking								
Utilities								
Northeast GA Area								
T-Hangars								
Apron								
Taxilanes								
Access								
Parking								
Utilities								
Southeast GA Area								
Hangars								
Aprons								
Taxiways/Taxilanes								
Fuel Farm								
Access								
Parking								
Utilities								
Southwest GA Area								
Hangars								
Apron								
Taxiways/Taxilanes								
Access								
Parking								
Utilities								
Northwest GA Area								
Hangars								
Apron								
Taxiways/Taxilanes								
Construct Taxiways - New Gen Aviation Lease Development (FIN41250	1	LS	$ 420,000	$ 420,000	$ -	$ 210,000	$ 210,000	$ -
Access								
Parking								
Utilities								
Fuel Farm								
Airfield								
Fencing								
Utilities								
Security Enhancements - Equipment*	1	LS	$ 1,700,000	$ 1,700,000	$ 1,530,000	$ 85,000	$ 85,000	$ -
Stormwater								
ARFF								
Mixed Use/Non-Aviation Areas								
Roadways								
Utilities								
Total Construction Cost				$ 12,420,000	$ 10,800,000	$ 810,000	$ 810,000	$ -
Engineering Design Fees			6.50%	$ 27,300	$ -	$ 13,650	$ 13,650	$ -
Field Inspection & Supervision			3.50%	$ 14,700	$ -	$ 7,350	$ 7,350	$ -
Testing			5.00%	$ 21,000	$ -	$ 10,500	$ 10,500	$ -
Surveying			5.00%	$ 21,000	$ -	$ 10,500	$ 10,500	$ -
Total Fees			20.00%	$ 84,000	$ -	$ 42,000	$ 42,000	$ -
Contingencies			20.00%	$ 2,500,800	$ 2,160,000	$ 170,400	$ 170,400	$ -
Phase 1 Master Plan Development Costs				$ 16,542,480	$ 14,327,680	$ 1,107,400	$ 1,107,400	$ -

* Engineering Design, Survey and Testing Included

Table 10-3. Cost Estimates
Phase I: Short-Term Improvements 2004

Development Items	Units	Unit Type	Unit Cost	Est. Development Cost	Eligible Share of Development Costs			
					Federal	State	Local	
							PIE	Other
2002-2022 Master Plan								
Land Acquisition								
Acquire Land for Approach RWY 35R (FIN 402985)	2.5	AC	$ 1,382,400	$ 3,456,000	$ 3,110,400	$ 172,800	$ 172,800	$ -
Planning / Design / Permitting								
EA for New Runway 17L-35R 3,700' x 75' (FIN 412442)	1	LS	$ 300,000	$ 300,000	$ 270,000	$ 15,000	$ 15,000	$ -
Environmental Mitigation - Airfield	1	LS	$ 500,000	$ 500,000	$ 450,000	$ 25,000	$ 25,000	$ -
Design Terminal Building Expansion (FIN 403002)	1	LS	$ 1,500,000	$ 1,500,000	$ 750,000	$ 375,000	$ 375,000	
Airside								
Runways								
Taxiways								
Markings								
Lighting								
RWY/TWY Signage								
NAVAIDS								
Terminal Area								
Apron Expansion								
Apron Marking								
Terminal Building Expansion/Renovation								
Parking / Garage								
Parking Lot Expansion	1	LS	$ 480,000	$ 480,000	$ -	$ 240,000	$ 240,000	$ -
Primary Terminal Access Roadways								
Terminal Area Access Roads								
Terminal Frontage Road								
Terminal Curb								
Cargo Area								
Cargo Buildings								
Apron Expansion								
Apron Marking								
Cargo Area Access Roads								
Parking								
Utilities								
Northeast GA Area								
T-Hangars								
Apron								
Taxilanes								
Access								
Parking								
Utilities								
Southeast GA Area								
Hangars								
Aprons								
Taxiways/Taxilanes								
Fuel Farm								
Access								
Parking								
Utilities								
Southwest GA Area								
Hangars								
Apron								
Taxiways/Taxilanes								
Access								
Parking								
Utilities								
Northwest GA Area								
Hangars								
Apron								
Taxiways/Taxilanes								
Construct Taxiways - New Gen Aviation Lease Development	1	LS	$ 100,000	$ 100,000	$ -	$ 50,000	$ 50,000	$ -
Access								
Parking								
Utilities								
Fuel Farm								
Airfield								
Fencing								
Utilities								
Stormwater								
ARFF								
Mixed Use/Non-Aviation Areas								
Roadways								
Utilities								
Total Construction Cost				$ 580,000	$ -	$ 290,000	$ 290,000	$ -
Engineering Design Fees			6.50%	$ 37,700	$ -	$ 18,850	$ 18,850	$ -
Field Inspection & Supervision			3.50%	$ 20,300	$ -	$ 10,150	$ 10,150	$ -
Testing			5.00%	$ 29,000	$ -	$ 14,500	$ 14,500	$ -
Surveying			5.00%	$ 29,000	$ -	$ 14,500	$ 14,500	$ -
Total Fees			20.00%	$ 116,000	$ -	$ 58,000	$ 58,000	$ -
Contingencies			20.00%	$ 139,200	$ -	$ 69,600	$ 69,600	$ -
Phase 1 Master Plan Development Costs				$ 6,591,200	$ 4,580,400	$ 1,005,400	$ 1,005,400	$ -

* Engineering Design, Survey and Testing Included

Table 10-4. Cost Estimates
Phase I: Short-Term Improvements 2005

Development Items	Units	Unit Type	Unit Cost	Est. Development Cost	Eligible Share of Development Costs			
					Federal	State	Local	
							PIE	Other
2002-2022 Master Plan								
Land Acquisition								
			$ -	$ -	$ -	$ -	$ -	$ -
Planning / Design / Permitting								
Environmental Mitigation - Airfield	1	LS	$ 500,000	$ 500,000	$ 450,000	$ 25,000	$ 25,000	$ -
Design New Runway 17L-35R 3,700' x 75' & Acquire Permits (FIN 412442)	1	LS	$ 500,000	$ 500,000	$ 450,000	$ 25,000	$ 25,000	$ -
Airside								
Runways								
Taxiways								
Markings								
Lighting								
RWY/TWY Signage								
NAVAIDS								
Terminal Area								
Apron Expansion								
Apron Marking								
Terminal Building Expansion/Renovation								
Expand Terminal Building - 2nd Level Loading and Bridges (FIN 403002)	37,834	SF	$ 189.03	$ 7,151,590	$ 3,575,795	$ 1,787,897	$ 1,787,897	$ -
Parking / Garage								
Primary Terminal Access Roadways								
Terminal Area Access Roads								
Terminal Frontage Road								
Terminal Curb								
Cargo Area								
Cargo Buildings								
Apron Expansion								
Apron Marking								
Cargo Area Access Roads								
Parking								
Utilities								
Northeast GA Area								
T-Hangars								
Apron								
Taxilanes								
Access								
Parking								
Utilities								
Southeast GA Area								
Hangars								
Aprons								
Taxiways/Taxilanes								
Fuel Farm								
Access								
Parking								
Utilities								
Southwest GA Area								
Hangars								
Apron								
Taxiways/Taxilanes								
Access								
Parking								
Utilities								
Northwest GA Area								
Hangars								
Apron								
Taxiways/Taxilanes								
Construct Taxiways - New Gen Aviation Lease Development (FIN 412500	1	LS	$ 800,000	$ 800,000	$ -	$ 400,000	$ 400,000	$ -
Access								
Parking								
Utilities								
Fuel Farm								
Airfield								
Fencing								
Utilities								
Stormwater								
ARFF								
Mixed Use/Non-Aviation Areas								
Roadways								
Utilities								
Total Construction Cost				$ 7,951,590	$ 3,575,795	$ 2,187,897	$ 2,187,897	$ -
Permitting Fees			6.50%	$ 52,000	$ -	$ 26,000	$ 26,000	$ -
Field Inspection & Supervision			3.50%	$ 28,000	$ -	$ 14,000	$ 14,000	$ -
Testing			5.00%	$ 40,000	$ -	$ 20,000	$ 20,000	$ -
Surveying			5.00%	$ 40,000	$ -	$ 20,000	$ 20,000	$ -
Total Fees			20.00%	$ 160,000	$ -	$ 80,000	$ 80,000	$ -
Contingencies			20.00%	$ 1,622,318	$ 715,159	$ 453,579	$ 453,579	$ -
Phase 1 Master Plan Development Costs				$ 10,733,908	$ 5,190,954	$ 2,771,477	$ 2,771,477	$ -

* Engineering Design, Survey and Testing Included

Table 10-5. Cost Estimates
Phase I: Short-Term Improvements 2006

Development Items	Units	Unit Type	Unit Cost	Est. Development Cost	Eligible Share of Development Costs			
					Federal	State	Local	
							PIE	Other
2002-2022 Master Plan								
Land Acquisition								
				$ -	$ -	$ -	$ -	$ -
Planning / Design / Permitting								
				$ -	$ -	$ -	$ -	$ -
Airside								
Runways								
Construct New Runway 17L-27R 3,700' x 75' (FIN 412442)	3,700	LF	$ 1,351	$ 2,500,000	$ 2,250,000	$ 125,000	$ 125,000	$ -
Taxiways								
Markings								
Lighting								
RWY/TWY Signage								
NAVAIDS								
Relocate VORTAC 200' Northeast	1	EA	$ 150,000	$ 150,000	$ 135,000	$ 7,500	$ 7,500	$ -
Relocate RTR/DF 2,400' south	1	EA	$ 200,000	$ 200,000	$ 180,000	$ 10,000	$ 10,000	$ -
Relocate Beacon 400' East	1	EA	$ 35,000	$ 35,000	$ 31,500	$ 1,750	$ 1,750	$ -
Terminal Area								
Apron Expansion								
Apron Marking								
Terminal Building Expansion/Renovation								
Expand Terminal Building - 2nd Level Loading and Bridges (FIN 40300	37,834	SF	$ 189.03	$ 7,151,590	$ 3,575,795	$ 1,787,897	$ 1,787,897	$ -
Parking / Garage								
Primary Terminal Access Roadways								
Terminal Area Access Roads								
Terminal Frontage Road								
Terminal Curb								
Cargo Area								
Cargo Buildings								
Apron Expansion								
Apron Marking								
Cargo Area Access Roads								
Parking								
Utilities								
Northeast GA Area								
T-Hangars								
Apron								
Taxilanes								
Access								
Parking								
Utilities								
Southeast GA Area								
Hangars								
Aprons								
Taxiways/Taxilanes								
Fuel Farm								
Access (2-Lane 2-Way Access Road)	16,800	SY	$ 60.00	$ 1,008,000	$ -	$ 504,000	$ 504,000	$ -
Parking								
Utilities								
Southwest GA Area								
Hangars								
Apron								
Taxiways/Taxilanes								
Access								
Parking								
Utilities								
Northwest GA Area								
Hangars								
Apron								
New Aprons for Corporate Developements	1	LS	$ 400,000	$ 400,000	$ -	$ 200,000	$ 200,000	$ -
Taxiways/Taxilanes								
Access								
Parking								
Utilities								
Fuel Farm								
Airfield								
Fencing								
Utilities								
Stormwater								
ARFF								
Mixed Use/Non-Aviation Areas								
Roadways								
Utilities								
Total Construction Cost				$ 11,444,590	$ 6,172,295	$ 2,636,147	$ 2,636,147	$ -
Engineering Design Fees			6.50%	$ 91,520	$ -	$ 45,760	$ 45,760	$ -
Field Inspection & Supervision			3.50%	$ 49,280	$ -	$ 24,640	$ 24,640	$ -
Testing			5.00%	$ 70,400	$ -	$ 35,200	$ 35,200	$ -
Surveying			5.00%	$ 70,400	$ -	$ 35,200	$ 35,200	$ -
Total Fees			20.00%	$ 281,600	$ -	$ 140,800	$ 140,800	$ -
Contingencies			20.00%	$ 2,345,238	$ 1,234,459	$ 555,389	$ 555,389	$ -
Phase 1 Master Plan Development Costs				$ 14,071,428	$ 7,406,754	$ 3,332,337	$ 3,332,337	$ -

* Engineering Design, Survey and Testing Included

Table 10-6. Cost Estimates
Phase I: Short-Term Improvements 2007

Development Items	Units	Unit Type	Unit Cost	Est. Development Cost	Eligible Share of Development Costs			
					Federal	State	Local	
							PIE	Other
2002-2022 Master Plan								
Land Acquisition								
Acquire Sunshine Speedway Property*	112	AC	$ 178,571	$ 20,000,000	$ -	$ -	$ -	$ -
Planning / Design / Permitting			$ -	$ -	$ -	$ -	$ -	$ -
Airside								
Runways -								
Construct New Runway 17L-27R 3,700' x 75' (FIN 412442)	3,700	LF	$ 1,351	$ 2,500,000	$ 2,250,000	$ 125,000	$ 125,000	$ -
Close Runway 9/27 and convert to a Taxiway (FIN 414344)	43,042	SY	$ 12.00	$ 516,500	$ 464,850	$ 25,825	$ 25,825	$ -
Rehab Runway 4/22 (FIN 404896)	1	LS	$ 300,000	$ 300,000	$ 270,000	$ 15,000	$ 15,000	$ -
Taxiways -								
Construct New Full Length Parallel TWY East of New RWY 17L-35R (3,700' x 35' w/4 exit Twys)	21,000	SY	$ 65.00	$ 1,365,000	$ 1,228,500	$ 68,250	$ 68,250	$ -
TWY K - Close TWY, remove pavement (1,300' x 50')	7,500	SY	$ 15.00	$ 112,500	$ 101,250	$ 5,625	$ 5,625	$ -
TWY M - Realign stub from RWY 17R-35L to TWY A (500'x 50')	3,000	SY	$ 75.00	$ 225,000	$ 202,500	$ 11,250	$ 11,250	$ -
Extend Lima to New RWY 17L-35R (750' x 35')	3,100	SY	$ 65.00	$ 201,500	$ 181,350	$ 10,075	$ 10,075	$ -
Markings -								
Mark New RWY 17L-35R - Visual	55,000	SF	$ 1.25	$ 68,750	$ 61,875	$ 3,438	$ 3,438	$ -
Remark and Change Runway Designation to 17R-35L 10,000' x 150'	150,000	SF	$ 1.50	$ 225,000	$ 202,500	$ 11,250	$ 11,250	$ -
RWY 9-27 Closed-Remark & Covert to 75' Taxiway (FIN 414344)	38,738	SF	$ 0.50	$ 19,369	$ 17,432	$ 968	$ 968	
Lighting -								
New RWY 17L-35R - LIRL	3,700	LF	$ 125.00	$ 462,500	$ 416,250	$ 23,125	$ 23,125	$ -
Install MITL New Parallel TWY East of New RWY 17L-35R	3,700	LF	$ 70.00	$ 259,000	$ 233,100	$ 12,950	$ 12,950	$ -
RWY 9-27 Closed - remove MIRL install MITL (FIN 414344)	13,330	PF	$ 20.00	$ 266,600	$ 239,940	$ 13,330	$ 13,330	
RWY/TWY Signage -								
NAVAIDS -								
RWY 9 - Remove REIL, PAPI 4L (FIN 414344)	1	LS	$ 10,000	$ 10,000	$ 9,000	$ 500	$ 500	
RWY 27 - Remove REIL, VASI 4R (FIN 414344)	1	LS	$ 10,000	$ 10,000	$ 9,000	$ 500	$ 500	
New Runway 17L-35R Visual PAPI 2L Runway 17L End (FIN 414344)	1	EA	$ 45,000	$ 45,000	$ 40,500	$ 2,250	$ 2,250	$ -
New Runway 17L-35R Visual PAPI 2L Runway 35R End (FIN 414344)	1	EA	$ 45,000	$ 45,000	$ 40,500	$ 2,250	$ 2,250	$ -
Terminal Area								
Apron Expansion								
Apron Marking								
Terminal Building Expansion/Renovation								
Expand Terminal Building - 2nd Level Loading and Bridges (FIN 403002)	6,580	SF	$ 189.03	$ 1,243,755	$ 621,877	$ 310,939	$ 310,939	$ -
Parking / Garage								
Parking Lot Expansion (FIN 412441)	1	LS	$ 500,000	$ 500,000	$ -	$ 250,000	$ 250,000	$ -
406 Spaces (Add 2nd garage level - Short-Term)	406	EA	$ 6,500.00	$ 2,639,000	$ -	$ 1,319,500	$ 1,319,500	$ -
Primary Terminal Access Roadways								
Terminal Area Access Roads								
Terminal Frontage Road								
Terminal Curb								
Cargo Area								
Cargo Buildings								
Apron Expansion								
Apron Marking								
Cargo Area Access Roads								
Parking								
Utilities								
Northeast GA Area								
T-Hangars								
Construct 26 T-Hangar Stalls (two, 10-unit and one, 6-unit buildings)	26	UNIT	$ 22,000	$ 572,000	$ -	$ -	$ -	$ 572,000
Apron								
N/A								
Taxilanes								
3,200' x 25' plus 26 30' x 25' stubs	11,500	SY	$ 60.00	$ 690,000	$ 621,000	$ 34,500	$ 34,500	$ -
Access								
Extend access road 500' x 24'	1,600	SY	$ 60.00	$ 96,000	$ -	$ 48,000	$ 48,000	$ -
Parking								
N/A								
Utilities								
Extend water, electric	1	LS	$ 40,000	$ 40,000	$ -	$ 20,000	$ 20,000	$ -
Southeast GA Area								
Hangars								
Construct 2 conventional hangars (100'x 250')	50,000	SF	$ 70.00	$ 3,500,000	$ -	$ -	$ -	$ 3,500,000
Aprons								
Construct 12,500 SY apron	12,500	SY	$ 65.00	$ 812,500	$ -	$ 406,250	$ 406,250	$ -
Taxiways/Taxilanes								
Construct 600' x 75' taxiway	5,500	SY	$ 65.00	$ 357,500	$ -	$ 178,750	$ 178,750	$ -
Construct two 100' x 75' connector taxiways	1,800	SY	$ 65.00	$ 117,000	$ -	$ 58,500	$ 58,500	$ -
Access								
Constuct two 50-foot connector roads from parking lot to primary access road	100	LF	$ 600.00	$ 60,000	$ -	$ 30,000	$ 30,000	$ -
Parking								
Construct two 15-space parking lots	1,600	SY	$ 60.00	$ 96,000	$ -	$ 48,000	$ 48,000	$ -
Utilities								
Water, Sewer, Electric	1	LS	$ 40,000	$ 40,000	$ -	$ 20,000	$ 20,000	$ -
Southwest GA Area								
Hangars								
Construct 2 conventional hangars (100'x 100')	20,000	SF	$ 60.00	$ 1,200,000	$ -	$ -	$ -	$ 1,200,000
Apron								
Construct 31,250 SY apron	31,250	SY	$ 65.00	$ 2,031,250	$ -	$ 1,015,625	$ 1,015,625	$ -
Taxiways/Taxilanes								
Construct two 75' x 75' connector taxiways	1,400	SY	$ 65.00	$ 91,000	$ -	$ 45,500	$ 45,500	$ -
Access								
Extend access road from Fairchild (375' x 24)	1,300	SY	$ 60.00	$ 78,000	$ -	$ 39,000	$ 39,000	$ -
Parking								
Construct two, 20-space parking lots	2,100	SY	$ 60.00	$ 126,000	$ -	$ 63,000	$ 63,000	$ -
Utilities								
Water, Sewer, Electric	1	LS	$ 40,000	$ 40,000	$ -	$ 20,000	$ 20,000	$ -
Northwest GA Area								
Hangars								
Apron								
Taxiways/Taxilanes								
Access								
Parking								
Utilities								
Fuel Farm								
Airfield								
Fencing								
Utilities								
Stormwater								
ARFF								
Mixed Use/Non-Aviation Areas								
Roadways								
Utilities								
Total Construction Cost				$ 20,961,723	$ 7,211,424	$ 4,239,150	$ 4,239,150	$ 5,272,000
Engineering Design Fees			6.50%	$ 1,119,168	$ 282,071	$ 247,209	$ 247,209	$ 342,680
Field Inspection & Supervision			3.50%	$ 602,629	$ 151,884	$ 133,112	$ 133,112	$ 184,520
Testing			5.00%	$ 860,898	$ 216,977	$ 190,161	$ 190,161	$ 263,600
Surveying			5.00%	$ 860,898	$ 216,977	$ 190,161	$ 190,161	$ 263,600
Total Fees			20.00%	$ 3,443,594	$ 867,909	$ 760,642	$ 760,642	$ 1,054,400
Contingencies			20.00%	$ 4,881,063	$ 1,615,867	$ 999,958	$ 999,958	$ 1,265,280
Phase 1 Master Plan Development Costs				$ 49,286,381	$ 9,695,200	$ 5,999,750	$ 5,999,750	$ 7,591,680

* Source of funding not yet determined.

Table 10-7. Cost Estimates
Phase 2: Mid-Term Improvements 2012

Development Items	Units	Unit Type	Unit Cost	Est. Development Cost	Eligible Share of Development Costs			
					Federal	State	Local	
							PIE	Other
2002-2022 Master Plan								
Land Acquisition								
				$ -	$ -	$ -	$ -	$ -
Planning / Design / Permitting								
Design for Terminal Expansion	1	LS	$ 1,500,000	$ 1,500,000	$ 750,000	$ 375,000	$ 375,000	$ -
Airside								
Runways								
Taxiways								
Construct 4 Highspeed (HS) exit TWYs RWY 17R-35L (1650' x 75' ea)	62,000	SY	$ 65.00	$ 4,030,000	$ 3,627,000	$ 201,500	$ 201,500	$ -
C - Stub Closed - Remove Pavement	4,167	SY	$ 15.00	$ 62,500	$ 56,250	$ 3,125	$ 3,125	$ -
D - Stub Closed - Remove Pavement	4,500	SY	$ 15.00	$ 67,500	$ 60,750	$ 3,375	$ 3,375	$ -
E - Stub Closed - Remove Pavement	4,500	SY	$ 15.00	$ 67,500	$ 60,750	$ 3,375	$ 3,375	$ -
F - Connector Closed - Remove Pavement	14,600	SY	$ 15.00	$ 219,000	$ 197,100	$ 10,950	$ 10,950	$ -
G - Stub Closed - Remove Pavement	4,500	SY	$ 15.00	$ 67,500	$ 60,750	$ 3,375	$ 3,375	$ -
Markings								
Mark HS Exit TWYs RWY 17R-35R3	1,500	SF	$ 1.25	$ 1,875	$ 1,688	$ 94	$ 94	$ -
Lighting								
Intall MITL HS Exit TWYs RWY 17R-35R	6,600	LF	$ 70.00	$ 462,000	$ 415,800	$ 23,100	$ 23,100	$ -
RWY/TWY Signage								
NAVAIDS								
Terminal Area								
Apron Expansion	3,500	SY	$ 100.00	$ 350,000	$ 315,000	$ 17,500	$ 17,500	$ -
Apron Marking	10,000	SF	$ 1.25	$ 12,500	$ 11,250	$ 625	$ 625	$ -
Terminal Building Expansion/Renovation	91,086	SF	$ 149.10	$ 13,580,502	$ 6,790,251	$ 3,395,126	$ 3,395,126	$ -
Parking / Garage								
1,500 Spaces (2nd & 3rd levels - Long-Term)	1,500	EA	$ 6,500.00	$ 9,750,000	$ -	$ 4,875,000	$ 4,875,000	$ -
Primary Terminal Access Roadways								
Terminal Area Access Roads								
Terminal Frontage Road								
Terminal Curb								
Cargo Area - Phase 1								
Cargo Buildings								
Construct 18,000 SF Cargo Warehouse Facility	18,000	SF	$ 70.00	$ 1,260,000	$ -	$ 630,000		$ 630,000
Construct 1,900 SF Expansion of Cargo Office Space	1,900	SF	$ 125.00	$ 237,500	$ -	$ 118,750		$ 118,750
Apron Expansion								
Construct 25,300 SY Expansion of Cargo Apron	25,300	SY	$ 65.00	$ 1,644,500	$ 1,480,050	$ 82,225	$ 82,225	
Apron Marking								
Mark expanded Cargo Apron	5,000	SF	$ 1.50	$ 7,500	$ 6,750	$ 375	$ 375	
Cargo Area Access Roads								
Develop new Cargo Access Drive	9,000	SY	$ 60.00	$ 540,000	$ -	$ 270,000	$ 270,000	
Parking								
Construct 24 parking spaces	1,400	SY	$ 60.00	$ 84,000	$ -	$ 42,000	$ 42,000	
Construct 12 truck loading bays	6,800	SY	$ 75.00	$ 510,000	$ -	$ 255,000		$ 255,000
Utilities								
Extend water, electric	1	LS	$ 40,000	$ 40,000	$ -	$ 20,000	$ 20,000	
Northeast GA Area								
T-Hangars								
Construct 20 T-Hangar Stalls (two, 10-unit building)	20	UNIT	$ 22,000	$ 440,000	$ -	$ -	$ -	$ 440,000
Apron								
N/A								
Taxilanes								
2500' x 25' plus 20 30' x 25' stubs	9,000	SY	$ 60.00	$ 540,000	$ 486,000	$ 27,000	$ 27,000	$ -
Access								
Extend access road 250' x 24'	800	SY	$ 60.00	$ 48,000	$ -	$ 24,000	$ 24,000	$ -
Parking								
N/A								
Utilities								
Extend water, electric	1	LS	$ 25,000.00	$ 25,000	$ -	$ 12,500	$ 12,500	$ -
Southeast GA Area								
Hangars								
Construct one conventional hangar (100' x	20,000	SF	$ 70.00	$ 1,400,000	$ -	$ -	$ -	$ 1,400,000
Aprons								
Construct 11,000 SY apron	11,000	SY	$ 65.00	$ 715,000	$ -	$ 357,500	$ 357,500	$ -
Taxiways/Taxilanes								
Construct 525' x 75' taxiway	4,500	SY	$ 65.00	$ 292,500	$ -	$ 146,250	$ 146,250	$ -
Construct one 100' x 75' connector taxiway	1,000	SY	$ 65.00	$ 65,000	$ -	$ 32,500	$ 32,500	$ -
Access								
Constuct one 50-foot connector road from parking lot to primary access road	50	LF	$ 500.00	$ 25,000	$ -	$ 12,500	$ 12,500	$ -
Parking								
Construct one 15-space parking lot	900	SY	$ 60.00	$ 54,000	$ -	$ 27,000	$ 27,000	$ -
Utilities								
Water, Sewer, Electric	1	LS	$ 40,000.00	$ 40,000	$ -	$ 20,000	$ 20,000	$ -
Southwest GA Area								
Hangars								
Apron								
Taxiways/Taxilanes								
Access								
Parking								
Utilities								
Northwest GA Area								
Hangars								
Construct 1 conventional hangar (100' x 200')	20,000	SF	$ 70.00	$ 1,400,000	$ -	$ -	$ -	$ 1,400,000
Apron								
Construct 3,750 SY apron	3,750	SY	$ 65.00	$ 243,750	$ -	$ 121,875	$ 121,875	$ -
Taxiways/Taxilanes								
Construct one 50' x 75' connector taxiway	600	SY	$ 65.00	$ 39,000	$ -	$ 19,500	$ 19,500	$ -
Access								
Bayside Bridge Access to Fairchild Drive - 2-Lane 2-Way Bridge (1,200 x 24)	1,200	LF	$ 3,250	$ 3,900,000	$ -	$ 1,950,000	$ 1,950,000	$ -
Parking								
Construct one 30-space parking lot	1,600	SY	$ 60.00	$ 96,000	$ -	$ 48,000	$ 48,000	$ -
Utilities								
Water, Sewer, Electric	1	LS	$ 40,000.00	$ 40,000	$ -	$ 20,000	$ 20,000	$ -
Fuel Farm								
Expand Fuel Farm Capacity (25,000 gal Jet A; 5,000 gal 100LL)	30,000	GAL	$ 25.00	$ 750,000	$ -	$ 375,000	$ 375,000	$ -
Airfield								
Fencing								
Utilities								
Stormwater								
ARFF	1	LS	$ 2,000,000	$ 2,000,000	$ 1,800,000	$ 100,000	$ 100,000	$ -
Airport Maintenance Building	1	LS	$ 1,000,000	$ 1,000,000	$ 900,000	$ 50,000	$ 50,000	$ -
Mixed Use/Non-Aviation Areas								
Roadways								
Utilities								
Total Construction Cost				$ 46,107,627	$ 16,269,389	$ 13,299,119	$ 12,295,369	$ 4,243,750
Engineering Design Fees			6.50%	$ 2,114,263	$ 616,144	$ 643,760	$ 578,516	$ 275,844
Field Inspection & Supervision			3.50%	$ 1,138,449	$ 331,770	$ 346,640	$ 311,509	$ 148,531
Testing			5.00%	$ 1,626,356	$ 473,957	$ 495,200	$ 445,012	$ 212,188
Surveying			5.00%	$ 1,626,356	$ 473,957	$ 495,200	$ 445,012	$ 212,188
Total Fees			20.00%	$ 6,505,425	$ 1,895,828	$ 1,980,799	$ 1,780,049	$ 848,750
Contingencies			20.00%	$ 10,522,610	$ 3,633,043	$ 3,055,984	$ 2,815,084	$ 1,018,500
Phase 2 Master Plan Development Costs				$ 64,635,662	$ 22,548,259	$ 18,710,902	$ 17,265,502	$ 6,111,000

* Engineering Design, Survey and Testing Included

Table 10-8. Cost Estimates
Phase 3: Long-Term Improvements 2017

Development Items	Units	Unit Type	Unit Cost	Est. Development Cost	Eligible Share of Development Costs			
					Federal	State	Local	
							PIE	Other
2002-2022 Master Plan								
Land Acquisition								
			$ -	$ -	$ -	$ -	$ -	$ -
Planning / Design / Permitting								
EA for Runway Extension 4-22 875' to 6,375' x 150'	1	LS	$ 250,000	$ 250,000	$ 225,000	$ 12,500	$ 12,500	$ -
Design for Terminal Expansion	1	LS	$ 500,000	$ 500,000	$ 250,000	$ 125,000	$ 125,000	$ -
Airside								
Runways								
Extend 4-22 875' to 6,375' x 150	14,700	SY	$ 100.00	$ 1,470,000	$ 1,323,000	$ 73,500	$ 73,500	$ -
Taxiways								
M - Extend Parallel TWY 875' for RWY 4-22, 6,375' x 150'	8,000	SY	$ 65.00	$ 520,000	$ 468,000	$ 26,000	$ 26,000	$ -
New N - Full Length Parallel South RWY 4-22 6,375' x 50' w/4 exit TWYs	49,000	SY	$ 65.00	$ 3,185,000	$ 2,866,500	$ 159,250	$ 159,250	$ -
Markings								
M - Mark Parallel TWY 875' for RWY 4-22,	2,600	SF	$ 1.25	$ 3,250	$ 2,925	$ 163	$ 163	$ -
Lighting								
RWY/TWY Signage								
NAVAIDS								
Terminal Area								
Apron Expansion Apron Marking Terminal Building Expansion/Renovation Parking/Garage Primary Terminal Access Roadways Terminal Area Access Roads Terminal Frontage Road Terminal Curb	34,544	SF	$ 154.72	$ 5,344,717	$ 2,672,359	$ 1,336,179	$ 1,336,179	$ -
Cargo Area - Phase 2								
Cargo Buildings								
Construct 7,500 SF Cargo Warehouse Expansion	7,500	SF	$ 70.00	$ 525,000	$ -	$ 262,500		$ 262,500
Construct 2,700 SF Expansion of Cargo Office Space	2,700	SF	$ 125.00	$ 337,500	$ -	$ 168,750		$ 168,750
Apron Expansion								
Construct 20,000 SY Expansion of Cargo Apron	20,000	SY	$ 65.00	$ 1,300,000	$ 1,170,000	$ 65,000	$ 65,000	
Apron Marking								
Mark expanded Cargo Apron	4,500	SF	$ 1.50	$ 6,750	$ 6,075	$ 338	$ 338	
Cargo Area Access Roads								
Parking								
Construct 11 additional parking spaces	800	SY	$ 60.00	$ 48,000	$ -	$ 24,000	$ 24,000	
Construct 5 additional truck loading bays	2,600	SY	$ 75.00	$ 195,000	$ -	$ 97,500		$ 97,500
Utilities								
Extend water, electric	1	LS	$ 40,000	$ 40,000	$ -	$ 20,000	$ 20,000	
Northeast GA Area								
T-Hangars								
Construct 20 T-Hangar Stalls (two 10-unit building)	20	UNIT	$ 22,000	$ 440,000	$ -	$ -	$ -	$ 440,000
Apron								
N/A								
Taxilanes								
2,500' x 25' plus 20, 30' x 25' stubs	9,000	SY	$ 60.00	$ 540,000	$ 486,000	$ 27,000	$ 27,000	$ -
Access								
N/A								
Parking								
N/A								
Utilities								
Extend water, electric	1	LS	$ 25,000.00	$ 25,000	$ -	$ 12,500	$ 12,500	$ -
Southeast GA Area								
Hangars Aprons Taxiways/Taxilanes Fuel Farm Access Parking Utilities								
Southwest GA Area								
Hangars								
Construct three conventional hangars (100' x	20,000	SF	$ 70.00	$ 1,400,000	$ -	$ -	$ -	$ 1,400,000
Apron								
Construct 31,250 SY apron	31,250	SY	$ 65.00	$ 2,031,250	$ -	$ 1,015,625	$ 1,015,625	$ -
Taxiways/Taxilanes								
Construct one 75' x 75' connector taxiway	700	SY	$ 65.00	$ 45,500	$ -	$ 22,750	$ 22,750	$ -
Access								
Extend access road from Fairchild (750' x 24)	2,500	SY	$ 60.00	$ 150,000	$ -	$ 75,000	$ 75,000	$ -
Parking								
Construct three 20-space parking lots	3,100	SY	$ 60.00	$ 186,000	$ -	$ 93,000	$ 93,000	$ -
Utilities								
Water, Sewer, Electric	1	LS	$ 40,000.00	$ 40,000	$ -	$ 20,000	$ 20,000	$ -
Northwest GA Area								
Hangars Apron Taxiways/Taxilanes Access Parking Utilities Fuel Farm								
Expand Fuel Farm Capacity (70,000 gal Jet A, 10,000 gal 100LL)	80,000	GAL	$ 25.00	$ 2,000,000	$ -	$ 1,000,000	$ 1,000,000	$ -
Airfield								
Fencing Utilities Stormwater ARFF								
Mixed Use/Non-Aviation Areas								
Roadways Utilities								
Total Construction Cost				$ 19,832,967	$ 8,994,859	$ 4,499,054	$ 3,970,304	$ 2,368,750
Engineering Design Fees			6.50%	$ 941,736	$ 410,963	$ 205,587	$ 171,218	$ 153,969
Field Inspection & Supervision			3.50%	$ 507,089	$ 221,288	$ 110,701	$ 92,194	$ 82,906
Testing			5.00%	$ 724,413	$ 316,125	$ 158,144	$ 131,706	$ 118,438
Surveying			5.00%	$ 724,413	$ 316,125	$ 158,144	$ 131,706	$ 118,438
Total Fees			20.00%	$ 2,897,650	$ 1,264,500	$ 632,575	$ 526,825	$ 473,750
Contingencies			20.00%	$ 4,546,123	$ 2,051,872	$ 1,026,326	$ 899,426	$ 568,500
Phase 2 Master Plan Development Costs				$ 28,026,740	$ 12,786,230	$ 6,295,455	$ 5,534,055	$ 3,411,000

