AIRPORT MASTER PLAN

AVIATION PLANNING PROJECT

PREPARED FOR: PROFESSOR JORDAN POOLE

AVM 3201: AVIATION PLANNING

PREPARED BY: SURAJ.R

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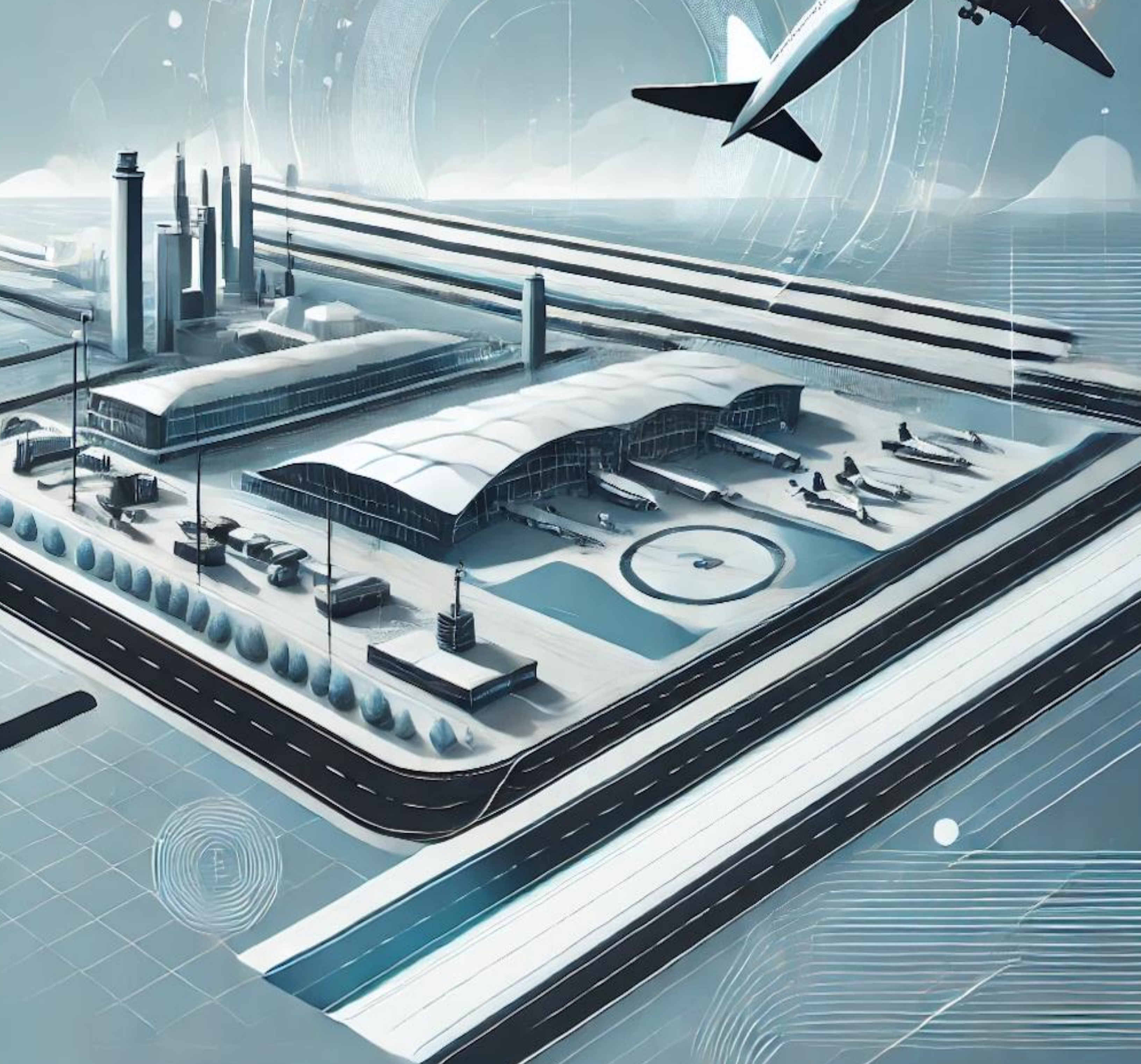

AIRPORT MASTER PLAN

St. Pete-Clearwater International Airport

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1. AIRPORT BACKGROUND AND OVERVIEW

1.1 Introduction to St. Pete - Clearwater International Airport Master Plan

An airport master plan guides airports to proactively adapt to evolving design standards and land-use guidelines to deliver high-quality aviation services, ensuring the airport's sustained relevance and contribution to regional development by fostering economic growth and supporting the community's business ecosystem. At St. Pete-Clearwater International Airport, expanding commercial passenger services for the Tampa Bay community presents opportunities and operational challenges. St. Pete-Clearwater International Airport is dedicated to maintaining a safe and secure environment, adhering to regulatory requirements, managing leaseholds effectively, preserving community compatibility, valuing environmental stewardship, stimulating economic growth, and securing funding in a competitive landscape while upholding a solid public image. This Airport Master Plan (AMP) is a systematic, comprehensive, and strategic framework to address these multifaceted objectives efficiently. This Airport Master Plan (AMP) for St. Pete-Clearwater International Airport (PIE) is prepared in compliance with the Federal Aviation Administration (FAA) Advisory Circular: AC 150/5070-6B, Airport Master Plan, change 2, Dated:1/27/2015 and AC 150/5060-5, Airport Capacity and Delay, Dated:9/23/1983.

The primary objectives of the PIE master plan are to:

- Conduct a comprehensive assessment of existing airport conditions.
- Accurately forecast aviation activity and future demand.
- Identify infrastructure and operational needs to develop cost-effective solutions meeting demands.
- Provide robust recommendations to establish a practical and actionable development program.

Figure 1.1

This Airport Master Plan (AMP) provides a strategic framework in a logical, sustainable, and efficient way that exhibits the existing conditions, futuristic airport plans, demands, and development, ensuring that growth is managed safely, efficiently, and sustainably, adhering to appropriate standards, regulations, and procedures. It is a comprehensive plan, usually short-medium and long-term planning document, that guides the development and expansion of an airport over a specific time frame, typically five, ten, and twenty years. This master plan includes a detailed study and analysis of the existing airport operations, facility requirements, future demand forecasts, and the financial feasibility of developing St. Pete-Clearwater International Airport to meet the demands, considering potential environmental and socioeconomic impacts.

This Master plan equips airport management with the flexibility to respond to fluctuating market dynamics, evolving development priorities, and emerging opportunities. It also ensures that the airport's growth aligns with community aspirations, fostering a symbiotic relationship between its stakeholders. It serves as a visionary guide to develop and sustain a safe, efficient, economically viable, and environmentally responsible airport facility, ensuring St. Pete-Clearwater International Airport continues to meet the needs of the Tampa Bay community.

1.2 Overview of St. Pete - Clearwater International Airport

St. Pete–Clearwater International Airport is located on the West shoreline of Tampa Bay and is six miles north of St. Petersburg, Florida, the birthplace of commercial Air transportation. St. Pete–Clearwater International Airport is referred to by IATA as "PIE," ICAO as "KPIE," and the Federal Aviation Administration location identifier (FAA LID) as "PIE." IATA codes are derived from the name of the airport or the city it serves, while the ICAO codes are by region and country. The FAA location identifier is a code assigned to help identify a landing facility, navigational aid, weather station, or manned air traffic control facility in the United States. The St. Pete-Clearwater International Airport ("PIE") is a public airport in Pinellas County, Florida's west central coast, that serves the Tampa Bay area. Based on the 2020 census, the population in Pinellas County was 959,107, and it was declared the seventh most populous county in Florida, with 3,491 residents per square mile. Pinellas County is a part of the Tampa St. Petersburg-Clearwater Metropolitan, with Clearwater serving as the administrative center and St. Petersburg as the county's largest city and the fifth most populous city in Florida.

Figure 1.2

In 2014, the St. Pete–Clearwater International Airport "PIE" grew tremendously by handling more than one million passengers. The Federal Aviation Administration (NPIAS) National Plan of Integrated Airport Systems for 2023-2027 categorized the St. Pete–Clearwater International Airport "PIE" as a small-hub primary commercial service facility. The Federal Aviation Administration (FAA) categorizes airports based on the percentage of annual passenger boardings they receive. A small hub primary commercial service airport consists of 0.05% to 0.25% of the yearly national passenger boardings, which range from 350,000 to Two million. The Tampa International Airport (TPA) is the most scheduled airline traffic airport in the Tampa Bay Area. St. Pete–Clearwater is a low-cost carrier destination and less busy than Tampa. It is focused on Las Vegas-based Allegiant Air, and pilots of private planes and executive jets use "PIE."

1.3 History of PIE

A historic event on January 1, 1914, paved the way for the beginning of commercial air transportation, where the St. Petersburg- Tampa Airboat Line sold the first ticket for air travel to a fare-paying passenger.

Figure 1.3

PIE is in Tampa Bay, north of St. Petersburg, the birthplace of commercial air transportation. After the Pearl Harbor attack in 1941, the airfield was built on its present site as a military flight training base, then Pinellas Army Airfield. The airport was a base for the 304th Fighter Squadron, a combat training unit of the 337th Fighter Group based on P-40s and P-51s for World War II. Antisubmarine patrols against the German U-boats in the Gulf of Mexico were also flown from this airfield.

After WWII, the U.S. Government gave the airport property to Pinellas County to operate as a civil airport. It was initially called the Pinellas International Airport, and later, in 1958, it was renamed St. Petersburg-Clearwater International Airport to capitalize on its recognition as a tourism destination. In 2013, the airport was rebranded, and the name was shortened to St. Pete-Clearwater International Airport, adopting a new logo.

1.4 Location of PIE

The St. Pete-Clearwater International Airport (PIE) is located at 14700 Terminal Blvd, Clearwater, FL 33762, State Route 686, Roosevelt Blvd. It is right on the northeast municipal boundary of Pinellas Park, 4 miles north of St. Petersburg, 9 miles (14 km) north of downtown St. Petersburg, 7 miles (11 km) southeast of Clearwater, 9 miles southwest of Tampa International Airport (TPA), 9 miles northwest of MacDill Air Force Base (MCF), and 9 miles north/northwest of Albert Whited Airport (SPG).

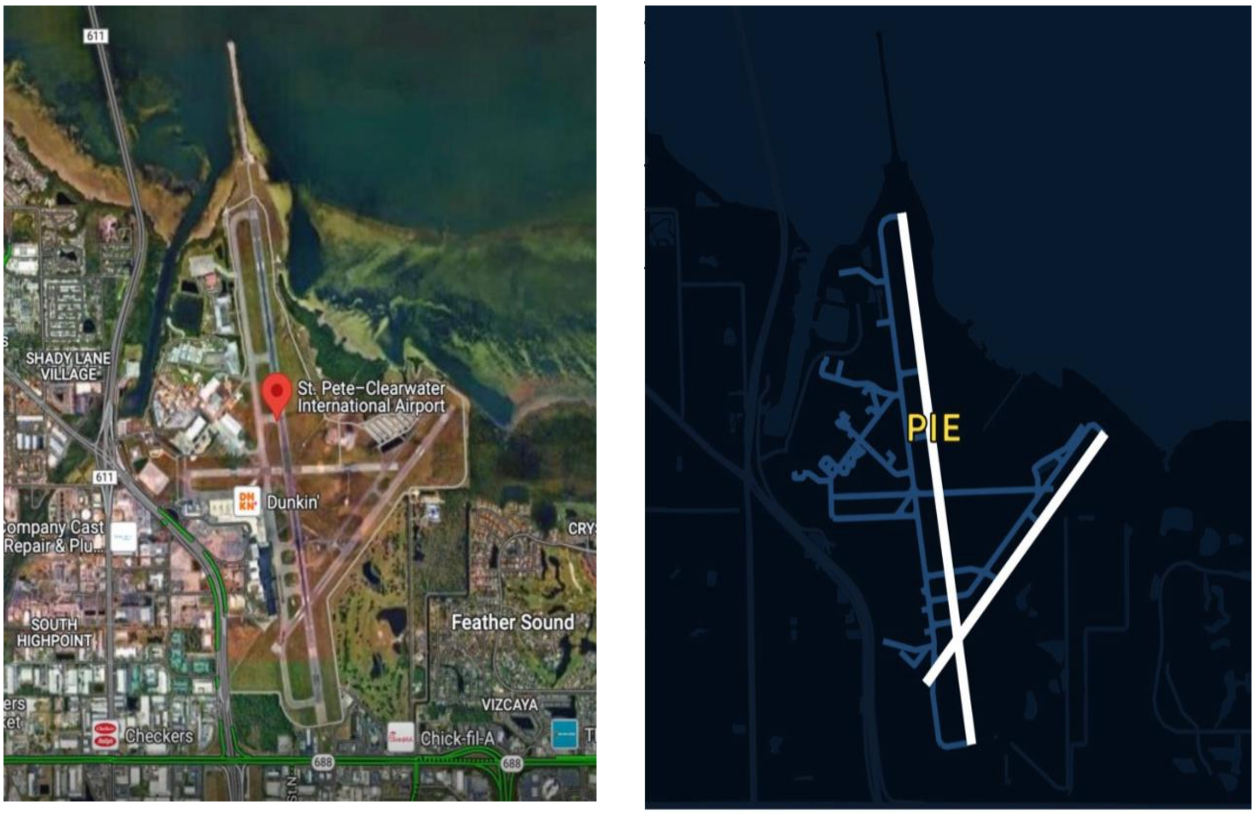


Figure 1. 4

This airport is a 1,900-acre fully certified facility with two runways. It is home to the world's busiest Coast Guard air station. U.S. Customs and the FAA-operated control tower are also crucial federal government services at the airport, along with the Airport Industrial Park. A Foreign Trade Zone has been established over the whole 2000-acre airport property.

FAA Identifier:	PIE
Lat/Long:	27° 54' 31.081" N / 82° 41' 11.436" W (Est)
Elevation:	10.7 ft. / 3.3 m (surveyed)
Variation:	05W (2010)
From city:	8 miles N of ST PETERSBURG-CLEARWATER, FL
Time zone:	UTC -4 (UTC -5 during Standard Time)
Zip code:	33762
Airport Elevation:	10.7 SURVEYED

Acreage:	1900
NPIAS / Federal Agreement:	NGPRY3
NPIAS Number:	12-0075
FAR 139 Index:	I C S 11/1974
FAA Region /ADO Code:	ASO/ORL
Sectional Aeronautical chart:	MIAMI, FL
Airport Use / Ownership:	PUBLIC - County of Pinellas

Table 1.4

2. AIRPORT ROLE

2.1 NPIAS – National Plan of Integrated Airport Systems

The FAA uses the NPIAS to identify airports that have a role in the National Airspace System (NAS) and all potential, unfunded, and Airport Improvement Program (AIP) eligible airport development projects at those airports. The NPIAS contains the airport development needed within the next 20 years. The current 2023-2027 NPIAS was published in September 2022, and the list includes 3,287 existing public-use airports and eight proposed non-primary airports that catch the national interest. The listed airports are eligible for financial assistance and are open to the public. The latest disclosure identifies 62.4 billion dollars (about $190 per person in the US) of AIP-eligible infrastructure development plans over the next five-year period. However, the cost estimates are obtained primarily from the Airport Master Plan (AMP) and state system plans.

The airport and project data collected continuously provide the basis for the publication of the FAA's biennial NPIAS Report. The Airports Capital Improvement Plan (ACIP) funds the NPIAS projects, a subset of the NPIAS based on Airport Development needs identified in the NPIAS. The airports must meet all the requirements before they can be considered for inclusion as a new airport or for replacing an airport in the NPIAS; in addition, firm support is required from the state of territory aviation authority (State Aviation System Plan) or the state's transportation agency for a facility to be considered for inclusion in the NPIAS.

Quantitative and Qualitative factors play a vital role in NPIAS. Quantitative data include the level of scheduled commercial service and operations, number of revenue passengers, and instrument approaches, and depends on aircraft type and models. Qualitative factors include the type of ownership (Public or Private), the ability of the airport to meet critical grant assurances, the location of the facility, the type of traffic supported, and other means of travel. Planning documents are used to identify eligible airport developments and justify the projects in the CIP. The planning document provides a detailed study to the FAA, state and regional government bodies, and other stakeholders to define the development program and projects, which are then captured in the NPIAS. AC 150/5070-6, Airport Master Plans, determine the times for Capital planning, typically long-term (11-20 years), medium-term (6-10years), and short/near term(1-5years). The published NPIAS report identifies the near-term development, and ACIP further refines the project to a 1-3-year period.

For a project to be included in the NPIAS, the project should be eligible for federal funding, meeting the criteria mentioned in the AIP Handbook; a sponsor eligible and qualified to assume the responsibilities defined in the grant must be proposing the project, an appropriate project timing with a timeline justified by airport planning, operational requirements, and design standards are a must for a project to be included in the NPIAS.

The core NPIAS principles for airports include safety and efficiency and using appropriate standards for self-sustaining revenue. As airports are meant to support the public, population shifts and migration can affect which airports get funding. The National Plan of Integrated Airport Systems (NPIAS) is a Federal Aviation Administration (FAA) report. It identifies the airports that are significant to air transportation and are eligible for federal grants under the Airport Improvement Program (AIP). NPIAS airports are categorized based on their role in the national aviation system and the type of service they provide.

The three major categories of the NPIAS are 1) Primary Airports, 2) Non-Primary Airports, and 3) Reliever Airports. By 49 U.S.C. 47103, the National Plan of Integrated Airport Systems (NPIAS) lists the St. Pete Clearwater International Airport as a Public, primary commercial service small hub airport with NIPAS Number 12-0075.

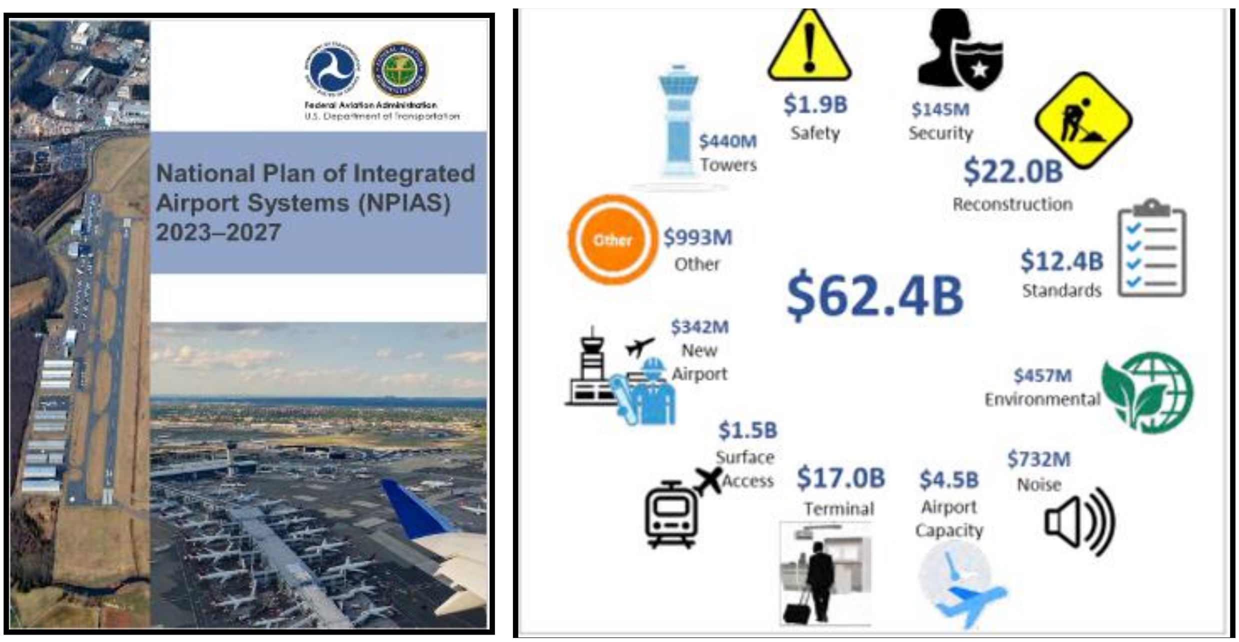


Figure 2.1

National Plan of Integrated Airport Systems (2023-2027) Airport Summary - Florida