* Engineering Design, Survey and Testing Included

Table 10-9. Cost Estimates
Phase 3: Long-Term Improvements 2022

Development Items	Units	Unit Type	Unit Cost	Est. Development Cost	Eligible Share of Development Costs			
					Federal	State	Local	
							PIE	Other
2002-2022 Master Plan								
Land Acquisition								
				$ -	$ -	$ -	$ -	$ -
Planning / Design / Permitting								
Design for Terminal Expansion	1	LS	$ -	$ -	$ -	$ -	$ -	$ -
Airside								
Runways								
Taxiways								
B- Stub Closed New B - Full Length Parallel East of RWY 17R-35L, 10,000' x 75' w/4 HS exit TWYs	139,000	SY	$ 65.00	$ 9,035,000	$ 8,131,500	$ 451,750	$ 451,750	$ -
Markings								
Mark Full Length Parallel East of RWY 17R-35L, 10,000' x 75' w/4 HS exit TWYs	35,000	SF	$ 1.25	$ 43,750	$ 39,375	$ 2,188	$ 2,188	$ -
Lighting								
Install MITL Full Length Parallel East of RWY 17R-35L, 10,000' x 75' w/4 HS exit TWYs	16,600	LF	$ 70.00	$ 1,162,000	$ 1,045,800	$ 58,100	$ 58,100	$ -
RWY/TWY Signage								
NAVAIDS								
Terminal Area								
Apron Expansion								
Apron Marking								
Terminal Building Expansion/Renovation								
Parking / Garage								
215 Spaces (Add 3rd garage level - Short-Term)	215	EA	$ 6,500	$ 1,397,500	$ -	$ 698,750	$ 698,750	$ -
Primary Terminal Access Roadways								
Expand Terminal Blvd, from 1-lane, 1-way to 2-lane, 2-way (600 x 24)	1,800	SY	$ 75.00	$ 135,000	$ 121,500	$ 6,750	$ 6,750	$ -
Expand Airport Blvd from 2-lane to 4-lane- 2-way (1,050 x 48)	5,800	SY	$ 75.00	$ 435,000	$ 391,500	$ 21,750	$ 21,750	$ -
Terminal Area Access Roads								
Expand 2-Lane to 3-lane, 1 Way (2,000 x 36)	8,200	SY	$ 75.00	$ 615,000	$ 553,500	$ 30,750	$ 30,750	$ -
Terminal Frontage Road								
Expand 3-lane to 4- Lane, 1 Way (1,400 x 36)	5,800	SY	$ 75.00	$ 435,000	$ 391,500	$ 21,750	$ 21,750	$ -
Terminal Curb								
N/A								
Cargo Area - Phase 3								
Cargo Buildings								
Construct 7,500 SF Cargo Warehouse Expansion	7,500	SF	$ 70.00	$ 525,000	$ -	$ 262,500		$ 262,500
Construct 2,700 SF Expansion of Cargo Office Space	2,700	SF	$ 125.00	$ 337,500	$ -	$ 168,750		$ 168,750
Apron Expansion								
Construct 20,000 SY Expansion of Cargo Apron	20,000	SY	$ 65.00	$ 1,300,000	$ 1,170,000	$ 65,000	$ 65,000	
Apron Marking								
Mark expanded Cargo Apron	4,500	SF	$ 1.50	$ 6,750	$ 6,075	$ 338	$ 338	
Cargo Area Access Roads								
Develop new Cargo Access	2,500	SY	$ 60.00	$ 150,000	$ -	$ 75,000	$ 75,000	
Parking								
Construct 10 additional parking spaces	800	SY	$ 60.00	$ 48,000	$ -	$ 24,000	$ 24,000	
Construct 5 additional truck loading bays	2,600	SY	$ 75.00	$ 195,000	$ -	$ 97,500		$ 97,500
Utilities								
Extend water, electric	1	LS	$ 40,000	$ 40,000	$ -	$ 20,000	$ 20,000	
Northeast GA Area								
T-Hangars								
Construct 20 T-Hangar Stalls (two, 10-unit building)	20	UNIT	$ 22,000	$ 440,000	$ -	$ -	$ -	$ 440,000
Apron								
N/A								
Taxilanes								
2500' x 25' plus 20 30' x 25' stubs	9,000	SY	$ 60.00	$ 540,000	$ 486,000	$ 27,000	$ 27,000	$ -
Access								
N/A								
Parking								
N/A								
Utilities								
Extend water, electric	1	LS	$ 25,000.00	$ 25,000	$ -	$ 12,500	$ 12,500	$ -
Southeast GA Area								
Hangars								
Construct 2 conventional hangars (100'x 200')	20,000	SF	$ 70.00	$ 1,400,000	$ -	$ -	$ -	$ 1,400,000
Aprons								
Construct 16,000 SY apron	16,000	SY	$ 65.00	$ 1,040,000	$ -	$ 520,000	$ 520,000	$ -
Taxiways/Taxilanes								
Construct two 100' x 75' connector taxiways	2,000	SY	$ 65.00	$ 130,000	$ -	$ 65,000	$ 65,000	$ -
Access								
Constuct one 50-foot connector road from parking lot to primary access road	50	LF	$ 500.00	$ 25,000	$ -	$ 12,500	$ 12,500	$ -
Parking								
Construct two, 15-space parking lot	1,600	SY	$ 60.00	$ 96,000	$ -	$ 48,000	$ 48,000	$ -
Utilities								
Water, Sewer, Electric	1	LS	$ 40,000.00	$ 40,000	$ -	$ 20,000	$ 20,000	$ -
Southwest GA Area								
Hangars								
Apron								
Taxiways/Taxilanes								
Access								
Parking								
Utilities								
Northwest GA Area								
Hangars								
Apron								
Taxiways/Taxilanes								
Access								
Parking								
Utilities								
Fuel Farm								
Expand Fuel Farm Capacity (95,000 gal Jet A, 20,000 gal 100LL)	115,000	GAL	$ 25.00	$ 2,875,000	$ -	$ 1,437,500	$ 1,437,500	$ -
Airfield								
Fencing								
Utilities								
Stormwater								
ARFF								
Mixed Use/Non-Aviation Areas								
Roadways								
Utilities								
Total Construction Cost				$ 22,471,500	$ 12,336,750	$ 4,147,375	$ 3,618,625	$ 2,368,750
Engineering Design Fees			6.50%	$ 1,460,648	$ 801,889	$ 269,579	$ 235,211	$ 153,969
Field Inspection & Supervision			3.50%	$ 786,503	$ 431,786	$ 145,158	$ 126,652	$ 82,906
Testing			5.00%	$ 1,123,575	$ 616,838	$ 207,369	$ 180,931	$ 118,438
Surveying			5.00%	$ 1,123,575	$ 616,838	$ 207,369	$ 180,931	$ 118,438
Total Fees			20.00%	$ 4,494,300	$ 2,467,350	$ 829,475	$ 723,725	$ 473,750
Contingencies			20.00%	$ 5,393,160	$ 2,960,820	$ 995,370	$ 868,470	$ 568,500
Phase 3 Master Plan Development Costs				$ 32,358,960	$ 17,764,920	$ 5,972,220	$ 5,210,820	$ 3,411,000

* Engineering Design, Survey and Testing Included

Table 10-10. Airport Capital Development Program 2002 - 2022

FDOT JACIP 2002 - 2012 Projects

PIE Master Plan 2002 - 2022 Projects

Source: PBS&J, 2002

		2002 - 2007 Five Year Development Program							
	2002 (Existing Facilities)	2003	2004	2005	2006	**2007**	**2012**	**2017**	**2022**
Proposed Development Program									
Land Acquisition		Acquire Land for Runway 35R Extension (FIN402985)	Acquire Land for Runway 35R Extension (FIN402985)			Acquire 112 AC Sunshine Raceway Property			
Planning, Permitting & Design		EA for New Runway 17L-35R 3,700' x 75'	Design New Runway 17L-35R 3,700' x 75' & Acquire Permits	Construct New Runway 17L-27R 3,700' x 75'				EA for Runway Extension 4-22 6,375' x 75'	
			Environmental Mitigation - Airfield ???	Environmental Mitigation - Airfield ???					
Runways	17L-35R 8,800' x 150'	Construct Extension 17L-35R 10,000' x 150' (FIN412499)				Remark and Change Primary Runway Designation to 17R-35L 10,000' x 150'	Same	Same	Same
	17R-35L 3,700' x 75'	Construct New Runway 17L-27R 3,700' x 75' (FIN412442)	Construct New Runway 17L-27R 3,700' x 75' (FIN412442)	Construct New Runway 17L-27R 3,700' x 75' (FIN412442)	Construct New Runway 17L-27R 3,700' x 75' (FIN412442)	Construct New Runway 17L-27R 3,700' x 75'	Same	Same	Same
	4-22 5,500' x 150'					Rehab RWY 4-22 (FIN404896)	Same	Extend 4-22 6,375' x 150	Same
	9-27 5,165' x 150'					9-27 Closed - Converted to TWY (FIN414344)	Same	Same	Same
Taxiways	A -Full Length Parallel West RWY 17L-35R, 8,800' x 75'	Construct Extension Parallel Taxiway A to RWY 17L-35R 10,000' x 75' (FIN412499)				Same	Construct Highspeed (HS) exit TWYs RWY 17R-35L	Same	Same
	B - Stub Rwy 9-27, 300' x 75'					Same	Same	Same	B- Stub Closed New B - Full Length Parallel East of RWY 17R-35L, 10,000' x 75' w / 4 HS exit TWYs
	C - Stub RWY 9-27, 400' x 75'					Same	C - Stub Closed Remove Pavement	Same	Same
	D - Stub RWY 9-27, 350' x 75					Same	D - Stub ClosedRemove Pavement	Same	Same
	E - Stub RWY 17L-27R, 525' x 75'					Same	E - Stub Closed Remove Pavement	Same	Same
	F - Connector RWYs 17L-35R & 4-22, 1,700' x 40'-50'					Same	F - Connector ClosedRemove Pavement	Same	Same
	G - Stub RWY 17L-35R, 450' x 40'					Same	G - Stub ClosedRemove Pavement	Same	Same
	K - Connector RWY 4-22 & 9-27, 1,450' x 50'					K - Connector Closed	Same	Same	Same
	L - Exit RWY 17L-35R, 475' x 75'					Extend Lima to New RWY 17L-35R (750' x 35')	Same	Same	Same
	M - Full Parallel RWY 4-22, 5,500' x 50'					M - Realign stub from RWY 17R-35L to TWY A (500'x 50')	Same	M - Full Parallel RWY 4-22, 6,375' x 50'	Same
	T- Terminal Apron Edge, 1,775' x 75'					Same	Same	Same	Same
		New GA Lease Development (FIN412500) - SheltAir??	New GA Lease Development (FIN412500) - SheltAir??		Construct New Full Length Parallel TWY East of New RWY 17L-35R (3,700' x 35' w/4 exit Twys)	New Full Length Parallel TWY East of New RWY 17L-35R (3,700' x 35' w/4 exit Twys)		New N - Full Length Parallel South RWY 4-22 6,375' x 50' w / 4 exit TWYs	Same
Airfield Lighting	RWY 17L-35R - HIRL, Centerline					Same	Same	Same	Same
	RWY 17R-35L - None					New RWY 17L-35R - LIRL	Same	Same	Same
	RWY 4-22 - MIRL					Same	Same	Same	Same
	RWY 9-27 - MIRL					RWY 9-27 Closed - remove MIRL install MITL	Same	Same	Same
	ALL TWYS - MITL					Install MITL New Parallel TWY	Same	Same	Same
	Airfield Vault						Same		
							Intall MITL HS Exit TWYs RWY 17R-35R	Same	Same
Pavement Markings	RWY 17L35R - Precision					Remark and Change Runway Designation to 17R-35L 10,000' x 150'	Same	Same	Same
	RWY 17R-35L - Visual					Mark New RWY 17L-35R - Visual	Same	Same	Same
	RWY 4-22 - Non Precision					Same	Same	Same	Same
	RWY 9-27 - Visual					RWY 9-27 Closed-Remark & Covert to 75' Taxiway	Same	Same	Same
	ALL TWYS - Edge and Centerline					Same	Same	Same	Same
							Mark HS Exit TWY RWY 17R-35L	Same	Same
Navigational Aid	RWY 17L - CAT I ILS, MALSR, Touchdown Zone Lighting (TDZL), VASI-4			RWY 17R - CAT II ILS, ALSF-2, Touchdown Zone Lighting (TDZL), VASI-4		Same	Same	Same	Same
	RWY 35R - LOC BC, VOR, GPS, REIL, VASI-4			RWY 35L - CAT I ILS, MALSR, TDZL, VASI-4		Same	Same	Same	Same
	RWY 4 - VOR, REIL, PAPI 4L					Same	Same	Same	Same
	RWY 22 - REIL, PAPI 4L					Same	Same	Same	Same
	RWY 9 - REIL, PAPI 4L					RWY 9 Closed	Same	Same	Same
	RWY 27 - REIL, VASI 4R					RWY 27 Closed	Same	Same	Same
	RWY 17R - None					New Runway 17L-35R Visual PAPI 2L	Same	Same	Same
	RWY 35L - PAPI 2L					New Runway 17L-35R Visual PAPI 2L	Same	Same	Same
	VORTAC				Relocate VORTAC	Same	Same	Same	Same
					Relocate RTR/DF	Same			
	RTR / DF				Relocate Beacon	Same			
Terminal Apron (sy)	41,000					Same	73,055	Same	Same
Commercial Terminal			Expand Terminal, 2nd Level Load Bridges (FIN403002)	Expand Terminal, 2nd Level Load Bridges (FIN403002)	Expand Terminal, 2nd Level Load Bridges (FIN403002)	Same	Expand Terminal, 2nd Level Load Bridges (FIN403002)	Same	Same
Aircraft Boarding Gates (No.)	14					7	8	9	10
Gross Terminal (sq ft)	143,980					148,498	161,448	177,318	192,064
Primary Access Roads									
Terminal Boulevard	1-Lane, 1 Way (600' x 12')					Same	Same	Same	2-Lane-2 Way (600 x 24)
Airport Parkway (North Entrance)	2- Lane, 2 Way (1,050' x 24')					Same	Same	Same	4-Lane- 2 Way (1,050 x 48)
Airport Parkway (South Entrance)	2- Lane, 2 Way (750' x 24')					Same	Same	Same	Same
Fairchild Drive	2-Lane, 2 Way (6,150' x 24')					Same	Bayside Bridge Access 2-Lane 2 Way Bridge (1,200 x 24)	Same	Same
Evergreen Avenue	2- Lane 2 Way (10,000' x 24')					Same	Same	Same	Same
Airco Development Property Access	Non Existent				Construct 2-Lane 2-Way Access Road (5300' x 24')	Same	Same	Same	Same
Terminal Area Access Roads	2-Lane, 1 Way (2,000' x 24')					Same	Same	Same	3-Lane, 1 Way (2,000 x 36)
Terminal Frontage Roads	3-Lane, 1 Way (1,400' x 36')					Same	Same	Same	4- Lane, 1 Way (1,400 x 36)
Terminal Curb Frontage (lin ft)	1,377					Same	Same	Same	1,432
Automobile Parking			Expand Terminal Parking Lot (FIN412441)			Expand Terminal Parking Lot (FIN412441)			
Short-term Spaces	151					352 (2-Level Short-term Garage - 406 spaces)	482	482	621 (add 3rd Short-term parking level - 215 spaces
Long-term Spaces	1,032					821	968 (3-Level Long-term Garage - 1500 spaces)	1,125	1,305
Employee Spaces	153					168	230	230	266
Rental Car Spaces	191					209	287	287	333
General Aviation Spaces	520					316	372	372	417
Aircraft Storage Hangars									
T-Hangars	122					145	161	180	193
Conventional Hangars	17					21	23	26	28
GA Aircraft Parking Apron					New Aprons for Corporate Development (FIN)				
Conventional Hangar Apron (sq yd)	42,757					46,729	51,760	58,067	62,053
Tie-Down Apron (sq yd)	48,647					48,647	48,647	48,647	48,647
Cargo Facilities									
Cargo Buildings									
Apron Expansion									
Apron Marking									
Cargo Area Access Roads									
Parking									
Utilities									
Aircraft Fuel Storage (Gal.)									
Jet A	160,000					Same	185,000	255,000	350,000
100LL	30,000					Same	35,000	45,000	65,000
Maintenance			Acquire Sweeper			New Maintenance Building - On Airport			
Security		Acquire Equipment							
ARFF									
			Acquire New ARFF Vehicle (FIN412501)						

Figure 10-1. Development Phasing

FINANCIAL FEASIBILITY

St. Petersburg-Clearwater International Airport

11

This financial report forms a part of the master plan update being conducted by Post Buckley Schuh and Jernigan, Inc. (PBS&J) for St. Petersburg-Clearwater International Airport (PIE or the Airport). The master plan update includes airfield, terminal, and landside improvements phased in over the next 20 years. The purpose of this report is to analyze the financial feasibility of the planned expansion and redevelopment of the terminal and airfield.

The report covers three main areas. The first is a general overview of Pinellas County and the Airport, and describes the need for terminal improvements. The second area provides details on PIE's financial situation. Finally, the financial model, scenarios for analysis, and results are presented.

11.1 PINELLAS COUNTY

Pinellas County markets itself as Florida's Beach, with 35 miles of white-sand beaches on some 20 barrier islands along the Gulf of Mexico. The County boasts some of the finest beaches in the country, according to the 2001 annual beach survey conducted by Florida International University[1].These world-class beaches make tourism the top industry in Pinellas County. Over 12 million visitors came to the area in 2000, making it the most popular vacation destination on Florida's west coast. More than 4.7 million visitors stayed overnight in Pinellas County in 2000, averaging over seven nights of stay, nearly twice the national average.

International visitors are a key component of the tourism market for Pinellas County. Nearly one million Europeans visited Pinellas County in 2000, representing approximately 20 percent of the annual tourists to the region who stay overnight. Most European visitors are from the United Kingdom (53 percent) or from German-speaking areas of central Europe (40 percent). Spending by European visitors in Pinellas County was estimated to be over $520 million in 2000[2].

An additional 52,000 visitors (1.1 percent) arrived in Pinellas County from Latin America. The County actively encourages the growth of international tourism via the St. Petersburg/Clearwater Area Convention and Visitors Bureau (PCCVB), which maintains marketing offices in the United Kingdom, Central Europe, Scandinavia, and Canada, and has representatives in Latin America.

Although tourism is the key driver of the Pinellas County economy, business and manufacturing play a rapidly growing role in the area's economic activity. The County is home to many major businesses, and ranks second in the state for manufacturing employment. Major manufacturing sectors include electronic components and biomedical products. The County is a major participant in the Tampa Bay High-Tech Corridor, a regional consortium fostering technology business growth. Furthermore, the Tampa Bay regional economy is growing rapidly overall. During the past year, over 64,000 jobs were added to the St. Petersburg/Clearwater/Tampa Bay area, the highest

[1] St. Petersburg/Clearwater Area Convention and Visitors Bureau
[2] St. Petersburg/Clearwater Area – 2000 Annual Visitor Profile

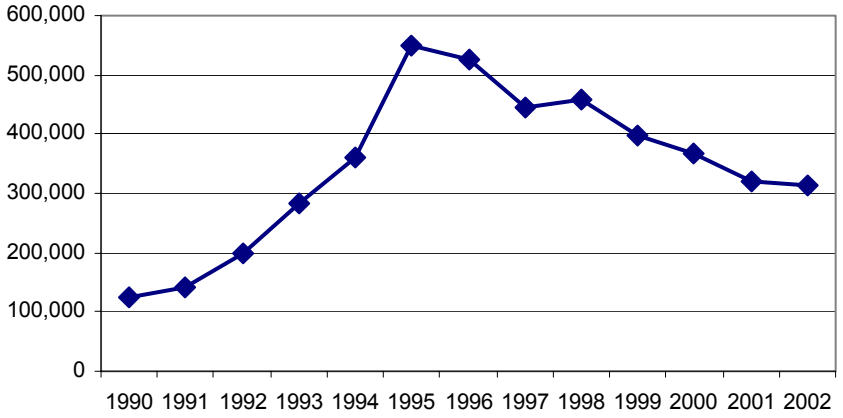
in all of Florida. Per capita income in Pinellas County was $31,321 in 2000, outpacing Florida's per capita income of $27,764[3].

11.2 ST. PETERSBURG-CLEARWATER INTERNATIONAL AIRPORT

PIE is located in Pinellas County in west central Florida. After service as a military flight-training base in World War II, the airport reverted to County ownership and operation. Today, the Airport is owned and operated by the Pinellas County Board of County Commissioners.

PIE is a low-cost, convenient airport for airlines serving travelers vacationing in Pinellas County and vicinity. There are currently seven scheduled or scheduled charter carriers operating out of PIE alongside two package delivery/cargo carriers and substantial general aviation activity. Passenger airlines serving PIE specifically cater to vacation travelers, including many traveling on package tours. International service is provided non-stop to Canadian destinations. As depicted in **Figure 11-1** below, enplanements at PIE rose from 123,483 in 1990 to over 540,000 in 1995 before slowly declining to 312,000 in 2002[4].PIE has a strong cooperative relationship with Tampa International Airport, which is served primarily by major domestic airlines.

Figure 11-1. Passenger Enplanements at Pie 1990-2002



Source: PIE

The Airport is also home to a major U.S. Coast Guard Air Station, the U.S. Army Reserve 158th Aviation Regiment, and is served by U.S. Customs. Other facilities include a FAA-operated control tower, the Central Florida Flight Service Center, a 200-acre Airport Business Center, and a designated foreign trade zone. The Airport currently has the capability to handle international passenger traffic with a recently completed immigration and naturalization facility and baggage handling area.

[3] Pinellas County Economic Development
[4] Aviation Activity Forecast, URS, 2002 and PIE Airport

11.3 THE NEED FOR TERMINAL IMPROVEMENTS

The passenger terminal at PIE is conglomeration of multiple independent structures built over many years and connected together. The result is that terminal operations are inefficient for passengers and air carriers, and the Airport is unable to maximize terminal revenues. The inadequacies of the terminal also decrease the attractiveness of PIE to new entrants, further suppressing revenues. Key inadequacies with the current terminal include:

- Limited ticket counter space
- No food concessions on main holding/boarding level
- No jet bridges
- Few concessions available after security
- Large unused areas of the terminal
- Long distance from gates to baggage area inconvenient for passengers and for baggage handlers
- Small hold room after security
- Failure to meet current building codes
- Lack of gate and ramp space for widebody aircraft planned to serve the Airport.

11.3.1 Description of Planned Improvements

The master plan update team architect, Gresham Smith & Partners has designed a series of terminal improvements to be scalable as demand grows. After analyzing a number of options, the preferred alternative is a two-level pier structure that will enable jet bridges to be installed and will reduce the distance between the gates and baggage areas. The design is in three phases that will retain the recently completed baggage and rental car area, while renovating some sections of the existing structure and demolishing others. The second and third phases are to be completed only as demand dictates; therefore, the financial analysis focuses on Phase 1. Together, the three phases will increase the usable terminal space to 177,000 square feet from 148,000. The construction costs for first phase of the terminal are estimated to be approximately $20.2 million, including design fees, construction costs, contractor fees, and contingencies (20 percent). The first phase is expected to open in 2007. **Table 11-1** below shows the key elements of the terminal design.

Table 11-1. Terminal Expansion Schedule and Cost

Terminal Expansion	Phase I	Phase II	Phase III
Construction Begins	2005	2010	2017
Months of Construction	26	28	14
New Construction ft^2	79,400	67,614	18,131
Renovation ft^2	2,848	23,472	16,413
Demolition ft^2	30,847	63,371	0
Total Useable Space	148,000 ft^2	161,000 ft^2	177,000 ft^2
Cost (2002 dollars)	$20,156,321	$17,796,602	$6,913,660

11.3.2 Other Future Activities

In addition to the redevelopment of the airline passenger terminal, the updated master plan envisions major upgrades to the airfield, cargo and general aviation facilities, and parking areas at PIE. Two major initiatives include expanding the corporate aviation and cargo capabilities of the Airport. These initiatives, and their potential impact are briefly described below.

11.3.2.1 PIE as a Corporate Hub

The Tampa Bay Region is the largest market on the Gulf Coast of Florida. Furthermore, Pinellas County is a growing business community including major corporations such as Raymond James & Associates Inc., Home Shopping Network, Certegy, Equifax, and Jabil Circuit Inc. Over the past decade, and increasingly since the September 11 attacks, corporate aviation has been growing rapidly. Less congested than Tampa International, and situated in the Gateway area of Pinellas County, PIE is well positioned to attract an increasing amount of corporate traffic. However, hangar and ramp space are currently filled to capacity. When the Airport implements the recommendations of the updated master plan, new space will be available to handle corporate and other general aviation traffic. Current FBOs have expressed interest in building and managing corporate aviations facilities, including a $5 million proposal by the owner of Air-1 FBO. Increased corporate traffic will result in revenue to the Airport through higher fuel sales, more tenants, and, potentially, higher rents. In addition, indirect revenues may result as more business activity takes place at or near the Airport.

11.3.2.2 Improving Cargo Facilities at PIE

A new, expanded air cargo facility is incorporated into the updated master plan. The Airport has been actively marketing itself to domestic and international cargo carriers. Increasing cargo space will enhances PIE's efforts to attract new cargo routes, thereby increase revenue to the Airport. New facilities will also enable cargo operators to take advantage of PIE's status as a foreign trade zone.

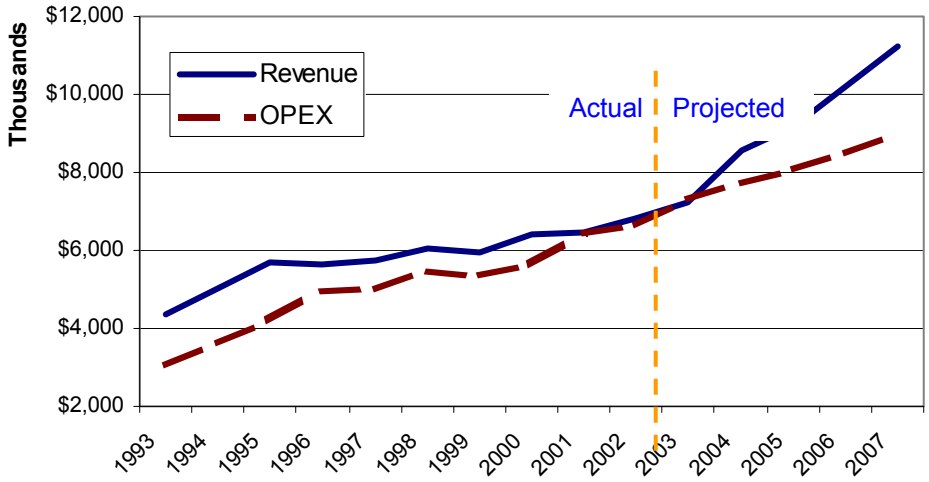
11.4 FINANCIAL STATE OF THE AIRPORT

This section summarizes the current financial health of the Airport, including historic performance and benchmark comparisons to peer airports.

11.4.1 Historic and Projected Performance

Figure 11-2 shows PIE's total operating revenues and expenses over the past decade. Despite variable passenger traffic during this time period, the Airport was profitable in every year except 2001, when one-time costs related to the acquisition of Airco Golf Course resulted in a loss of $367,000. A state grant to cover revenue losses caused by the September 11 terrorist attacks enabled PIE to return to profitability in 2002, despite the loss of passenger service from Canada 3000 and increased expenditures mandated by the Transportation Security Administration.

Figure 11-2. Revenues and Operating Expenses (OPEX) 1993-2007



Note: Figures exclude non-operating and golf course income and expenses

Revenues are generated from terminal operations, airfield operations, ramp and flight line leases, and rent for airport property. In 2001, terminal revenues from tenants and concessions totaled 35 percent of PIE's revenues, while 21 percent came from airfield revenue such as landing fees and fuel sales, and 8 percent were produced by ramp and flight line leases. The remaining 37 percent of airport operating revenues were supplied by leasing airport property for commercial and government purposes.

After two or three years of tight budgets, the Airport is expected to return to regular profitability in the future as revenues grow due to new air service, land development, and higher revenues due to a more efficient terminal. These effects are described in detail in Section 11.5.

11.4.2 PIE Performance Compared to Peer Airports

In order to analyze the financial performance of the Airport, IMG conducted a benchmarking analysis comparing the Airport to selected peer facilities. The goal of analysis was to highlight the Airport's financial strengths and weaknesses, ascertain the constraints of the existing facilities, and recommend changes that will make the Airport more competitive and strengthen its financial outlook. In addition, this analysis was designed to assist Airport staff and consultants in the physical and financial design of the proposed new terminal. The key findings from the benchmarking analysis are summarized below.

11.4.3 Benchmarking Methodology

The benchmarking analysis focused on PIE's financial performance in comparison with 15 other airports. Performance metrics include airport revenues, operating expenses, and rates and charges. To account for differences in airport size and passenger enplanements, all data is normalized by an appropriate measure (e.g., enplaned passengers or terminal size). In addition, where appropriate, the average of all 16

airports is presented for a given criterion, enabling PIE to be compared to a "typical" airport. The comparison airports were selected according to the following criteria:

- Airports serving resort communities
- Airports similar in size to PIE
- Florida and southeast U.S. airports with which PIE competes for business.

This analysis utilized data from airports' responses to the American Association of Airport Executives (AAAE) surveys in 2001 and 2002, airport annual reports, and other sources. In order to remain consistent with the peer facilitates, PIE data was primarily derived from the AAAE surveys rather than detailed financial information on which the financial model is based.

11.4.3.1 Comparison Airports

The airports selected for this benchmarking analysis are listed below. Included are four large hub airports, two medium hub, and ten small hub airports.

Table 11-2. Benchmark Comparison Airports

Name of Metro Area	State	Airport Code	Hub Size	Year 2000 Enplanements	Most Recent Response to AAAE Survey
Fort Lauderdale	FL	FLL	Large Hub	7,645,140	2002
Orlando International	FL	MCO	Large Hub	14,677,391	2001
Miami	FL	MIA	Large Hub	16,796,098	2002
Tampa	FL	TPA	Large Hub	7,893,098	2002
West Palm Beach	FL	PBI	Medium Hub	2,891,372	2002
Fort Myers	FL	RSW	Medium Hub	2,497,165	2002
Charleston	SC	CHS	Small Hub	819,304	2002
Gulfport - Biloxi	MI	GPT	Small Hub	414,480	2002
Wilmington	NC	ILM	Small Hub	250,604	2002
Myrtle Beach	SC	MYR	Small Hub	741,156	2002
Newport News – Williamsburg	VA	PHF	Small Hub	228,773	2002
Pensacola	FL	PNS	Small Hub	528,616	2002
Orlando Sanford	FL	SFB	Small Hub	454,579	2002
Sarasota	FL	SRQ	Small Hub	757,718	2002
Ft. Walton Beach	FL	VPS	Small Hub	388,512	2002
St. Petersburg - Clearwater	FL	PIE	Small Hub	340,312	2001

11.4.3.2 Airline Cost to Operate at PIE

Interviews with airline tenants over the past 15 months revealed that low cost is a primary concern of their passengers, and, by extension, the airlines themselves. A major reason why airlines choose to fly to PIE rather than nearby Tampa International is the

lower overall cost of doing business at PIE. Key findings related to airline operating costs comparisons include:

- PIE's total revenue from passenger carriers is among the lowest in the comparison group. Only Orlando-Sanford takes in less revenue from its air carriers. This is a double-edge result for PIE; on one hand, there is obviously room to increase revenues, while on the other, low fees are among the primary factors for airlines choosing to use the Airport.
- Low costs faced by air carriers at PIE are primarily due to landside revenues. Airline terminal rents per square foot at PIE are among the lowest in the comparison group. Not surprisingly given the low rents, PIE takes in less terminal rental revenue than any comparison airport except Orlando Sanford[5], whether measured per square-foot or per enplaned passenger.
- In contrast to the landside, airside fees at PIE were similar to the average of the comparison group. Among small hub airports, however, only Sarasota, Pensacola, and Myrtle Beach have higher signatory landing fees than PIE. Landing fee collections reflect this fact, with the same three airports outpacing PIE among small hub airports on a per-EPAX and per-operation basis (Orlando-Sanford also has higher landing fee collections per-operation).

11.4.3.3 Airport Revenue

PIE is below average in revenue collection, collecting $14.29 per EPAX compared to the benchmark average of $16.08. Some of the key business centers of the Airport are highlighted below.

Terminal Concessions

Although PIE is competitive with other small airports, it still has room to expand concessions revenue. PIE does not reach the overall or small-hub averages in terminal concession revenue collection, despite the fact that only Sarasota and Orlando-Sanford have more concessions space per enplaned passenger than PIE. Relative to terminal size, PIE under-performs in this area. Excluding Miami (an outlier in this sample), the Airport collects nearly 20 percent less than peer airports per EPAX, and only half as much revenue as peer airports per square foot of terminal space ($3.64 at PIE compared to an average of $5.46, excluding MIA).

Some of the relatively low concessions collections may be due to lack of concessions variety in the current terminal, or it may reflect the fact that PIE's clientele, who are primarily leisure travelers, do not spend as much as business travels do at other airports. Analysis of concessions space available in the current PIE terminal found that:

- Overall, PIE has less total concessions space that the comparison group average. This is mostly due to the fact that PIE has very little concession space after security barriers. While concessions space available before security at PIE is very similar to the comparison group average, only the duty free shop is located beyond security. Domestic passengers have no food or retail options once they are cleared through security.

[5] Orlando Sanford data does not include its private terminal operators, Orlando Sanford Domestic and Orlando Sanford International, so that direct comparisons with this airport may be misleading.

- When the volume of passengers served by the airport is considered, concession space at PIE is higher than average. Only three comparison airports have more concession room per enplaned passenger than PIE. The fluctuation in enplaned passengers from year to year at PIE must be considered in this analysis. Enplanements at PIE dropped nearly 50 percent between 1996 and 2000. As EPAX rise in the future, concession space on a per-EPAX basis will become lower compared to peer airports.
- It is important to look beyond the square footage numbers in analyzing concession space at PIE. While PIE is nearly average in food concession space, the terminal offers only one restaurant, which is inconveniently located a floor above the departure gates. The result is that food concession revenue per square foot of available space at PIE is less than one third of the average. Providing more diversified food options closer to passenger holding areas is likely to increase food concession revenue.
- Although less than average overall, concession space before security at PIE is greater than at all but four comparison airports. Each airport with more total concession space before security also has a significantly higher number of enplanements than PIE.
- Retail concession revenue per square foot of available space approaches the comparison average. This data point was not available for three airports.
- The layout of the concessions at PIE, more than the square footage available, is a major limitation in the Airport's ability to collect revenue. More than half of PIE's retail space is in the Duty Free area, which is off-limits to domestic passengers. Furthermore, there are few retail options at PIE. A greater variety of retail space may provide greater total revenues to the Airport in the future.
- Providing concession space after security is likely to enhance revenue collections at PIE. All of the airports in the comparison group with over 450,000 EPAX offer both food and newsstand/retail concessions beyond security. Post-security options may help PIE become more competitive in the future.
- Gresham, Smith, and Partners has found that there must be substantial growth in food concession space at PIE over the next 20 years to keep up with projected demand. In light of the fact that much of the current food concession area is allocated only for seating, there may be a fairly immediate need to increase food options.

Rental Car and Advertising Revenue

The benchmark analysis revealed that while the Airport's fee for on-airport car rentals is competitive with other airports, total rental car revenues are 13 percent below average. PIE currently earns a 10 percent fee from on-airport car rentals. The data show that while eight other airports also collect 10 percent, none collects more. This demonstrates that there is little or no room to increase the Airport's share of rental car revenues, and the best way to grow such revenues is to increase the number of passengers renting cars on-airport.

Advertising revenue collected by PIE is well below average, both per EPAX and per square-foot of terminal space. PIE collects only $0.06 per EPAX, compared to the overall average of $0.13. The Airport collects only $0.20 of advertising revenue per square foot, compared to an average of $0.58. Advertising revenues do not substantially differ based on hub size. The small hub average revenues per EPAX and per square foot are nearly identical to the overall averages.

11.4.3.4 Airport Operating Cost

On a per-EPAX basis, PIE's costs appear high. Only three airports of the fifteen in the benchmark comparison cost more to run per enplaned passenger than PIE. Much of PIE's high operating costs is caused by a high level of airport staff. Per 1000 enplaned passengers, the Airport employs 70 percent more personnel than the average of this group. Only Newport News-Williamsburg Airport has a higher ratio of staff to passengers. The total cost of personnel at PIE is $7.02 per EPAX, 55 percent higher than the average cost at comparison airports. While no costs should be ignored, airports do have minimum staffing requirements as set by regulations and other laws that make staff reductions below minimum levels difficult. If PIE were to increase traffic to levels where it was two to three years ago, these costs would not be too high.

11.4.3.5 Benchmarking Conclusions

PIE attracts airlines and vacationers by offering excellent service at a low cost. This is reflected in this benchmarking analysis, which shows that the total cost to airlines to operate at PIE is among the lowest of the peer group. In particular, landside rates and charges are well below the peer group average. This more than offsets airside rates and charges that are competitive, but not lower than other airports.

It appears from this analysis that PIE may be able to increase its revenue, which is currently slightly below average, without significantly increasing the burden on its airline tenants. In particular:

- The Airport trails even its small-hub peers in concessions revenue. Poor layout of the terminal may contribute to relatively low concessions revenue. A primary example is the location of the only Airport restaurant on second floor, upstairs from passenger holding and gate areas.
- PIE may be overstaffed on an EPAX basis. Only one airport in the comparison group employed more personnel than PIE per enplaned passenger. On the other hand, total personnel costs at PIE, while high, are not out of line with other airports.
- Although it is a small revenue source (less than 1 percent of total revenue), advertising is an area of potential revenue growth at the Airport. PIE currently collects only half as much advertising revenue per enplaned passenger as its peers. Additional traffic would bring this measure more in line with the comparison group.
- There is little room to expand rental car revenues or landing fees, both of which approximate the peer group average.
- Comparison airports may outsource services such as janitorial, grounds keeping, and parking, reducing their ratio of employees per EPAX.

The construction of a new terminal and overall expansion of the Airport present great opportunities for PIE to adjust its financial structure and ensure that the Airport is competitive in the future. The results of the benchmarking analysis demonstrate that PIE is successfully competing on price against peer airports, and has room to grow revenues without substantially increasing airline costs.