STATE	TOTAL AIRPORTS	PRIVATE USE	PUBLIC USE	TOTAL EXISTING NPIAS AIRPORTS
FLORIDA	910	779	131	100

St. Pete - Clearwater International Airport (PIE)

CITY	AIRPORT	LOC ID	OWNERSHIP	SVC LVL	HUB	ROLE	ENPLANED	BASED AIRCRAFT	DEVELOPMENT ESTIMATE *(2023-2027)*
St Petersburg Clearwater	St Pete-Clearwater International	PIE	PU - PUBLIC	P - Commercial Service – Primary	S (Small Hub)	Unclassified	1,290,111	259	$86,256,535.00

LOC ID	*The unique airport location identifier for an airport*
ENPLANED	*The number of revenue passengers that boarded aircraft.*
BASED AIRCRAFT	*The number of registered aircraft hangared or based at the airport*
DEVELOPMENT ESTIMATE	*The 5-year estimate of airport improvements that are eligible for Federal funding*

Table 2.1

2.2 Florida Aviation System Plan (FASP)

The FASP is a long-term strategic planning process designed to assess all public-use airports in Florida to understand the relationships and identify shortfalls between the facilities provided to their users. Florida’s 131 public-use commercial services and general aviation airports are vital to the state’s global economy. The safety, resilience, mobility, and security of citizens, tourists, companies, and goods traveling to, from, and through Florida depend on them. The statewide plan (FASP) guides Florida’s transportation future. This FASP is designed to assess the ability of the existing system to achieve current and anticipated future demands.

The FASP was initiated in 2005, and an interim update was completed in 2012. The FASP 2035 Update reflects the processes, methodologies, and analyses of the requirements to produce an aviation system plan that can effectively inform the Florida Department of Transportation (FDOT) AO’s decision-making and funding allocations through the 20-year planning horizon. The FASP 2035 update is a tool to help FDOT maintain a safe, efficient, and reliable system, identify capacity constraints impacting the system’s ability to effectively serve demand, and evaluate future funding decisions by determining the facilities and services needed to meet future demand. The FASP 2035 offers policy and development recommendations for the continuing improvement of the state aviation system. By providing information that is both intelligible to readers unfamiliar with aviation system planning and comprehensive enough to pique the interest of those more involved in the field, the document caters to both technical and non-technical audiences.

A version of the Final Technical Report that contains details about Florida aviation's future at the state and FDOT District levels is made available by the FASP. The stakeholders work with FDOT to Identify current and potential future issues faced in the system; it establishes FASP goals, objectives, performance measures, and Key performance indicators; it refines the recommendations developed as part of the outcome of the study, provides input, and reviews completed tasks throughout the study process.

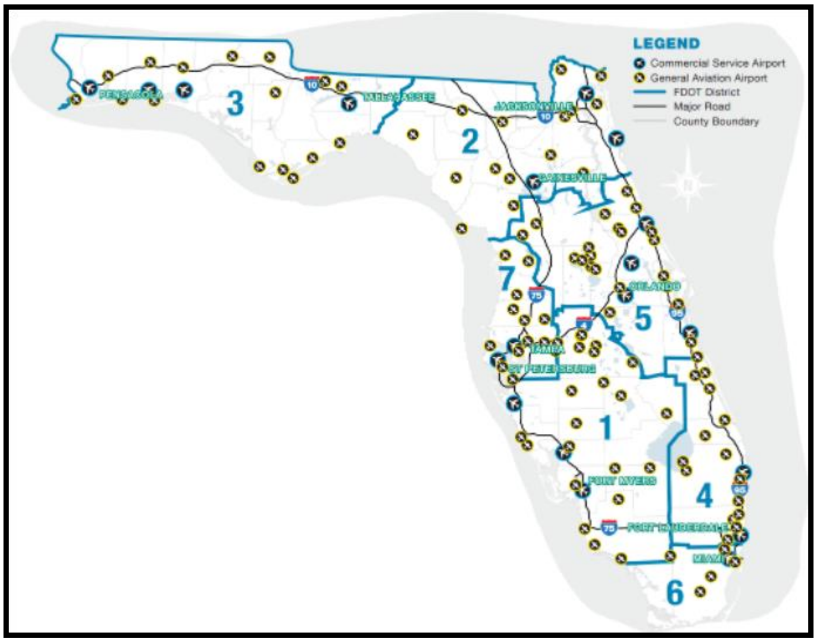


Figure 2.2

2.3 Continuing Florida Aviation Systems Planning Process (CFASPP)

Florida uses the Continuing Florida Aviation System Planning Process (CFASPP) to continuously assess the aviation environment and identify needs for aviation system development and maintenance to meet anticipated demand. It is a Federal Aviation Administration (FAA) Airport System Planning Process component. The FAA, FDOT, and CFASPP maintain and improve Florida's aviation system. CFASPP's primary responsibility is to support the creation of recurring updates to the Florida Aviation System Plan (FASP) and ensure it stays current with the ever-evolving aviation landscape.

The state has identified nine aviation activity centers that support the CFASPP. Each center is called a "Region" or "Metropolitan Area". A region is a collection of many groups that have common aviation ties to one another due to financial and geographic factors. Due to contiguous city development, a metropolitan area is a state region with relationships between airports and a shared economic base. Four metropolitan regions and five aviation areas are included in the CFASPP. A CFASPP Statewide Steering Committee and steering committees for the nine Regional/Metropolitan CFASPP regions are integrated into the CFASPP system. Every committee convenes three times annually. These committees provide input at the regional and state levels during those triannual conferences and through an increasing number of automated facts control systems, which is crucial to the FASP's final success.

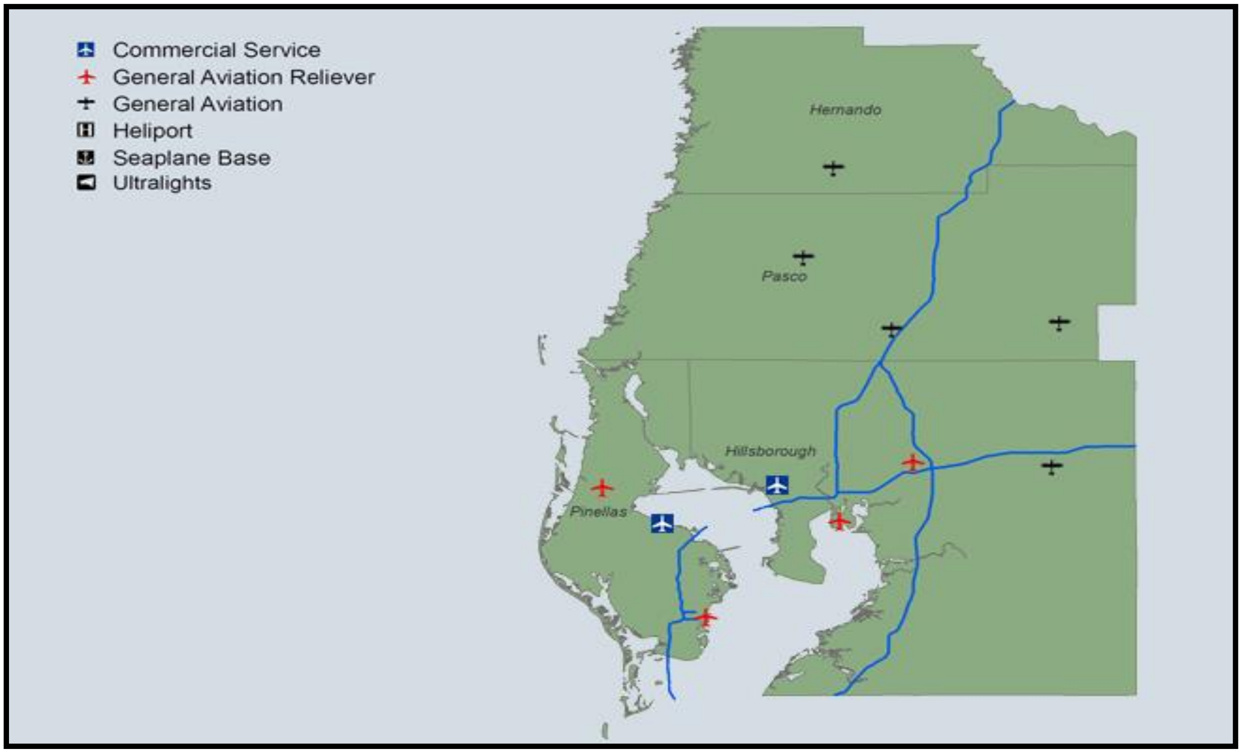


Figure 2.3

The West Central Florida Metropolitan Area incorporates a small variety of counties. Tampa International and St. Pete-Clearwater International provide commercial services for Hernando, Hillsborough, Pasco, and Pinellas Counties. The ongoing assessment of the Florida Aviation System Plan and the upcoming Strategic Planning segment by the CFASPP is an essential connection to the capacity of the State of Florida and the Region to effectively prepare for future visitor, business, and population expansion.