11.5 INTRODUCTION TO THE FINANCIAL MODEL

A financial model (the "Model") was developed for St. Petersburg-Clearwater International Airport to assess the financial feasibility of expanding and modernizing the

terminal. The Project is envisioned to be a four-stage expansion, with phases being completed in 2007, 2012, 2017 and 2022. The model analyzes the Airport's financial performance over thirty five (35) years beginning in 2002 so that debt from all phases will be retired within the model timeframe. The primary purpose of the financial model is to determine if expected revenue and expense streams described in this report will enable the Airport to pay for the proposed capital program.

The model relies on projections by Airport staff, consultants, and outside sources. In addition, many assumptions are required in forecasting the future finances of the airport. For example, loan terms and requirements follow the common practices of potential financial institutions. Other financial terms are based on IMG's extensive experience in financing airport projects around the world and knowledge of lending institutions' requirements for funding various types of airport bonds.

Financial model development is a highly iterative process. A base case is established with a likely set of forecasts for the future of the Airport. As construction, revenue, operating expense, financing and other assumptions evolve; the results of the model will accordingly change. In order to account for these potential changes, the model is designed to assess the feasibility of the project under different assumptions. Key projections and assumptions are altered in a scenario analysis to test the likelihood of success. The alternate scenarios are described in detail in Section 11.9.

Funding for Airport improvements will come from three sources: cash generated by airport operations, including terminal operations, airfield charges, and land rents from airport-owned property; grants from the FAA and the State of Florida; and borrowing via a general airport revenue bond (GARB), backed both by Airport revenues and by the general revenues of Pinellas County (also known as a double-barrel bond).

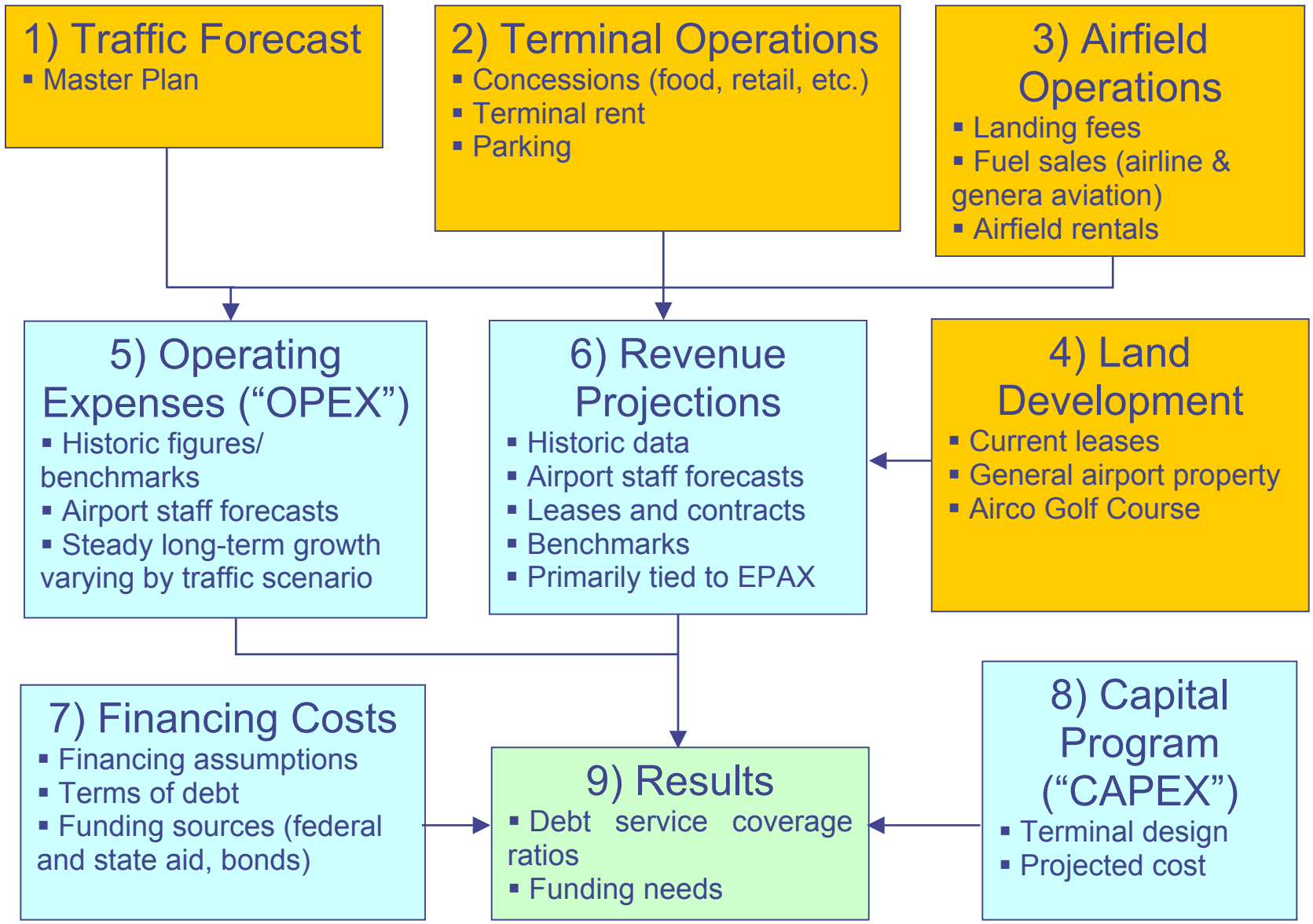
11.5.1 Financial Model Inputs

Financial model inputs were developed from the following sources:

- Historic performance of the airport
- Airport staff and consultant forecasts, including financial forecasts; air carrier, cargo, and general aviation forecasts; and estimates of construction costs
- Current lease and contract agreements
- Benchmarks of similar airports are a key consideration in the financial model. When the terminal is modernized, the operating costs and revenues are likely to change as the facility becomes more efficient and convenient. For example, food concessions revenue will likely rise when food is available for purchase on the departure level. Benchmarks of similar airports are used as guides for revenue and OPEX after the terminal is upgraded.

Figure 11-3 provides an overview of the structure of financial model structure, and is explained in detail on the pages following. Following the explanation of the financial model structure, the major inputs and key assumptions are presented. A more detailed description of the assumptions upon which the financial model rests is found in the financial model assumptions book in the Appendix.

Figure 11-3. Financial Model Structure



11.5.2 Explanation of Financial Model Flowchart

Generating the financial model requires forecasting the revenues and expenditures the Airport will make in the coming years. The model can be understood on three levels:

- Level 1 (boxes 1 through 4, highlighted in orange) represents the key assumptions that enable future revenues and expenses to be estimated.
- Level 2 (boxes 5 through 8, highlighted in blue) represent the direct inputs into the model.
- Level 3 (box 9, highlighted in green) are the model results, based on the financial and other assumptions generated in the first two levels.

The four **orange boxes** (boxes 1 through 4) of Level 1 represent the major business centers of the Airport that impact operating revenue and expenses: airfield operations, terminal operations, and land development. The primary business of an airport is to enable people and goods to arrive and depart by aircraft. The *Traffic Forecast* represents the volume of passengers, general aviation aircraft, and cargo the airport will serve in the future. This forecast is the lynchpin of the financial model, as most estimated revenues and expenditures depend either directly or indirectly on the volume of people and cargo that pass through the Airport. The traffic forecasts for this study were prepared by the URS Corporation and have been approved by the FAA.

The major business centers of the airport are A*irfield Operations* and *Terminal Operations*. Airfield operations include landing fees, airline and general aviation fuel sales, and ramp and flight line lease income. Terminal operations include all revenue-producing business conducted on the landside, such as retail and food concessions; rent for space inside the terminal by air carriers, rental car companies, and concessionaires; and automobile parking revenue. The cost of providing these services and the expected revenue from them is based on the historic performance of the Airport, the professional judgment of Airport staff and consultants, and on benchmarks at comparable facilities.

The final business center for PIE is *Land Development*. The Airport owns a variety property unrelated to the operation of the airport. These excess parcels are available for development offices, retail businesses, and other uses. Currently, 129 acres are used for the Airco Golf Course, a public facility adjacent to the airfield. The Airport Business Center office park is a prime example of Airport-owned property generating revenue for PIE beyond direct use for aviation. Many other properties near PIE provide revenue for the Airport, or may do so if developed in the future.

The four **blue boxes** (boxes 5 through 8) of Level 2 in the flowchart represent the key inputs of the financial model. *Operating Expenses* are derived from historic figures, airport staff forecasts, and benchmarks of similar airports, and consider the expected volume of passenger, cargo, and general aviation from Level 1 of the flowchart. Due to the nature of running an airport, operating costs are relatively fixed in the short-term. For example, the energy bill for lighting the airfield and terminal does not change as traffic increases. While additional airport personnel will eventually be required with major traffic increases, the current Airport staff is adequate to handle significant new service. Most new employees at the Airport hired in response to traffic increases will be employed by airport tenants such as concessionaires and airlines.

Revenue Projections are based on historic results, airport staff and consultant forecasts, lease and contract agreements with airport tenants, and benchmarks of peer airports. Unlike OPEX, most revenue projections are closely tied to the growth in passengers and airfield operations. The reason for this is that while contracts and leases are set for the short or medium-term, revenues from concessions, fuel flowage, landing fees, and parking are received on a per-unit basis. In other words, the Airport receives a standard payment for each activity that takes place (e.g., cars parked, concessions purchased, etc.), resulting in more revenue for the airport.

The *Capital Program (CAPEX)* represents the real dollar cost of proposed improvements as estimated by Gresham Smith & Partners. The primary purpose of the financial model is to determine if revenue and expense streams described in this section will enable the Airport to pay for the proposed capital program.

The final input into the model is *Financing Costs*. The project will be partially funded by federal and state grants, with the remainder paid using profit from Airport operations. Any shortfall must be borrowed in the form of a GARB. Estimating the terms of debt, such as prevailing interest rate and finance fees, is an integral part of determining the financial feasibility of the project.

The **green box represents** (box 9) Level 3 of the model, or the *Results*. Inputs generated in the first two levels are entered into the accounting functions of the model. Using these inputs, the model generates standard financial statements projected for the 35-year analysis timeframe. Statements projected include an income statement, cash flow, balance sheet, and depreciation schedule. The model also provides a debt repayment schedule, including highlighting the Airport's ability to pay debt service on its bonds in each of the future years.

11.5.3 Traffic Forecasts

Due to its effect on operating costs, revenues and the capital program, the traffic forecast is the most important projection in the financial analysis. The remodeled terminal is designed to handle the passengers forecast to be passing through it at future dates. The ability of the Airport to pay debt service on the bonds sold to build the terminal is closely tied to the projected passengers and cargo operators using the Airport. The professional forecasts used in the master plan update, developed by URS Corporation, have been accepted by the FAA. In order to understand the importance of passenger traffic on the terminal improvements, however, the financial model also considers "high" and "low" traffic growth scenarios in addition to the URS, or "most likely," forecast (see **Figure 11-4**).

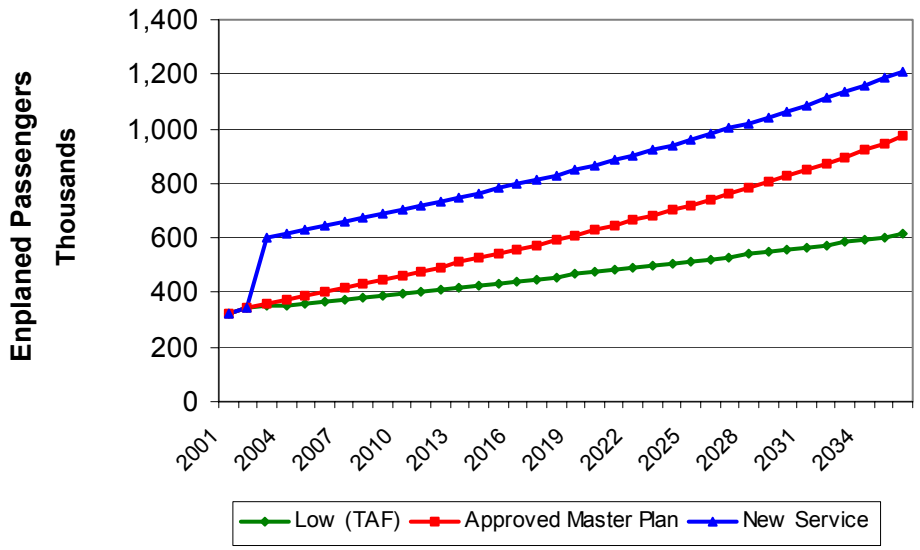
The following sources were used in building these three cases:

- Aviation forecasts for the "base" or "most likely" scenario were generated for every fifth year from 2002 thorough 2022 by URS Corporation, and are assumed to be linear in the intervening years and after 2022. The forecasts are based on demographic, financial, and business trends and include the effects of downturn following the terrorist attacks of September 11, 2001. These forecasts were approved by the FAA in 2002.
- Aviation forecasts for "high" scenario were generated for every fifth year by IMG. The "high" scenario includes substantially expanded service starting in 2003. For example, in February 2003 PIE's largest carrier, America Trans Air ("ATA"), began

serving Las Vegas, Los Angeles, and San Francisco with non-stop flights from PIE, with continuing service to Honolulu. Southeast, Sun Country, and Sky Service airlines also initiated new or expanded service to PIE in 2003. In all, the new flights are expected to increase passenger enplanements at PIE by 470,000 (83 percent) in 2003 over the URS projections. Since the "most likely" forecasts were already approved by the FAA, these new flights are not considered in the base forecast.

- Aviation forecasts for the "low" scenario reflect the FAA Terminal Aviation Forecasts (TAF) from 2000. This is considered a "worst-case" traffic scenario.

Figure 11-4. Projected Traffic Growth



Note: New service began in February 2003

11.5.4 Potential Revenue Enhancements

In order to borrow money for the terminal redevelopment, PIE must demonstrate strong current and future financial health. The Airport has been profitable over the past decade, except for 2001 when the September 11 attacks cost the Airport a major carrier (Canada 3000) and created new security costs. However, increasing revenues would enhance PIE's ability to obtain financing. Five areas where the Airport can raise revenue in the near future and for extended periods are:

1. Increase passenger traffic: As described above, more passengers, cargo, and general aviation traffic yields more revenue to the Airport, with a relatively smaller increase in operating expenditure.
2. Institute a Passenger Facility Charge (PFC): PIE is currently the only commercial airport in Florida that does not collect a PFC.
3. Land development: Opportunities exist to increase airport revenue from non-aviation land parcels.

4. Improve concessions: As demonstrated by the benchmarking analysis described above, however, PIE generally collects less revenue than its peers in certain business centers of the airport.
5. Parking: Until fall 2002, PIE did not charge for automobile parking at the Airport. The Airport recently instituted charges of $2.00 for first hour then $1.00 for each additional hour up to $5.00 for long-term and $8.00 for short term that were not previously incorporated into future budget projections.
6. Terminal Facility Fees: PIE charges air carriers using gates only $25 per turn. Furthermore, the Airport's largest carrier, ATA, is exempt from terminal facility fees.

Each of these is revenue enhancement opportunities are described in detail below.

11.5.4.1 Revenue Enhancement 1: Increase Traffic

The Airport, in conjunction with the Pinellas County Convention and Visitors Bureau, is aggressively marketing the region in general and PIE in particular to domestic and international airlines. Recent successes include the initiation of service by Sun Country and Conquest, and large expansion of service by existing carriers ATA and Southeast Airlines. However, given the volatile history of passenger traffic at PIE, it will take two to three years of sustained traffic growth before most financial institutions will be comfortable lending the Airport funds based on these higher traffic levels.

11.5.4.2 Revenue Enhancement 2: Passenger Facility Charges

In 1990, the FAA authorized U.S. airports to collect revenue from airline passengers via a PFC. These collections are used to pay capital costs and/or debt service costs to upgrade common facilities at the airport at which they are collected. PIE is currently the only commercial airport in Florida that does not take advantage of this revenue stream. The reasons for this are twofold; first, PIE competes by being a low-cost alternative for air carriers. Instituting a PFC would increase the ticket price for passengers flying to PIE. Second, a PFC was not necessary because the Airport capital program was not large enough to require this revenue stream. **Table 11-3** shows the PFC levels at Florida airports as of December 31, 2002.

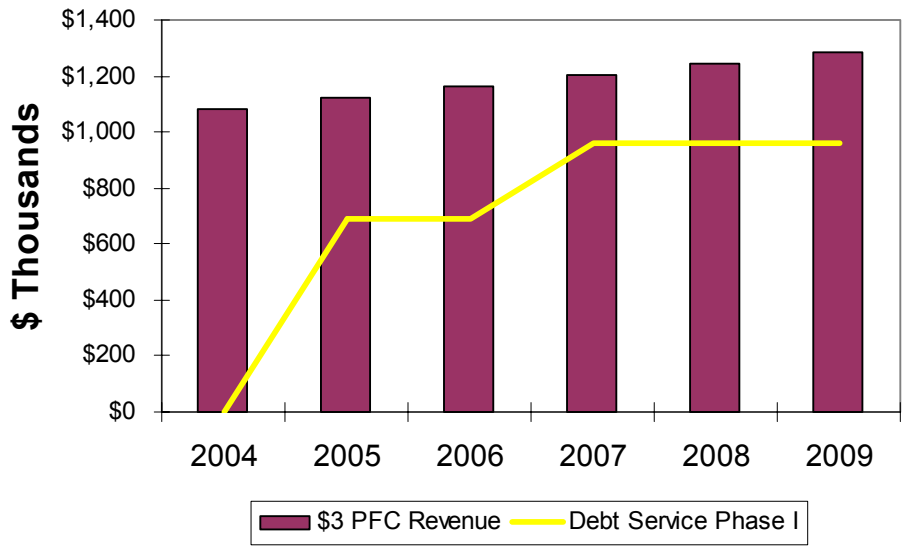
Table 11-3. Passenger Facility Charges at Florida Airports

PFC Level	Florida Airports			
$0.00	PIE			
$1.00	Orlando-Sanford			
$3.00	Daytona Key West Orlando	Ft. Lauderdale Marathon Panama City	Ft. Myers Melbourne West Palm Beach	Jacksonville Naples
$4.50	Gainesville Tallahassee	Miami Tampa	Pensacola Valparaiso	Sarasota

Source: FAA, 2003

Instituting a PFC will likely be necessary in order to finance the terminal redevelopment due to the Airport's sub-optimal financial situation. PFC revenue streams are relatively predictable, making PFCs an ideal backing for construction bonds. This is demonstrated by **Figure 11-5**, which shows that under base assumptions, annual PFC revenue through 2009 should be sufficient to cover projected debt service payments. Given the fact that PFC revenue can be collected and banked for two years before construction begins, it is likely that debt service for Phase 1 terminal construction can be financed solely by PFC revenue.

Figure 11-5. Passenger Facility Charges and Debt Service – Phase I

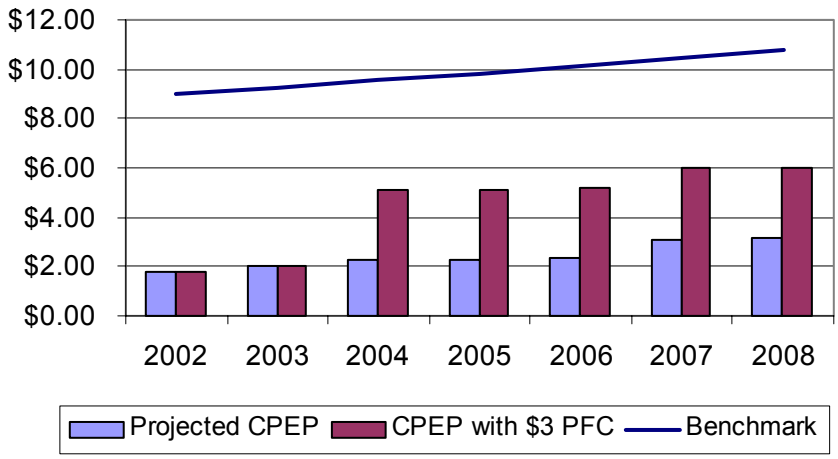


Source: IMG Financial Analysis

PFCs and Air Carrier Cost

A concern of instituting a PFC at St. Petersburg-Clearwater International Airport is the increasing airline cost per enplaned passenger (CPEP) a PFC would cause. **Figure 11-6** demonstrates, however, that the CPEP at PIE would still be well below the benchmark average of 15 competing airports. The benchmark is an estimate based on the other airports' responses to the 2002 AAAE survey.

Figure 11-6. Projected Cost Per Enplaned Passenger at Pie



Source: IMG Financial Model and Benchmark analysis

The PFC Process

Instituting a PFC at PIE is a fairly straightforward process. While consultation with signatory airlines is required, airline approval of the PFC is not. The FAA must approve the proposed PFC, including the dollar amount ($1, $3, or $4.50), the number of years of collection, and the limit on the total amount of PFC revenue that can be collected. PFC revenue must be used according to FAA guidelines, which generally allow for airfield or terminal development as long as the construction does not benefit one specific carrier. Thus, building common use gates and jet bridges with PFC revenue, as proposed at PIE, should likely be permissible. Once approval is granted, the Airport may begin PFC collections up to two years before construction commences. The PFC is collected by air carriers as a fee charged to the ticket of all outbound passengers.

11.5.4.3 Revenue Enhancement 3: The Potential for Land Development

PIE is located in one of the most attractive areas for development in Pinellas County, the Gateway Region. One of the last areas to be built out in the County, The Gateway Region has outstanding transportation connections to all areas of Pinellas County, with easy access to Tampa via the Howard Frankland Bridge. Furthermore, the Gateway Region, unlike the bulk of Pinellas County, has undeveloped and underdeveloped land that can be built out for high quality office space, retail, manufacturing/warehouse, and residential purposes.

The Airport owns a variety of land parcels near PIE that are not needed for airfield uses. These properties include road frontage along Ulmerton Road suitable for retail establishments, parcels that could be developed as office or service center, and airside property that can meet growing demand for general aviation facilities. In order to capitalize on this available land, the Airport recently hired a full-time staff member charged with managing Airport-owned property and helping to further develop it.

For analysis purposes, surplus airport property is separated into two categories. General airport property (GAP) includes a variety of individual land plots suitable for airside uses, office and light industrial uses, and road frontage suitable for retail development. The Airco Golf Course, a public facility of 129 acres adjacent to the airfield was acquired in 2000 and is now operated by the Airport. The long-term intention is to close the golf course and redevelop the property as a mix of aviation, light industrial, and office uses. Since it is a large contiguous area that will require a separate master planning process, the Airco Golf Course is considered separate from general airport property in the financial analysis.

In order to better understand the potential for development near the Airport, IMG interviewed four major local developers in September 2002, including The Hogan Group, Echelon Development, Airport Business Center, and Rubin Management. The consensus of these developers was that the Gateway is the most dynamic part of Pinellas County for development, despite a slowdown due to the soft economy. The region competes with the West Shore area in Tampa for corporate offices and campuses. Carillon, developed by Echelon and located in the Gateway Region, is the only Class A office space in Pinellas County.

General Airport Property

Airport staff expect that many of the excess land parcels will be developed in the coming years, providing revenue to the Airport in the form of land rent. The Airport does not expect to make improvements on the land nor collect any income beyond land rent. Analysis by Airport staff and consultants indicates that new revenue streams should begin in 2003 and phase in over six years. It is important to note that revenue from the land development must flow to the Airport; FAA rules prevent airport revenue from being diverted to other government uses.

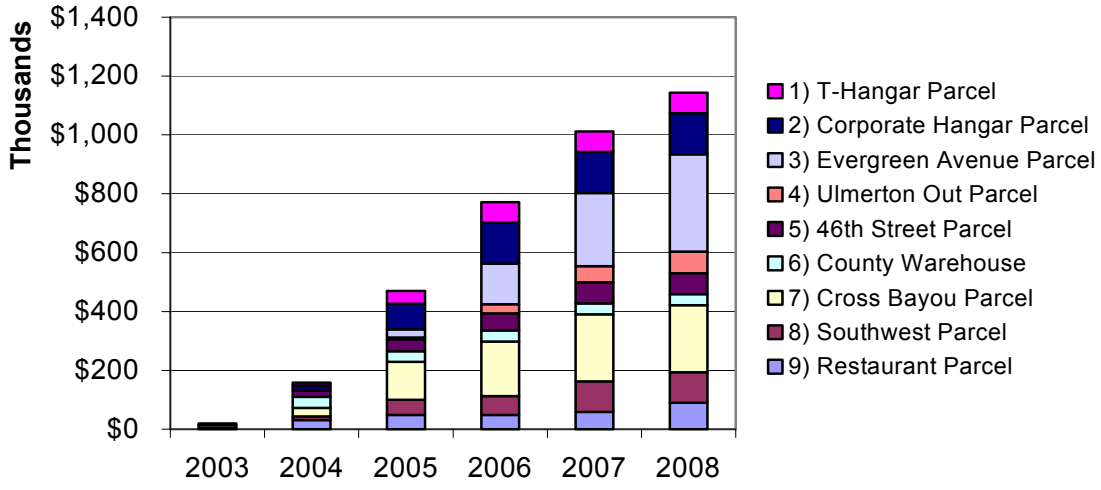
Table 11-4 shows the potential revenue streams from some of the major land parcels that are expected to be developed or redeveloped in the next five years. Revenue per square foot for various land uses is estimated based on current market rates and Airport staff analysis. At full build-out, new revenues from general airport property parcels is expected to total more than $1.35 million annually.

Table 11-4. General Airport Property Development

Land Developments	Type	Acres	Revenue per ft2	Expected Rent	Fully Developed
Restaurant Parcel	Retail	2.75	$0.75	$89,843	2008
Southwest Parcel	Office	7	$0.34	$103,673	2007
Cross Bayou Parcel	Office	9.5	$0.55	$227,601	2007
County Warehouse	Warehouse Service	1.10	$2.50	$112,500	2004
46th Street Parcel	Center	3.67	$0.45	$71,939	2007
Ulmerton Out Parcel	Retail	3.00	$0.75	$98,010	2009
Evergreen Avenue Parcel	Office	22.50	$0.45	$441,045	2009
Corporate Hangar Parcel	Airside	10.00	$0.32	$139,392	2006
T-Hangar Parcel	Airside	5.00	$0.32	$69,696	2006
TOTAL	--	**64.52**	--	**$1,353,699**	--

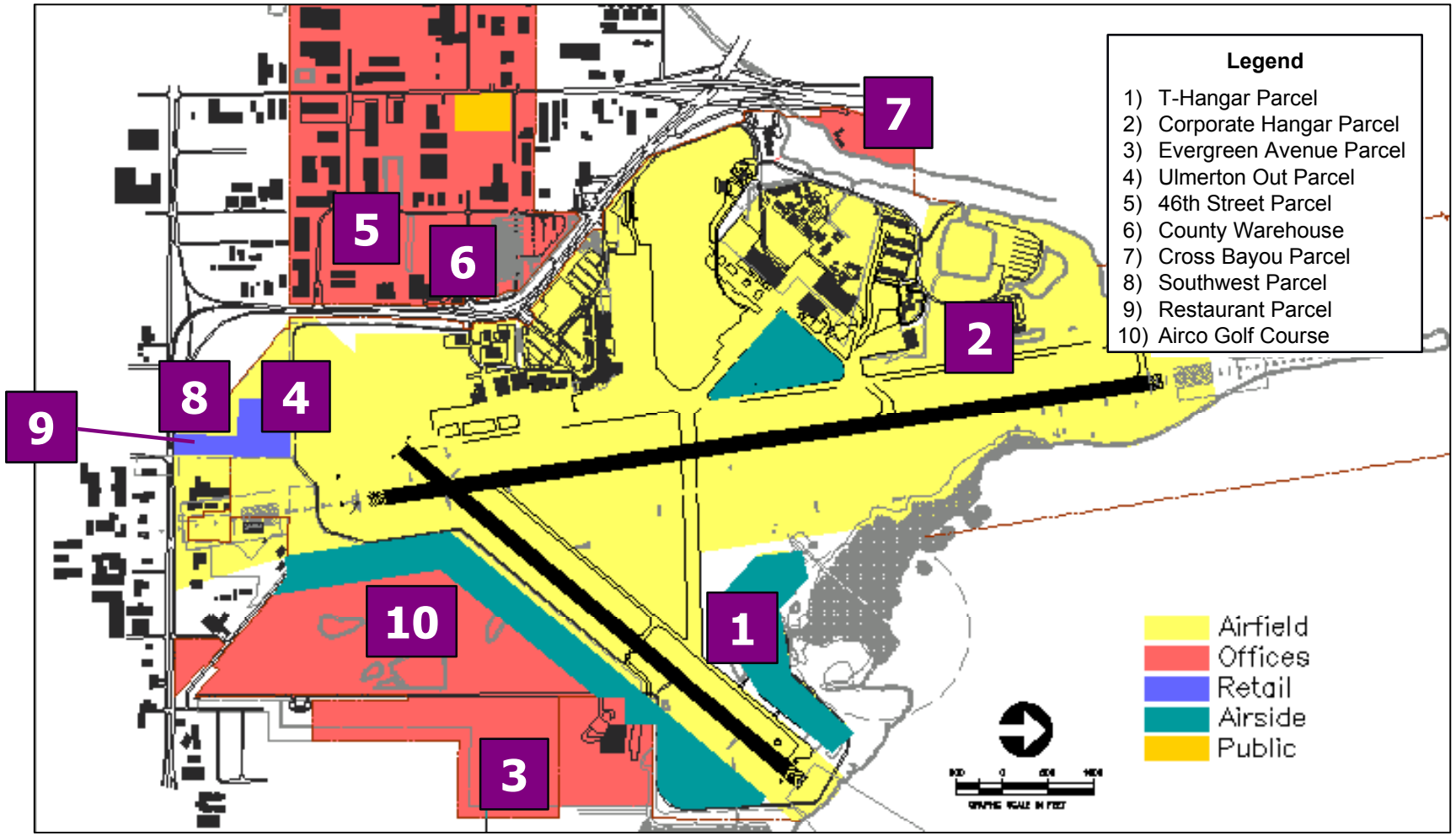
The development of General Airport Property will occur in stages. In some cases, such as the restaurant site, leases have already been signed and business activity is expected shortly. For others, such as Lot 42, a number of development options are under consideration. For most of the properties listed, the Airport has already been in contact with parties interested in developing or using the resources, and all can reasonably be expected to begin producing revenue for the Airport in the near future. **Figure 11-7** shows the expected phasing of land development revenue through 2007, while **Figure 11-8** below depicts the location of the development parcels in relation to the airfield.

Figure 11-7. General Airport Property Development Phasing



Source: PIE staff

Figure 11-8. Location of Airport Development Parcels



Airco Golf Course

In addition to the parcels listed above, since 2000 the Airport has been the owner and operator the Airco Golf Course, a public golf course adjacent to the airfield. Because operating a golf course is not the highest and best use of the property, the Airport intends to close the golf course and develop the property for airside uses, service center/light industrial, and office space. Ideally, the golf course would be leased to a developer who would build improvements and connect utilities. The golf course will cease operation after 2005. Airside uses are expected to be developed by 2007, with other development phasing in over the next 10 years. At full build out, redevelopment of the golf course is expected to generate approximately $1.8 million in annual rent for the airport. This assumes that 25 percent of available property will be consumed by infrastructure improvement, open space, or environmental mitigation. Since the golf course property development is somewhat more speculative than the other property development described above, the revenue is not considered in the base financial analysis.

Other Airport Properties

In addition to the properties discussed above, the development of other properties around the Airport may generate revenue in the future. Since these developments are not expected to occur within the next five years, they are excluded from the financial analysis. Key future developments include:

- Sunshine Speedway Property. The current speedway is envisioned as a multi-modal transportation center that will link the Airport with cross-Florida high-speed rail, local light rail, and automobile transportation. At full build-out, the transportation center would also include extensive commercial development that will bring land rent to the Airport. The Airport is in the process of obtaining funds to purchase this property, located across Ulmerton Road from the airfield.
- Airport hotel. Multiple sites are currently being considered for a hotel at or near the Airport. Besides providing direct revenue to the Airport, a hotel could increase corporate and commercial passenger traffic to PIE. The airport hotel may be built on Lot 42, part of the general airport property.

11.5.4.4 Revenue Enhancement 4: Concessions

As discussed in the benchmarking section of this report, PIE concession revenue is generally below what an airport of its size should expect. This is due in part to the poor layout of terminal concessions, with food service available only on floor above the passenger holding areas, and few food or concessions options beyond security barriers. The redevelopment of the terminal will enable the Airport to correct these problems, increasing the selection and convenience of concessions available. The financial model assumes that revenue from food concessions will rise from 10 cents per passenger to the benchmark average of 15 cents per passenger when the new terminal opens, while retail revenue will increase to the benchmark average of 14 cents per passenger from the current 8 cents. These two changes, along with increasing passenger volume, will raise terminal concession revenue to $282,000 in 2007 from $138,000 in 2002 in nominal terms.

11.5.4.5 Revenue Enhancement 5: Parking

In Fall 2002, PIE instituted parking fees of $2.00 for first hour then $1.00 for each additional hour up to $5.00 for long-term and $8.00 for short term. Parking revenue is expected to provide approximately $2.20 in revenue per enplaned passenger, generate at least $766,000 in new revenue in 2003.

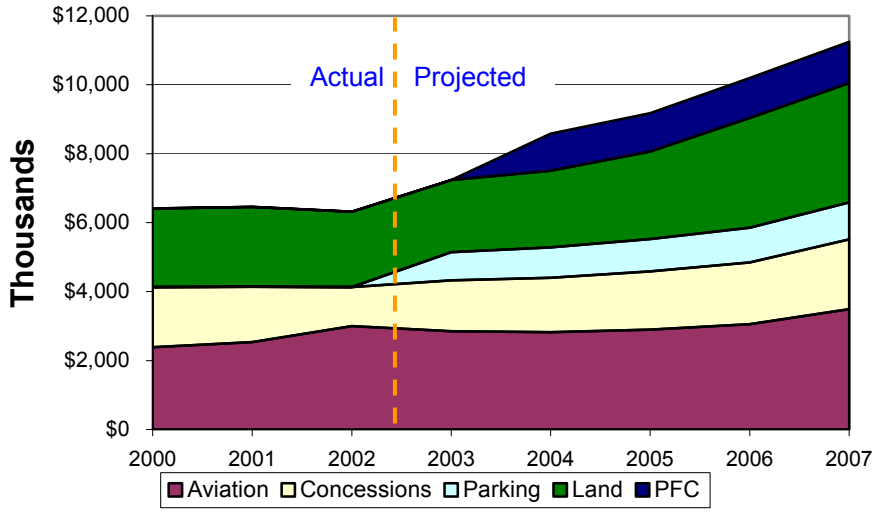
11.5.4.6 Revenue Enhancement 6: Terminal Facility Charges

Gate space at PIE is common-use (i.e., individual airlines do not lease gates). Each commercial aircraft utilizing a gate to unload and board passengers is assessed a terminal facility charge (TFC) of $25 by the Airport. However, PIE's largest carrier, ATA, is currently exempt from paying TFCs due to its agreement with the Airport. Airport staff envision increasing TFC revenue by removing ATA's exemption and by increasing the TFC charge to $75 when the new terminal opens in 2007. These two changes, in conjunction with traffic increases forecast in the master plan will increase TFC revenue from $27,000 in 2002 to $331,000 in 2007.

11.5.5 Summary Of Revenue Enhancements

Strong revenue growth is expected at PIE in the coming years. Total Airport revenue is estimated to increase by 78 percent to over $11 million over the next five years[6], using base case assumptions described in Section 11.6. Aviation and terminal revenues due to increasing passenger traffic will account for approximately one quarter of the revenue increase, while new revenue streams will be the major source of rising income. **Figure 11-9** below shows the breakout of revenues from 2000 to 2007.

Figure 11-9. Airport Revenue 2000-2007[7]



Source: IMG Financial Analysis

[6] Figures exclude Golf Course property development revenue
[7] "Other" revenue included in Aviation

11.6 PIE CAPITAL PROGRAM

The master plan includes a detailed program of capital expenditures at PIE through 2022. In all, over $200 million in spending is included, divided into three major areas: Terminal, parking deck, and airfield improvements. Since it is still speculative, and the sources of funding unclear, the acquisition of the Sunshine Speedway property is excluded from this analysis. Capital improvements will occur in four phases, as summarized in **Table 11-5** below.

11.6.1 Terminal Capital Program

As discussed in section 11.3, a three-phase terminal project is envisioned to cost $44.9 million in 2002 dollars, including all fees and contingencies. Most terminal costs will be paid 50 percent by the FAA, and 25 percent each by the Airport and the State of Florida.

11.6.2 Parking

In order to accommodate increasing passengers, as well as to free up the current overflow parking lot, the updated master plan calls for building parking structures on the current PIE parking lot. The three-phase project will occur in 2007, 2012 and 2022, and cost a total of $19.8 million in 2002 dollars. It is expected that the Airport and the State of Florida will each pay 50 percent of the cost.