3. AIRSIDE FACILITIES

3.1 Runways

St. Pete-Clearwater International Airport (PIE) in Florida supports commercial passenger service, general aviation, military, and cargo operations. It is at 10.7 FT (3.3 meters) elevation and spans over 1900 acres (769 hectares). PIE traffic includes civil and military aviation, flight training activities, air carriers, and a law enforcement aviation unit. It accommodates aircraft of any size, from jumbo jets to charter planes to private aviation. The airport diagram guides pilots and air traffic control in navigating to the airport, showing the layout of runways, taxiways, essential facilities, and communications frequencies.

The airport consists of two intersecting asphalt runways: the primary runway, 18/36, the longest at 9,730 feet (about 2.97 km) by 150 feet (2,966 x 46 m), and a secondary or crosswind runway, 4/22 of 6,000 by 150 feet (1,829 x 46 m). Runway 18 has an elevation of 7 feet; Runway 36 has an elevation of 10 feet, and the field elevation is marked at 11 feet. A blast pad is at the northern end of runway 18, measuring 200 feet by 200 feet. The PCN (Pavement Classification

Number) defines the pavement strength of the runway depending on the aircraft wheel and tire configuration. Runway 18/36 has a PCN 74 /F/A/W/T configuration, which means it can accommodate aircraft with pavement strength ratings of F75, D195, 2D-230, and 2D/2D2-700. In contrast, Runway 04/22 has PCN 32 /F/B/X/T that suits lighter aircraft with pavement strength ratings of S-80, D130 and 2D-235.

As the pavements are the greatest asset of an airport, improvements on runways 18/36 and 4/22 were made based on the recommendations in 2019, where the FAA earmarked $19.75 million, the Florida Department of Transportation contributed $900,000, and the airport committed $3.43 million. The funds covered milling and overlay of existing asphalt pavement, reconstruction of the keel area, new centerline line and touchdown zone lighting, shoulder expansion, and a new edge lighting system. The runway was initially repaved in 2009, and based on the recommendations in 2019, due to the lifespan, longitudinal cracking, raveling, and weathering, the primary runway was repaved again between 2020-2021, implementing necessary repairs and changes. The secondary runway needed to be set up to receive commercial traffic since the common requirement was at least 6,000 feet (about twice the height of the Burj Khalifa, the tallest building in the world); the airport extended runway 4/22 by 100 feet to provide the 6,000 feet (about half the height of Mount St. Helens) needed for commercial aircraft operation. The recent improvements to the crosswind runway are expected to pay dividends years down the road.

Figure 3.1

ST. PETE - CLEARWATER INTERNATIONAL AIRPORT DIAGRAM

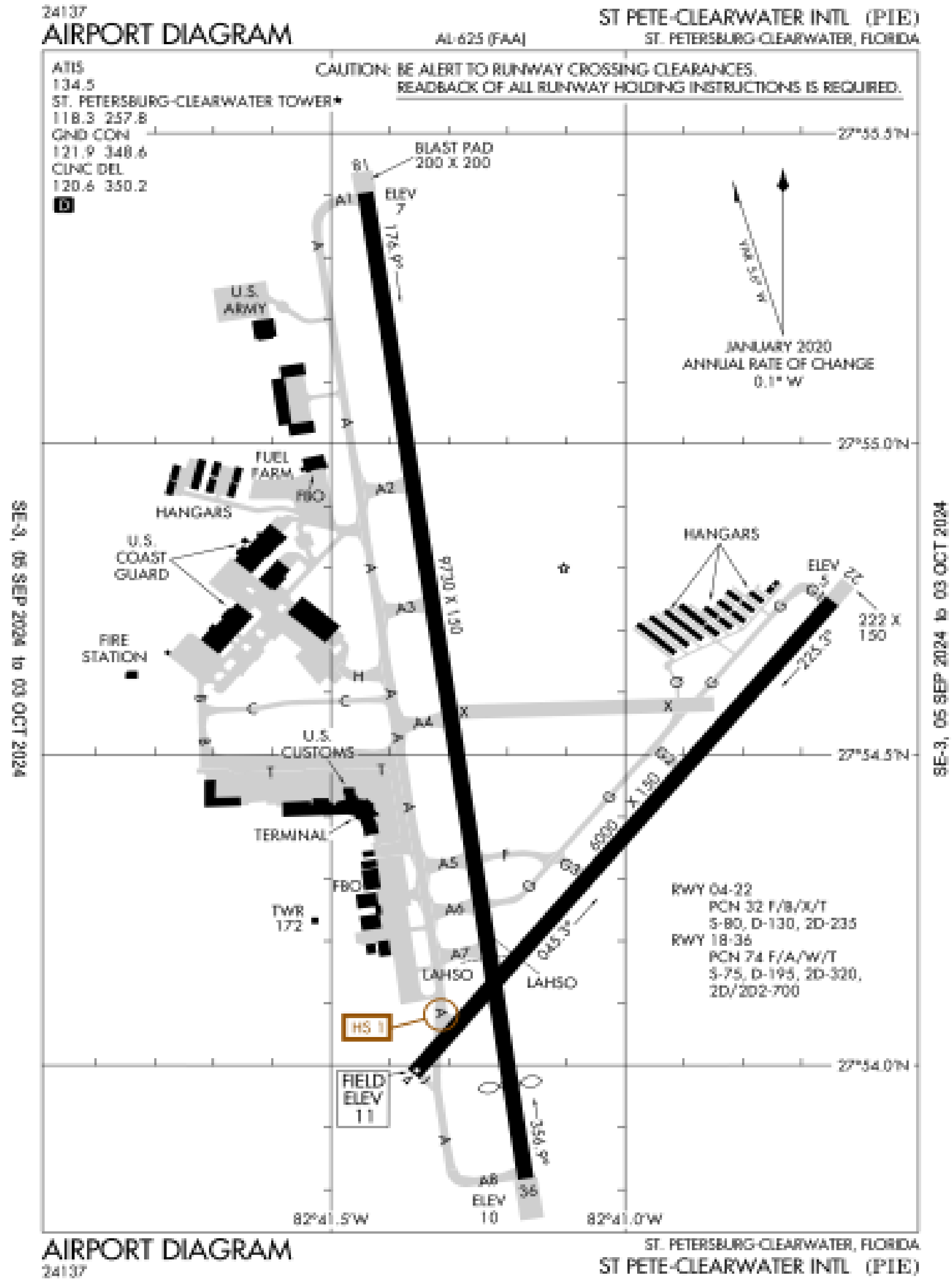


Figure 3.2

ST. PETE - CLEARWATER INTERNATIONAL AIRPORT - RUNWAY INFORMATION

Runway Information	
Runway 18/36	
Dimensions:	9730 x 150 ft. / 2966 x 46 m
Surface:	asphalt/grooved, in excellent condition
Weight bearing capacity:	PCN 74 /F/A/W/T
Single wheel:	75000 lbs. (about 34019.4 kg).
Double wheel:	195000 lbs. (about 88450.44 kg).
Double tandem:	320000 lbs. (about 145149.44 kg).
Dual double tandem:	700000 lbs. (about 317514.4 kg).
Runway edge lights:	High Intensity
Runway 04/22	
Dimensions:	6000 x 150 ft / 1829 x 46 m
Surface:	asphalt/grooved, in fair condition
Weight bearing capacity:	PCN 32 /F/B/X/T
Single wheel:	80000 lbs. (about 36287.36 kg).
Double wheel:	130000 lbs. (about 58966.96 kg).
Double tandem:	235000 lbs. (about 106594.12 kg).
Runway edge lights:	medium intensity
RUNWAY 18	
Latitude:	27° 55' 24.2937" N
Longitude:	82° 41' 26.5381" W
Elevation:	7 ft.
Traffic pattern:	left
Runway heading:	176 magnetic, 171 true
Displaced threshold:	no
Declared distances:	TORA:9730 TODA:9730 ASDA:9180 LDA:9180
Markings:	PIR (Precision, in fair condition)
Visual slope indicator:	P4L (4-light PAPI on left) (3.00 degrees glide path)
RVR equipment:	touchdown, midfield, rollout
Approach lights:	MALSR: 1,400-foot medium intensity approach lighting system, featuring runway alignment indication lights.
Runway end identifier lights:	no
Centerline lights:	yes
Touchdown point:	yes, lighted
Instrument approach:	ILS/DME
Obstructions:	9 ft. brush, 665 ft. from runway, 280 ft. right of centerline
RUNWAY 36	
Latitude:	27° 53' 49.0536" N
Longitude:	82° 41' 10.1518" W
Elevation:	10 ft.
Traffic pattern:	left
Runway heading:	356 magnetic, 351 true

Displaced threshold:	930 ft.
Declared distances:	TORA:9730 TODA:9730 ASDA:9650 LDA:8720
Markings:	PIR (Precision, in fair condition)
Visual slope indicator:	P4L (4-light PAPI on left (3.00 degrees glide path)
RVR equipment:	touchdown, midfield, rollout
Runway end identifier lights:	no
Centerline lights:	yes
Touchdown point:	yes, no lights
Instrument approach:	ILS/DME

RUNWAY 04	
Latitude:	27° 53' 59.1642" N
Longitude:	82° 41' 21.6028" W
Elevation:	10.7 ft.
Traffic pattern:	left
Runway heading:	045 magnetic, 040 true
Declared distances:	TORA:6000 TODA:6000 ASDA:6000 LDA:6000
Markings:	NPI (Non precision, in good condition)
Visual slope indicator:	P4L (4-light PAPI on left (3.00 degrees glide path)
Runway end identifier lights:	yes
Touchdown point:	yes, no lights
Instrument approach:	ILS/DME
Obstructions:	32 ft. trees, 1135 ft (about 345.95 m). from runway, 10 ft. left of centerline, 29:1 slope to clear
RUNWAY 22	
Latitude:	27° 54' 44.8565" N
Longitude:	82° 40' 38.8614" W
Elevation:	5.1 ft.
Traffic pattern:	left
Runway heading:	225 magnetic, 220 true
Declared distances:	TORA:6000 TODA:6000 ASDA:6000 LDA:6000
Markings:	NPI (Non precision, in good condition)
Visual slope indicator:	P4L (4-light PAPI on left (3.00 degrees glide path)
Runway end identifier lights:	yes
Touchdown point:	yes, no lights
Instrument approach:	ILS/DME

Table 3.1

3.2 Taxiways

St. Pete-Clearwater International Airport (PIE) portrays a parallel and intersecting taxiway layout system that provides multiple routes for aircraft, granting access to all services and facilities on the field's west side. They ensure durability and smoothness to accommodate frequent aircraft movements connecting the runways, aprons, hangars, terminals, and other facilities. The taxiways at PIE have apparent signs and pavement markings, including directional signs, holding position signs, and markings indicating taxiway names and intersections, along with an enhanced taxiway lighting system such as edge, centerline, and taxiway identification lights to ensure visibility during night and poor weather conditions guide pilots through the taxiways.