11.6.3 Airfield

In addition to the areas of the Airport serving commercial passengers, the master plan calls for $163 million in spending on upgrading the aviation facilities at PIE. Items included in this figure include the extension of runway 17L-35R to 10,000 feet to accommodate non-stop international traffic to Europe and South America; improved runways, taxiways, and aprons; and upgraded cargo and general aviation facilities.

Costs related to airport capacity are generally funded 90 percent by the FAA, and 5 percent each by the Florida and PIE. Other costs are either paid half by the FAA with the State and PIE splitting the remainder, or are split between the State and PIE without federal support. Costs prior to 2005 are not included in the debt borrowing in the financial model and will be paid by the Airport using cash available from operations.

Table 11-5. Master Plan Update Capital Program 2002-2022

Capital Program	2003-2007	2010-2012	2016-2017	2022	TOTAL (2002 $)
Terminal	$20,156,321	$17,796,602	$6,913,660	$0	$44,866,583
Airfield	$53,268,915	$32,798,773	$21,113,080	$30,346,560	$137,527,328
Garage	$3,800,160	$14,040,000	$0	$2,012,400	$19,852,560
Total	$77,225,396	$64,635,375	$28,026,740	$32,358,960	$202,246,471
Federal Cost	$41,200,988	$22,548,260	$12,786,230	$17,764,920	$94,300,398
State Cost	$14,216,364	$18,710,758	$6,295,455	$5,972,220	$45,194,797
Private Cost	$7,591,680	$6,111,000	$3,411,000	$3,411,000	$20,524,680
PIE Cost	$14,216,364	$17,265,358	$5,534,055	$5,210,820	$42,226,597

Source: PBS&J and Avcon, excludes $20 million for acquisition of Sunshine Speedway Property

11.7 FINANCIAL MODEL BASE ASSUMPTIONS

The financial model is designed to test a wide range of assumptions and scenarios in order to determine the sensitivity of the terminal project to future financial conditions. The base case is the scenario considered most likely to occur by Airport staff and consultants. Alternate scenarios were also analyzed that test the viability of the project if key figures such as passenger traffic, operating revenues and expenses, and capital costs vary from the base case assumptions. The base case scenario includes the key assumptions described below. Please see the financial model assumptions book in the Appendix for more detailed assumptions.
Revenues:

- The “Most Likely” passenger traffic forecast prevails. This excludes new service recently initiated by ATA, Southeast, Sun Country, and Skyservice
- General airport property development is phased in as shown in **Figure 11-7**. New revenues from property development total $1.1 million by 2008
- Service center and office development on Airco Golf Course development does not occur before Phase I is completed; airside development does occur
- A $3 PFC is instituted in 2004
- Terminal facility charges are assessed on ATA and rise to $75 per aircraft in 2007
- Terminal concessions revenue per passenger rise to benchmark levels after Phase I terminal construction is completed.

Operating Expenses:

- Operating costs for 2003 were estimated by Airport staff
- Additional costs for new staff are programmed through 2012
- Long term costs rise 2 percent per year in real terms plus 3 percent inflation.

Capital Program:

- Full capital program as described in Section 11.6
- Significant financial contributions are expected by the FAA and the State of Florida, as describe in Section 11.6
- Terminal construction begins in 2005, with Phase 1 completed by 2007

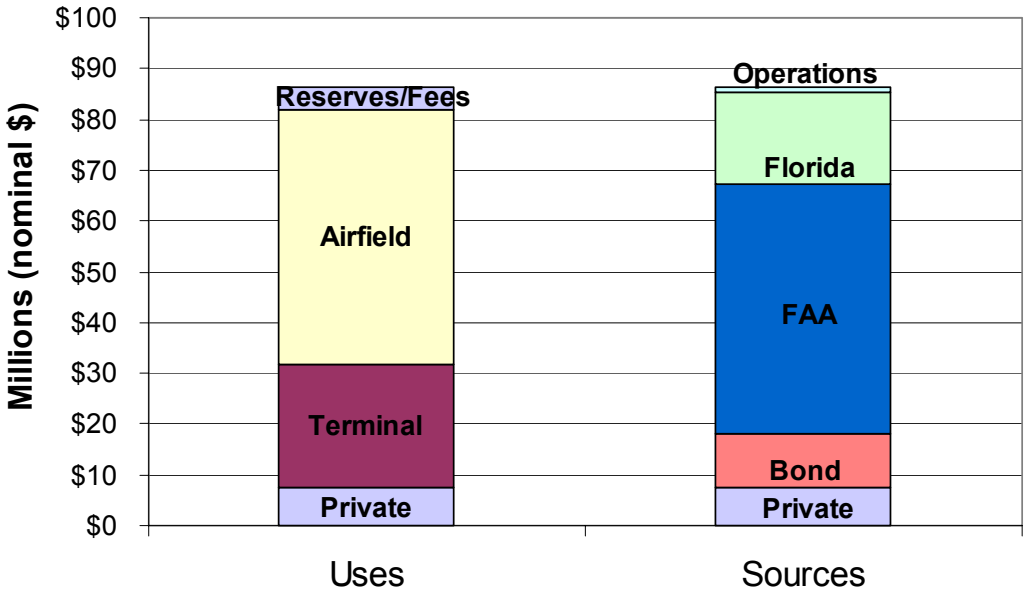
Financing:

- Operating profits and a GARB, also backed by Pinellas County, will cover the local share of capital costs. The bond issuance is expected to total $10.6 million for Phase 1
- Bond will have 20-year yield term and pay 6.5 percent interest
- Interest payments begin in 2005; principal repayment begins in 2007
- The Airport bonds will be "double-barreled," supported by Airport revenues and the County.
- There is precedent for the County backing Airport bonds; $3 million of Airport revenue bonds were sold in 1975 and backed by Pinellas County. The bonds were retired without County support.
- Debt service coverage must be greater than 125 percent of annual debt for bond to be feasible.

11.8 SOURCES AND USES OF FUNDS IN THE BASE CASE

Figure 11-10 below shows the sources and uses of funds in the base case. These funds exclude costs that will be incurred by private parties since such costs are external to the financial feasibility analysis. Total public costs for Phase 1 construction are $93.3 million in nominal dollars, including reserve requirements and lending fees. Grants from the FAA, the State of Florida, airport operating profits, and a $10.6 million bond will be used to pay these costs.

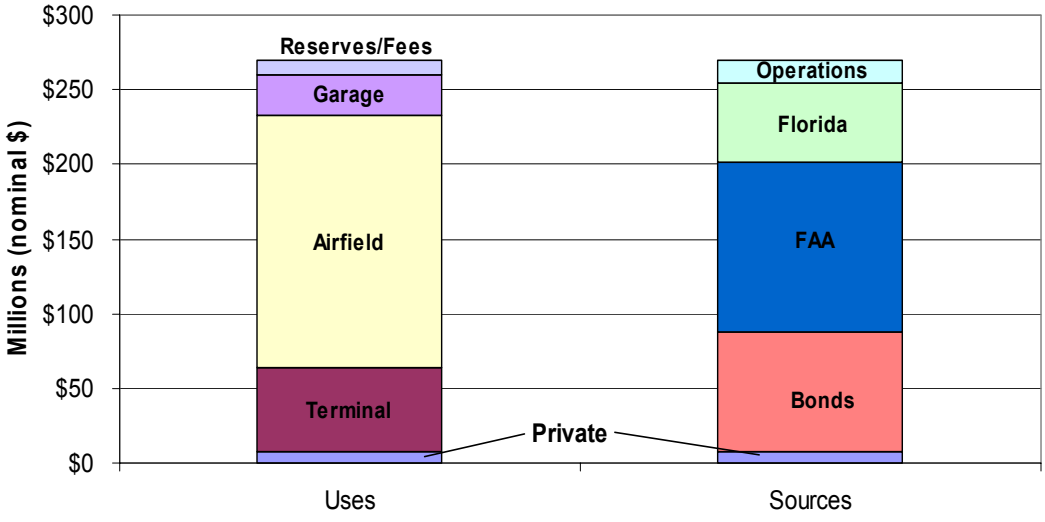
Figure 11-10. Sources and Uses of Funds – Phase 1



Source: IMG Financial Model

Sources and uses of funds for all four borrowing phases (including Phase 1) are shown in **Figure 11-11**. Total nominal costs are approximately $270 million in nominal dollars, including $80.6 million in Airport bonds.

Figure 11-11. Sources and Uses of Funds – All Phases



11.9 AIRPORT'S ABILITY TO FUND LOCAL SHARE OF CONSTRUCTION

A key financial consideration is the Airport's ability to fund the local share of the planned improvements in the early stages of the project. The following table summarizes the key financial data for the first six years of the project. Cash flows are tight 2003, but strengthen substantially with the introduction of PFC revenue in 2004 and forecast traffic growth. By the time of the first debt borrowing in 2005, the Airport is expected to be generating annual surpluses at least twice the estimated debt service payment.

Table 11-6. Annual Cash Flow Summary 2003-2008 (Nominal Dollars)

	2003	2004	2005	2006	2007	2008
Revenue						
Aviation	$1,010	$1,131	$1,197	$1,273	$1,613	$1,711
Rents	$1,475	$1,576	$1,683	$1,794	$2,019	$2,152
Commercial	$1,416	$1,486	$1,586	$1,653	$1,751	$2,341
Other Operating	$914	$978	$1,045	$1,116	$1,190	$1,269
Non-Operating	$3,936	$3,894	$4,155	$3,204	$3,475	$3,624
PFC Revenue	$0	$1,080	$1,121	$1,161	$1,202	$1,245
Total Revenue	*$8,750*	*$10,146*	*$10,787*	*$10,202*	*$11,250*	*$12,342*
Operating Expenses						
Grounds Maintenance	$696	$731	$768	$807	$848	$891
Building Maintenance	$816	$857	$901	$946	$994	$1,045
Airport Operations	$810	$851	$894	$939	$986	$1,036
Janitorial	$442	$464	$487	$512	$538	$565
Administration	$2,510	$2,637	$2,770	$2,911	$3,058	$3,213
Fire and Rescue	$1,131	$1,188	$1,248	$1,312	$1,378	$1,448
Security and Police	$337	$354	$372	$391	$411	$432
Utilities	$440	$463	$486	$511	$536)	$564
AFSS	$67	$71	$74	$78	$82)	$86
Other Operating Costs	$1,227	$1,307	$1,346	$0	$0	$0
Total Operating Expenses	*$8,477*	*$8,923*	*$9,347*	*$8,406*	*$8,832*	*$9,279*
Total Construction Costs	$17,039	$6,993	$11,761	$15,870	$25,084	$0
PIE Construction Costs	$0	$1,067	$3,036	$3,759	$6,939	$0
Debt Borrowings (GARB)	$0	$0	$10,569	$0	$0	$0
Debt Service Payments	$0	$0	($687)	($687)	($959)	($959)
Project Cash Flow	($1,310)	($120)	$44,577	($15,058)	($24,191)	$2,198
Ending Cash Balance (& liquid investments)	$1,309	$1,189	$45,766	$30,708	$6,517	$8,715
Debt Service Coverage Ratio	NA	NA	2.07x	2.57x	2.47x	3.14x

11.10 SCENARIO ANALYSIS

A variety of scenarios changing one or more assumptions from the base were also analyzed in order to determine the feasibility of the project if unexpected conditions arise. Each of the major assumptions categories (i.e., revenue, OPEX, capital program, and financing) were altered, both individually and in groups. After careful analysis the seven alternate scenarios presented below were determined to capture the most likely development scenarios at the Airport. For each alternate scenario, all assumptions are the same as the base case except as described.

Scenario 1: Base case
Scenario 2: Airco golf course office and service center development occurs
Scenario 3: High traffic scenario prevails
Scenario 4: High traffic but no general airport property development
Scenario 5: No PFC
Scenario 6: $1 PFC
Scenario 7: Airfield Capital Program reduced by 25 percent (terminal and garage stays constant).

The purpose of the scenario analysis is to determine the conditions that will enable the project to be financially feasible. By understanding these conditions, Airport staff and County administrators can make policy decisions most likely to achieve success.
The relative size of the bond necessary to finance each construction phase is a shorthand gauge for how strong the financial feasibility is for a given scenario. Scenarios that have higher financing requirements generally also have tighter debt service coverage ratios.

11.11 RESULTS

The results of the Scenario analysis are summarized in **Table 11-7**.

Table 11-7. Summary Of Results

Scenario	Phase 1 Feasible	Phases 2-4 Feasible	Borrowing (Millions of nominal dollars)			
			Phase 1	Phase 2	Phase 3	Phase 4
1) Base	Yes	No	$10.6	$28.6	$10.5	$30.9
2) Airco and GAP Development	Yes	Yes	$10.6	$23.6	N/A	$1.3
3) New Service	Yes	Yes	$2.9	$7.4	N/A	N/A
4) New Service & no GAP	Yes	Yes	$3.5	$14.2	N/A	N/A
5) No PFC	No	No	$11.0	$37.6	$17.0	$30.9
6) $1 PFC	No	No	$11.0	$34.9	$17.0	$30.9
7) 75% Airfield CAPEX	Yes	Yes	$6.8	$22.3	$0.3	$13.4

11.11.1 Phase 1 Feasibility

Phase I development is feasible under the base case. Debt service coverage ratio (DSCR) never drops below 2.07x debt service, well above the 1.25x requirement. As

shown in **Table 11-8**, the first phase is also appears feasible under Scenarios 2, 3, 4 and 7. Scenarios 5 and 6 however are problematic, as minimum DSCR drops below 1.25. Key points about Phase 1 feasibility include:

- In most scenarios, debt service coverage is tightest in the first years after borrowing and increases throughout the length of the project
- Debt service payments in the base case will be $1.0 million per year
- In Scenario 5 (No PFC), coverage ratios are below the minimum in the first three years, and are adequate after that. However the feasibility is extremely sensitive. This is demonstrated by assuming a rise in long-term operating costs to 3 percent, in which case debt coverage never achieves the minimum throughout the life of the project.
- In Scenario 6 ($1 PFC), debt service coverage is below the minimum in the first year after borrowing but is adequate after 2006.

11.11.2 Phase 2, 3, and 4 Feasibility

The financial feasibility of Phases 2-4 is of secondary importance in this analysis. Major components of these phases, including the terminal, will only occur when passenger traffic requires Airport growth. Furthermore, a separate financial analysis using current data will have to be conducted prior to undertaking any of the latter phases since forecasts used in the model are most reliable in the early years.

Phases 2, 3 and 4 are not feasible in the base case. When the second borrowing occurs in 2010, the Airport will not be generating enough revenue to cover the combined debt service payments of $2.8 million (rising to $3.6 million in 2012) for the Phase 1 and Phase 2 loans. Coverage problems continue throughout Phases 3 and 4 in the base case. The base case is the only scenario in which Phase 1 is feasible but the latter Phases are not.

Some key points regarding Phases 2, 3, and 4:

- Scenario 7 was created by reducing airfield CAPEX until all four phases became feasible. The purpose is to demonstrate the amount of construction the Airport can afford in the base case.
- Scenarios 3, and 4 generate enough revenue that no debt borrowing is necessary for Phases 3 and 4. In Scenario 2 no borrowing would be necessary for Phase 3, but, Phase 4 would require a small bond.

11.11.3 Sensitivity Analysis

The Scenario analysis tests different assumptions about Airport revenues and expenses that will be affected for the most part by policy decisions. The sensitivity analysis differs in that it tests whether or not the project will remain feasible if financial and operating conditions vary from the base case. Each sensitivity below begins with the base case, then adds the component described.

Sensitivity 1: Operating costs 10 percent higher than expected each year
Sensitivity 2: 10 percent higher CAPEX
Sensitivity 3: 1 percent interest rate rise
Sensitivity 4: 1 percent inflation increase
Sensitivity 5: 10 percent traffic reduction

The results of the sensitivity analysis are presented in **Table 11-8**. The sensitivities show the strength of the base case, as Phase 1 is feasible under all but under sensitivity 1. Sensitivity 1 shows the importance of operating expenses, as a 10 percent rise will make Phase 1 unfeasible.

However, Phases 2, 3 and 4 are not feasible under any of the sensitivities. As discussed above, these projects will only be undertaken when future traffic warrants.

Table 11-8. Results of Sensitivity Analysis

Scenario	Phase 1 Feasible	Phases 2-4 Feasible	Borrowing (Millions of 2002 dollars)			
			Phase 1	Phase 2	Phase 3	Phase 4
Sensitivity 1: 10% higher OPEX	No	No	$11.0	$37.3	$17.0	$30.9
Sensitivity 2: 10% higher CAPEX	Yes	No	$12.1	$33.2	$16.2	$34.0
Sensitivity 3: 1% Interest Rate Rise	Yes	No	$10.8	$30.0	$14.0	$31.0
Sensitivity 4: 1% Inflation Rise	Yes	No	$11.7	$36.0	$19.3	$43.2
Sensitivity 5: 10% traffic reduction	Yes	No	$11.0	$32.8	$17.0	$30.9

11.12 CONCLUSIONS

As demonstrated by the scenario analysis, the financial feasibility of Phase I rests on a number of key factors:

- PFC charges should be implemented at PIE. As the only commercial airport in Florida that does not have a PFC, PIE is placing itself at a financial disadvantage. Although air carriers at PIE are attracted to the Airport's low cost per enplanements, each carrier flies to other airports that impose a PFC, demonstrating that PFC charges are not, by themselves, likely to drive carriers away. Furthermore, landing costs at PIE will remain well below those at Tampa International Airport, which has a $4.50 PFC.
- Operating costs must be held in check. Between 1997 and 2002, PIE's operating costs in constant dollars rose at an annualized average growth rate of 4 percent, excluding non-operating revenues and expenses. The model assumes a 2 percent real growth rate after 2003. This assumption, while aggressive, is also realistic. IMG's experience demonstrates that operating costs should rise about 40 percent as quickly as passenger growth. Long-term passenger growth in the master plan forecast grows at an average annualized rate of approximately 3 percent over the next 20 years. Therefore, a 2 percent real operating cost growth is actually well

above the expected growth rate of 1.2 percent. Furthermore, the Airport's primary costs are staff, and new employee costs are incorporated in the model for the next ten years.

- New revenue streams must become available. Whether through increased passenger traffic, new terminal revenues from increasing concessions and terminal facility charges, or new land development revenues, the Airport must establish consistent new revenue streams to make the terminal development feasible. In particular, if high passenger traffic is realized, the project will be feasible under almost any other set of assumptions.
- Land development also greatly enhances the financial feasibility of the project. Without either new service or land development, financing for the project will likely not be obtainable. However, if the Airport is able to capitalize on its real estate assets, particularly by developing the Airco Golf Course, a steady stream of revenue will be created that will more than cover debt service.
- The base case traffic forecast is conservative. Although traffic has been variable at PIE throughout the Airport's history, with new service already underway enplanements in 2003 are likely to reach levels not forecast in the base case to occur until 2020. In addition, the base case forecast was made based on current realities at PIE. The capital program is designed to make the Airport more attractive to air carriers. Investing in the Airport may help to generate new service; it is not simply a response to projected needs. Furthermore, this analysis excludes new international passengers that are expected to utilize the Airport upon the extension of Runway 17L/35R to 10,000 feet. Up to 163,000 new international passengers are expected.
- County support for Airport bonds is important. If the County does not support the bonds, higher interest rates may prevail, making the capital projects less feasible or difficult to implement at all. There is precedent for such bonds; the County supported an Airport bond of $3 million in 1975, which was subsequently retired without contributions from the County. Furthermore, double-barrel bonds were issued to support Panama City-Bay County Airport in 1993 when Panama City and Bay County pledged funds to back a $5.15 million GARB.

ECONOMIC IMPACT ANALYSIS

St. Petersburg-Clearwater International Airport

12

12.1 EXECUTIVE SUMMARY

Infrastructure Management Group ("IMG"), Inc., has carried out this Economic Impact Analysis of the St. Petersburg-Clearwater International Airport ("PIE" or the "Airport") in conjunction with the ongoing PIE master plan update, in association with the PBS&J master planning team. The aviation activities at the Airport create jobs and economic activity benefiting the County and the Airport provides an important transportation hub that brings visitors to the County's recreational and tourist sites. This Economic Impact Analysis outlines the economic contribution of the Airport to the Pinellas County economy.

12.1.1 Background

PIE has embarked on updating its master plan for the first time in over 20 years. The updated master plan will outline a consistent set of development and operational objectives and identify capital improvements necessary to reach those objectives. The improvements contemplated by the updated master plan are necessary to make more effective use of existing Airport resources and to keep up with changes in the aviation marketplace and, most importantly, to better serve Airport customer needs. The Airport's customers include a broad variety of commercial airlines and their passengers, corporate and general aviation, and military operations.

The planned capital improvements will also make possible expanded international flights and enable the Airport to provide for rapidly growing corporate aviation needs. The proposed extension of runway 17L/35R to 10,000 feet will enable PIE to accommodate non-stop service to Europe and Latin America. In April 2003, the Federal Aviation Administration approved the benefit-cost analysis addressing PIE's proposed runway extension, indicating the substantial expected air travel benefits related to this particular improvement.

12.1.2 Types of Activities at the Airport

The Airport is fortunate to have attracted a broad mix of private and public sector activities that contribute to the vitality of the Pinellas County economy. The existence of a competitive and low-cost airport in Pinellas County contributes to the private and public investment in the tourism sector and provides a competitive edge to attract and sustain the new growth in technology industries, which need to move cargo and personnel around the domestic and global marketplace.

The most important activity sectors at the Airport are:

- Commercial airlines, their passengers, and related services
- General and corporate aviation services; flight and maintenance training
- Military facilities, including the Coast Guard air station
- Freight carriers, such as UPS and Airborne Express
- Other aviation support services

12.1.3 Methodology for the Impact Analysis

IMG's analysis of economic contribution involved an on-site examination of virtually all activities at the Airport, combined with application of a sophisticated regional economic model to project the remaining indirect and secondary effects that result throughout the County economy. IMG identified three major components of economic activity at the Airport; tenant contributions, visitor spending, and capital expenditures at the Airport.

IMG obtained and augmented Airport tenant lists and conducted in-person and telephone interviews with virtually all airline operators and Airport tenants servicing or using PIE, including military users such as the Coast Guard, federal, state and local government employees, and private sector tenants. Based on this research, a relatively complete tally of tenant employment, payroll, revenue, and expenditures was possible, providing the basis for the compilation of the direct economic impact.

Spending by travelers who arrive at PIE via air carrier or general aviation is a key component of the Airport's economic impact. Pinellas County has excellent data on visitor spending that was used to project the economic contribution of visitors

Capital spending for construction and other durable improvements on the Airport will enhance the effectiveness of Airport operations and support continued traffic growth in all segments of those operations. Capital spending includes both the intermittent Airport improvements and special tenant projects, and the ongoing capital expenditures of the various tenants. This capital spending provides additional contributions to the local economy as construction companies assemble labor and material to carry out the improvements.

All of these initial, direct economic impacts related to Airport activities have secondary effects that flow through the economy, called multiplier effects. The multiplier effects have been measured by the Regional Economic Models, Inc. (REMI) Policy Insight Model, a nationally recognized regional model that is used by a variety of public and private entities to estimate the impacts of policy changes and key employment centers.

12.1.4 Findings

Infrastructure Management Group identified 57 private and public organizations that are operating at PIE. PIE-based organizations showed a combined employment level of 1,648 jobs. Each job directly-related to PIE activity generates income and another round of aviation and visitor spending that produces additional jobs and additional spending in the regional economy.

12.1.5 Direct Impacts

The direct economic impacts and contributions of the Airport were identified as follows:

- A total of at least 1,648 jobs were identified as directly associated with Airport tenants
- Visitor spending directly associated with the aviation passengers, mostly arriving by commercial airlines, was estimated to be $128 million
- Additional spending directly associated with the new international visitors would not begin until 2005, upon completion of the runway extension, and was estimated to begin at $42 million in that year.

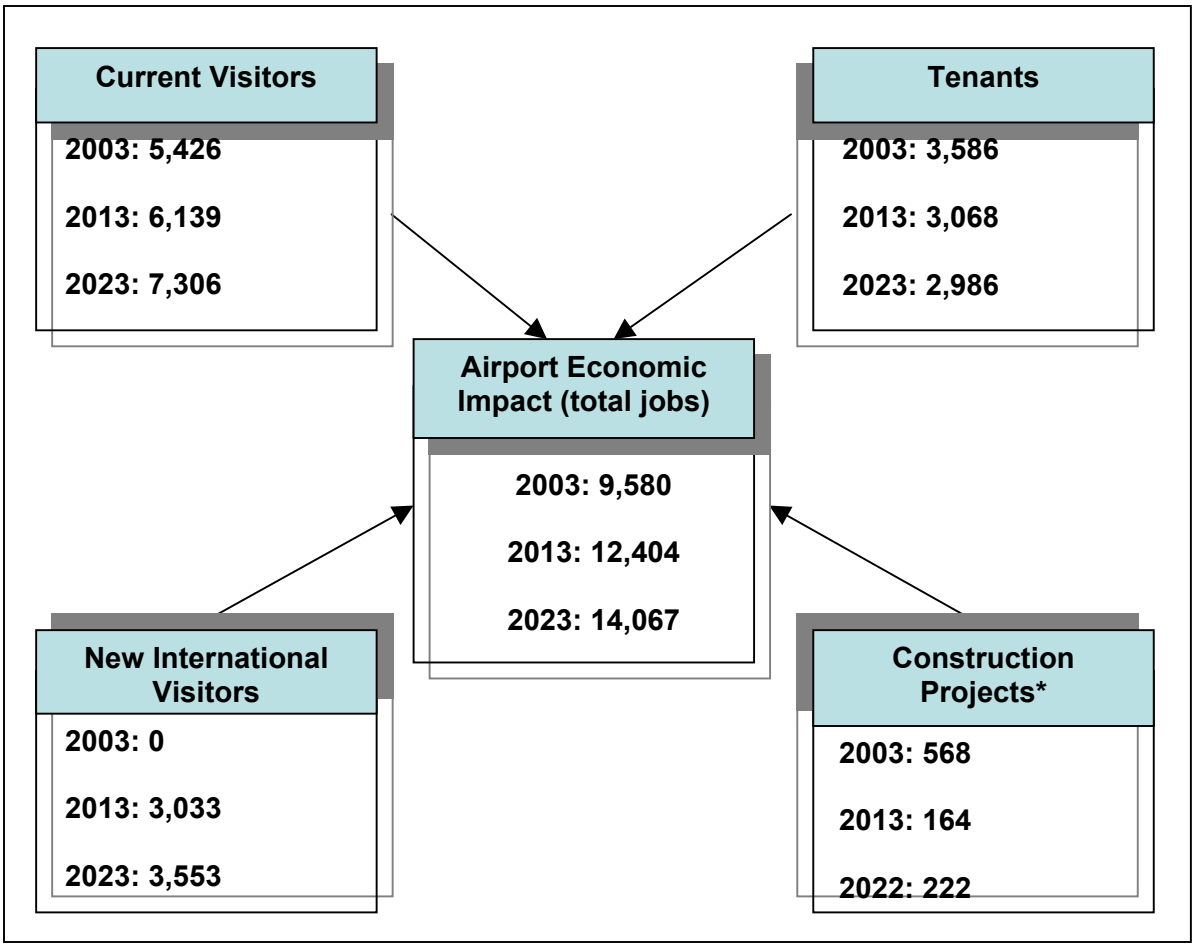
12.1.6 Total Employment Impact

The air carrier, tenant, and visitor activities generated at the Airport are responsible for a combined total of 9,580 jobs in Pinellas County (for 2003). These 9,580 jobs reflect the overall employment impact generated by the Airport related to specific components shown in **Figure 12-1**:

- There are at least 3,586 jobs at or near the Airport that are directly related to PIE's aviation facilities, their tenants, and the passengers that arrive and depart PIE
- Current air passengers who are visitors arriving for tourism inject additional spending into the County's tourist service businesses and create an additional 5,426 jobs (for 2003)
- In addition, new international visitors associated with Airport improvements will generate an additional 1,728 jobs in 2005, rising to 2,889 in 2008; non-stop international service is not available for 2003
- Capital spending at the Airport, including ongoing tenant investments and the improvements incorporated in the PIE master plan, will generate another 568 jobs per year on average (for 2003-2007).

As passenger traffic follows projected growth patterns, the total employment impact will grow to 12,404 in 2013 and to 14,067 by 2023.

Figure 12-1. Total Jobs Generated by PIE Airport: Current Visitors, Tenants, New International Visitors and Construction Projects



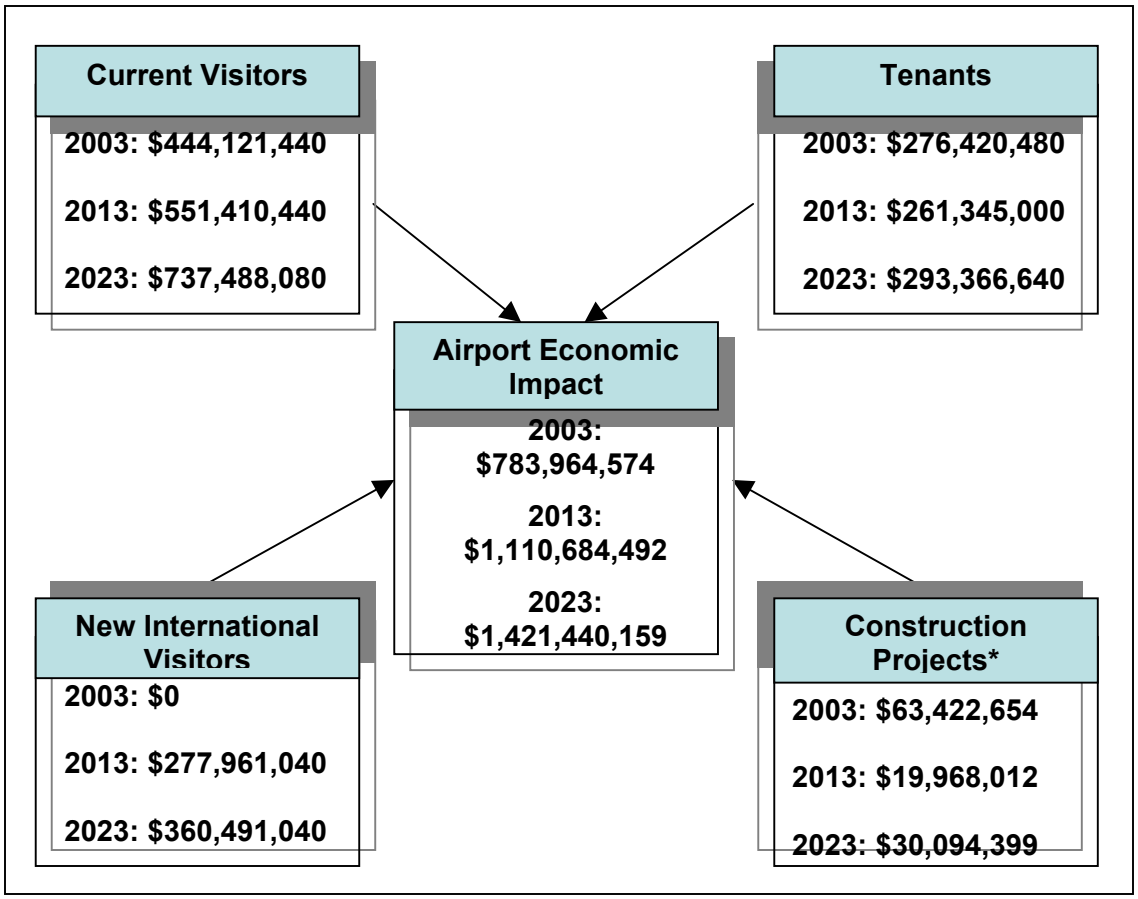
12.1.7 Total Output Impact

The Airport contributes a combined total of at least $784 million in overall output and expenditures to the regional economy of Pinellas County. This economic contribution includes the direct and indirect expenditures stemming from the Airport-related tenant businesses, visitor spending, and capital construction activities. As illustrated in the following **Figure 12-2** this total consists of:

- $276 million in expenditures related to tenants on the airport
- Expenditures of $444 million from the impact of tourism expenditures from current visitors arriving through the Airport (for 2003)
- No 2003 output from new international visitors, but an additional $256 million by 2008
- An estimated $63 million of output (average per year) related to capital expenditures at the Airport.

As passenger traffic follows projected growth pattern, the total Airport economic impact will grow to $1.1 billion in 2013 and to $1.4 billion by 2023.

Figure 12-2. Total Output Generated by PIE Airport: Current Visitors, Tenants, New International Visitors and Construction Activity



** Please note that due to data fluctuations, the numbers used for construction projects are not actual yearly figures, but are five-year averages, i.e., data for 2003 is an average of data for 2003-2007, etc.*

12.1.8 Tax Revenue

Economic activity generates tax revenues. These Airport-related activities will result in additional tax revenues to the County. Three specific taxes that would be directly associated with visitors using PIE were calculated: the County lodging tax; the County portion of the sales tax, and the County motor fuel tax. The total revenues for these three taxes related to Airport-related spending are estimated to be $3.4 million in 2003, growing to $7 million in 2013, and $9.4 million in 2023.

12.2 INTRODUCTION

Infrastructure Management Group ("IMG"), Inc., has carried out this Economic Impact Analysis of the St. Petersburg-Clearwater International Airport ("PIE" or the "Airport") in conjunction with the PIE master plan update, acting in association the PBS&J master planning team.

An Economic Impact Analysis identifies and quantifies the economic contribution of the Airport to the Pinellas County economy. The provision of aviation services and the airport facility itself create a direct economic impact in terms of jobs at the Airport and visitors arriving to Pinellas County. These aviation-related direct impacts then create

regional economic activity beyond the Airport as visitors purchase services in the economy and the incomes generated in turn flow through the economy.

It is important for Pinellas County policymakers and the public to appreciate the significance of the Airport to the Pinellas County economy. As PIE completes an update of its master plan, and considers the capital improvements necessary to reach its operational objectives, this Economic Impact Study seeks to contribute to that understanding.

12.2.1 History and Brief Description of the Airport

The Airport is centrally located in Pinellas County on the west shoreline of Tampa Bay north of St. Petersburg. Initial construction of the Airport took place in 1941 on a 939-acre tract of County land. After Pearl Harbor, the Airport was used as an Army Air Force military base and served as a military flight-training base for the duration of the Second World War. During that period, the federal government acquired additional land surrounding the Airport and constructed various improvements including buildings, airfield lighting, and drainage.

Subsequent to the end of the war, an expanded and improved Airport reverted to Pinellas County ownership and operation. Today, the Airport is managed by an Airport Director under the jurisdiction of the Board of County Commissioners of Pinellas County. The Airport has continued to expand and improve its facilities over the years and now comprises a 2,000 acre complex completely equipped and certified to handle virtually any size airplane. An Airport Industrial Park provides high-tech business center facilities and office space for a broad range of tenants, and has been designated as a Foreign Trade Zone to encourage local participation in international trade.

12.2.2 Activities at the Airport

The Airport is home to many private businesses and public organizations that play an important role in the regional economy. PIE is consistently a substantial contributor to the local County economy because it has such a diversified mix of productive activities taking place across several different sectors of the aviation community. The most important of these sectors are:

- Commercial airlines, their passengers, and related services, including Southeast Airlines, American Trans Air (“ATA”), Air Transat, CanJet Airlines, Sun Country, Conquest Vacations, and Seacoast Airlines.
  - One of these commercial carriers, Southeast Airlines, is based in Pinellas County
- General and corporate aviation services; flight and maintenance training, including the National Aviation Academy
- Military facilities, including the Coast Guard and US Army Reserve
  - The Coast Guard Air Station Clearwater is the largest in the country and provides search and rescue operations and drug interdiction for the Gulf of Mexico and the Caribbean
- Air freight carriers, such as UPS and Airborne Express
- Various aviation support services, such as the regional flight services station

The existence of this range of aviation services is especially important for Florida’s economy in general, according to a statewide assessment of aviation in Florida sponsored by the Florida Department of Transportation (“FDOT”). According to the FDOT study, the two largest drivers of Florida’s economy are (1) international trade and (2) travel and tourism. Air cargo shipments account for more than one-third of

international trade dollars and over half of Florida's visitors arrive using aviation transportation services. In fact, in its summary of the statewide report, FDOT makes a clear statement about the economic role of aviation in Florida when it states that:

"Florida does not work without airports.…Florida's system of airports must continue to expand at a rapid pace if it is to meet the future transportation and business needs of the State[1]."

PIE plays an important role in providing all of these aviation services, while delivering large numbers of recreational and commercial visitors to Pinellas County. While PIE is not counted among the largest commercial service airports in Florida, such as Orlando International or Miami International, it is home to substantial commercial aviation activity. In the statewide FDOT study, PIE is placed with 13 small and medium-sized Florida airports in the category of "other commercial service airports." Within that category, however, PIE is larger than eight of the airports in that subgroup.

For all 13 airports in this category, visitors comprise over half of the enplaning passengers, and those visitors stayed in Florida an average of just over one week (7.6 days per commercial passenger visitor) and spend over $900 during that stay. This economic boost derived from visitors compares favorably with the typical passenger at the larger commercial airports. For PIE, visitors make up 53% of deplaning passengers and spend somewhat less, according to survey data in the FDOT study[2].

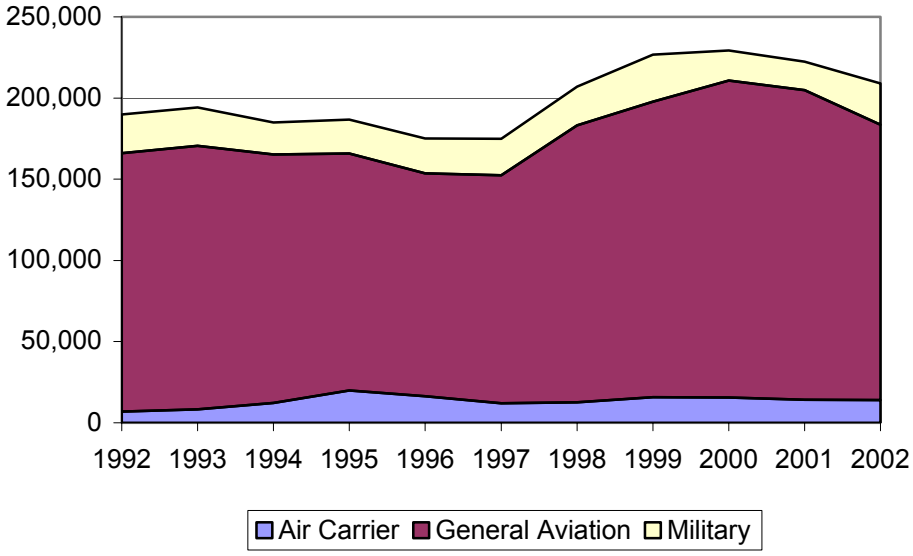
Although PIE activities were hard hit by the aftermath of September 11, the local economy and the region's ability to attract visitors remains strong. In fact, Airport passenger traffic has rebounded in 2003, with the initiation of new or expanded service by Southeast Airlines, ATA, and Sun Country.

PIE has a strong mix of general aviation, corporate, and military operations using the airfield, so that commercial passengers are only one part of the aviation activities. The recent history of operations at the Airport is shown in **Figure 12-3**.

[1] Florida Airports Economic Impact Study, August 2000, FDOT Aviation Office Summary

[2] FDOT Aviation Office, Technical Summary for the Florida Airports Economic Impact Study, August 2000, Exhibit 3-2, page 8

Figure 12-3. PIE Operations 1992-2002



Source: URS, 2002 and PIE Airport

12.3 METHODOLOGY: IMG'S APPROACH TO MEASURING ECONOMIC IMPACT

The purpose of this report is to measure the overall or total economic impact of the aviation activities at the Airport on Pinellas County. IMG's approach focused on gaining an understanding of and then quantifying the constituent components of this overall economic impact. These economic impact components are normally expressed as:

- Direct impacts, related to the aviation activities at the Airport
- Indirect impacts, related to the suppliers who provide services related to and benefit from the aviation activities taking place at the Airport, and
- Induced impacts that come about due to the multiplier effect of the direct and indirect spending cycling through the regional economy.

12.3.1 Quantifying Economic Impacts

The methodology used to develop and quantify the economic impacts was to examine all Airport activities, to categorize the relation of these activities to the Airport facility, and to determine by survey and personal interviews the direct levels of associated employment and spending. The approach was developed to be consistent with that put forward by the Federal Aviation Administration in its guidance on "Estimating the Regional Economic Significance of Airports" (September 1992).

12.3.1.1 Direct Economic Impacts

Direct impacts consist of employment (jobs) generated by the airport and its tenants; payrolls; and operating expenditures, including materials, equipment, utilities and fuel. In addition, capital expenditures for construction and durable machinery represent an economic activity directly related to each airport business.

Activities and employment were examined for the airline companies, businesses and governmental agencies that operate at the airport (e.g., Fixed-base operators, hangar rentals, flight training, aviation book store, Coast Guard), businesses and services that support airline passengers (e.g., Concessionaires, car rentals, taxi services), and governmental functions at the airport (e.g., FAA, US Customs, Coast Guard).

These direct economic impacts as measured in terms of jobs and expenditures were quantified by:

- Airport visits and discussions with Airport staff
- Airline operator interviews and surveys
- Airport tenant interviews and surveys
- Telephone inquiries and follow-ups.

Wherever possible, data were collected directly from the tenants and operators, such as airlines, fixed base operators, cargo service, concessions, and other aviation-related business and airport tenants. When tenants were unable to provide information, gaps were filled using information from Airport staff and other data sources.

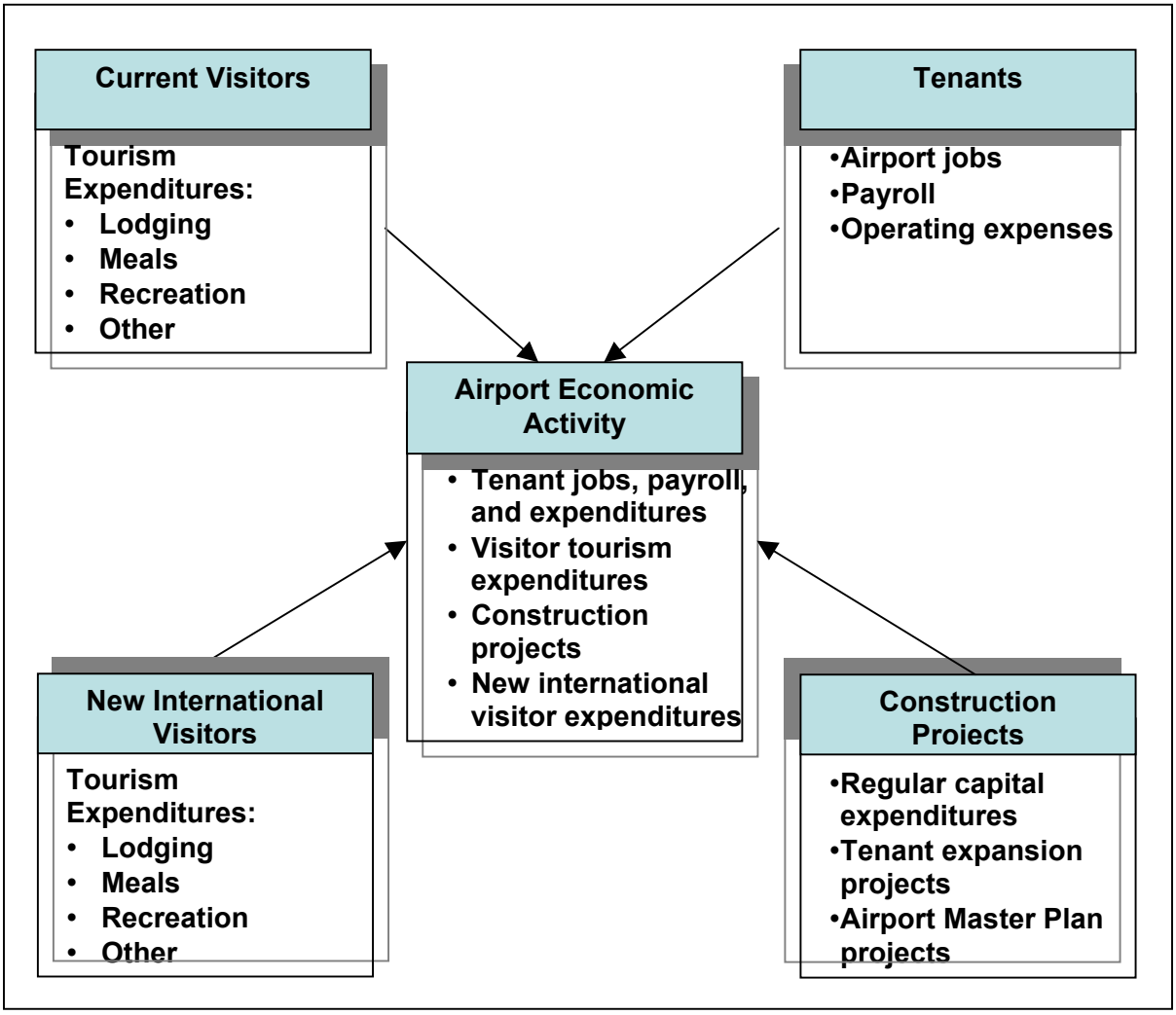
Airport activities that bore limited or no relationship to aviation were not included in quantifying the economic impact of the Airport. Activities at the Airport Business Center, and the Airco Golf Course were therefore excluded from this analysis. These are beneficial economic activities that are coordinated under Airport management but not closely related to aviation. Because the Business Center does house a foreign trade zone, it could be used for cargo arriving at the Airport, so this relation could change over time.

12.3.1.2 Indirect Economic Impacts

Indirect economic impacts result from spending on goods and services that are associated with and dependent on the airport passengers and other aviation activities. Where purchases of fuel or supplies could be traced to an airport tenant, these are counted in the direct impacts related to tenants. However, visitor expenditures outside the Airport property would not be captured by tenants. Hence, visitor expenditures on lodging, food, local transportation services, and other items such as recreation by arriving air passengers are indirect contributions over and above the jobs and expenditures identified on the Airport. Data on tourist visitors (versus arriving passengers, which include local residents returning from trips) and visitor expenditures were obtained from FDOT and the St. Petersburg/Clearwater Area Convention and Visitors Bureau.

Figure 12-4 shows the structure and major sub-components used to develop the direct and indirect impacts for the economic impact analysis. Airport tenant employment and operations, current visitor tourism spending, capital expenditures on construction projects, and new international visitor tourism spending all come together to make up direct and indirect activity related to the Airport.

Figure 12-4. Major Components of Direct and Indirect Airport Activities

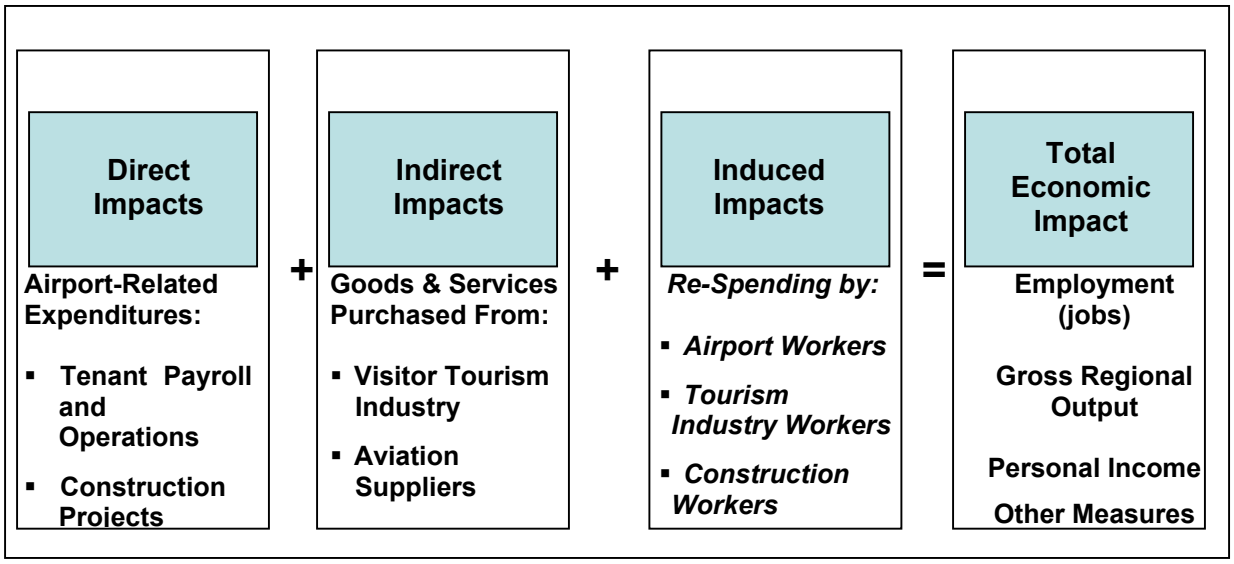


12.3.1.3 Induced or Multiplier Impacts

The induced or multiplier impacts reflect the spending of income earned by the direct airport employees and by the providers of indirect services such as the food and lodging industry and their workers serving tourist visitors. These employees have income realized from the aviation activities at PIE, and will in turn make purchases throughout the regional economy, creating the induced impacts. Eventually, money brought into the Pinellas County economy through the Airport is spent on goods and services produced outside the County, ending the chain of multiplier impacts. The magnitude of induced impacts is a measure of the benefits associated with the re-spending of money on locally produced goods and services before it is eventually spent outside the County.

Figure 12-5 shows how the direct and indirect impacts traceable to economic activity at the Airport will then stimulate another round of induced impacts based on the spending by employees and businesses earning income and re-spending it in the regional economy. The total economic impact is the sum of all these impacts, inclusive of induced impacts.

Figure 12-5. Components of Total Economic Impact



12.3.2 The REMI Model

The induced impacts were measured by the Regional Economic Models, Inc. (REMI) Policy Insight Model, a nationally recognized regional economic model that is frequently applied by state and local governments and other infrastructure providers to trace economic impacts throughout a region.

The REMI model is a combination of a standard input-output economic model combined with a dynamic time-based model that assesses impact over a specified planning period. The input-output model identifies the indirect impact (such as suppliers) as well as the induced impact (spending of wages) on a county-based regional database. The dynamic element shows how the direct impact will impact other elements of the regional economy, including wages incomes, population, and the ability to attract other firms to the region. Furthermore, unlike a standard input-output model, which provides a snapshot of the regional economy at one point in time, REMI is able to estimate changes in the regional economy over a thirty-five year period in the future. Because of this more sophisticated analysis capability, the REMI model is used extensively be economic development agencies.

The REMI model can be customized to reflect the specific geographic area, in this case Pinellas County. It has been used widely and continuously updated since its development in the early 1980s. REMI has been frequently applied to quantify the economic impact of airports, often in conjunction with master plan development; recent examples include the Chicago Airport System (O'Hare and Midway), Bradley International Airport, Los Angeles International Airport, and San Diego International Airport.

In addition to applying input-output tools to project the impacts of an economic component, REMI also portrays regional economic growth in the context of general equilibrium theory for the economy, using a behavioral model, that is, incorporating cause and effect relationships that operate over time. For example, the loss of jobs in a region can result in a decrease in wage rates, which can in turn affect area labor supply

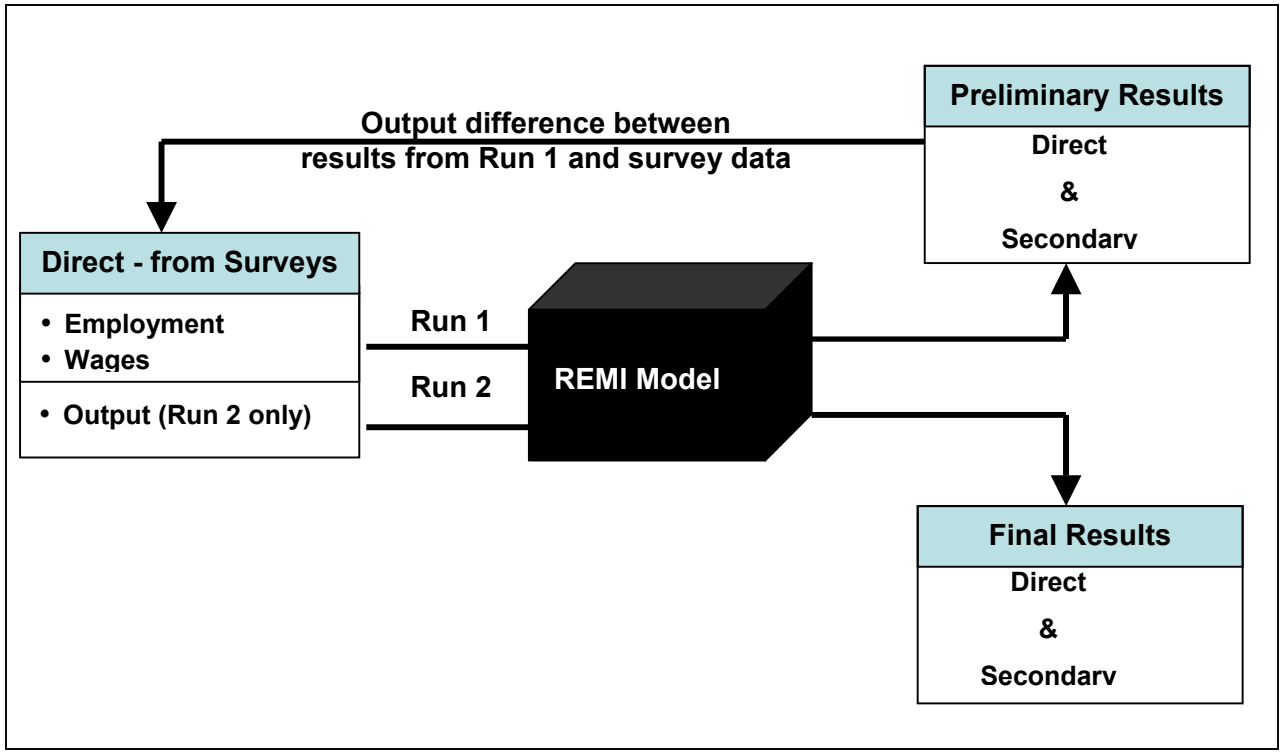
and population size. REMI uses hundreds of relationships and sub-relationships in its programs developed over the past two decades.

REMI uses national technical coefficients on employment and wage and salary data, and regional data for counties to model the impacts of particular activities or investments, so that policymakers can have a better understanding of the economic impact of their decisions.

The REMI model was obtained in a customized version that incorporates data for 53 industrial sectors the Pinellas County region. The economic geography of the airport and its input suppliers and its users, both visitors and aviators, is a key aspect influencing regional productivity. An important aspect of REMI is that it projects dynamic effects and their timing for years into the future, whereas the standard input-output model focuses on the inter-industry flows that occur as output changes.

Figure 12-6 below depicts the flow of data through the REMI model. Information from surveys of airport tenants, including jobs and wages was entered and run though the REMI model. The model estimated the effects on the County economy. If the resulting economic output estimates were less than those provided on tenant surveys, the model was run a second time, this time with the difference between the survey output and the model estimate included as an input into the model. The results of this second run more accurately estimate the total economic impact of the Airport.

Figure 12-6. Methodology for Using REMI Model



12.3.3 Key Assumptions

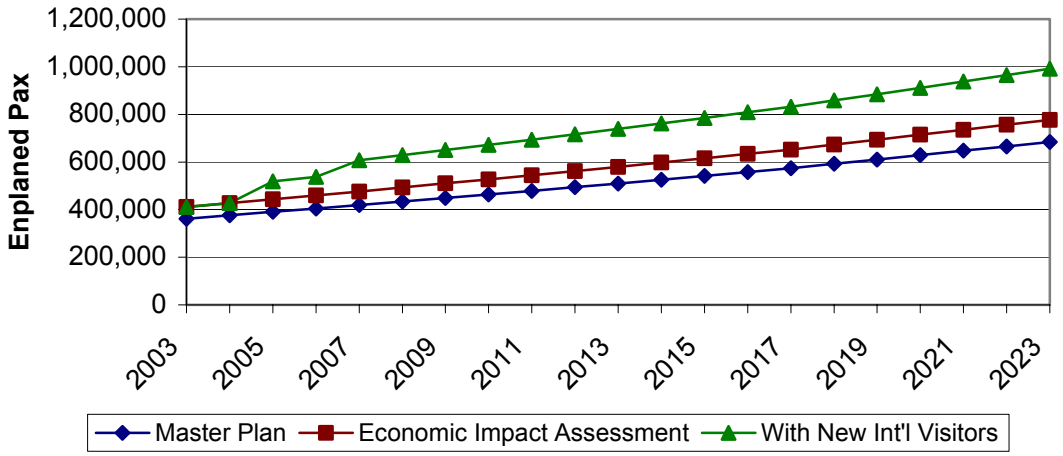
As is common to the application of regional economic models to an existing enterprise, a "counterfactual" approach was taken whereby the direct jobs and expenditures identified for PIE were removed from the economy and the resultant induced negative economic impact observed and associated with the Airport.

In addition, IMG has made several assumptions in compiling the data needed to quantify the economic impact of the Airport. Among the most important are the following:

- Gaps in the data, where survey responses were incomplete or not received, were filled using data such as the REMI averages for the County and/or sector in question to fill in missing wage data or operating expenses. Consultants' best judgment was applied conservatively in a few instances.
- Air carrier visitors
  - The quantification of visitor impact is based on a FDOT study that found 53% of passengers arriving PIE by air were non-local visitors.
  - Average visitor expenditure of $557.73 per trip was derived from the 2002 Annual Visitor Profile for Pinellas County[3]. According to the same Visitor Profile, the average visitor budget is 39% for accommodations, 34% for food and entertainment, 14% for retail goods, and 13% for rental car.
  - The level of new international visitors that will use the airport once the primary runway is extended is based on letters of intent received from tour operators and air carriers who intend to serve the airport. Since most of the new service will be European charter flights, Airport staff estimate that 80% of the passengers on these flights will be visitors to Pinellas County.
  - Enplanements at PIE rose 32% in the first two months of 2003 due to new service by Southeast Airlines, ATA, and Sun Country. The future number of air carrier visitors was generated by increasing 2002 deplanements by 32% and assuming annual growth at the rate predicted in the master plan forecast. **Figure 12-7** depicts the projected growth rate of PIE air carrier visitors.
- General aviation visitor assumptions were derived from the FDOT study. Key figures include
  - One third of itinerant general aviation arrivals carry visitors who spend money in the County
  - There are 3.5 visitors on a typical GA flight
  - 75 percent of GA visitors do not stay overnight, spending $38 per trip
  - 25 percent of GA visitors stay overnight, spending $189 per day and staying an average of 2.2 days
- A further implied assumption is that the economic contribution of all these visitors would be lost in the absence of the Airport.
- Tenant impacts were entered into the 53 industrial sectors in REMI model according their type of business activity. Sectors utilized include air transportation, hotel, eating and drinking, retail, local transportation, local government, federal government, military).

[3] Research Data Services, Inc., 2001 Annual Visitor Profile

Figure 12-7. Enplaned Passenger Projections



12.3.4 Inputs and Outputs for the PIE Analysis

IMG took the following approach to reflect four key components of interest regarding the current and future economic contribution of the Airport for Pinellas County. Direct impacts were quantified and input into the REMI model for the following:

- Airport/aviation tenant jobs; adjustments were made where IMG survey data indicated different wage rates or operating expenditures in contrast to REMI model averages
- Visitor spending was developed from data on commercial airline passengers and general aviation visitors; FDOT and County data were used to estimate expenditures based on tourist visitors
- New international visitor spending was developed from data on projected passenger use of new non-stop international flights; County data were used to estimate expenditures per arrival
- Capital spending for construction and facility improvements was developed from IMG survey results on capital spending, with the announced US Army and Sheltair development projects receiving special attention; Master Plan improvements by the Airport were incorporated by year of expected expenditure.

Output from the REMI model was used directly to quantify total economic impact. The four components of interest were run separately and the resultant impacts summed to produce total impacts. This disaggregated approach will yield results for total impacts that may vary slightly from an aggregated, single input estimation, due to the complexity and interactions characteristic of the REMI model.

12.4 RESULTS

As a result of this research process, IMG identified and contacted 57 private and public organizations operating at the terminal or on the airfield. These organizations include passenger and cargo air carriers, military facilities such as the Coast Guard Air Station, FBOs, flight schools, hangar operators, terminal concessionaires, Federal Aviation Administration tower and Automated Flight Service Station (“AFSS”) , the TSA security

group, US Customs and Immigration Services, and Airport administration. The tenants identified are shown in the following table.

Table 12-1. Airport Tenants and Operators

Air Carriers (9)	Concessionaires (8)	Government (11)
Airborne Express	Alamo/National	Airport Management
Air Transat	Avis	Army Reserves
ATA	Enterprise	Coast Guard Air Station
CanJet	Flightshops	FAA-AFSS
Conquest/Skyservice	Hertz	FAA Control Tower
Seacoast	Jerry's Caterers	Pinellas County
Southeast	Stellar Partners	Sheriff's Office
Sun Country	Yellow Cab	US Customs Service
UPS		USDA
		US Immigration
		US TSA
Other Tenants (29)		
Air Ambulance	Elite Air, Inc	Quantum Aviation
Air-1 FBO	ExecuJet Charter Services	PEMCO
American Flying Adventures	Hillsborough Distribution	PIE in the Sky
B&C	Jabil Circuit Company	Royal Flying Club
Bigelow & Son's	Jet Executive Center	Sheltair
Care Flight	The Landings Assoc.	Signal Avionics
Central Florida Jets	Marine Max	Signature Flight Support
Clearwater Aircraft Maintenance	Mid Atlantic Freight	Starfighters
Clearwater Aviation Academy	Nightingale Aviation	Tampa Bay Aircraft Sales
Eclipse Int'l (pilot training)	National Aviation Academy	

12.4.1 Tenant-Related Jobs and Wages

Based on IMG surveys and interviews, a total of 1,648 direct on-airport jobs (full time equivalents) were identified and compiled according to the sector of the economy they are associated with. Tenants jobs and associated wage rates by type of organization are shown in the following **Table 12-2**. As seen in the table, the largest single employers are military organizations (658 jobs), followed closely by air transportation businesses (535 jobs). The public sector employs a significant portion of tenant impact, with 324 full-time equivalent government employees at the local and federal level.

Airport tenants support high-quality jobs; the overall average wage rate found for Airport jobs is just over $43 thousand annually, substantially higher than the average wage in Pinellas County of approximately $31 thousand[4].

Table 12-2. Tenant Economic Impact

Direct (*same for all years)*					
Sector	***Employment***	***Wage Rates***			
Air Transportation	535	$31,432			
Concessions	101	$18,567			
Government	324	$54,216			
Military	658	$46,519			
Other	31	$37,878			
Total	1,648	$43,472			
Impact (with secondary)	**2003**	**2008**	**2013**	**2018**	**2023**
Jobs	3,586	3,202	3,068	3,019	2,986
Output	$276,420,480	$257,603,640	$261,345,000	$275,870,280	$293,366,640
Disposable Personal Income	$106,947,876	$110,260,080	$121,264,080	$133,368,480	$144,042,360
Population	1,151	2,121	2,583	2,841	2,947

Note: Concessions includes food, retail and rental car

Note: Monetary figures are constant 2002 dollars

12.4.1.1 Economic Output Associated with Tenant Activities

These direct on-airport jobs and the organizations' expenditures for operations and capital improvements served as the key inputs to determine the overall economic impact associated with airport tenants. **Table 12-2** above indicates the overall economic impact related to tenant activities at the airport. As shown, the agglomeration of jobs at the airport results over $276 million of economic activity in the region that support the vitality of Pinellas County. For 2003, Airport tenant activities are responsible for 3,586 jobs overall (inclusive of airport jobs and induced impacts) and total output of $276 million (in 2002 $).

The table also indicates personal income and population impacts associated with Airport tenant activities and projects all impact levels out until 2023. Economic activity at the Airport is responsible for 1,100 residents in population of Pinellas county in 2003, with this impact expected to rise over time to nearly 3,000 by 2023. After-tax income received by Pinellas residents due to Airport tenants will be $119 million in 2003, rising to $258 million in 2023 (figures in constant 2002 dollars). If tenant jobs grow during this period, the impacts could be substantially greater.

Output and job impacts related to Airport tenants are lower in 2008 than in 2003 due to the dynamic effects of the REMI model. If the 1,648 jobs at the Airport were eliminated, there would be an immediate drop in economic output of some $276 million. Some

[4] Bureau of Economic Analysis, U.S. Department of Commerce, 2003

workers would react to the scarcity of jobs and declining wage rates by leaving the area in the County. This would provide County employers a temporary competitive advantage, creating the brief recovery seen in 2008. In the long run, however, migration out of the County would cause wage rates to rise again, resulting in declining economic output after 2008.

12.4.2 Current Visitors Impact

Passengers using PIE include a high proportion of visitors who are spending funds in the tourism sector. As outlined above, this visitor spending is an additional indirect impact that is not registered at the Airport, but rather across the County economy as tourists purchase lodging, meals, recreation, and other goods and services. **Table 12-3** depicts Current Visitors Impact shows the economic impact related to current visitors, defined as passengers currently using the Airport for arrival/departure. As shown in the table, tourists arriving via PIE will spend over one hundred million dollars and boost economic activity accordingly. For 2003, current visitor spending is projected to be $128 million, which would be responsible for 5,426 jobs overall (inclusive of visitor spending and induced impacts) and total output of $444 million (in 2002 $).

Since Airport traffic is projected to increase over time (see **Table 12-2**), visitor spending and its impacts will grow over time as well. As shown in the table, for 2013 current visitor spending would be responsible 6,139 jobs and $551 million in total output. These economic impacts will continue to grow over the forecast period, reaching 7,306 jobs and $737 million in total output in 2023.

Table 12-3. Current Visitor Economic Impact

Direct	**2003**	**2008**	**2013**	**2018**	**2023**
Eating & Drinking	$33,206,315	$39,794,249	$46,762,453	$54,313,095	$62,733,340
Hotel	$49,558,794	$59,390,961	$69,790,662	$81,059,624	$93,626,427
Retail	$17,791,959	$21,321,777	$25,055,344	$29,100,981	$33,612,553
Rental Car	$16,914,724	$20,270,504	$23,819,987	$27,666,154	$31,955,282
Recreation	$11,068,772	$13,264,750	$15,587,484	$18,104,365	$20,911,113
TOTAL	$128,540,565	$154,042,241	$181,015,929	$210,244,219	$242,838,715
Impact (with secondary)					
Jobs	5,426	5,642	6,139	6,720	7,306
Output	$444,121,440	$482,745,480	$551,410,440	$639,882,600	$737,488,080
Disposable Personal Income	$106,265,628	$143,382,120	$191,909,760	$244,178,760	$295,457,400
Population	925	4,039	6,133	7,798	9,095

Note: Monetary figures are constant 2002 dollars

12.4.3 New International Visitors Impact

PIE has incorporated plans for a runway extension into its master plan and has already had expressions of interest from several foreign carriers that want to operate non-stop international charter services to bring foreign tourists to Pinellas County. Since these services are not yet operational, and cannot be expected until after the runway extension has been completed, the impact of new international visitors was computed separately.

Passengers arriving at PIE via new international services will be predominantly visitors that will spend funds in the tourism sector. As outlined above, this new international visitor spending is an additional indirect impact that is not registered directly at the Airport, but rather across the County economy. **Table 12-4** shows the economic impact related to new international visitors. As shown in the table, there is no impact until 2005, at which point new international tourists arriving via PIE will spend about $42 million dollars and boost economic activity accordingly. For 2005, new international visitor spending would be responsible for 1,728 jobs overall (inclusive of new visitor spending and induced impacts) and total output of $149 million (in 2002 $).

New international traffic is projected to increase over time, and new international visitor spending and its impacts will also grow over time. As shown in the table, for 2013 new international visitor spending would be responsible 3,033 jobs and $278 million in total output. These economic impacts will continue to grow over the forecast period, reaching 3,553 jobs and $360 million in total output in year 2023.

Table 12-4. New International Visitor Economic Impact

Direct	2003	2005	2008	2013	2018	2023
Eating & Drinking	$0	$10,653,937	$19,345,789	$22,733,348	$26,404,058	$30,497,521
Hotel	$0	$16,254,185	$29,514,915	$34,683,148	$40,283,368	$46,528,563
Retail	$0	$5,689,523	$10,331,233	$12,140,292	$14,100,562	$16,286,594
Rental Car	$0	$5,523,347	$10,029,486	$11,785,707	$13,688,722	$15,810,906
Recreation	$0	$3,551,312	$6,448,596	$7,577,783	$8,801,353	$10,165,840
TOTAL	$0	$41,672,304	$75,670,019	$88,920,278	$103,278,062	$119,289,424
Impact (with secondary)						
Jobs	0	1,728	2,889	3,033	3,273	3,553
Output	$0	$148,554,000	$256,503,240	$277,961,040	$314,604,360	$360,491,040
Disposable Personal Income	$0	$34,959,708	$66,299,100	$89,033,364	$114,661,680	$141,071,280
Population	0	293	1,295	2,616	3,575	4,318

Note: Monetary figures are constant 2002 dollars

12.4.4 Construction Projects

Construction projects reflect the capital expenditures taking place on the airport. These expenditures, which are expected to total over $330 million over the next twenty years, are made up of three different categories of projects: PIE master plan improvements; standard, recurring airfield tenant capital expenditures, and current expansion projects announced by the US Army and Sheltair. Expected build-out schedules were obtained for these capital expenditures, but those schedules are subject to uncertainty. Instead of attempting to pinpoint exact year for each improvement, IMG used average annual capital expenditures over the five-year periods. That is, the capital expenditures for the 2003-2007 period were assumed to take place at a level average figure for each year of that period, and likewise for the further periods. Year 2023 capital expenditures were assumed to be equal to the average for the last five-year period, 2018-2022. These periods coincide with the four major Airport development phases proposed in the updated master plan.

As shown in **Table 12-5**, construction projects for 2003-2007 are projected to average over $26 million annually, and boost economic activity accordingly. For 2003-2007, construction projects would be responsible for 568 jobs overall (inclusive of capital spending and induced impacts) and total output of $63 million (in 2002 $).

For the period 2008-2012, master plan projects continue at a slightly reduced level, but the current expansion projects will have been completed and no additional ones are assumed for this analysis. As a result, 2008-2012 construction projects would be responsible for 330 jobs overall (inclusive of capital spending and induced impacts) and total output of $40 million (in 2002 $). For the entire 20-year period covering 2003-2022, construction projects would be responsible for 321 jobs annually on average (inclusive of capital spending and induced impacts) and total output of $38 million on average (in 2002 $).

Table 12-5. Construction Impacts

Direct	2003-2007	2008-2012	2013-2017	2018-2022	TOTAL 2003-2022
Average Annual Capital Expenditures					
Master Plan	$17,895,453	$14,354,316	$6,474,016	$9,558,720	$241,412,527
Standard Airfield	$3,105,000	$3,105,000	$3,105,000	$3,105,000	$62,100,000
Current Projects	$5,563,648	$0	$0	$0	$27,818,240
Average Annual Total	$26,564,101	$17,459,316	$9,579,016	$12,663,720	$331,330,767

Impact (with secondary)	2003-2007	2008-2012	2013-2017	2018-2022	Average Year 2003-2022
Jobs	568	330	164	222	321
Output	$63,422,654	$40,164,600	$19,968,012	$30,094,399	38,412,417
Disposable Personal Income	$15,436,411	$12,027,812	$8,939,650	$11,467,929	11,967,950
Population	231	314	356	324	306

Note: Monetary figures are constant 2002 dollars

12.5 OVERALL ECONOMIC IMPACT

The overall economic impact of PIE Airport has been estimated by summing the four major components discussed above, namely tenant activity, current passengers, new international passengers, and construction projects. The results are shown graphically in **Figures 12-8 and 12-9**, one for Total Jobs and one for Total Output (or overall economic impact) generated by PIE Airport. These figures illustrate the four major economic activity centers associated with the Airport, their individual impacts and then the overall Airport Economic Impact.

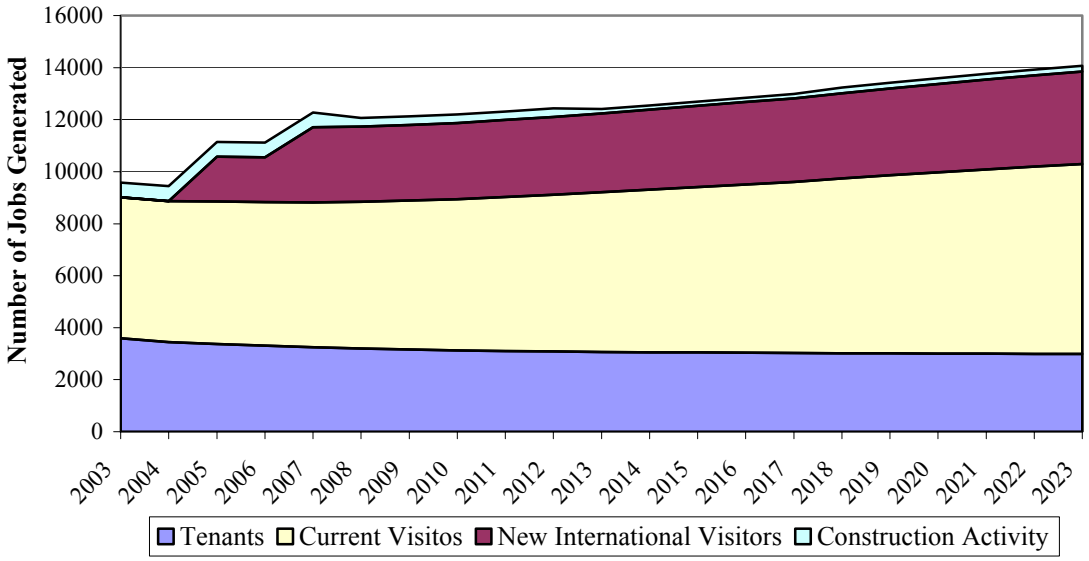
12.5.1 Total Employment Impact

The air carrier, tenant, and visitor activities generated at the Airport are responsible for a combined total of 9,580 jobs in Pinellas County (for 2003). These 9,580 jobs reflect the overall employment impact generated by the Airport related to specific components.