The taxiways at the St. Pete-Clearwater International Airport (PIE) are high-strength asphalt concrete surfaces that are attractively designed and maintained to ensure durability and smoothness to accommodate frequent aircraft movements, minimize delays, minimize runway occupancy time (ROT), and manage ground traffic. PIE taxiways are smooth and free from foreign object debris (FOD) due to their regular maintenance schedule, reducing the risk of aircraft damage and ensuring safe flight operations.

Taxiway A:

As per the airport diagram, Taxiway A runs parallel to Runway 18/36 along the west side, connecting taxiways A1 to A8, interconnecting the terminal area, ramp area, and hangars. A1 is located near Runway 18, and A8 is near Runway 36. Taxiways A1, A2, and A3 provide access to the northern part of the airport, connecting the U.S Army hangars, U.S Coast Guard, FBOs, and U.S Customs area. The Fuel facilities are located near Taxiway A2, on the west side of the airfield. The Fire Station is west of Runway 18/36, providing emergency services to the airport.

The terminal area is west of Taxiway A between intersections A3 and A5. Taxiway A4 plays a vital role in connecting Taxiways A, X, C, and T. Taxiways A4, A5, A6, A7, and A8 connect the southern part of the airport, providing access to terminals, hangars, and parking aprons or tarmac as multiple hangars are in the south section near Taxiways A6 and A7. The Control Tower (TWR), at a height of 172 feet, is left of Taxiways A5, A6, and A7. HS-1 (Hotspot 1) means maintaining vigilance ramp/ Taxiway proximity to hold short at Runway 4/22, located on Taxiway A between A7 and A8. The LAHSO (Land and Hold Short Operations) indicates a runway intersection between Runway 04/22 and Runway 18/36. LAHSO requires landing or taxi instructions to prevent runway incursions.

Taxiway G:

Taxiway G runs parallel to Runway 04/22 but is limited to a certain length. The connecting taxiway G1 connects hangars on the left side of Runway 04/22, G2 connects Runway 04/22 with Taxiway X intersection and A4, G3 connects Runway 04/22 with Taxiway F intersection and A5, and Taxiway G connects A6 with an intersection on runway 18/36.

Taxiway F:

Taxiway F is a shorter connecting Taxiway that connects Taxiway G with Taxiway A on the south side near A5.

Taxiway X:

Taxiway X is a critical intersecting point between the two runways, and it connects Taxiway A and Taxiway G since the essential facilities like terminals, hangars, U.S. Customs, fuel farms, and emergency services are located on the airport's west side.

Taxiway T, B, C, H, AND J:

Typically, Taxiways T, B, C, H, AND J are pathways designed for aircraft movements between runways, terminals, aprons, and hangars. Taxiway T connects Runway 18/36 and Taxiway A with the terminal, U.S Customs, and FBOs, providing customs services for international arrivals. Taxiway B connects T and C on the extreme left, allowing privileged access to the U.S. Coast Guard and terminals. Taxiway C is between A3 and A4, parallel to T, joining Taxiway A and Taxiway H, a separate taxiway for the U.S. Coast Guard. Taxiway J connects Taxiway A with Runway 04 at the starting point.

3.3 Airport Beacons

St. Pete-Clearwater International Airport (PIE) airport beacons provide pilots with visual identification of the Airport, especially during night or low-visibility conditions. They emit light patterns to signify the Airport's location and operational status. The Airport uses a rotating beacon system that emits white and green light sequences. These beacons are placed on airport towers to maximize visibility around the perimeter and enhance coverage and redundancy. PIE has an alternating white and green light indication system that helps pilots route the aircraft by using the white light, which flashes once and then with a green light at regular intervals, visible from a far distance. The approach lights at Runway 18/36 are MALSR, 1400-foot, medium-intensity approach lighting system with Runway Alignment Indicator lights, and high-intensity edge lighting at Runway 18/36 and a medium-intensity edge lighting system at Runway 04/22. From dusk to dawn, the beacon operates automatically as part of the Airport's visual guidance system, and it can also be activated during low visibility conditions like fog or heavy rain to assist pilots in locating the Airport. The beacon ensures safe airplane landings and departures during non-daylight hours or severe weather conditions by combining with other navigational aids such as airport approach lighting systems and runway lights.

PIE has high-contrast pavement markings, including centerlines, edge lines, and identification markings, to guide aircraft movements safely and accurately. It is equipped with a continuous white lighting system along the edges of taxiways to enhance visibility during low-light conditions, termed edge-lighting. Alternating green and white lights along the taxiway centerline guide pilots along the correct path, termed centerline lighting. Illuminated signs at taxiway intersections display taxiway letters, assisting pilots in navigation, and these are called Taxiway Identification Lights (TII). Reflective markers and LED pathway lights indicate safe routes and transitions between taxiways and runways, which are pathway lighting. PIE has enhanced taxiway lighting systems such as edge, centerline, and taxiway identification lights to ensure visibility during nighttime operations and in poor weather conditions. The LED-based lighting system at PIE improves brightness, extends bacon lifespan, and reduces energy consumption maintenance costs. The emergency power generator systems at PIE serve as power backups to ensure bacon operation during power outages. PIE regularly inspects and maintains the beacon light for appropriate functioning to meet aviation safety standards.

A 68,000-feet L-824 5kv cable with 12,500 feet (about half the height of Mount Everest) of underground conduit is employed directly under the ground with concrete encasement at the St. Pete Clearwater International Airport. A vault with an upgraded Airfield Lighting control and monitoring system (ALCMS) is installed at the Control and communications room (CCRs). PIE is integrated with an advanced Airfield lighting control Monitoring system to enhance safety and efficiency, incorporating the Seacom Monitoring system and 3G/4G remote maintenance laptop. Additionally, seven 10'x10'x11 ′ maintenance holes and six 5'x5'x6 ′ maintenance holes are constructed to optimize access and maintenance. PIE has a reliable power supply unit with two new CAT generators of 300Kw and 60kw Units. Incorporating L-829 constant current regulators with ACE 3 combos maintains optimum lighting quality throughout the airfield. Besides beacons, PIE is equipped with standard navigation aids like VOR (VHF Omnidirectional Range), GPS approaches, and ILS (Instrument Landing System) to assist in precise landings.

3.4 Aprons

The St. Pete Clearwater International Airport has aprons or tarmacs near the hangars and airport terminals where the aircraft is parked for loading, unloading, refueling, servicing, and boarding passengers. They are critical for ground operations and aircraft handling as the transit checks and Line maintenance are carried out in the airport's apron. PIE's efficient taxiway system and aprons facilitate smooth ground operations, while airport beacons ensure visibility and safety for aircraft operations. St. Petersburg-Clearwater International Airport is a well-equipped facility that supports various aviation activities such as commercial, general aviation, and military operations. PIE's aprons have clear demarcation zones, adequate lighting, and emergency access routes for safe and efficient ground operations. It has necessary Ground Support Equipment (GSE) like tow trucks, fuel bowsers, baggage carts, boom lifts, scissor lifts, GPUs, ACU, and other maintenance vehicles. PIE's aprons are all made of reinforced pavement to support a range of aircraft weights, and they are also outfitted with taxiway access points to facilitate safe transitions between the runways and aprons. Airlines use commercial aprons near passenger terminals for passenger boarding, luggage handling, refueling, and transit checks.

A wide range of general aviation aircraft, including single-engine planes, corporate jets, charter services, and smaller planes, use general aviation aprons for parking, fueling, and maintenance. These GA aprons are separated from the commercial apron to minimize congestion and enhance operational efficiency. The U.S. Coast Guard and the U.S. Army use military aprons for their aircraft, and they are placed strategically next to military and law enforcement buildings for emergency response actions. The Cargo aprons are positioned near the airport's cargo facilities and logistic hubs to efficiently handle large cargo aircraft, providing ample space for loading and unloading operations. The ALP of PIE includes the layout for areas dedicated to general aviation, commercial airlines, and cargo operations. PIE has constructed new aprons due to its diverse tenants, including FBOs, Flight Schools, MRO, and General aviation traffic. PIE's location and facility make it a key player in Florida's aviation landscape.

3.5 Fuel Information

St. Pete-Clearwater International Airport (PIE) offers multiple fueling points equipped with modern refueling systems to cater to various aircraft types, such as general aviation, cargo, military, and commercial aircraft. The airport provides Avgas and Jet A fuel 24/7 with efficient fueling operations and readiness to meet aircraft demands. PIE has extensive fuel storage facilities that meet regulatory standards safely. They are also equipped with several bowsers for efficient refueling of aircraft. The airport also accommodates a wide range of aircraft due to its predominant facility infrastructure and storage capability, with a consistent supply of Jet A and Avgas around the clock.

Commercial airplanes, Business Jets, and military aircraft are powered by Jet A fuel, whereas general aviation, training aircraft, or smaller piston engine aircraft use 100LL Avgas (100 Low Lead) fuel. This capability is of interest to flight schools and private jets who want to use PIE's facilities. The U.S. Army Reserve Unit and the U.S. Coast Guard Air Station are two military installations that support PIE's fueling infrastructure. During emergency operations, these services guarantee that military and law enforcement aircraft are refueled quickly without any delay.

3.6 Fixed Base Operators FBO'S

Based aircraft operators have their aircraft stationed at a particular airport. This includes aircraft ownership, management, maintenance, and operational responsibilities. FBO facilities near general aviation aprons and taxiways ensure quick and seamless aircraft movements. Fixed-base operators assist airlines in utilizing the main terminal with ground and passenger services. Mixed-use parking areas accommodate various aircraft sizes. Many general aviation businesses, such as private planes, corporate jets, and charter services, base their aircraft at St. Pete-Clearwater International Airport.

Fixed-base operators (FBOs) at PIE own or lease multiple single-engine and multi-engine piston aircraft, turboprops, and business jets. Organizations with corporate jets utilize PIE for their aviation needs due to location and facility. These service providers cater to the needs of general aviation pilots, corporate flight operators, and private aircraft owners, offering a range of services, including fuel, maintenance, hangar storage with spacious hangar facilities, rental services, and passenger amenities such as VIP lounges, luxury transportation, catering services, conference rooms, restrooms, waiting areas, and information desks makes PIE a worth flying place. This diversity supports various aviation activities, from training and leisure flying to business travel, and enhances business opportunities. Cargo and logistics firms specializing in air freight and logistics operations also tend to have their facilities based at PIE to handle cargo movement. MRO companies based at PIE support the aircraft operators by ensuring timely maintenance with routine inspections, minor repairs, and specialized service for their fleets in compliance with regulatory standards and procedures. ATP Flight School bases its aircraft training at PIE, offering students pilot training programs and aviation courses.

Signature Flight Support is a significant FBO providing full-service options for business aviation with Flight Service Operation, hangar space, corporate aviation terminal, fueling, client support, pilot and passenger amenities such as hotel and restaurant reservations, catering, limousine and national rental car reservations, crew cars, pilot lounge, weather planning room, conference room, quiet room, and security camera system at the St Pete Clearwater International Airport.

Sheltair Aviation Services is the primary fixed base operator (FBO) at St. Pete-Clearwater International Airport, providing airline services for private, corporate, and general aviation aircraft. It acts as a quick-turn fueling unit providing Jet A and 100LL fuel. It also includes hangar and office spaces, a WSI weather and flight planning room, a Spacious crew lounge, a Conference room, 24-hour red carpet service, Crew snooze rooms with shower, Hotel, Car, and Catering arrangements, NATA line service training and a secured ramp with 24-hour video surveillance which practically handle all aviation requirements.

Corporate Aviation

Elite Air is a leading aircraft charter and management company founded in 2001. Its headquarters is situated at St. Pete-Clearwater International Airport. The company's charter fleet includes a dozen aircraft ranging from turboprops to heavy jets. Elite Air provides management clients on multiple continents with full-service crew, maintenance, fuel, accounting, insurance, and other services.

Aviation Training

Clearwater Aviation is a Part 141-approved Flight academy established in 2002. The veteran-approved training facility provides complex, high-performance pilot training through multi-engine instructor ratings. It also has a range of discovery, scenic, and aerial photography flights. It gives an aircraft rental option at PIE. It also has a fully established MRO facility for pistons, turbine, and jet aircraft that provides annual inspections, regular maintenance, phase inspections, and leasing and buying inspections. It also acts as an FAA CATS Testing Center, offering all available FAA tests.

T Black Aviation provides Aviation Ground School, Flight Training, A&P, Inspection Authorization (IA) Certifications, MRO facility, and maintenance training, and they are authorized to administer all FAA, FCC, and NCATT written examinations. T Black Aviation also has a Pilot Shop within SheltAir that sells a wide range of pilot supplies, training materials, aircraft rentals, instruction, and certification.

National Aviation Academy is an Aviation Maintenance Technology training school with a 14-month program leading to the FAA Airframe and Powerplant (A&P) Certification. The ATP flight school provides an Airline Career Pilot Program and instructor advancement opportunities with unparalleled airline partnerships. Daviation offers flying training and teaching, aerial photography, corporate pilot services, and aircraft management.

3.7 Tenants

Tenants based at the airport are a significant source of revenue, and they provide a range of services that support airport operations and passenger requirements. Organizations and businesses that lease or rent space within the airport facility are known to be tenants. Retail, shops, restaurants, lounges, Wi-Fi access, and refreshments for passengers and visitors enhance the airport amenities with desirable revenue. Dedicated crew lounges, briefing rooms, and accommodations also highlight the potential of PIE.

St. Pete-Clearwater International Airport (PIE) is a commercial airport with non-stop service to more than 65 local and international destinations. It is a quick drive to Pinellas County's award-winning beaches at St. Petersburg, Clearwater, and Tampa. PIE also serves the general aviation community and military operations. PIE rents to over 50 aviation and non-aviation tenants. The leading commercial airline, Allegiant Air, has the most passenger services. FedEx and UPS oversee freight transit through PIE facilities specifically designed for this purpose.

Allegiant Air is the primary airline tenant located at PIE, and the airline operates multiple aircraft around the United States. Allegiant Air uses PIE as its central hub, which operates from the passenger terminal.

Sun Country Airlines is a low-cost carrier serving the leisure travel market. Sun Country Airlines has limited operations from PIE to other locations. The U.S. Coast Guard Air Station is at St. Pete-Clearwater International Airport (PIE), one of the busiest Coast Guard Air Stations in the United States. The station located at PIE serves law enforcement, search and rescue, and disaster response missions along the Gulf Coast. The U.S. Army Reserve Unit utilizes the St. Pete-Clearwater International Airport (PIE) for military training and operations purposes, as the airport acts as a base for the U.S. Army Reserve Unit.

PIE accommodates multiple aviation flight schools and training facilities that provide pilot training and maintenance certification. These flight schools frequently rent space at the St. Pete-Clearwater International Airport (PIE), making immense use of the facilities provided. The St. Pete-Clearwater International Airport (PIE) offers specialized cargo and freight operations facilities. These cargo operators link the domestic and foreign markets, contributing to the airport's revenue.

Figure 3.7.1

4. HISTORICAL AERONAUTICAL ACTIVITY AND BASED AIRCRAFT

The analysis of PIE's historical aeronautical activity, Enplanements, Operations, and Based aircraft forms a baseline for forecasting as future growth is projected based on analyzing past trends.

4.1 Operations, Enplanements, and Based Aircraft - PIE (2003- 2024)

St. Pete Clearwater International Airport (PIE) has played a key role in regional aviation over the past two decades.

Operations

An aircraft operation is the number of takeoffs or landings (General aviation, military, and commercial aircraft) an airport can manage. PIE projects a stable number of operations between 2004 and 2024 and is expected to grow based on the expansion of low-cost airlines and increased tourism. Planning aircraft movements based on their category is essential for safe and efficient airport operations.

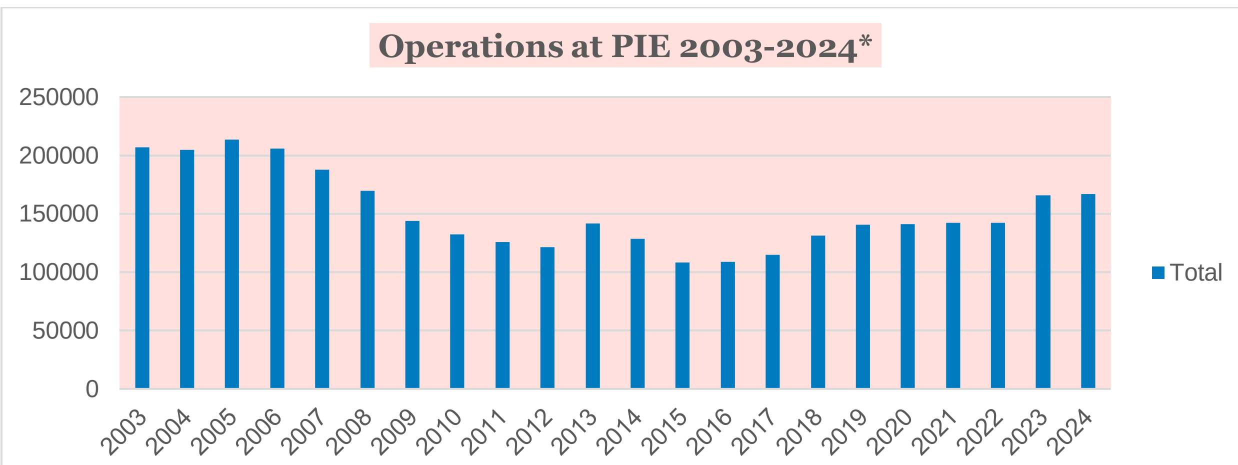


Chart 4.1.1

Enplanements

Enplanements are the number of people boarding planes at an airport. Enplanements recorded in an airport rely directly on the number of operations an airport can handle. PIE's enplanement has significantly increased over the past twenty years due to improved operations and passenger traffic attributed to leisure and business travel. The passenger enplanements at PIE have reported a record-breaking increase in passenger rate over the recent years.