- There are at least 3,586 jobs at or near the Airport that are directly related to PIE's aviation facilities, their tenants, and the passengers that arrive and depart PIE
- Current air passengers who are visitors arriving for tourism inject additional spending into the County's tourist service businesses and create an additional 5,426 jobs (for 2003)
- In addition, new international visitors associated with Airport improvements will generate an additional 3,033 jobs (in 2013); non-stop international service is not available for 2003
- Capital spending at the Airport, including ongoing tenant investments and the improvements incorporated in the PIE master plan, will generate another 568 jobs per year on average (for 2003-2007).

As passenger traffic follows projected growth patterns, the total employment impact will grow to 13,234 in 2013 and to 14,067 by 2023.

Figure 12-8. Total Jobs Generated by PIE: Tenants, Current Visitors, New International Visitors and Construction Activity



12.5.2 Total Output Impact

The Airport contributes a combined total of at least $783 billion in overall output and expenditures to the regional economy of Pinellas County. This economic contribution includes the direct and indirect expenditures stemming from the Airport-related tenant businesses, visitor spending, and capital construction activities. The total consists of:

- $276 million in wages and expenditures related to tenants on the airport
- Expenditures of $444 million from the impact of tourism expenditures from current visitors arriving through the Airport (for 2003)
- No 2003 output from new international visitors, but an additional $278 million by 2013
- An estimated $63 million of output (average per year) related to capital expenditures at the Airport.

As passenger traffic follows projected growth pattern, the total Airport Economic impact will grow to $1.1 billion in 2013 and to $1.4 billion by 2023.

Figure 12-9. Total Output Generated by PIE: Tenants, Current Visitors, New International Visitors and Construction Activity

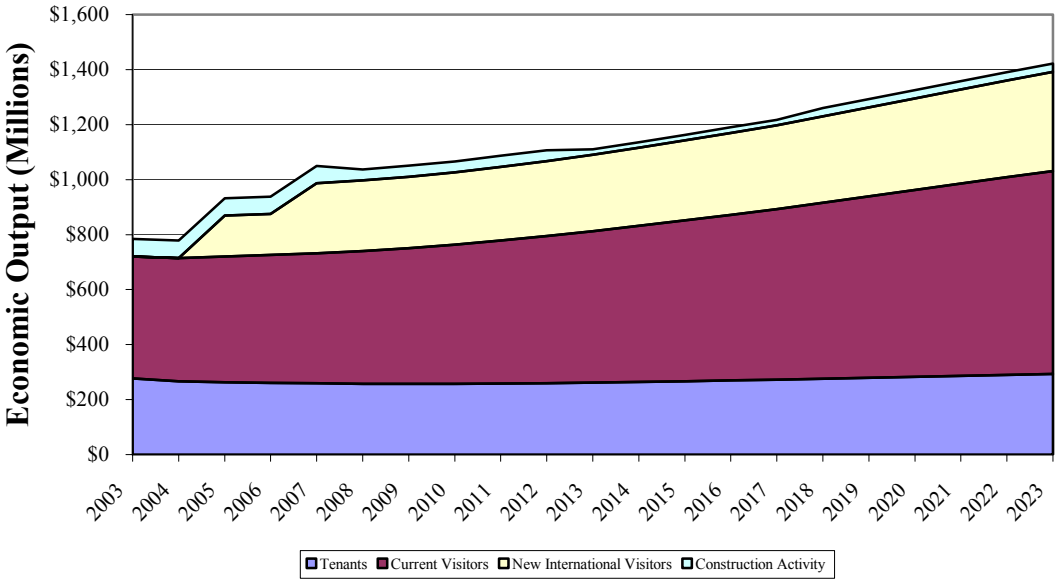


Table 12-6 provides the detailed data on total economic impact including jobs and output, but adding personal income, disposable income, and population impacts related to Airport activities.

Table 12-6. Total Economic Impacts

Impact (with secondary)	2003	2008	2013	2018	2023
Jobs	9,580	12,063	12,404	13,234	14,067
Output (2002 $)	$783,964,574	$1,037,016,960	$1,110,684,492	$1,260,451,639	$1,421,440,159
Real Disposable Personal Income	$228,649,915	$331,969,112	$411,146,854	$503,676,849	$592,538,990
Population	2,307	7,769	11,688	14,538	16,666

Note: Monetary figures are constant 2002 dollars

12.5.3 Tax Revenues

Economic activity generates tax revenues. This economic impact analysis shows the annual contributions of the Airport and its constituent business and governmental activities in Pinellas County. These economic activities in turn are important generators of tax revenues to the County and its constituent governments. Although these associated tax revenues were not generated by the REMI collections, IMG has projected three key taxes based on Airport activity, as follows:

- Lodging Tax—The County collects a 4% tax on visitor lodging expenditures. Based on our estimate of airport-related visitor spending for tourists arriving by air at PIE, 2003 revenues would be $2.0 million, growing to $4.2 million by 2013.
- Sales Tax—The County participates in the Florida Sales Tax, receiving one percent of local sales. Based on our estimate of total airport-related spending in the County, 2003 revenues would be $1.3 million, growing to $2.7 million in 2013.
- Motor Fuel—The County receives a portion of the overall tax levied on motor fuel, amounting to 11.6 cents per gallon. Based on our estimate of airport-related visitor rental car usage, 2003 revenues would be $91,000, growing to $128,000 in 2013.
- Three Tax Total—The total tax collections for these three taxes related to Airport-related spending are estimated to be $3.4 million in 2003, growing to $7.0 million in 2013.

12.6 OTHER BENEFITS

12.6.1 Transportation Benefits

Transportation benefits of the airport are the primary reason for its existence and high rate of use. Transportation benefits are related to the economic impacts identified above, but are not measured directly in the impact analysis. In assessing transportation benefits for the proposed runway extension, the Benefit-Cost Analysis (“BCA”) prepared in 2002 gave one indication of the transportation benefits associated with Airport improvements.

The BCA quantified the travel time and cost savings related to the proposed Airport improvement, consistent with Federal Aviation Administration requirements. Relative to the investment costs associated with the runway improvement, project benefits exceeded costs by a factor of at least 5:1, and likely scenarios indicated significantly

higher benefit-cost ratios up to 10:1. That is, for each dollar invested in improvements, aviation transportation benefits of $5-to-$10 were projected[5].

12.6.2 Community Benefits

Community benefits related to this aviation infrastructure are not directly measured. These include:

- Fostering local businesses—the Airport nurtures and supports many unique local businesses, from PIE- based Southeast Airlines to the Flightshops flight supplies and aviation bookstore, one of the largest in the world.
- Facilitates recreational aviation—the airport provides excellent facilities for general aviation recreational pilots to base aircraft, adding many possibilities to recreation, entertainment, and sightseeing, and contributing the Pinellas County life-style.
- Provides aviation training—general aviation facilities provided a significant training ground for future commercial and recreational pilots and maintenance personnel.
- Attracts family relocation—the military installations attract numerous families to visit and often relocate into Pinellas County; in particular, numerous families are reported to accompany Coast Guard Air Station postings.

12.6.3 Business Location Decisions

Transportation benefits of airport facilities indisputably linked to location and growth decisions of businesses. A research report by the Federal Reserve Bank of Chicago on business location decisions found that the existence of an airport was an important factor in locating corporate headquarters, divisional offices, and selected finance and insurance, R&D facility, and computer and data processing[6]. Biotechnology and biomedical products industries are among the most highly airport dependent business identified in a study of the San Diego Regional Economy[7]. Also medical instruments, printing and publishing, greeting cards and other industries that ship high value, time sensitive orders have been identified as reliant on airport facilities.

No attempt was made to link specific County-wide business location decisions with the PIE aviation facilities, but these linkages are believed to be significant.

12.6.4 Commercial Real Estate Development

PIE has developed an Airport Business Center that serves as home to many Pinellas County businesses. The study team concluded that most of these businesses were not aviation-related, and none of the jobs and economic activity at the business park were incorporated. However, the Airport provides a business-like entity that can and does facilitate adjacent County-controlled development sites for local businesses and offers free trade zone status as well.

[5] IMG in association with PBS&J, Benefit-Cost Analysis for Proposed Extension of Runway 17L/35R, August 1, 2002

[6] Federal Reserve Bank of Chicago, "The Economic Impact of Airports on Chicago and Other Metro Areas."

[7] Hamilton, Rabinowitz & Alschuler, Inc., "The Impacts of Constrained Air Transportation Capacity on the San Diego Regional Economy."

REFERENCES

1. http://usfwev.usf.edu 3-8
2. http://spjc.cc.fl.us 3-8
3. http://spjc.cc.fl.us 3-8
4. http://www.eckerd.edu 3-8
5. http://www.eckerd.edu 3-8
6. http://www.law.stetson.edu 3-9
7. http://www.law.stetson.edu 3-9
8. Pinellas County Economic Development Commission Brochure 3-9
9. http://stpete-clearwater.com 3-15
10. Florida Statistical Abstract, 2000 3-15
11. http://stpete-clearwater.com 3-15
12. http://stpete-clearwater.com 3-16
13. http://stpete-clearwater.com. 3-16
14. http://www.ci.saint-petersburg.fl.us 3-17
15. http://stpete-clearwater.com 3-17
16. http://www.ci.saint-petersburg.fl.us 3-17
17. http://www.ci.saint-petersburg.fl.us 3-17
18. http://www.ci.saint-petersburg.fl.us and Pinellas County Economic Devel Brochure 3-18
19. http://www.stpete.com. 3-18
20. http://www.stpete.com 3-18
21. http://www.stpete.com 3-18
22. http://www.siliconbay.org 3-19
23. http://www.stpete.com 3-19
24. http://www.stpete.com and Pinellas County Economic Development Brochure 3-20
25. http://www.stpete.com 3-20
26. http://fly2pie.com 3-20
27. http://www.siliconbay.com 3-20

Appendix A

2007 Terminal Program

St. Petersburg – Clearwater International Airport
Clearwater, Florida

GS&P Project No. 68172.00

September 13, 2002

TERMINAL - PEAK DEPARTURE @ 2007

ST. PETERSBURG - CLEARWATER INTERNATIONAL AIRPORT (PIE)

AVERAGE DAY PEAK MONTH PEAK HOUR ACTIVITY

Methodology/Assumptions

Ref Key		Variable	Unit	Total	Unit
AS -1	Airline Ticket Counter- Landside Terminal				
	International pax (Peak Two Hour Processing Period)	265	pax		
	Agent processing time per pax	6.0	minutes		
	Percent of pax going to ATO	100%			
	International Agent Positions			13	positions
	Domestic pax (Peak One Hour Processing Period)	365	pax		
	Agent processing time per pax	3.5	minutes		
	Percent of pax going to ATO	60%			
	Domestic Agent Positions			13	positions
	Total agent positions			26	positions
AS -2	Automated Ticketing Machines (ATMs)				
	Number of agent positions (non-automated)	26	positions		
	Percentage of non-automated positions	10%			
	Number of ATM positions			3	positions
	Ticket counter length per ATM position	3	ft.		
	Total length of ATM positions			9	ft.
AS -3	Area for ATMs				
	Depth of ATM positions	3	ft.		
	Area for ATMs			27	sq.ft.
AS -3	Depth of area for access to ATMs	14	ft.		
	Area for access to ATMs			126	sq.ft.
AS -2	Total Length of Ticket Counter				
	Length of ticket counter per agent (3.5 ft. counter + 1.5 ft. w	5	ft.		
	Total length of Ticket Counter			139	ft.
AS -3	Ticket Counter Work Area				
	Depth of ticket counter work area	10	ft.		
	Total Area Ticket Counter Work			1,390	sq.ft.
AS -4	Ticket Counter Queuing Area				
	Depth of counter queue area	14	ft.		
	Total Area Ticket Counter Queuing			1,946	sq.ft.
AS -5	Ticket Counter Support Office (ATO)				
	Depth of counter office area	25	ft.		
	Total Area Ticket Counter Support Office			3,475	sq.ft.
PS -2	Ticket Lobby				
	Depth of counter lobby area	50	ft.		
	Total Area Ticket Lobby			6,950	sq.ft.

AS -6	Airline Baggage Makeup				
	Number of aircraft departures @ peak hour			3	Departures
	Area per makeup device per departures	1,715	sq,ft.		
	Area for baggage makeup			5,145	sq.ft.
	Number of explosives detection devices	3	devices		
	Area per device	900	sq.ft.		
	Area for explosives detection devices			2,700	sq.ft.
	Total Area Baggage Makeup			7,845	sq.ft.
PS -3	Baggage Claim Area				
	Number of aircraft arrivals @ peak hour	3	aircraft		
	Devices per arriving aircraft	1.00	devices		
	Lineal feet per device	180	l.f.		
	Assumes:				
	Deplaning passengers	365	pax	219	pax
	Percent of passengers claiming baggage	60%		263	bags
	Bags claimed per passenger	1.20	bags	342	l.f.
	Lineal feet /bag	1.30	l.f.	540	l.f.
AS -7	No. of devices	3			
	Total Lineal Feet				
	Tiers of bags	1.00	tiers		
	Total lineal feet			540	l.f.
	Uses per device	1.00	uses		
AS -7a	Total lineal feet			540	l.f.
	Width per device	20	ft.		
	Width for end devices-30'x2	60	ft.		
	Total width of claim area			80	ft.
	Length of a 180 l.f. device, 20' wide	70	ft.		
	Clearance from device	30	ft.		
	Total length			100	ft.
	Area for baggage cart return				
	Width of return corridor	10	ft.		
	Length of corridor	50	ft.		
	Number of corridors	3	corridors		
	Area of baggage cart returns			1,500	sq.ft.
AS -8	Total Area Baggage Claim			9,500	sq.ft.
AS -8a	Area for Baggage Claim Input				
	Device length	180	ft.		
	Percent public	65%			
	Input length	63	ft.		
	Number of devices	3	devices		
	Input length	189	ft.		
	Width of input area	15	ft.		
	Total Area Baggage Claim Input			2,835	sq.ft.
PS -3	Baggage Claim-Public Lobby				
	Length of device plus clearance	100	ft.		
	Width of circulation area	30	ft.		
	Total Area Baggage Claim Lobby			3,000	sq.ft.

C -2	Rental Car Area				
	Number of agencies	6	agencies		
	Length of counter per agency	15	ft.		
	Total length of counter	90	ft.		
	Depth of queue area	14	ft.		
	Depth of work area	10	ft.		
	Depth of office area	10	ft.		
	Total depth of car rental area	34	ft.		
	Total Area Car Rental			3,060	sq.ft.
PS -5	Ticketing Area-Terminal Services				
	Assumes:				
	Enplaned pax using terminal services	25%			
	Space required per pax	20	sq.ft		
	Number of enplaning local passengers			365	pax
	Number of enplaning transfer passengers			0	pax
	25% of Passengers			91	pax
	Area for Terminal Services			1,820	sq.ft.
	Courtesy vehicle storage				
	Number of vehicles	1	carts		
	Area per cart	150	sq.ft.		
	Area for courtesy vehicles			150	sq.ft.
	Wheelchair storage				
	Number of wheelchairs stored	25	units		
	Area per wheelchair	10	sq.ft.		
	Number of storage areas	1	units		
	Area for wheelchair storage			250	sq.ft.
	Total Area Terminal Services			2,220	sq.ft.
PS -4	Restrooms-Landside & AirsideTerminal				
	Assumes:				
	Percent of persons using restrooms	15%			
	Space per person	20	sq.ft		
	Deplaning passengers			365	pax
	Well-wishers	15%			
	Total persons			420	persons
	Total times % of persons using restrooms			63	persons
	Area for ticketing level Restrooms			1,260	sq.ft.
	Assumes:				
	Percent of persons using restrooms	15%			
	Space per person	20	sq.ft		
	Deplaning passengers			365	pax
	Meeter-greeter	25%			
	Total persons			456	persons
	Total times % of persons using restrooms			68	persons
	Area for baggage claim level Restrooms			1,360	sq.ft.
	Total Area Restrooms			2,620	sq.ft.

PS -7	Mechanical & Services				
	Assumes 10% of total area				
	(excluding this category of space)				
	Area of building	79,692	sq.ft.		
	Percent of building area	15%			
	Mechanical & Services subtotal			11,954	sq.ft.
	Passenger terminal service area				
	(enclosed area only)				
	Warehouse area	1000	sq.ft.		
	Airport maintenance facility	1000	sq.ft.		
	Truck Dock work aisle	300	sq.ft.		
	Service area subtotal			2,300	sq.ft.
	Total Area Mechanical & Services			14,254	sq.ft.

PS -6	Concourse circulation-Airside Terminal				
	Assumes:				
	Width	20	ft.		
	ADG II aircraft (BAe31)	101	ft.		
	Average wingspan+25' clearance	126	ft.		
	Aircraft positions	2	aircraft		
	Total area of concourse circulation			5,040	sq.ft.
	Assumes:				
	Width	20	ft.		
	ADG III aircraft (MD87)	108	ft.		
	Average wingspan+25' clearance	133	ft.		
	Aircraft positions	1	aircraft		
	Total area of concourse circulation			2,660	sq.ft.
	Assumes:				
	Width	20	ft.		
	ADG III aircraft (B727-200)	108	ft.		
	Average wingspan+25' clearance	133	ft.		
	Aircraft positions	1	aircraft		
	Total area of concourse circulation			2,660	sq.ft.
	Assumes:				
	Width	20	ft.		
	ADG III aircraft (B737-800)	113	ft.		
	Average wingspan+25' clearance	138	ft.		
	Aircraft positions	2	aircraft		
	Total area of concourse circulation			5,520	sq.ft.
	Assumes:				
	Width	20	ft.		
	ADG IV aircraft (B757-200)	125	ft.		
	Average wingspan+25' clearance	150	ft.		
	Aircraft positions	1	aircraft		
	Total area of concourse circulation			3,000	sq.ft.
	Assumes:				
	Width	20	ft.		
	ADG IV aircraft (B767-300)	156	ft.		
	Average wingspan+25' clearance	181	ft.		
	Aircraft positions	0	aircraft		
	Total area of concourse circulation			0	sq.ft.
	Total Area of All Concourse Circulation			18,880	sq.ft.

AS -9	Holdrooms-Airside Building				
	Assume:				
	ADG II aircraft (Bae31)	19	seats		
	Load factor	77%			
	Passengers/aircraft	15	pax		
	12' ticket lift counter+6' circulation	18	ft.		
	Queue depth	25	ft.		
	Area for counter and queue			450	
	Deplaning corridor width	5	ft.		
	Deplaning corridor depth	20	ft.		
	Deplaning corridor area			100	
	Passengers seated	75%			
	Passengers standing	25%			
	Space per seated passenger	20	sq.ft.	219	
	Space per standing passenger	13	sq.ft.	48	
	Total area of holdroom			817	
	Number of aircraft	2	Aircraft		
	Total Area-Holdrooms-Airside			1,634	
	Assume:				
	ADG III aircraft (MD87)	139	seats		
	Load factor	77%			
	Passengers/aircraft	107	pax		
	12' ticket lift counter+6' circulation	18	ft.		
	Queue depth	25	ft.		
	Area for counter and queue			450	
	Deplaning corridor width	5	ft.		
	Deplaning corridor depth	20	ft.		
	Deplaning corridor area			100	
	Passengers seated	75%			
	Passengers standing	25%			
	Space per seated passenger	20	sq.ft.	1,605	
	Space per standing passenger	13	sq.ft.	348	
	Total area of holdroom			2,503	
	Number of aircraft	1	Aircraft		
	Total Area-Holdrooms-Airside			2,503	
	Assume:				
	ADG III aircraft (B727-200)	134	seats		
	Load factor	77%			
	Passengers/aircraft	103	pax		
	12' ticket lift counter+6' circulation	18	ft.		
	Queue depth	25	ft.		
	Area for counter and queue			450	
	Deplaning corridor width	5	ft.		
	Deplaning corridor depth	20	ft.		
	Deplaning corridor area			100	
	Passengers seated	75%			
	Passengers standing	25%			
	Space per seated passenger	20	sq.ft.	1,548	
	Space per standing passenger	13	sq.ft.	335	
	Total area of holdroom			2,433	
	Number of aircraft	1	Aircraft		
	Total Area-Holdrooms-Airside			2,433	

AS -9	Assume:				
	ADG III aircraft (B737-800)	154	seats		
	Load factor	77%			
	Passengers/aircraft	119	pax		
	12' ticket lift counter+6' circulation	18	ft.		
	Queue depth	25	ft.		
	Area for counter and queue			450	
	Deplaning corridor width	5	ft.		
	Deplaning corridor depth	20	ft.		
	Deplaning corridor area			100	
	Passengers seated	75%			
	Passengers standing	25%			
	Space per seated passenger	20	sq.ft.	1778.7	
	Space per standing passenger	13	sq.ft.	385	
	Total area of holdroom			2,714	
	Number of aircraft	2	Aircraft		
	Total Area-Holdrooms-Airside			5,428	
	Assume:				
	ADG IV aircraft (B757-300)	205	seats		
	Load factor	77%			
	Passengers/aircraft	158	pax		
	12' ticket lift counter+6' circulation	18	ft.		
	Queue depth	25	ft.		
	Area for counter and queue			450	
	Deplaning corridor width	5	ft.		
	Deplaning corridor depth	20	ft.		
	Deplaning corridor area			100	
	Passengers seated	75%			
	Passengers standing	25%			
	Space per seated passenger	20	sq.ft.	2367.75	
	Space per standing passenger	13	sq.ft.	513	
	Total area of holdroom			3,431	
	Number of aircraft	1	Aircraft		
	Total Area-Holdrooms-Airside			3,431	
	Assume:				
	ADG IV aircraft (B767-300)	252	seats		
	Load factor	77%			
	Passengers/aircraft	194	pax		
	12' ticket lift counter+6' circulation	18	ft.		
	Queue depth	25	ft.		
	Area for counter and queue			450	
	Deplaning corridor width	5	ft.		
	Deplaning corridor depth	20	ft.		
	Deplaning corridor area			100	
	Passengers seated	75%			
	Passengers standing	25%			
	Space per seated passenger	20	sq.ft.	2910.6	
	Space per standing passenger	13	sq.ft.	631	
	Total area of holdroom			4,091	
	Number of aircraft	0	Aircraft		
	Total Area-Holdrooms-Airside			0	
	Total Area - All Holdrooms - Airside	7	Aircraft	15,429	sq.ft

AS -10	Airline Clubs-Landside Terminal				
	Assume:				
	Number of clubs	0			
	Area per airline clubroom	2,000	sq. ft.		
	Total Area Clubrooms			0	sq.ft
AS -11	Airline Offices-Airside Terminal				
	Assumes:				
	Number of airlines	0	airlines		
	Area per airline	400	sq. ft.		
	Total Area Airline Offices - Airside			0	sq.ft.
PS -8	Airport Administrative Offices-Landside Terminal				
	Assumes:				
	Administrative office space	1	ls.		
	Area per airport	7,200	sq. ft.		
	Total Area Airport Administrative Offices			7,200	sq. ft.
PS -1	Security-Landside Terminal				
	Assumes:				
	International enplaned passengers	265	pax		
	Domestic enplaned passengers	365	pax		
	Visitors per enplaned passenger	0.25			
	Total number of persons			788	persons
	Persons/hour/security station	360	persons		
	Number of security stations			2	stations
	Space per station	750	sq. ft.		
	Total Area for Security			1,500	sq. ft.
AS -12	Airline Operations-Airside Terminal				
	Assumes:				
	Footprint of concourse building	15%			
	Length of building	700	ft.		
	Width of building	90	ft.		
	Area of building footprint			63,000	sq. ft.
	Total Area Operations - Airside			9,450	sq. ft.
C -1	Food & Beverage Facilities-Airside Terminal				
	Local peak hour departing passengers	630	pax		
	Number of well-wishers	158	persons		
	Local peak hour arriving passengers	0	pax		
	Transfer peak hour arriving passengers	0	pax		
	Transfer peak hour departing passengers	0	pax		
	Number of well-wishers	0	persons		
	Total number of persons	788	persons		
	Percent dwelling for 120 minutes	5%			
	Percent dwelling for 90 minutes	12%			
	Percent dwelling for 60 minutes	30%			
	Percent dwelling for 30 minutes	53%			
	Percent using food court	65%			
	Percent using bar	8%			
	Food courts patrons/pk hr	287	patrons		
	Bar patrons/pk hr	270	patrons		
	Area per patron/food court	15	sq.ft.	4,312	sq.ft.
	Area per patron/bar	12	sq.ft.	3,236	sq.ft.
	Total Area-Food & Beverage			7,547	sq.ft.

	Federal Inspection Station (FIS)				
FIS-1	U.S. INS				
	Number of piggyback booths	7	booths		
	Area per booth	48	sq.ft.		
	Area for piggyback booths			336	sq.ft.
	Passenger queue area			4,200	sq.ft.
	General office space			1,300	sq.ft.
	Conference/training room			200	sq.ft.
	Breakroom			200	sq.ft.
	Secondary inspection area			250	sq.ft.
	Interview room			80	sq.ft.
	Supervisor's office			150	sq.ft.
	Director's office			200	sq.ft.
	Clerk / reception			160	sq.ft.
	Employee lockers / toilet			100	sq.ft.
	Adit / lab			150	sq.ft.
	Storage			100	sq.ft.
	Hold room w/ toilet			225	sq.ft.
	Computer room			100	sq.ft.
	Total Area INS			7,751	sq.ft.
FIS-2	U.S. Public Health Service				
	Supervisor's office			200	sq.ft.
	Clerk / reception			150	sq.ft.
	General office space			400	sq.ft.
	Isolation area			160	sq.ft.
	Total Area Public Health Service			910	sq.ft.
FIS-3	U.S. Customs Service				
	Number of piggyback booths	7	booths		
	Area per booth	48	sq.ft.		
	Area for piggyback booths			336	sq.ft.
	Passenger queue area			4,200	sq.ft.
	Supervisor's office			300	sq.ft.
	General office space			800	sq.ft.
	In-bond room			200	sq.ft.
	Cashiers			80	sq.ft.
	Tecs room			150	sq.ft.
	Search room			80	sq.ft.
	Public space w/counter			150	sq.ft.
	Storage			150	sq.ft.
	Director & secretary			350	sq.ft.
	Conference/training room			400	sq.ft.
	Customs patrol			300	sq.ft.
	Employee lockers / toilet			100	sq.ft.
	Total Area Customs Service			7,596	sq.ft.

FIS-4	Animal & Plant Health Inspection Services				
	Officer-In-Charge			200	sq.ft.
	Inspector's office			440	sq.ft.
	Laboratory			220	sq.ft.
	Garbage disposal unit			5	sq.ft.
	Supervisor's office			150	sq.ft.
	Storage			100	sq.ft.
	Conference/training room			150	sq.ft.
	Breakroom			150	sq.ft.
	Total Area Animal & Plant Health Inspection Services			1,415	sq.ft.
FIS-5	Baggage claim area			7,500	sq.ft.
FIS-6	Public circulation			1,800	sq.ft.
FIS-7	Meeters & greeter area			1,500	sq.ft.
	Total FIS area			28,472	sq.ft.

2012 Terminal Program

St. Petersburg – Clearwater International Airport
Clearwater, Florida

GS&P Project No. 68172.00

September 13, 2002

TERMINAL - PEAK DEPARTURE @ 2012

ST. PETERSBURG - CLEARWATER INTERNATIONAL AIRPORT (PIE)

AVERAGE DAY PEAK MONTH PEAK HOUR ACTIVITY

Methodology/Assumptions

Ref Key		Variable	Unit	Total	Unit
AS -1	Airline Ticket Counter- Landside Terminal				
	International pax (Peak Two Hour Processing Period)	265	pax		
	Agent processing time per pax	6.0	minutes		
	Percent of pax going to ATO	100%			
	International Agent Positions			13	positions
	Domestic pax (Peak One Hour Processing Period)	477	pax		
	Agent processing time per pax	3.5	minutes		
	Percent of pax going to ATO	60%			
	Domestic Agent Positions			17	positions
	Total agent positions			30	positions
AS -2	Automated Ticketing Machines (ATMs)				
	Number of agent positions (non-automated)	30	positions		
	Percentage of non-automated positions	10%			
	Number of ATM positions			3	positions
	Ticket counter length per ATM position	3	ft.		
	Total length of ATM positions			9	ft.
AS -3	Area for ATMs				
	Depth of ATM positions	3	ft.		
	Area for ATMs			27	sq.ft.
AS -3	Depth of area for access to ATMs	14	ft.		
	Area for access to ATMs			126	sq.ft.
AS -2	Total Length of Ticket Counter				
	Length of ticket counter per agent (3.5 ft. counter + 1.5 ft. w	5	ft.		
	Total length of Ticket Counter			159	ft.
AS -3	Ticket Counter Work Area				
	Depth of ticket counter work area	10	ft.		
	Total Area Ticket Counter Work			1,590	sq.ft.
AS -4	Ticket Counter Queuing Area				
	Depth of counter queue area	14	ft.		
	Total Area Ticket Counter Queuing			2,226	sq.ft.
AS -5	Ticket Counter Support Office (ATO)				
	Depth of counter office area	25	ft.		
	Total Area Ticket Counter Support Office			3,975	sq.ft.
PS -2	Ticket Lobby				
	Depth of counter lobby area	50	ft.		
	Total Area Ticket Lobby			7,950	sq.ft.

AS -6	Airline Baggage Makeup				
	Number of aircraft departures @ peak hour			3	Departures
	Area per makeup device per departures	1,715	sq,ft.		
	Area for baggage makeup			5,145	sq.ft.
	Number of explosives detection devices	3	devices		
	Area per device	900	sq.ft.		
	Area for explosives detection devices			2,700	sq.ft.
	Total Area Baggage Makeup			7,845	sq.ft.
PS -3	Baggage Claim Area				
	Number of aircraft arrivals @ peak hour	3	aircraft		
	Devices per arriving aircraft	1.00	devices		
	Lineal feet per device	180	l.f.		
	Assumes:				
	Deplaning passengers	477	pax	286	pax
	Percent of passengers claiming baggage	60%		343	bags
	Bags claimed per passenger	1.20	bags	446	l.f.
	Lineal feet /bag	1.30	l.f.	540	l.f.
AS -7	No. of devices	3			
	Total Lineal Feet				
	Tiers of bags	1.00	tiers		
	Total lineal feet			540	l.f.
	Uses per device	1.00	uses		
AS -7a	Total lineal feet			540	l.f.
	Width per device	20	ft.		
	Width for end devices-30'x2	60	ft.		
	Total width of claim area			80	ft.
	Length of a 180 l.f. device, 20' wide	70	ft.		
	Clearance from device	30	ft.		
	Total length			100	ft.
	Area for baggage cart return				
	Width of return corridor	10	ft.		
	Length of corridor	50	ft.		
	Number of corridors	3	corridors		
	Area of baggage cart returns			1,500	sq.ft.
AS -8	Total Area Baggage Claim			9,500	sq.ft.
AS -8a	Area for Baggage Claim Input				
	Device length	180	ft.		
	Percent public	65%			
	Input length	63	ft.		
	Number of devices	3	devices		
	Input length	189	ft.		
	Width of input area	15	ft.		
	Total Area Baggage Claim Input			2,835	sq.ft.
PS -3	Baggage Claim-Public Lobby				
	Length of device plus clearance	100	ft.		
	Width of circulation area	30	ft.		
	Total Area Baggage Claim Lobby			3,000	sq.ft.

C -2	Rental Car Area				
	Number of agencies	6	agencies		
	Length of counter per agency	15	ft.		
	Total length of counter	90	ft.		
	Depth of queue area	14	ft.		
	Depth of work area	10	ft.		
	Depth of office area	10	ft.		
	Total depth of car rental area	34	ft.		
	Total Area Car Rental			3,060	sq.ft.
PS -5	Ticketing Area-Terminal Services				
	Assumes:				
	Enplaned pax using terminal services	25%			
	Space required per pax	20	sq.ft		
	Number of enplaning local passengers			477	pax
	Number of enplaning transfer passengers			0	pax
	25% of Passengers			119	pax
	Area for Terminal Services			2,380	sq.ft.
	Courtesy vehicle storage				
	Number of vehicles	1	carts		
	Area per cart	150	sq.ft.		
	Area for courtesy vehicles			150	sq.ft.
	Wheelchair storage				
	Number of wheelchairs stored	25	units		
	Area per wheelchair	10	sq.ft.		
	Number of storage areas	1	units		
	Area for wheelchair storage			250	sq.ft.
	Total Area Terminal Services			2,780	sq.ft.
PS -4	Restrooms-Landside & AirsideTerminal				
	Assumes:				
	Percent of persons using restrooms	15%			
	Space per person	20	sq.ft		
	Deplaning passengers			477	pax
	Well-wishers	15%			
	Total persons			549	persons
	Total times % of persons using restrooms			82	persons
	Area for ticketing level Restrooms			1,640	sq.ft.
	Assumes:				
	Percent of persons using restrooms	15%			
	Space per person	20	sq.ft		
	Deplaning passengers			477	pax
	Meeter-greeter	25%			
	Total persons			596	persons
	Total times % of persons using restrooms			89	persons
	Area for baggage claim level Restrooms			1,780	sq.ft.
	Total Area Restrooms			3,420	sq.ft.

PS -7	Mechanical & Services				
	Assumes 10% of total area				
	(excluding this category of space)				
	Area of building	88,431	sq.ft.		
	Percent of building area	15%			
	Mechanical & Services subtotal			13,265	sq.ft.
	Passenger terminal service area				
	(enclosed area only)				
	Warehouse area	1000	sq.ft.		
	Airport maintenance facility	1000	sq.ft.		
	Truck Dock work aisle	300	sq.ft.		
	Service area subtotal			2,300	sq.ft.
	Total Area Mechanical & Services			15,565	sq.ft.

PS -6	Concourse circulation-Airside Terminal				
	Assumes:				
	Width	20	ft.		
	ADG II aircraft (BAe31)	101	ft.		
	Average wingspan+25' clearance	126	ft.		
	Aircraft positions	2	aircraft		
	Total area of concourse circulation			5,040	sq.ft.
	Assumes:				
	Width	20	ft.		
	ADG III aircraft (MD87)	108	ft.		
	Average wingspan+25' clearance	133	ft.		
	Aircraft positions	1	aircraft		
	Total area of concourse circulation			2,660	sq.ft.
	Assumes:				
	Width	20	ft.		
	ADG III aircraft (B727-200)	108	ft.		
	Average wingspan+25' clearance	133	ft.		
	Aircraft positions	2	aircraft		
	Total area of concourse circulation			5,320	sq.ft.
	Assumes:				
	Width	20	ft.		
	ADG III aircraft (B737-800)	113	ft.		
	Average wingspan+25' clearance	138	ft.		
	Aircraft positions	1	aircraft		
	Total area of concourse circulation			2,760	sq.ft.
	Assumes:				
	Width	20	ft.		
	ADG IV aircraft (B757-200)	125	ft.		
	Average wingspan+25' clearance	150	ft.		
	Aircraft positions	2	aircraft		
	Total area of concourse circulation			6,000	sq.ft.
	Assumes:				
	Width	20	ft.		
	ADG IV aircraft (B767-300)	156	ft.		
	Average wingspan+25' clearance	181	ft.		
	Aircraft positions	0	aircraft		
	Total area of concourse circulation			0	sq.ft.
	Total Area of All Concourse Circulation			21,780	sq.ft.