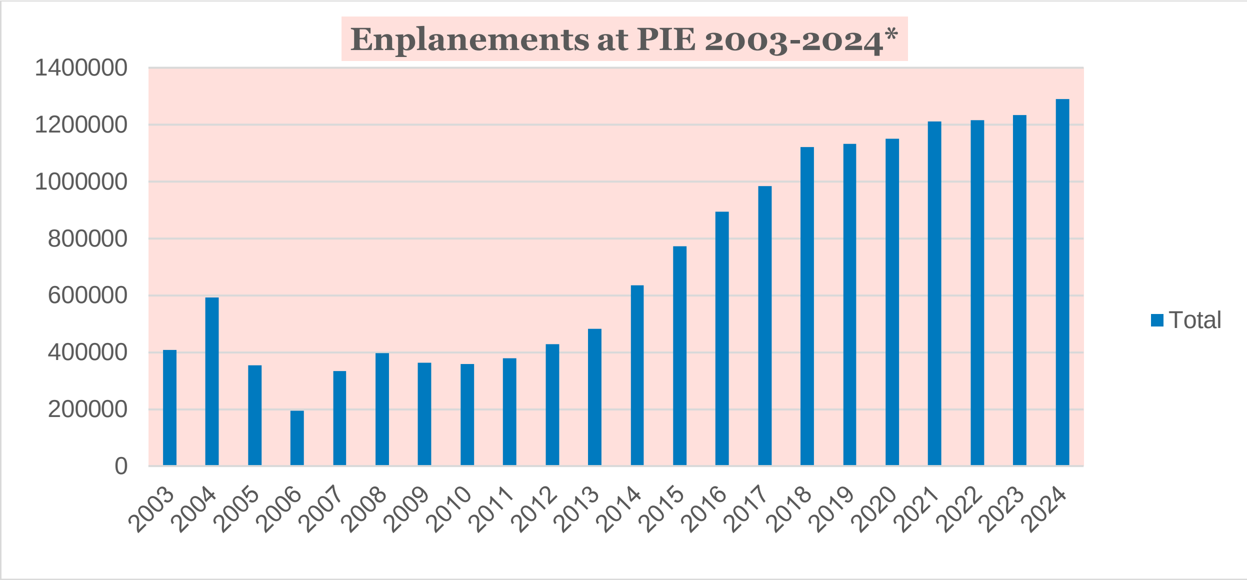


Chart 4.1.2

Based Aircraft

Based aircraft are those stored at the airport for a long time or operators who base their operation at a particular airport. The number of aircraft based at PIE has steadily increased over the years. The main factors influencing the growth are airport location, facilities, aviation flight schools, fueling capability, increased real estate development surrounding the airport area, and its enhancing appeal to pilots, owners, and passengers.

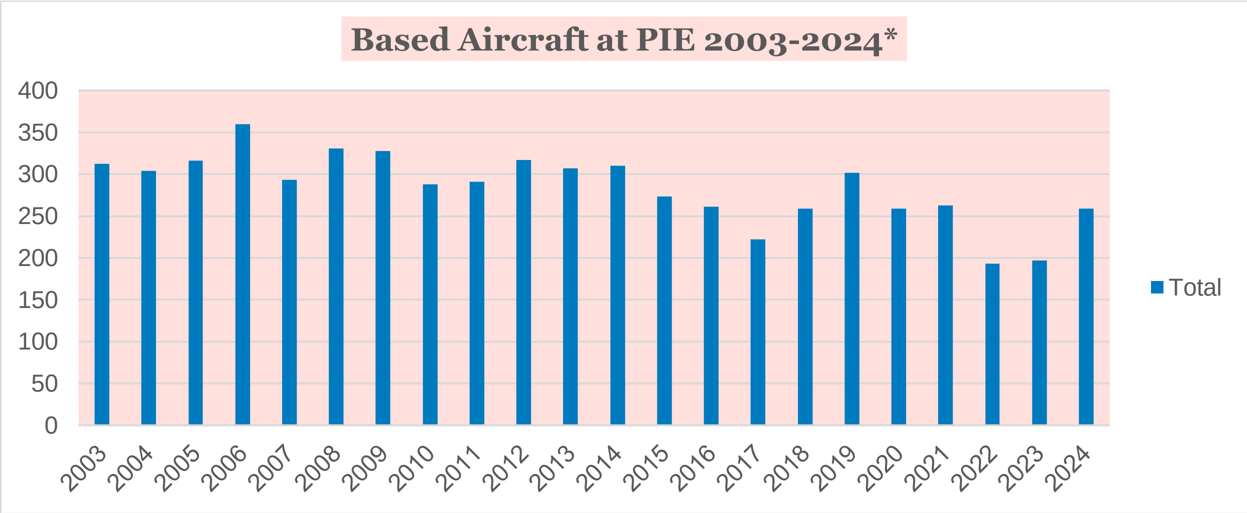


Chart 4.1.3

4.2 Operations, Enplanements and Based Aircraft - FLORIDA (2003- 2024)

Operations

The State of Florida encompasses various airports with different operational profiles, and general aviation and cargo traffic increases in the state complement the growth in commercial flights. However, operations growth is comparatively slower than enplanements due to larger aircraft accommodating more passengers.

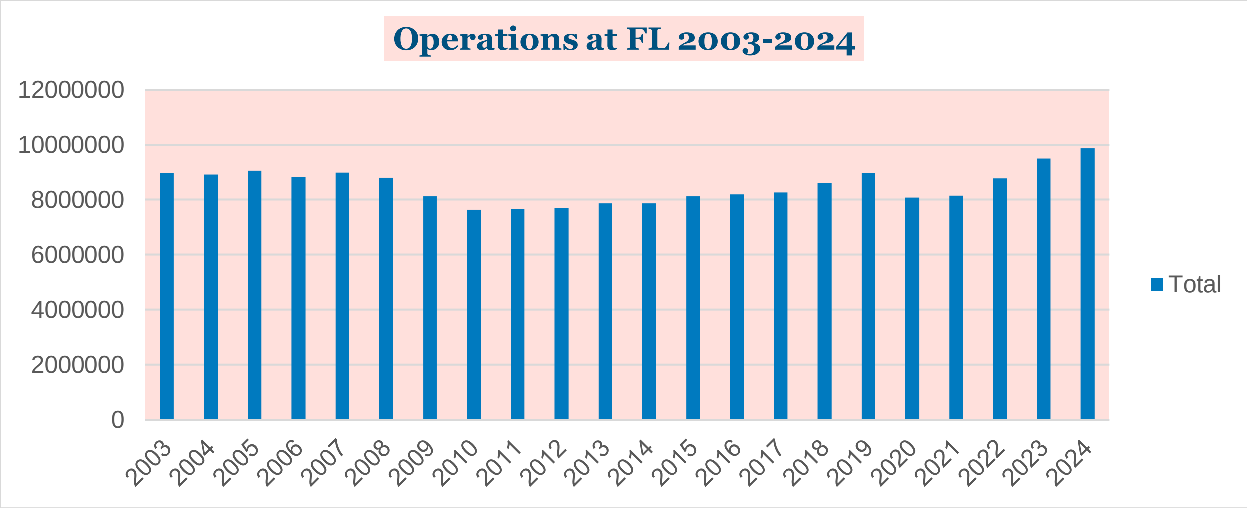


Chart 4.2.1

Enplanements:

Passenger traffic in Florida shows a steady growth due to the state's role as a major tourist destination. Significant hubs like Miami (MIA), Orlando (MCO), and Tampa (TPA) experienced robust increases. Enplanements in the state positively influence the Southern region’s economy due to multiple busy airports and diverse flight operations.

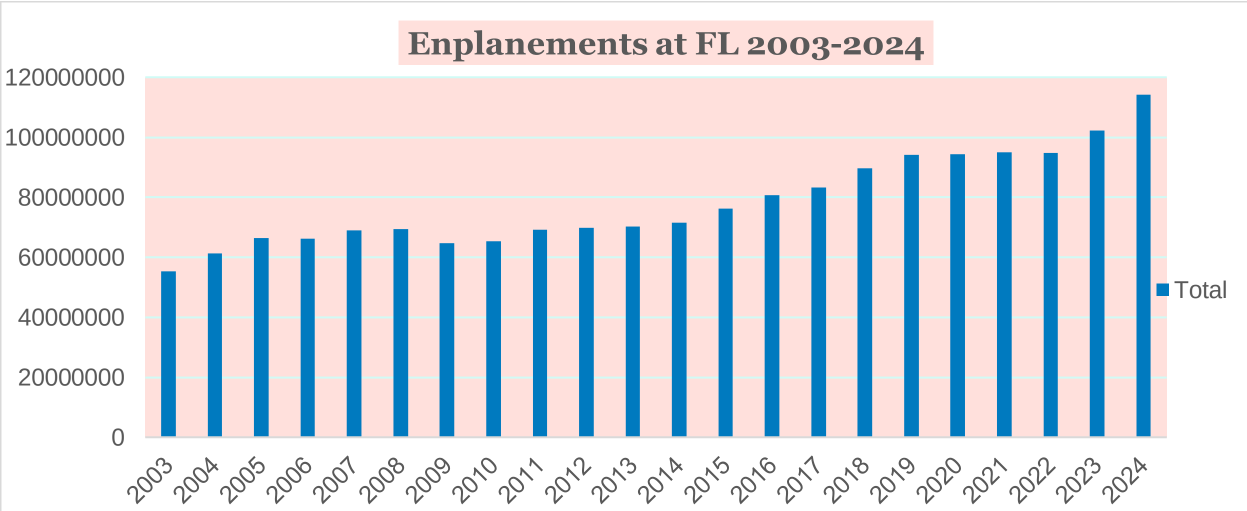


Chart 4.2.2

Based Aircraft

The aircraft trend in Florida State for based aircraft shows a steady rate, reflecting the popularity of commercial operations, general aviation, and Florida's appeal to recreational pilots and private aircraft owners.