AS -9	Holdrooms-Airside Building				
	Assume:				
	ADG II aircraft (Bae31)	19	seats		
	Load factor	77%			
	Passengers/aircraft	15	pax		
	12' ticket lift counter+6' circulation	18	ft.		
	Queue depth	25	ft.		
	Area for counter and queue			450	
	Deplaning corridor width	5	ft.		
	Deplaning corridor depth	20	ft.		
	Deplaning corridor area			100	
	Passengers seated	75%			
	Passengers standing	25%			
	Space per seated passenger	20	sq.ft.	219	
	Space per standing passenger	13	sq.ft.	48	
	Total area of holdroom			817	
	Number of aircraft	2	Aircraft		
	Total Area-Holdrooms-Airside			1,634	
	Assume:				
	ADG III aircraft (MD87)	139	seats		
	Load factor	77%			
	Passengers/aircraft	107	pax		
	12' ticket lift counter+6' circulation	18	ft.		
	Queue depth	25	ft.		
	Area for counter and queue			450	
	Deplaning corridor width	5	ft.		
	Deplaning corridor depth	20	ft.		
	Deplaning corridor area			100	
	Passengers seated	75%			
	Passengers standing	25%			
	Space per seated passenger	20	sq.ft.	1,605	
	Space per standing passenger	13	sq.ft.	348	
	Total area of holdroom			2,503	
	Number of aircraft	1	Aircraft		
	Total Area-Holdrooms-Airside			2,503	
	Assume:				
	ADG III aircraft (B727-200)	134	seats		
	Load factor	77%			
	Passengers/aircraft	103	pax		
	12' ticket lift counter+6' circulation	18	ft.		
	Queue depth	25	ft.		
	Area for counter and queue			450	
	Deplaning corridor width	5	ft.		
	Deplaning corridor depth	20	ft.		
	Deplaning corridor area			100	
	Passengers seated	75%			
	Passengers standing	25%			
	Space per seated passenger	20	sq.ft.	1,548	
	Space per standing passenger	13	sq.ft.	335	
	Total area of holdroom			2,433	
	Number of aircraft	2	Aircraft		
	Total Area-Holdrooms-Airside			4,866	

AS -9	Assume:				
	ADG III aircraft (B737-800)	154	seats		
	Load factor	77%			
	Passengers/aircraft	119	pax		
	12' ticket lift counter+6' circulation	18	ft.		
	Queue depth	25	ft.		
	Area for counter and queue			450	
	Deplaning corridor width	5	ft.		
	Deplaning corridor depth	20	ft.		
	Deplaning corridor area			100	
	Passengers seated	75%			
	Passengers standing	25%			
	Space per seated passenger	20	sq.ft.	1778.7	
	Space per standing passenger	13	sq.ft.	385	
	Total area of holdroom			2,714	
	Number of aircraft	1	Aircraft		
	Total Area-Holdrooms-Airside			2,714	
	Assume:				
	ADG IV aircraft (B757-300)	205	seats		
	Load factor	77%			
	Passengers/aircraft	158	pax		
	12' ticket lift counter+6' circulation	18	ft.		
	Queue depth	25	ft.		
	Area for counter and queue			450	
	Deplaning corridor width	5	ft.		
	Deplaning corridor depth	20	ft.		
	Deplaning corridor area			100	
	Passengers seated	75%			
	Passengers standing	25%			
	Space per seated passenger	20	sq.ft.	2367.75	
	Space per standing passenger	13	sq.ft.	513	
	Total area of holdroom			3,431	
	Number of aircraft	2	Aircraft		
	Total Area-Holdrooms-Airside			6,862	
	Assume:				
	ADG IV aircraft (B767-300)	252	seats		
	Load factor	77%			
	Passengers/aircraft	194	pax		
	12' ticket lift counter+6' circulation	18	ft.		
	Queue depth	25	ft.		
	Area for counter and queue			450	
	Deplaning corridor width	5	ft.		
	Deplaning corridor depth	20	ft.		
	Deplaning corridor area			100	
	Passengers seated	75%			
	Passengers standing	25%			
	Space per seated passenger	20	sq.ft.	2910.6	
	Space per standing passenger	13	sq.ft.	631	
	Total area of holdroom			4,091	
	Number of aircraft	0	Aircraft		
	Total Area-Holdrooms-Airside			0	
	Total Area - All Holdrooms - Airside	8	Aircraft	18,579	sq.ft

AS -10	Airline Clubs-Landside Terminal				
	Assume:				
	Number of clubs	0			
	Area per airline clubroom	2,000	sq. ft.		
	Total Area Clubrooms			0	sq.ft
AS -11	Airline Offices-Airside Terminal				
	Assumes:				
	Number of airlines	0	airlines		
	Area per airline	400	sq. ft.		
	Total Area Offices - Landside			0	sq.ft.
PS -8	Airport Administrative Offices-Landside Terminal				
	Assumes:				
	Administrative office space	1	ls.		
	Area per airport	7,200	sq. ft.		
	Total Area Offices - Airside			7,200	sq. ft.
PS -1	Security-Landside Terminal				
	Assumes:				
	International enplaned passengers	265	pax		
	Domestic enplaned passengers	477	pax		
	Visitors per enplaned passenger	0.25			
	Total number of persons			928	persons
	Persons/hour/security station	360	persons		
	Number of security stations			3	stations
	Space per station	750	sq. ft.		
	Total Area for Security			2,250	sq. ft.
AS -12	Airline Operations-Airside Terminal				
	Assumes:				
	Footprint of concourse building	15%			
	Length of building	700	ft.		
	Width of building	90	ft.		
	Area of building footprint			63,000	sq. ft.
	Total Area Operations - Airside			9,450	sq. ft.
C -1	Food & Beverage Facilities-Airside Terminal				
	Local peak hour departing passengers	742	pax		
	Number of well-wishers	186	persons		
	Local peak hour arriving passengers	0	pax		
	Transfer peak hour arriving passengers	0	pax		
	Transfer peak hour departing passengers	0	pax		
	Number of well-wishers	0	persons		
	Total number of persons	928	persons		
	Percent dwelling for 120 minutes	5%			
	Percent dwelling for 90 minutes	12%			
	Percent dwelling for 60 minutes	30%			
	Percent dwelling for 30 minutes	53%			
	Percent using food court	65%			
	Percent using bar	8%			
	Food courts patrons/pk hr	339	patrons		
	Bar patrons/pk hr	318	patrons		
	Area per patron/food court	15	sq.ft.	5,078	sq.ft.
	Area per patron/bar	12	sq.ft.	3,811	sq.ft.
	Total Area-Food & Beverage			8,889	sq.ft.

	Federal Inspection Station (FIS)				
FIS-1	U.S. INS				
	Number of piggyback booths	7	booths		
	Area per booth	48	sq.ft.		
	Area for piggyback booths			336	sq.ft.
	Passenger queue area			4,200	sq.ft.
	General office space			1,300	sq.ft.
	Conference/training room			200	sq.ft.
	Breakroom			200	sq.ft.
	Secondary inspection area			250	sq.ft.
	Interview room			80	sq.ft.
	Supervisor's office			150	sq.ft.
	Director's office			200	sq.ft.
	Clerk / reception			160	sq.ft.
	Employee lockers / toilet			100	sq.ft.
	Adit / lab			150	sq.ft.
	Storage			100	sq.ft.
	Hold room w/ toilet			225	sq.ft.
	Computer room			100	sq.ft.
	Total Area INS			7,751	sq.ft.
FIS-2	U.S. Public Health Service				
	Supervisor's office			200	sq.ft.
	Clerk / reception			150	sq.ft.
	General office space			400	sq.ft.
	Isolation area			160	sq.ft.
	Total Area Public Health Service			910	sq.ft.
FIS-3	U.S. Customs Service				
	Number of piggyback booths	7	booths		
	Area per booth	48	sq.ft.		
	Area for piggyback booths			336	sq.ft.
	Passenger queue area			4,200	sq.ft.
	Supervisor's office			300	sq.ft.
	General office space			800	sq.ft.
	In-bond room			200	sq.ft.
	Cashiers			80	sq.ft.
	Tecs room			150	sq.ft.
	Search room			80	sq.ft.
	Public space w/counter			150	sq.ft.
	Storage			150	sq.ft.
	Director & secretary			350	sq.ft.
	Conference/training room			400	sq.ft.
	Customs patrol			300	sq.ft.
	Employee lockers / toilet			100	sq.ft.
	Total Area Customs Service			7,596	sq.ft.

FIS-4	Animal & Plant Health Inspection Services				
	Officer-In-Charge			200	sq.ft.
	Inspector's office			440	sq.ft.
	Laboratory			220	sq.ft.
	Garbage disposal unit			5	sq.ft.
	Supervisor's office			150	sq.ft.
	Storage			100	sq.ft.
	Conference/training room			150	sq.ft.
	Breakroom			150	sq.ft.
	Total Area Animal & Plant Health Inspection Services			1,415	sq.ft.
FIS-5	Baggage claim area			7,500	sq.ft.
FIS-6	Public circulation			1,800	sq.ft.
FIS-7	Meeters & greeter area			1,500	sq.ft.
	Total FIS area			28,472	sq.ft.

2017 Terminal Program

St. Petersburg – Clearwater International Airport
Clearwater, Florida

GS&P Project No. 68172.00

September 13, 2002

TERMINAL - PEAK DEPARTURE @ 2017

ST. PETERSBURG - CLEARWATER INTERNATIONAL AIRPORT (PIE)

AVERAGE DAY PEAK MONTH PEAK HOUR ACTIVITY

Methodology/Assumptions

Ref Key		Variable	Unit	Total	Unit
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	International pax (Peak Two Hour Processing Period)	265	pax		
	Agent processing time per pax	6.0	minutes		
	Percent of pax going to ATO	100%			
	International Agent Positions			13	positions
	Domestic pax (Peak One Hour Processing Period)	597	pax		
	Agent processing time per pax	3.5	minutes		
	Percent of pax going to ATO	60%			
	Domestic Agent Positions			21	positions
	Total agent positions			34	positions
AS -2	Automated Ticketing Machines (ATMs)				
	Number of agent positions (non-automated)	34	positions		
	Percentage of non-automated positions	10%			
	Number of ATM positions			3	positions
	Ticket counter length per ATM position	3	ft.		
	Total length of ATM positions			9	ft.
AS -3	Area for ATMs				
	Depth of ATM positions	3	ft.		
	Area for ATMs			27	sq.ft.
AS -3	Depth of area for access to ATMs	14	ft.		
	Area for access to ATMs			126	sq.ft.
AS -2	Total Length of Ticket Counter				
	Length of ticket counter per agent (3.5 ft. counter + 1.5 ft. w	5	ft.		
	Total length of Ticket Counter			180	ft.
AS -3	Ticket Counter Work Area				
	Depth of ticket counter work area	10	ft.		
	Total Area Ticket Counter Work			1,800	sq.ft.
AS -4	Ticket Counter Queuing Area				
	Depth of counter queue area	14	ft.		
	Total Area Ticket Counter Queuing			2,520	sq.ft.
AS -5	Ticket Counter Support Office (ATO)				
	Depth of counter office area	25	ft.		
	Total Area Ticket Counter Support Office			4,500	sq.ft.
PS -2	Ticket Lobby				
	Depth of counter lobby area	50	ft.		
	Total Area Ticket Lobby			9,000	sq.ft.

AS -6	Airline Baggage Makeup				
	Number of aircraft departures @ peak hour			4	Departures
	Area per makeup device per departures	1,715	sq,ft.		
	Area for baggage makeup			6,860	sq.ft.
	Number of explosives detection devices	3	devices		
	Area per device	900	sq.ft.		
	Area for explosives detection devices			2,700	sq.ft.
	Total Area Baggage Makeup			9,560	sq.ft.
PS -3	Baggage Claim Area				
	Number of aircraft arrivals @ peak hour	4	aircraft		
	Devices per arriving aircraft	1.00	devices		
	Lineal feet per device	180	l.f.		
	Assumes:				
	Deplaning passengers	597	pax	358	pax
	Percent of passengers claiming baggage	60%		430	bags
	Bags claimed per passenger	1.20	bags	559	l.f.
	Lineal feet /bag	1.30	l.f.	720	l.f.
AS -7	No. of devices	4			
	Total Lineal Feet				
	Tiers of bags	1.00	tiers		
	Total lineal feet			720	l.f.
	Uses per device	1.00	uses		
AS -7a	Total lineal feet			720	l.f.
	Width per device	20	ft.		
	Width for end devices-30'x2	60	ft.		
	Total width of claim area			80	ft.
	Length of a 180 l.f. device, 20' wide	70	ft.		
	Clearance from device	30	ft.		
	Total length			100	ft.
	Area for baggage cart return				
	Width of return corridor	10	ft.		
	Length of corridor	50	ft.		
	Number of corridors	4	corridors		
	Area of baggage cart returns			2,000	sq.ft.
AS -8	Total Area Baggage Claim			10,000	sq.ft.
AS -8a	Area for Baggage Claim Input				
	Device length	180	ft.		
	Percent public	65%			
	Input length	63	ft.		
	Number of devices	4	devices		
	Input length	252	ft.		
	Width of input area	15	ft.		
	Total Area Baggage Claim Input			3,780	sq.ft.
PS -3	Baggage Claim-Public Lobby				
	Length of device plus clearance	100	ft.		
	Width of circulation area	30	ft.		
	Total Area Baggage Claim Lobby			3,000	sq.ft.

C -2	Rental Car Area				
	Number of agencies	6	agencies		
	Length of counter per agency	15	ft.		
	Total length of counter	90	ft.		
	Depth of queue area	14	ft.		
	Depth of work area	10	ft.		
	Depth of office area	10	ft.		
	Total depth of car rental area	34	ft.		
	Total Area Car Rental			3,060	sq.ft.
PS -5	Ticketing Area-Terminal Services				
	Assumes:				
	Enplaned pax using terminal services	25%			
	Space required per pax	20	sq.ft		
	Number of enplaning local passengers			597	pax
	Number of enplaning transfer passengers			0	pax
	25% of Passengers			149	pax
	Area for Terminal Services			2,980	sq.ft.
	Courtesy vehicle storage				
	Number of vehicles	1	carts		
	Area per cart	150	sq.ft.		
	Area for courtesy vehicles			150	sq.ft.
	Wheelchair storage				
	Number of wheelchairs stored	25	units		
	Area per wheelchair	10	sq.ft.		
	Number of storage areas	1	units		
	Area for wheelchair storage			250	sq.ft.
	Total Area Terminal Services			3,380	sq.ft.
PS -4	Restrooms-Landside & AirsideTerminal				
	Assumes:				
	Percent of persons using restrooms	15%			
	Space per person	20	sq.ft		
	Deplaning passengers			597	pax
	Well-wishers	15%			
	Total persons			687	persons
	Total times % of persons using restrooms			103	persons
	Area for ticketing level Restrooms			2,060	sq.ft.
	Assumes:				
	Percent of persons using restrooms	15%			
	Space per person	20	sq.ft		
	Deplaning passengers			597	pax
	Meeter-greeter	25%			
	Total persons			746	persons
	Total times % of persons using restrooms			112	persons
	Area for baggage claim level Restrooms			2,240	sq.ft.
	Total Area Restrooms			4,300	sq.ft.

PS -7	Mechanical & Services				
	Assumes 10% of total area				
	(excluding this category of space)				
	Area of building	98,788	sq.ft.		
	Percent of building area	15%			
	Mechanical & Services subtotal			14,818	sq.ft.
	Passenger terminal service area				
	(enclosed area only)				
	Warehouse area	1000	sq.ft.		
	Airport maintenance facility	1000	sq.ft.		
	Truck Dock work aisle	300	sq.ft.		
	Service area subtotal			2,300	sq.ft.
	Total Area Mechanical & Services			17,118	sq.ft.

PS -6	Concourse circulation-Airside Terminal				
	Assumes:				
	Width	20	ft.		
	ADG II aircraft (BAe31)	101	ft.		
	Average wingspan+25' clearance	126	ft.		
	Aircraft positions	3	aircraft		
	Total area of concourse circulation			7,560	sq.ft.
	Assumes:				
	Width	20	ft.		
	ADG III aircraft (MD87)	108	ft.		
	Average wingspan+25' clearance	133	ft.		
	Aircraft positions	1	aircraft		
	Total area of concourse circulation			2,660	sq.ft.
	Assumes:				
	Width	20	ft.		
	ADG III aircraft (B727-200)	108	ft.		
	Average wingspan+25' clearance	133	ft.		
	Aircraft positions	0	aircraft		
	Total area of concourse circulation			0	sq.ft.
	Assumes:				
	Width	20	ft.		
	ADG III aircraft (B737-800)	113	ft.		
	Average wingspan+25' clearance	138	ft.		
	Aircraft positions	2	aircraft		
	Total area of concourse circulation			5,520	sq.ft.
	Assumes:				
	Width	20	ft.		
	ADG IV aircraft (B757-200)	125	ft.		
	Average wingspan+25' clearance	150	ft.		
	Aircraft positions	3	aircraft		
	Total area of concourse circulation			9,000	sq.ft.
	Assumes:				
	Width	20	ft.		
	ADG IV aircraft (B767-300)	156	ft.		
	Average wingspan+25' clearance	181	ft.		
	Aircraft positions	0	aircraft		
	Total area of concourse circulation			0	sq.ft.
	Total Area of All Concourse Circulation			24,740	sq.ft.

AS -9	Holdrooms-Airside Building				
	Assume:				
	ADG II aircraft (Bae31)	19	seats		
	Load factor	77%			
	Passengers/aircraft	15	pax		
	12' ticket lift counter+6' circulation	18	ft.		
	Queue depth	25	ft.		
	Area for counter and queue			450	
	Deplaning corridor width	5	ft.		
	Deplaning corridor depth	20	ft.		
	Deplaning corridor area			100	
	Passengers seated	75%			
	Passengers standing	25%			
	Space per seated passenger	20	sq.ft.	219	
	Space per standing passenger	13	sq.ft.	48	
	Total area of holdroom			817	
	Number of aircraft	3	Aircraft		
	Total Area-Holdrooms-Airside			2,451	
	Assume:				
	ADG III aircraft (MD87)	139	seats		
	Load factor	77%			
	Passengers/aircraft	107	pax		
	12' ticket lift counter+6' circulation	18	ft.		
	Queue depth	25	ft.		
	Area for counter and queue			450	
	Deplaning corridor width	5	ft.		
	Deplaning corridor depth	20	ft.		
	Deplaning corridor area			100	
	Passengers seated	75%			
	Passengers standing	25%			
	Space per seated passenger	20	sq.ft.	1,605	
	Space per standing passenger	13	sq.ft.	348	
	Total area of holdroom			2,503	
	Number of aircraft	1	Aircraft		
	Total Area-Holdrooms-Airside			2,503	
	Assume:				
	ADG III aircraft (B727-200)	134	seats		
	Load factor	77%			
	Passengers/aircraft	103	pax		
	12' ticket lift counter+6' circulation	18	ft.		
	Queue depth	25	ft.		
	Area for counter and queue			450	
	Deplaning corridor width	5	ft.		
	Deplaning corridor depth	20	ft.		
	Deplaning corridor area			100	
	Passengers seated	75%			
	Passengers standing	25%			
	Space per seated passenger	20	sq.ft.	1,548	
	Space per standing passenger	13	sq.ft.	335	
	Total area of holdroom			2,433	
	Number of aircraft	0	Aircraft		
	Total Area-Holdrooms-Airside			0	

AS -9	Assume:				
	ADG III aircraft (B737-800)	154	seats		
	Load factor	77%			
	Passengers/aircraft	119	pax		
	12' ticket lift counter+6' circulation	18	ft.		
	Queue depth	25	ft.		
	Area for counter and queue			450	
	Deplaning corridor width	5	ft.		
	Deplaning corridor depth	20	ft.		
	Deplaning corridor area			100	
	Passengers seated	75%			
	Passengers standing	25%			
	Space per seated passenger	20	sq.ft.	1778.7	
	Space per standing passenger	13	sq.ft.	385	
	Total area of holdroom			2,714	
	Number of aircraft	2	Aircraft		
	Total Area-Holdrooms-Airside			5,428	
	Assume:				
	ADG IV aircraft (B757-300)	205	seats		
	Load factor	77%			
	Passengers/aircraft	158	pax		
	12' ticket lift counter+6' circulation	18	ft.		
	Queue depth	25	ft.		
	Area for counter and queue			450	
	Deplaning corridor width	5	ft.		
	Deplaning corridor depth	20	ft.		
	Deplaning corridor area			100	
	Passengers seated	75%			
	Passengers standing	25%			
	Space per seated passenger	20	sq.ft.	2367.75	
	Space per standing passenger	13	sq.ft.	513	
	Total area of holdroom			3,431	
	Number of aircraft	3	Aircraft		
	Total Area-Holdrooms-Airside			10,292	
	Assume:				
	ADG IV aircraft (B767-300)	252	seats		
	Load factor	77%			
	Passengers/aircraft	194	pax		
	12' ticket lift counter+6' circulation	18	ft.		
	Queue depth	25	ft.		
	Area for counter and queue			450	
	Deplaning corridor width	5	ft.		
	Deplaning corridor depth	20	ft.		
	Deplaning corridor area			100	
	Passengers seated	75%			
	Passengers standing	25%			
	Space per seated passenger	20	sq.ft.	2910.6	
	Space per standing passenger	13	sq.ft.	631	
	Total area of holdroom			4,091	
	Number of aircraft	0	Aircraft		
	Total Area-Holdrooms-Airside			0	
	Total Area - All Holdrooms - Airside	9	Aircraft	20,675	sq.ft

AS -10	Airline Clubs-Landside Terminal				
	Assume:				
	Number of clubs	0			
	Area per airline clubroom	2,000	sq. ft.		
	Total Area Clubrooms			0	sq.ft
AS -11	Airline Offices-Airside Terminal				
	Assumes:				
	Number of airlines	0	airlines		
	Area per airline	400	sq. ft.		
	Total Area Offices - Landside			0	sq.ft.
PS -8	Airport Administrative Offices - Landside Terminal				
	Assumes:				
	Administrative office space	1	ls.		
	Area per airport	8,200	sq. ft.		
	Total Area Offices - Airside			8,200	sq. ft.
PS -1	Security-Landside Terminal				
	Assumes:				
	International enplaned passengers	265	pax		
	Domestic enplaned passengers	597	pax		
	Visitors per enplaned passenger	0.25			
	Total number of persons			1,078	persons
	Persons/hour/security station	360	persons		
	Number of security stations			3	stations
	Space per station	750	sq. ft.		
	Total Area for Security			2,250	sq. ft.
AS -12	Airline Operations-Airside Terminal				
	Assumes:				
	Footprint of concourse building	15%			
	Length of building	700	ft.		
	Width of building	90	ft.		
	Area of building footprint			63,000	sq. ft.
	Total Area Operations - Airside			9,450	sq. ft.
C -1	Food & Beverage Facilities-Airside Terminal				
	Local peak hour departing passengers	862	pax		
	Number of well-wishers	216	persons		
	Local peak hour arriving passengers	0	pax		
	Transfer peak hour arriving passengers	0	pax		
	Transfer peak hour departing passengers	0	pax		
	Number of well-wishers	0	persons		
	Total number of persons	1078	persons		
	Percent dwelling for 120 minutes	5%			
	Percent dwelling for 90 minutes	12%			
	Percent dwelling for 60 minutes	30%			
	Percent dwelling for 30 minutes	53%			
	Percent using food court	65%			
	Percent using bar	8%			
	Food courts patrons/pk hr	393	patrons		
	Bar patrons/pk hr	369	patrons		
	Area per patron/food court	15	sq.ft.	5,899	sq.ft.
	Area per patron/bar	12	sq.ft.	4,427	sq.ft.
	Total Area-Food & Beverage			10,327	sq.ft.

	Federal Inspection Station (FIS)				
FIS-1	U.S. INS				
	Number of piggyback booths	7	booths		
	Area per booth	48	sq.ft.		
	Area for piggyback booths			336	sq.ft.
	Passenger queue area			4,200	sq.ft.
	General office space			1,300	sq.ft.
	Conference/training room			200	sq.ft.
	Breakroom			200	sq.ft.
	Secondary inspection area			250	sq.ft.
	Interview room			80	sq.ft.
	Supervisor's office			150	sq.ft.
	Director's office			200	sq.ft.
	Clerk / reception			160	sq.ft.
	Employee lockers / toilet			100	sq.ft.
	Adit / lab			150	sq.ft.
	Storage			100	sq.ft.
	Hold room w/ toilet			225	sq.ft.
	Computer room			100	sq.ft.
	Total Area INS			7,751	sq.ft.
FIS-2	U.S. Public Health Service				
	Supervisor's office			200	sq.ft.
	Clerk / reception			150	sq.ft.
	General office space			400	sq.ft.
	Isolation area			160	sq.ft.
	Total Area Public Health Service			910	sq.ft.
FIS-3	U.S. Customs Service				
	Number of piggyback booths	7	booths		
	Area per booth	48	sq.ft.		
	Area for piggyback booths			336	sq.ft.
	Passenger queue area			4,200	sq.ft.
	Supervisor's office			300	sq.ft.
	General office space			800	sq.ft.
	In-bond room			200	sq.ft.
	Cashiers			80	sq.ft.
	Tecs room			150	sq.ft.
	Search room			80	sq.ft.
	Public space w/counter			150	sq.ft.
	Storage			150	sq.ft.
	Director & secretary			350	sq.ft.
	Conference/training room			400	sq.ft.
	Customs patrol			300	sq.ft.
	Employee lockers / toilet			100	sq.ft.
	Total Area Customs Service			7,596	sq.ft.

FIS-4	Animal & Plant Health Inspection Services				
	Officer-In-Charge			200	sq.ft.
	Inspector's office			440	sq.ft.
	Laboratory			220	sq.ft.
	Garbage disposal unit			5	sq.ft.
	Supervisor's office			150	sq.ft.
	Storage			100	sq.ft.
	Conference/training room			150	sq.ft.
	Breakroom			150	sq.ft.
	Total Area Animal & Plant Health Inspection Services			1,415	sq.ft.
FIS-5	Baggage claim area			7,500	sq.ft.
FIS-6	Public circulation			1,800	sq.ft.
FIS-7	Meeters & greeter area			1,500	sq.ft.
	Total FIS area			28,472	sq.ft.

2022 Terminal Program

St. Petersburg – Clearwater International Airport
Clearwater, Florida

GS&P Project No. 68172.00

September 13, 2002

TERMINAL - PEAK DEPARTURE @ 2022

ST. PETERSBURG - CLEARWATER INTERNATIONAL AIRPORT (PIE)

AVERAGE DAY PEAK MONTH PEAK HOUR ACTIVITY

Methodology/Assumptions

Ref Key		Variable	Unit	Total	Unit
AS -1	Airline Ticket Counter- Landside Terminal				
	International pax (Peak Two Hour Processing Period)	404	pax		
	Agent processing time per pax	6.0	minutes		
	Percent of pax going to ATO	100%			
	International Agent Positions			20	positions
	Domestic pax (Peak One Hour Processing Period)	597	pax		
	Agent processing time per pax	3.5	minutes		
	Percent of pax going to ATO	60%			
	Domestic Agent Positions			21	positions
	Total agent positions			41	positions
AS -2	Automated Ticketing Machines (ATMs)				
	Number of agent positions (non-automated)	41	positions		
	Percentage of non-automated positions	10%			
	Number of ATM positions			4	positions
	Ticket counter length per ATM position	3	ft.		
	Total length of ATM positions			12	ft.
AS -3	Area for ATMs				
	Depth of ATM positions	3	ft.		
	Area for ATMs			36	sq.ft.
AS -3	Depth of area for access to ATMs	14	ft.		
	Area for access to ATMs			168	sq.ft.
AS -2	Total Length of Ticket Counter				
	Length of ticket counter per agent (3.5 ft. counter + 1.5 ft. w	5	ft.		
	Total length of Ticket Counter			217	ft.
AS -3	Ticket Counter Work Area				
	Depth of ticket counter work area	10	ft.		
	Total Area Ticket Counter Work			2,170	sq.ft.
AS -4	Ticket Counter Queuing Area				
	Depth of counter queue area	14	ft.		
	Total Area Ticket Counter Queuing			3,038	sq.ft.
AS -5	Ticket Counter Support Office				
	Depth of counter office area	25	ft.		
	Total Area Ticket Counter Support Office			5,425	sq.ft.
PS -2	Ticket Lobby				
	Depth of counter lobby area	50	ft.		
	Total Area Ticket Lobby			10,850	sq.ft.

AS -6	Airline Baggage Makeup				
	Number of aircraft departures @ peak hour			4	Departures
	Area per makeup device per departures	1,715	sq,ft.		
	Area for baggage makeup			6,860	sq.ft.
	Number of explosives detection devices	3	devices		
	Area per device	900	sq.ft.		
	Area for explosives detection devices			2,700	sq.ft.
	Total Area Baggage Makeup			9,560	sq.ft.
PS -3	Baggage Claim Area				
	Number of aircraft arrivals @ peak hour	4	aircraft		
	Devices per arriving aircraft	1.00	devices		
	Lineal feet per device	180	l.f.		
	Assumes:				
	Deplaning passengers	597	pax	358	pax
	Percent of passengers claiming baggage	60%		430	bags
	Bags claimed per passenger	1.20	bags	559	l.f.
	Lineal feet /bag	1.30	l.f.	720	l.f.
AS -7	No. of devices	4			
	Total Lineal Feet				
	Tiers of bags	1.00	tiers		
	Total lineal feet			720	l.f.
	Uses per device	1.00	uses		
AS -7a	Total lineal feet			720	l.f.
	Width per device	20	ft.		
	Width for end devices-30'x2	60	ft.		
	Total width of claim area			80	ft.
	Length of a 180 l.f. device, 20' wide	70	ft.		
	Clearance from device	30	ft.		
	Total length			100	ft.
	Area for baggage cart return				
	Width of return corridor	10	ft.		
	Length of corridor	50	ft.		
	Number of corridors	4	corridors		
	Area of baggage cart returns			2,000	sq.ft.
AS -8	Total Area Baggage Claim			10,000	sq.ft.
AS -8a	Area for Baggage Claim Input				
	Device length	180	ft.		
	Percent public	65%			
	Input length	63	ft.		
	Number of devices	4	devices		
	Input length	252	ft.		
	Width of input area	15	ft.		
	Total Area Baggage Claim Input			3,780	sq.ft.
PS -3	Baggage Claim-Public Lobby				
	Length of device plus clearance	100	ft.		
	Width of circulation area	30	ft.		
	Total Area Baggage Claim Lobby			3,000	sq.ft.

C -2	Rental Car Area				
	Number of agencies	6	agencies		
	Length of counter per agency	15	ft.		
	Total length of counter	90	ft.		
	Depth of queue area	14	ft.		
	Depth of work area	10	ft.		
	Depth of office area	10	ft.		
	Total depth of car rental area	34	ft.		
	Total Area Car Rental			3,060	sq.ft.
PS -5	Ticketing Area-Terminal Services				
	Assumes:				
	Enplaned pax using terminal services	25%			
	Space required per pax	20	sq.ft		
	Number of enplaning local passengers			597	pax
	Number of enplaning transfer passengers			0	pax
	25% of Passengers			149	pax
	Area for Terminal Services			2,980	sq.ft.
	Courtesy vehicle storage				
	Number of vehicles	1	carts		
	Area per cart	150	sq.ft.		
	Area for courtesy vehicles			150	sq.ft.
	Wheelchair storage				
	Number of wheelchairs stored	25	units		
	Area per wheelchair	10	sq.ft.		
	Number of storage areas	1	units		
	Area for wheelchair storage			250	sq.ft.
	Total Area Terminal Services			3,380	sq.ft.
PS -4	Restrooms-Landside & AirsideTerminal				
	Assumes:				
	Percent of persons using restrooms	15%			
	Space per person	20	sq.ft		
	Deplaning passengers			597	pax
	Well-wishers	15%			
	Total persons			687	persons
	Total times % of persons using restrooms			103	persons
	Area for ticketing level Restrooms			2,060	sq.ft.
	Assumes:				
	Percent of persons using restrooms	15%			
	Space per person	20	sq.ft		
	Deplaning passengers			597	pax
	Meeter-greeter	25%			
	Total persons			746	persons
	Total times % of persons using restrooms			112	persons
	Area for baggage claim level Restrooms			2,240	sq.ft.
	Total Area Restrooms			4,300	sq.ft.

PS -7	Mechanical & Services				
	Assumes 10% of total area				
	(excluding this category of space)				
	Area of building	108,463	sq.ft.		
	Percent of building area	15%			
	Mechanical & Services subtotal			16,269	sq.ft.
	Passenger terminal service area				
	(enclosed area only)				
	Warehouse area	1000	sq.ft.		
	Airport maintenance facility	1000	sq.ft.		
	Truck Dock work aisle	300	sq.ft.		
	Service area subtotal			2,300	sq.ft.
	Total Area Mechanical & Services			18,569	sq.ft.

PS -6	Concourse circulation-Airside Terminal				
	Assumes:				
	Width	20	ft.		
	ADG II aircraft (BAe31)	101	ft.		
	Average wingspan+25' clearance	126	ft.		
	Aircraft positions	3	aircraft		
	Total area of concourse circulation			7,560	sq.ft.
	Assumes:				
	Width	20	ft.		
	ADG III aircraft (MD87)	108	ft.		
	Average wingspan+25' clearance	133	ft.		
	Aircraft positions	1	aircraft		
	Total area of concourse circulation			2,660	sq.ft.
	Assumes:				
	Width	20	ft.		
	ADG III aircraft (B727-200)	108	ft.		
	Average wingspan+25' clearance	133	ft.		
	Aircraft positions	0	aircraft		
	Total area of concourse circulation			0	sq.ft.
	Assumes:				
	Width	20	ft.		
	ADG III aircraft (B737-800)	113	ft.		
	Average wingspan+25' clearance	138	ft.		
	Aircraft positions	2	aircraft		
	Total area of concourse circulation			5,520	sq.ft.
	Assumes:				
	Width	20	ft.		
	ADG IV aircraft (B757-200)	125	ft.		
	Average wingspan+25' clearance	150	ft.		
	Aircraft positions	3	aircraft		
	Total area of concourse circulation			9,000	sq.ft.
	Assumes:				
	Width	20	ft.		
	ADG IV aircraft (B767-300)	156	ft.		
	Average wingspan+25' clearance	181	ft.		
	Aircraft positions	1	aircraft		
	Total area of concourse circulation			3,620	sq.ft.
	Total Area of All Concourse Circulation			28,360	sq.ft.

AS -9	Holdrooms-Airside Building				
	Assume:				
	ADG II aircraft (Bae31)	19	seats		
	Load factor	77%			
	Passengers/aircraft	15	pax		
	12' ticket lift counter+6' circulation	18	ft.		
	Queue depth	25	ft.		
	Area for counter and queue			450	
	Deplaning corridor width	5	ft.		
	Deplaning corridor depth	20	ft.		
	Deplaning corridor area			100	
	Passengers seated	75%			
	Passengers standing	25%			
	Space per seated passenger	20	sq.ft.	219	
	Space per standing passenger	13	sq.ft.	48	
	Total area of holdroom			817	
	Number of aircraft	3	Aircraft		
	Total Area-Holdrooms-Airside			2,451	
	Assume:				
	ADG III aircraft (MD87)	139	seats		
	Load factor	77%			
	Passengers/aircraft	107	pax		
	12' ticket lift counter+6' circulation	18	ft.		
	Queue depth	25	ft.		
	Area for counter and queue			450	
	Deplaning corridor width	5	ft.		
	Deplaning corridor depth	20	ft.		
	Deplaning corridor area			100	
	Passengers seated	75%			
	Passengers standing	25%			
	Space per seated passenger	20	sq.ft.	1,605	
	Space per standing passenger	13	sq.ft.	348	
	Total area of holdroom			2,503	
	Number of aircraft	1	Aircraft		
	Total Area-Holdrooms-Airside			2,503	
	Assume:				
	ADG III aircraft (B727-200)	134	seats		
	Load factor	77%			
	Passengers/aircraft	103	pax		
	12' ticket lift counter+6' circulation	18	ft.		
	Queue depth	25	ft.		
	Area for counter and queue			450	
	Deplaning corridor width	5	ft.		
	Deplaning corridor depth	20	ft.		
	Deplaning corridor area			100	
	Passengers seated	75%			
	Passengers standing	25%			
	Space per seated passenger	20	sq.ft.	1,548	
	Space per standing passenger	13	sq.ft.	335	
	Total area of holdroom			2,433	
	Number of aircraft	0	Aircraft		
	Total Area-Holdrooms-Airside			0	

AS -9	Assume:				
	ADG III aircraft (B737-800)	154	seats		
	Load factor	77%			
	Passengers/aircraft	119	pax		
	12' ticket lift counter+6' circulation	18	ft.		
	Queue depth	25	ft.		
	Area for counter and queue			450	
	Deplaning corridor width	5	ft.		
	Deplaning corridor depth	20	ft.		
	Deplaning corridor area			100	
	Passengers seated	75%			
	Passengers standing	25%			
	Space per seated passenger	20	sq.ft.	1778.7	
	Space per standing passenger	13	sq.ft.	385	
	Total area of holdroom			2,714	
	Number of aircraft	2	Aircraft		
	Total Area-Holdrooms-Airside			5,428	
	Assume:				
	ADG IV aircraft (B757-300)	205	seats		
	Load factor	77%			
	Passengers/aircraft	158	pax		
	12' ticket lift counter+6' circulation	18	ft.		
	Queue depth	25	ft.		
	Area for counter and queue			450	
	Deplaning corridor width	5	ft.		
	Deplaning corridor depth	20	ft.		
	Deplaning corridor area			100	
	Passengers seated	75%			
	Passengers standing	25%			
	Space per seated passenger	20	sq.ft.	2367.75	
	Space per standing passenger	13	sq.ft.	513	
	Total area of holdroom			3,431	
	Number of aircraft	3	Aircraft		
	Total Area-Holdrooms-Airside			10,292	
	Assume:				
	ADG IV aircraft (B767-300)	252	seats		
	Load factor	77%			
	Passengers/aircraft	194	pax		
	12' ticket lift counter+6' circulation	18	ft.		
	Queue depth	25	ft.		
	Area for counter and queue			450	
	Deplaning corridor width	5	ft.		
	Deplaning corridor depth	20	ft.		
	Deplaning corridor area			100	
	Passengers seated	75%			
	Passengers standing	25%			
	Space per seated passenger	20	sq.ft.	2910.6	
	Space per standing passenger	13	sq.ft.	631	
	Total area of holdroom			4,091	
	Number of aircraft	1	Aircraft		
	Total Area-Holdrooms-Airside			4,091	
	Total Area - All Holdrooms - Airside	10	Aircraft	24,766	sq.ft

AS -10	Airline Clubs-Landside Terminal				
	Assume:				
	Number of clubs	0			
	Area per airline clubroom	2,000	sq. ft.		
	Total Area Clubrooms			0	sq.ft
AS -11	Airline Offices-Airside Terminal				
	Assumes:				
	Number of airlines	0	airlines		
	Area per airline	400	sq. ft.		
	Total Area Offices - Landside			0	sq.ft.
PS -8	Airport Administrative Offices - Landside Terminal				
	Assumes:				
	Administrative office space	1	ls.		
	Area per airport	8,200	sq. ft.		
	Total Area Offices - Airside			8,200	sq. ft.
PS -1	Security-Landside Terminal				
	Assumes:				
	International enplaned passengers	404	pax		
	Domestic enplaned passengers	597	pax		
	Visitors per enplaned passenger	0.25			
	Total number of persons			1,251	persons
	Persons/hour/security station	360	persons		
	Number of security stations			3	stations
	Space per station	750	sq. ft.		
	Total Area for Security			2,250	sq. ft.
AS -13	Airline Operations-Airside Terminal				
	Assumes:				
	Footprint of concourse building	15%			
	Length of building	700	ft.		
	Width of building	90	ft.		
	Area of building footprint			63,000	sq. ft.
	Total Area Operations - Airside			9,450	sq. ft.
C -1	Food & Beverage Facilities-Airside Terminal				
	Local peak hour departing passengers	1,001	pax		
	Number of well-wishers	250	persons		
	Local peak hour arriving passengers	0	pax		
	Transfer peak hour arriving passengers	0	pax		
	Transfer peak hour departing passengers	0	pax		
	Number of well-wishers	0	persons		
	Total number of persons	1251	persons		
	Percent dwelling for 120 minutes	5%			
	Percent dwelling for 90 minutes	12%			
	Percent dwelling for 60 minutes	30%			
	Percent dwelling for 30 minutes	53%			
	Percent using food court	65%			
	Percent using bar	8%			
	Food courts patrons/pk hr	457	patrons		
	Bar patrons/pk hr	428	patrons		
	Area per patron/food court	15	sq.ft.	6,851	sq.ft.
	Area per patron/bar	12	sq.ft.	5,141	sq.ft.
	Total Area-Food & Beverage			11,992	sq.ft.

	Federal Inspection Station (FIS)				
FIS-1	U.S. INS				
	Number of piggyback booths	7	booths		
	Area per booth	48	sq.ft.		
	Area for piggyback booths			336	sq.ft.
	Passenger queue area			4,200	sq.ft.
	General office space			1,300	sq.ft.
	Conference/training room			200	sq.ft.
	Breakroom			200	sq.ft.
	Secondary inspection area			250	sq.ft.
	Interview room			80	sq.ft.
	Supervisor's office			150	sq.ft.
	Director's office			200	sq.ft.
	Clerk / reception			160	sq.ft.
	Employee lockers / toilet			100	sq.ft.
	Adit / lab			150	sq.ft.
	Storage			100	sq.ft.
	Hold room w/ toilet			225	sq.ft.
	Computer room			100	sq.ft.
	Total Area INS			7,751	sq.ft.
FIS-2	U.S. Public Health Service				
	Supervisor's office			200	sq.ft.
	Clerk / reception			150	sq.ft.
	General office space			400	sq.ft.
	Isolation area			160	sq.ft.
	Total Area Public Health Service			910	sq.ft.
FIS-3	U.S. Customs Service				
	Number of piggyback booths	7	booths		
	Area per booth	48	sq.ft.		
	Area for piggyback booths			336	sq.ft.
	Passenger queue area			4,200	sq.ft.
	Supervisor's office			300	sq.ft.
	General office space			800	sq.ft.
	In-bond room			200	sq.ft.
	Cashiers			80	sq.ft.
	Tecs room			150	sq.ft.
	Search room			80	sq.ft.
	Public space w/counter			150	sq.ft.
	Storage			150	sq.ft.
	Director & secretary			350	sq.ft.
	Conference/training room			400	sq.ft.
	Customs patrol			300	sq.ft.
	Employee lockers / toilet			100	sq.ft.
	Total Area Customs Service			7,596	sq.ft.

FIS-4	Animal & Plant Health Inspection Services				
	Officer-In-Charge			200	sq.ft.
	Inspector's office			440	sq.ft.
	Laboratory			220	sq.ft.
	Garbage disposal unit			5	sq.ft.
	Supervisor's office			150	sq.ft.
	Storage			100	sq.ft.
	Conference/training room			150	sq.ft.
	Breakroom			150	sq.ft.
	Total Area Animal & Plant Health Inspection Services			1,415	sq.ft.
FIS-5	Baggage claim area			7,500	sq.ft.
FIS-6	Public circulation			1,800	sq.ft.
FIS-7	Meeters & greeter area			1,500	sq.ft.
	Total FIS area			28,472	sq.ft.

Appendix B

FINANCIAL MODEL ASSUMPTIONS BOOK

B

St. Petersburg-Clearwater International Airport

B.1 INTRODUCTION TO THE FINANCIAL MODEL

A financial model (the Model) was developed for St. Petersburg-Clearwater International Airport (PIE or the Airport) to assess the financial feasibility of implementing Airport's Master plan update. The master plan update encompasses terminal expansion project, parking garage construction, and airfield improvements. Terminal expansion will occur in three phases, starting in 2005, 2010 and 2017. Parking garage construction is envisioned as a two-phase project beginning in 2012, with major capital expenditures occurring in 2012 and 2022. Airfield improvements project will occur in four phases, with phases starting in 2002, 2012, 2017 and 2022.

The model analyzes Airport's cash flows over 35 years beginning in 2002. Each year is assumed to begin on January 1.

The assumptions used in the model are intended to make the project realistic regarding financing terms and incentives demanded by banks and other private investors. Loan terms and requirements are intended to follow the common practices of potential financial supporters. Other financial terms are based on IMG's extensive experience in financing airport projects around the world and knowledge of lending institutions' requirements for backing a general airport revenue bond. Operating revenue and expense assumptions and capital expenditure assumptions were developed by Airport staff and consultants, including PBS&J, IMG, Avcon, and Gresham, Smith, and Partners.

Financial model development is a highly iterative process. As construction, revenue, operating expense, financing and other assumptions evolve; the results of the model change accordingly. In order to account for these potential changes, the model is designed to assess the feasibility of the project under different scenarios.

In each case, funding for the projects comes from three major sources: cash generated by airport operations, including terminal operations, airfield charges, and land rents from airport-owned property; Federal and State grants; and borrowing through the vehicle of a general airport revenue bond (GARB), most likely backed both by Airport revenues and by the taxing authority of Pinellas County. Some private development of general aviation facilities is also expected.

The purpose of this document is to define the assumptions underlying the financial model.

B.2 GLOBAL ASSUMPTIONS

B.2.1 Currency

All numbers in this report, unless otherwise indicated, are in 2002 dollar values.

B.2.2 Inflation and Escalation Factors

The model assumes that macroeconomic performance in the U.S. will continue along the path that it has followed during the past several years. Inflation is anticipated to be 3

percent per annum throughout all years of the model. All revenues and expenditures are escalated based on the rate of inflation, unless otherwise noted.

B.2.3 Traffic Forecasts

In order to build sensitivity into the model, traffic was forecasted under "Most Likely," "High" and "Low" traffic growth scenarios (see **Table B-1**). The following sources were used in building these three cases:

- Aviation forecasts for the "Most Likely" scenario were generated for every fifth year by URS Corporation and are assumed to be linear in the intervening years. These forecasts were approved by the FAA in 2002.
- Aviation forecasts for "High" scenario were generated for every fifth year by IMG based on the new service recently initiated by ATA, Southeast, Sun Country and Sky Service airlines.
- Aviation forecasts for "Low" scenario reflect the FAA Terminal Aviation Forecasts (TAF), as published in 2000.

Table B-1. Forecast Passengers

Passengers- "Most Likely" Scenario Summary				
Year	Air Carrier	Commuter	Total Pax	% Change
2002	331,538	16,296	347,834	Base Year
2007	396,293	22,577	418,870	20.42%
2012	463,718	30,142	493,860	17.90%
2017	534,906	38,858	573,764	16.17%
2022	617,021	48,742	665,763	16.03%

Source: URS Corporation Forecasted Results

Passengers- "High" Scenario Summary				
Year	Air Carrier	Commuter	Total Pax	% Change
2002	331,538	16,296	347,834	Base Year
2007	635,165	22,577	657,742	89.10%
2012	702,590	30,142	732,732	11.40%
2017	773,778	38,858	812,636	10.90%
2022	855,893	48,742	904,635	11.32%

Source: IMG Projected Results

Passengers- "Low" Scenario Summary				
Year	Air Carrier	Commuter	Total Pax	% Change
2002	325,052	16,296	341,348	Base Year
2007	353,233	22,577	375,810	10.10%
2012	381,413	30,142	411,555	9.51%
2017	410,722	38,858	449,580	9.24%
2022	441,994	48,742	490,736	9.15%

Source: FAA TAF

B.2.4 Reserve Requirements

The following reserves were incorporated into the models as a matter of common business practice or to meet debt-financing covenants. For example, debt service and capital repair reserve funds are generally required to meet debt-financing covenants. Operations and maintenance (O&M) reserve funds are also generally established as a common business practice. At the end of the concession these reserves flow to various parties. All reserves earn interest of 2 percent per annum.

Methodology	
Senior Debt Service Reserve	12 months of debt service
Capital Expenditures Reserve Fund	2% of annual CAPEX
O&M Reserve	6 months of O&M

B.2.4.1 Debt Service Reserve

Debt reserve funds provide a level of comfort to lenders that adequate resources are available for interest and principal payments in the event that there is a shortage of revenues. The financial analysis assumes that the amount of the reserve fund is equal to the annual debt service requirement.

B.2.4.2 Capital Repairs Reserve

The capital repairs reserve is set aside to accumulate funds for capital repairs in the event that these repairs cannot be financed through operating cash flow. The reserve is set in an interest bearing account and is equal to 2 percent of annual capital expenditures (CAPEX), including current and new capital expenditures.

B.2.4.3 O&M Reserve

It is typically required that major airports maintain an adequate O&M reserve. The O&M reserve ensures that adequate resources are available to cover short-term O&M expenses if the airport outspends its budget or experiences a revenue shortfall. The reserve covers six months of operating expenses.

B.2.5 Working Capital

Working capital is financed out of cash flow. On-going working capital is calculated as the difference between year-over-year changes in accounts receivable and accounts payable. Accounts receivable are collected every thirty days and thus represent $1/12^{th}$ of annual revenue at any point in time. Accounts payable are paid every thirty days and thus represent $1/12^{th}$ of annual operating expenses at any point in time.

Methodology	
Accounts Receivable	30 days of revenues
Accounts Payable	30 days of operating costs

B.2.6 Income Taxes

No income tax is paid because the Airport is owned and operated by Pinellas County.

B.3 OPERATING REVENUE

Currently, PIE derives its revenues from Airfield Operations, Terminal Operations, Land Leases and Ramp & Flight Leases. Unless otherwise noted, every component of each revenue category will fluctuate either based on the passenger levels, or the terms of contract that airport signs or renegotiates with airlines, concessionaires, and other parties. It was also assumed that terms of each land lease are renegotiated every five years to bring the lease up to market rates, unless otherwise specified.

B.3.1 Airfield Operations

Landing fees, fuel sales, coast guard fees and other fees are included revenues generated from airfield operations. PIE collects landing fees from airlines and cargo carriers. PIE receives a portion of fuel sales revenue earned by Airport Fixed Base Operator. The following table summarizes basic assumptions used in projecting revenues received from airfield operations.

Table B-2. Airfield Revenue

Revenue Sources	Base (Year 2002)	Estimated based on:	Increase with EPAX	Increase with contract re-negotiation	Other
Airline landing fees	$1.20/Landing Passenger	PIE average landing fees for 1999-2001	Yes		
Cargo carrier landing fees	$210,00/year	PIE average mail carrier landing fees for 1999-2001			Increase with cargo tonnage growth rate of 1.07%-5.29%
Airline fuel sales	$.34/EPAX	PIE staff	Yes		
GA fuel sales	$139,795/year	URS Corporation			Increase with GA operation growth rate of .57%-2.41%
Coast guard fees	$348,052/year	PIE staff		Yes	

B.3.2 Terminal Operations

Government office rent, airline office rent, ground transportation fees, car rental concessions, restaurant/lounge/catering fees, other concessions, passenger screening fees, terminal facility charge, ATA terminal facility charge, auto parking revenue, land and other rent and aircraft parking fees are included in terminal operations revenues. **Table B-3** summarizes basic assumptions used in projecting revenues received from terminal operations.

Table B-3. Terminal Revenue

Revenue Source	Base (Year 2002)	Estimated based on:	Increase with EPAX	Increase with contract re-negotiation	Other
Government office rent	$197,190/year	PIE staff		Yes	
Airline office rent	$146,888/year	PIE staff		Yes	
Ground transportation fees	$36,734/year	PIE staff		Yes	
Car rental concessions	$3.46/EPAX	PIE staff	Yes		
Restaurant/lounge/ catering fees	$.20/EPAX	PIE staff and IMG benchmark study	Yes		Increases to $.30/EPAX once new terminal opens in 2007, based on benchmark analysis
Other concessions	$.16/EPAX	PIE staff and IMG benchmark study	Yes		Increases to $.28/EPAX once new terminal opens in 2007, based on benchmark analysis
Passenger screening fees	$.25/EPAX	PIE staff	Yes		
Terminal facility charge	$25.00/aircraft	PIE staff	Yes		Increase to $75.00/aircraft once new terminal opens in 2007
ATA terminal facility charge	$0.00/aircraft	PIE staff	Yes		PIE will start charging ATA $25.00/aircraft after 2003, and $75.00/aircraft once new terminal opens in 2007,
Pay parking fees	$2.20/EPAX	PIE staff	Yes		PIE starts to collect parking revenue in 2003

Table B-3. Terminal Revenue (Con't.)

Revenue Source	Base (Year 2002)	Estimated based on:	Increase with EPAX	Increase with contract re-negotiation	Other
Commercial office/Land rent	$71,073/year	PIE staff		Yes	
Aircraft parking fees	$22,723/year	PIE staff		Yes	

B.3.3 Industrial Leases Revenues

PIE receives revenues from leasing its land to multiple parties. PIE's industrial leases can be subdivided into:

Commercial leases, which include leases to:

- Avis Rent a Car
- E&G Properties
- Crosslantic
- Smiths Industries
- Tenants in Industrial Park #1 and Industrial Park #2

Government leases, which include leases to:

- Pinellas County Government
- State of Florida

Table B-4. Industrial Revenue

Revenue Source	Base (Year 2002)	Estimated based on:	Increase with EPAX	Increase with contract renegotiation
Commercial Leases	$1,163,749/year	PIE staff		Yes
Government Leases	$1,027,504/year	PIE staff		Yes

B.3.4 Ramp & Flight Line Revenues

PIE also collects a fee from airline, general aviation and cargo operators for using its ramps and flight lines.

Table B-5. Ramp and Flight Line Revenue

Revenue Source	Base (Year 2002)	Estimated based on:	Increase with EPAX	Increase with contract renegotiation	Other
Ramp & Flight Line Revenues	$551,092/year	PIE staff		Yes	
Airco Airside Development	$449,539/year	PIE staff		Yes	Airport will start collecting this fee in 2008

B.3.5 Golf Course Property Revenues

Since 2000, the Airport has been the owner and operator the Airco Golf Course, a public golf course adjacent to the airfield. The Airport intends to close the golf course by 2006 and develop the property for airside uses, service center and office space. Based on the data provided by PIE staff, the golf course revenues are assumed to be $1,162,971 for 2002 and $1,471,500 for years 2003 until golf course closure.

B.3.6 Passenger Facility Charge (PFC)

Currently PIE does not collect a PFC. However, a PFC is likely to be necessary to finance the projects included in the master plan update. The assumption was made that the airport will start collecting a $3.00 PFC in year 2004 and will continue collecting the fee until PFC revenue totals equal capital costs (including borrowing costs), or until the end of the projected operating period. Since administrative expenses for collecting the fee is expected to be $0.13 per EPAX, net PFC collected is $2.87 per EPAX.

B.3.7 Non-Operating Revenues

Non-operating revenue includes Lost Revenue Grant from State of Florida and Other Revenues. Lost Revenue Grant is received for two years after the start of the model in the amounts of $315,150 in 2003 and $93,000 in 2004.

Other Revenues from items such as equipment sales and sales tax are projected to be at a constant level of $10,000 per year. Finally, the Airport received $1.2 million from a one-time sale of property in 2002.

B.3.8 New Land Development Revenues

The Airport owns a variety of land parcels near PIE. Since the Airport is located in one of the most attractive areas for development in Pinellas County, the Gateway Region, it is expected that many of these parcels will be developed in the coming years, providing revenue to the Airport in the form of land rent. Analysis by Airport staff and consultants indicates that new revenue streams should begin in 2003 and phase in over six years. At full build-out, revenues will be received as follows:

Table B-6. General Airport Property Development

Land Developments	Type	Acres	Revenue per ft^2	Expected Annual Rent
Restaurant	Retail	2.75	$0.75	$89,843
Southwest Corner	Office	7	$0.34	$103,673
Lot 42 (hotel or RFP)	Office	9.5	$0.55	$227,601
Former Purchasing Warehouse	Warehouse	1.10	$2.50	$112,500
Site west of Smith Industries	Service Center	3.67	$0.45	$71,939
Ulmerton Out Parcel	Retail	3.00	$0.75	$98,010
RFP on Moog Site	Office	22.50	$0.45	$441,045
Sheltair addition	Airside	10.00	$0.32	$139,392
T-Hangars in NE corner	Airside	5.00	$0.32	$69,696
TOTAL		**72.52**		**$1,353,699**

B.3.9 Airco Airside Development Revenues

The Airport will close the golf course in the coming years and redevelop the property to higher and better uses. The property development will include airside uses, service center/light industrial, and office developments as described in the table below. Approximately twenty five (25) percent of the property will be used for infrastructure and environmental needs. Analysis by Airport staff and consultants indicates that new revenue streams could begin in 2006 and phase in over seven years. However, since land development is somewhat speculative, only the airside revenues are considered in the base financial model.

At full build-out, revenues will be received as follows:

Table B-7. Airco Golf Course Development

Developed Golf Course	Percent of Plot	Square feet	Revenue per ft^2	Rent
Airside	25%	1,404,810	$0.32	$449,539
Service Center	25%	1,404,810	$0.45	$632,165
Office	25%	1,404,810	$0.55	$772,646
TOTAL	**75%**	**4,214,430**		**$1,854,349**

B.4 OPERATING EXPENSES

Currently, PIE's operating costs primarily consist of are expenses associated with Ramp & Flight Line operations, Airfield operations, Terminal operations and Industrial operations. Operating expenses are projected by PIE staff and IMG, and are assumed to grow by 2 percent per year in real terms. In addition to the expenses described below, the Airport is likely going to hire addition personnel between 2003 and 2008, which will add $77,530 if the low or master plan update traffic occurs, and $258,881 if the high traffic scenario occurs. No additional staff should be needed before 2012, after which new staff costs grow at the same 2 percent rate as other operating costs.

Following tables summarize basic assumptions used in projecting operating expenses for each segment.

B.4.1 Ramp & Flight Line

Building and grounds maintenance, janitorial, administrative and utilities expenses are included in Ramp & Flight Line expenses.

Table B-8. Ramp & Flight Line Expenses

Expense Source	Base (Year 2002)	Increase with EPAX	Increase with contract renegotiation
Building maintenance	$1,356/year	Yes	
Grounds maintenance	$12,727/year	Yes	
Ramp maintenance	$192/year	Yes	
Janitorial	$6,850/year	Yes	
Administration	$163,970/year		Yes
Utilities	$8,195/year	No	

B.4.2 Airfield

Grounds, equipment, runway and fuel system maintenance, administrative, rescues, security, utilities and airport operations expenses are included in Airfield operating expenses.

Table B-9. Airfield Expenses

Expense Source	Base (Year 2002)	Increase with EPAX	Increase with contract renegotiation
Grounds maintenance	$79,300/year	Yes	
Equipment maintenance	$55,597/year	Yes	
Runway maintenance	$151,090/year		Yes
Fuel System maintenance	$8,056/year	Yes	
Administration	$570,796/year		Yes
Crash/Fire/ Rescue	$941,023/year		Yes
Coast guard security	$127,528/year		Yes
Airport operations	$301,424/year		Yes
Utilities	$51,987/year		

B.4.3 Terminal

Building, HVAC, grounds, equipment and ramp maintenance, janitorial, administrative, police, airport operations, AFSS and utilities expenses are included in Terminal operating expenses.

Table B-10. Terminal Expenses

Expense Source	Base (Year 2002)	Increase with EPAX	Increase with contract renegotiation	Other
Building maintenance	$416,542/year	Yes		
HVAC maintenance	$183,262/year		Yes	
Grounds maintenance	$213,424/year	Yes		
Equipment maintenance	$69,284/year		Yes	
Ramp maintenance	$2,495/year		Yes	
Janitorial	$346,980/year	Yes		
Administration	$883,523/year		Yes	
PC Sheriff	$111,634/year		Yes	
Airport operations	$452,136/year		Yes	
AFSS costs	$50,699/year		Yes	
Utilities	$320,908/year		Yes	
TSA costs not reimbursed	$36,000/year			Stays steady for the projected period

B.4.4 Industrial

Building, grounds and equipment maintenance, administrative and utilities expenses are included in Industrial operating expenses.

Table B-11. Industrial Expenses

Expense Source	Base (Year 2002)	Increase with EPAX	Increase with contract renegotiation
Building maintenance	$34,914/year		Yes
Grounds maintenance	$49,337/year		Yes
Equipment maintenance	$420/year		Yes
Administration	$479,645/year		Yes
Utilities	$25,032/year		Yes

B.4.5 Other Expenses

B.4.5.1 Golf Course Expenditures

Based on PIE staff estimates, prior to its closure in 2006, golf course's operating expenses are assumed to be $1,169,480 for 2002, $1,191,590 for year 2003 and $1,231,590 for years 2004 and 2005.

B.4.6 Depreciation and Amortization

Airport assets that existed prior to implementation of master plan are depreciated over ten years. New assets obtained as a result of construction are subdivided into two different categories: a) 10 percent of the assets are depreciated over 5 years and b) 90 percent are depreciated over 25 years. Debt origination fees and capitalized interest are amortized over 21-year period.

B.5 MASTER PLAN RELATED CAPITAL EXPENDITURES

There are three categories of the master plan related capital costs: terminal development costs, parking garage construction and additions costs, and airfield improvements costs.

B.5.1 Terminal Development Capital Expenditures and Timing

The total cost of the terminal development project is $44,866,583. The Airport will incur only 25 percent of the total cost, because 50 percent of the cost will be paid by the Federal Grant and another 25 percent of the cost will be paid by the Florida Department of Transportation.

Each construction phase of the terminal development project will be preceded by the design phase. The following represents a breakdown of the costs incurred by the Airport and Federal and State governments in three phases of the project:

Table B-12. Terminal Capital Program Phase 1

Phase 1 (2002 $)				
	PIE	**State**	**Federal**	**Total**
Design	$375,000	$375,000	$750,000	$1,500,000
General Conditions	$172,425	$172,425	$344,850	$689,700
Construction Costs	$3,480,520	$3,480,520	$6,961,040	$13,922,080
Contractor extras	$233,789	$233,789	$467,577	$935,154
Contingency	$777,346	$777,346	$1,554,693	$3,109,387
TOTAL PHASE 1	**$5,039,080**	**$5,039,080**	**$10,078,160**	**$20,156,321**

Phase 1 of Terminal Development project will start in 2005 and will last for 26 months.

Table B-13. Terminal Capital Program Phase 2

Phase 2 (2002 $)				
	PIE	**State**	**Federal**	**Total**
Design	$375,000	$375,000	$750,000	$1,500,000
General Conditions	$178,575	$178,575	$357,150	$714,300
Construction Costs	$3,012,333	$3,012,333	$6,024,665	$12,049,330
Contractor extras	$204,218	$204,218	$408,436	$816,872
Contingency	$679,025	$679,025	$1,358,050	$2,716,100
TOTAL PHASE 2	**$4,449,151**	**$4,449,151**	**$8,898,301**	**$17,796,602**

Phase 2 of Terminal Development project will start in 2010 and will last for 28 months.

Table B-14. Terminal Capital Program Phase 3

Phase 3 (2002 $)				
	PIE	**State**	**Federal**	**Total**
Design	$125,000	$125,000	$250,000	$500,000
General Conditions	$62,275	$62,275	$124,550	$249,100
Construction Costs	$1,193,533	$1,193,533	$2,387,065	$4,774,130
Contractor extras	$80,372	$80,372	$160,744	$321,487
Contingency	$267,236	$267,236	$534,472	$1,068,943
TOTAL PHASE 3	**$1,728,416**	**$1,728,416**	**$3,456,830**	**$6,913,660**

Phase 3 of Terminal Development project will start in 2017 and will last 14 months.

B.5.2 Parking Garage Construction and Additions Costs and Timing

The total cost of the garage construction and additions project is $19,852,560 in 2002 dollars. The Airport will incur 50 percent of the total cost, with the other 50 percent paid by the State Grant.

The following represents breakdown of the costs incurred by the Airport and State government in two phases of the project:

Table B-15. Parking Garage Capital Program Phase 1

	PIE	**State**	**Total**
Construction Costs	$1,319,500	$1,319,500	$2,639,000
Fees (20%)	$263,900	$263,900	$527,800
Contingency (20%)	$316,680	$316,680	$633,360
TOTAL PHASE 1	**$1,900,080**	**$1,900,080**	**$3,800,160**

Phase 1 of parking garage construction will start in 2007 and will last for 12 months.

Table B-16. Parking Garage Capital Program Phase 2

	PIE	State	Total
Construction Costs	$4,875,000	$4,875,000	$9,750,000
Fees (20%)	$975,000	$975,000	$1,950,000
Contingency (20%)	$1,170,000	$1,170,000	$2,340,000
TOTAL PHASE 1	**$7,020,000**	**$7,020,000**	**$14,040,000**

Phase 2 of parking garage construction will start in 2012 and will last for 12 months.

Table B-17. Parking Garage Capital Program Phase 3

	PIE	State	Total
Construction Costs	$698,750	$698,750	$1,397,500
Fees (20%)	$139,750	$139,750	$279,500
Contingency (20%)	$167,700	$167,700	$335,400
TOTAL PHASE 1	**$1,006,200**	**$1,006,200**	**$2,012,400**

Phase 3 of parking garage construction will start in 2022 and will last for 12 months.

B.5.3 Airfield Improvements Project Costs and Timing

The airfield improvements programmed in the master plan will cost an estimated $137,527,328 over 20 years, including funds contributed by the FAA, State of Florida, PIE Airport, and private developers. These costs are outlined below. The four phases of the project correspond with the four borrowing phases in the financial model, except for $21,633,680 in expenditures prior to 2005, which must be paid from available cash.

Out of the remaining amount of $115,893,648 to be allocated among four major phases of the project, the Airport will incur only approximately 17 percent (or $19,345,871). Forty-six percent of the cost will be paid by the Federal Grant, 19 percent will be paid by the State Grant, and 18 percent of the cost will be contributed by private investors. The breakdown of the costs incurred by the Airport, Federal and State governments and private investors is as follows:

Table B-18. Airfield Capital Program Phase 1

Phase 1 (2003-2007)					
	PIE	**Federal**	**State**	**Other (private)**	**Total**
Airside/Airfield	$ 1,075,836	$ 19,365,047	$ 1,075,836	$ -	$ 21,516,719
Northeast GA	$ 102,500	$ 621,000	$ 102,500	$ 572,000	$ 1,398,000
Northwest GA	$ 860,000	$ -	$ 860,000	$ -	$ 1,720,000
SE GA	$ 1,245,500	$ -	$ 1,245,500	$ 3,500,000	$ 5,991,000
SW GA	$ 1,183,125	$ -	$ 1,183,125	$ 1,200,000	$ 3,566,250
Parking Lot Expansion	$ 490,000	$ -	$ 490,000	$ -	$ 980,000
Land Acquisition	$ 257,800	$ 4,478,080	$ 257,800	$ -	$ 4,993,680
Planning/ Design	$ 90,000	$ 1,620,000	$ 90,000	$ -	$ 1,800,000
Total Construction	$ 5,304,761	$ 26,084,127	$ 5,304,761	$ 5,272,000	$ 41,965,649
Fees (total 20%)	$ 817,542	$ 867,909	$ 817,542	$ 1,054,400	$ 3,557,394
Contingency (20%)	$ 1,154,901	$ 4,170,791	$ 1,154,901	$ 1,265,280	$ 7,745,873
TOTAL PHASE 1	**$ 7,277,204**	**$ 31,122,828**	**$ 7,277,204**	**$ 7,591,680**	**$ 53,268,915**

Phase 1 of Airfield Improvements project will start in 2003 and will continue through 2007.

Table B-19. Airfield Capital Program Phase 2

Phase 2 (2012)					
	PIE	**Federal**	**State**	**Other (private)**	**Total**
Airside	$248,894	$4,480,088	$248,894	$0	$4,977,876
Terminal Area	$18,125	$326,250	$18,125	$0	$362,500
Cargo Area - Phase 1	$414,600	$1,486,800	$1,418,350	$1,003,750	$4,323,500
NE GA	$63,500	$486,000	$63,500	$440,000	$1,053,000
SE GA	$595,750	$0	$595,750	$1,400,000	$2,591,500
NW General Aviation	$2,534,275	$0	$2,534,275	$1,400,000	$6,468,550
Airfield	$150,000	$2,700,000	$150,000	$0	$3,000,000
Total Construction	$4,025,144	$9,479,138	$5,028,894	$4,243,750	$22,776,926
Fees (total 20%)	$805,029	$1,895,828	$1,005,779	$848,750	$4,555,385
Contingency (20%)	$966,035	$2,274,993	$1,206,935	$1,018,500	$5,466,462
TOTAL PHASE 2	**$5,796,207**	**$13,649,959**	**$7,241,607**	**$6,111,000**	**$32,798,773**

Phase 2 of Airfield Improvements project will start in 2012 and will last for 12 months.

Table B-20. Airfield Capital Program Phase 3

Phase 3 (2017)					
	PIE	**Federal**	**State**	**Other (private)**	**Total**
Airside	$258,913	$4,660,425	$258,913	$0	$5,178,250
Cargo Area Phase 2	$109,338	$1,176,075	$638,088	$528,750	$2,452,250
NE GA Area	$39,500	$486,000	$39,500	$440,000	$1,005,000
SW GA Area	$1,226,375	$0	$1,226,375	$1,400,000	$3,852,750
NW GA Area	$1,000,000	$0	$1,000,000	$0	$2,000,000
Total Construction	$2,634,125	$6,322,500	$3,162,875	$2,368,750	$14,488,250
Fees (total 20%)	$526,825	$1,264,500	$632,575	$473,750	$2,897,650
Contingency (20%)	$632,190	$1,517,400	$759,090	$568,500	$3,477,180
EA for Runway 4-22	$12,500	$225,000	$12,500	$0	$250,000
TOTAL PHASE 3	**$3,805,640**	**$9,329,400**	**$4,567,040**	**$3,411,000**	**$21,113,080**

Phase 3 of Airfield Improvements project will start in 2017 and will last for 12 months.

Table B-21 Airfield Capital Program Phase 4

Phase 4 (2022)					
	PIE	**Federal**	**State**	**Other (private)**	**Total**
Airside	$512,038	$9,216,675	$512,038	$0	$10,240,750
Terminal Area	$81,000	$1,458,000	$81,000	$0	$1,620,000
Cargo Area - Phase 3	$184,338	$1,176,075	$713,088	$528,750	$2,602,250
NE GA Area	$39,500	$486,000	$39,500	$440,000	$1,005,000
Airco Area	$665,500	$0	$665,500	$1,400,000	$2,731,000
NW GA Area	$1,437,500	$0	$1,437,500	$0	$2,875,000
Total Construction	$2,919,875	$12,336,750	$3,448,625	$2,368,750	$21,074,000
Fees (total 20%)	$583,975	$2,467,350	$689,725	$473,750	$4,214,800
Contingency (20%)	$700,770	$2,960,820	$827,670	$568,500	$5,057,760
TOTAL PHASE 4	**$4,204,620**	**$17,764,920**	**$4,966,020**	**$3,411,000**	**$30,346,560**

Phase 4 of Airfield Improvements project will start in 2022 and will last for 12 months.

B.6 FINANCIAL STRUCTURE

Apart from cash generated by airport operations and Federal and State grants provided, funding for the projects included in the master plan will be obtained from Airport's issuance of general airport revenue bond that will be backed both by Airport revenues and by the taxing authority of Pinellas County. Subordinated debt and equity are not used to finance the project.

B.6.1 Financing Costs

Based on IMG's experience, origination fee is 2 percent of total debt issue and it is amortized over 21 years.

B.6.2 Debt

The model assumes that the Airport can issue four tranches of senior debt. The debt issuance is structured to coincide with the initiation of major construction phases in order to keep financing costs as reasonable as possible. Under the "base" case scenario, each tranche of debt possesses the following characteristics:

Table B-22. Terms of Financing

First Tranche of Senior Debt	
Year Debt Issued	2005
Cost of Debt	6.5% per annum
Interest Roll-Up	None
Interest Capitalized	100% for two (2) years
Fees Capitalized	21 years
Grace Period - Principal Repayment	2 years
Term of Payback Period	20 years

Second Tranche of Senior Debt	
Year Debt Issued	2010
Cost of Debt	6.5% per annum
Interest Roll-Up	None
Interest Capitalized	100% for two (2) years
Fees Capitalized	21 years
Grace Period - Principal Repayment	2 years
Term of Payback Period	20 years

Third Tranche of Senior Debt	
Year Debt Issued	2017
Cost of Debt	6.5% per annum
Interest Roll-Up	None
Interest Capitalized	None
Fees Capitalized	21 years
Grace Period - Principal Repayment	1year
Term of Payback Period	20 years

Fourth Tranche of Senior Debt	
Year Debt Issued	2022
Cost of Debt	6.5% per annum
Interest Roll-Up	None
Interest Capitalized	None
Fees Capitalized	21 years
Grace Period - Principal Repayment	1 year
Term of Payback Period	20 years

B.6.3 Debt Service Coverage

From IMG's experience in project finance, investors will not invest in a project unless cash flow is more than adequate to cover debt service. The model assumes that lenders will require the investor to have minimum debt service coverage of 1.25 in any one year.

B.7 PROJECT CALENDAR

The following table highlights key project dates related to construction and debt issuance:

Table B-23. Key Project Dates

Phase 1 of terminal construction starts	January 1, 2005
Phase 1 of terminal construction lasts	26 months
First Loan drawdown	January 1, 2005
Repayment of First Loan starts	January 1, 2007
Phase 1 of Airfield Improvements project starts	January 1, 2007
Phase 1 of Airfield Improvements project lasts	12 months
Phase 1 of garage construction starts	January 1, 2012
Phase 1 of garage construction lasts	12 months
Phase 2 of terminal construction starts	January 1, 2010
Phase 2 of terminal construction lasts	28 months
Second Loan drawdown	January 1, 2010
Repayment of Second Loan starts	January 1, 2012
Phase 2 of garage construction starts	January 1, 2012
Phase 2 of garage construction lasts	12 months
Phase 2 of Airfield Improvements project starts	January 1, 2012
Phase 2 of Airfield Improvements project lasts	12 months
Phase 3 of terminal construction starts	January 1, 2017
Phase 3 of terminal construction lasts	14 months
Phase 3 of Airfield Improvements project starts	January 1, 2017
Phase 3 of Airfield Improvements project lasts	12 months
Third Loan drawdown	January 1, 2017
Repayment of Third Loan starts	January 1, 2018
Phase 3 of garage construction (garage additions) starts	January 1, 2022
Phase 3 of garage construction (garage additions) lasts	12 months
Phase 4 of Airfield Improvements project starts	January 1, 2022
Phase 4 of Airfield Improvements project lasts	12 months
Fourth Loan drawdown	January 1, 2022
Repayment of Fourth Loan starts	January 1, 2023