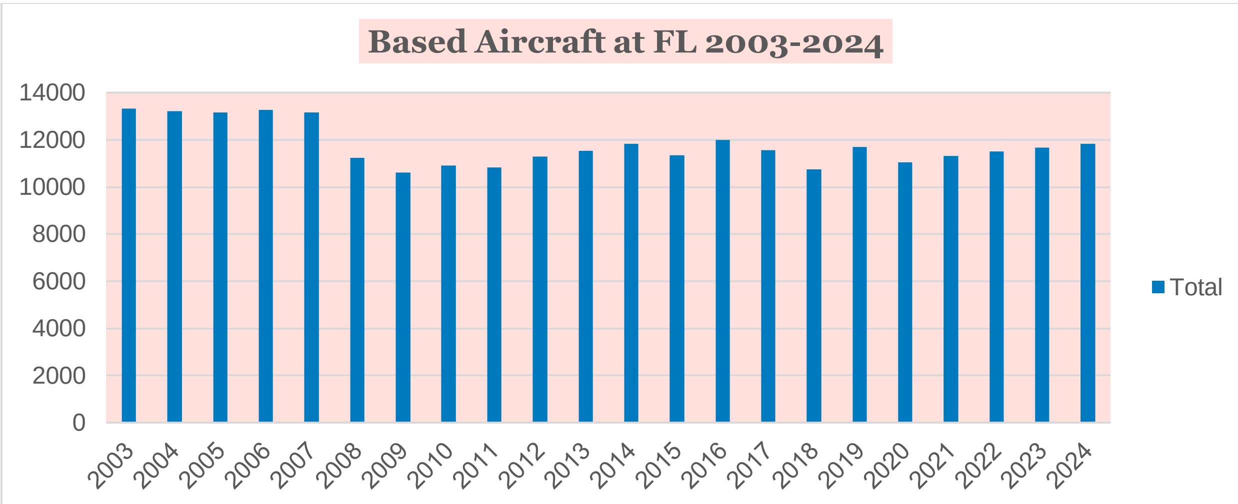


Chart 4.2.3

4.3 Operations, Enplanements and Based Aircraft - ASO (2003- 2024)

Operations

The Southern Region (ASO) encompasses a variety of airports with different operational profiles. Airports in the ASO region have displayed a steady increase in trend since 2004. The ASO region has several large airports, and the operation increases due to the volume of commercial airplanes in this region. In 2022, the Southern Region accounted for 10.9 million operations, the highest among FAA regions. Large hub airports such as Atlanta and Miami contributed significantly to this figure.

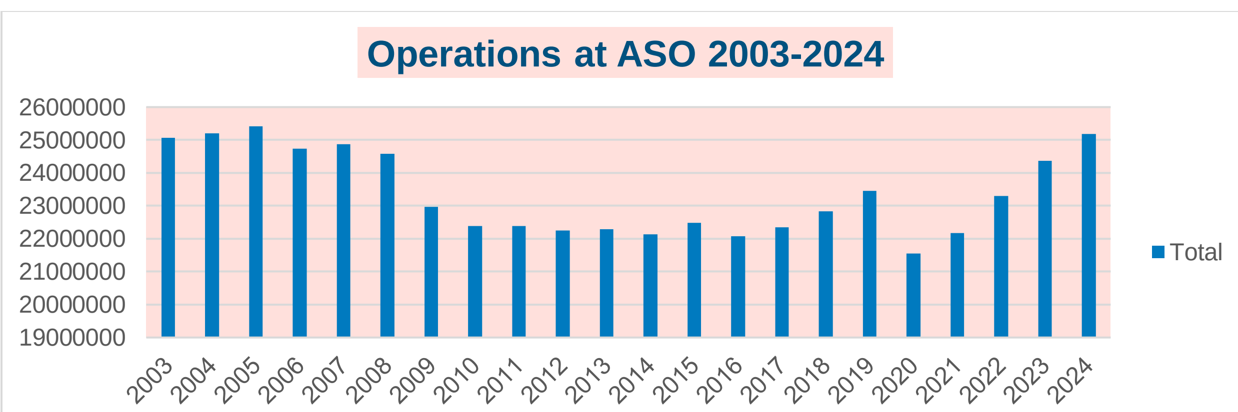


Chart 4.3.1

Enplanements

Due to major airlines, enplanements in the ASO region highly influence the regional economy. Due to their diverse flight operations and higher population density, the enplanements in the southern region increased significantly over the past decade. The Southern Region's expansion has been consistently high due to significant hubs such as Hartsfield-Jackson Atlanta International Airport (ATL). In 2022, ATL recorded 44.5 million enplanements, the highest in the U.S.

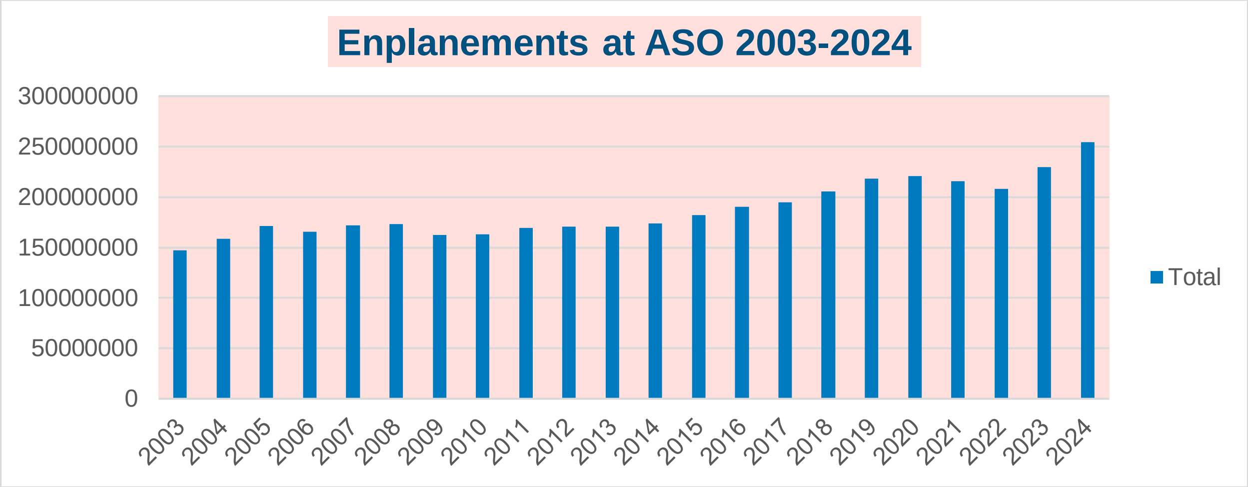


Chart 4.3.2

Based Aircraft

The Southern Region supports many based aircraft due to the extensive general aviation activity at smaller airports and non-hub facilities. These facilities cater primarily to general aviation, which dominates the non-hub activity in this region. This region is pivotal for aviation growth, with robust infrastructure and strategic importance as a link between domestic and international markets. The aircraft trend in the ASO region for based aircraft is due to the substantial booming of local economies and the expansion of general aviation. PIE's growth in based aircraft mirrored broader trends with high recreational flying activity.

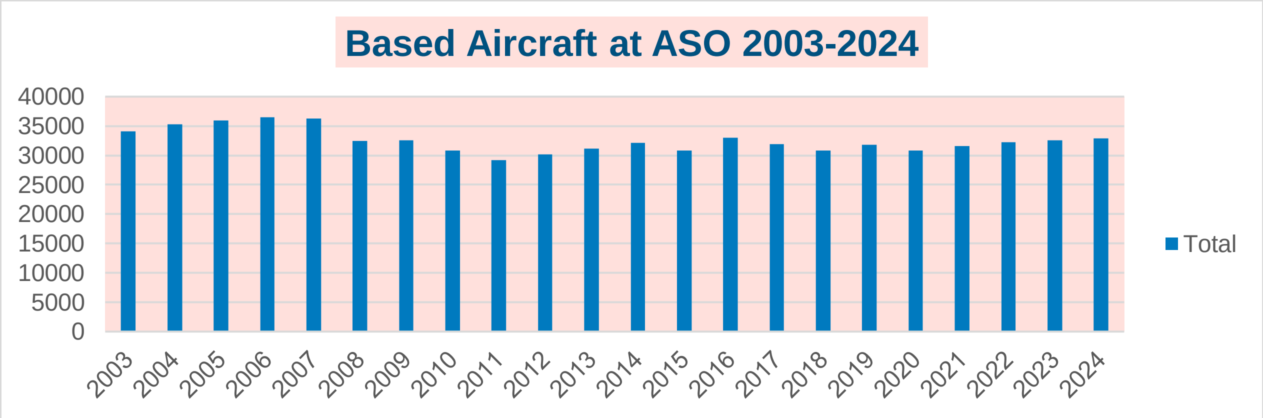


Chart 4.3.3

Appendix A details the calculations of charts for Historical Aeronautical Activity.

4.4. Analysis of Historical Aeronautical Activity and Based Aircraft

The graph below illustrates the annual enplanements for St. Pete–Clearwater International Airport (PIE), Florida State, and Southern Region (ASO).

- Enplanements at PIE show a steady increase over the years, particularly from 2013, reflecting growing passenger traffic. PIE's enplanements indicate significant growth in airport usage and passenger rate.
- Florida State enplanements exhibit moderate growth, with a gradual increase. This trend highlights the expanding aviation activity within the state, which is driven by tourism and economic development.
- The Southern Region experiences consistent and substantial growth, reflecting the region's growing dominance in the U.S. aviation market.

Overall, the upward trends of Florida state and the southern region show the rising importance of PIE within a flourishing Southern aviation ecosystem.

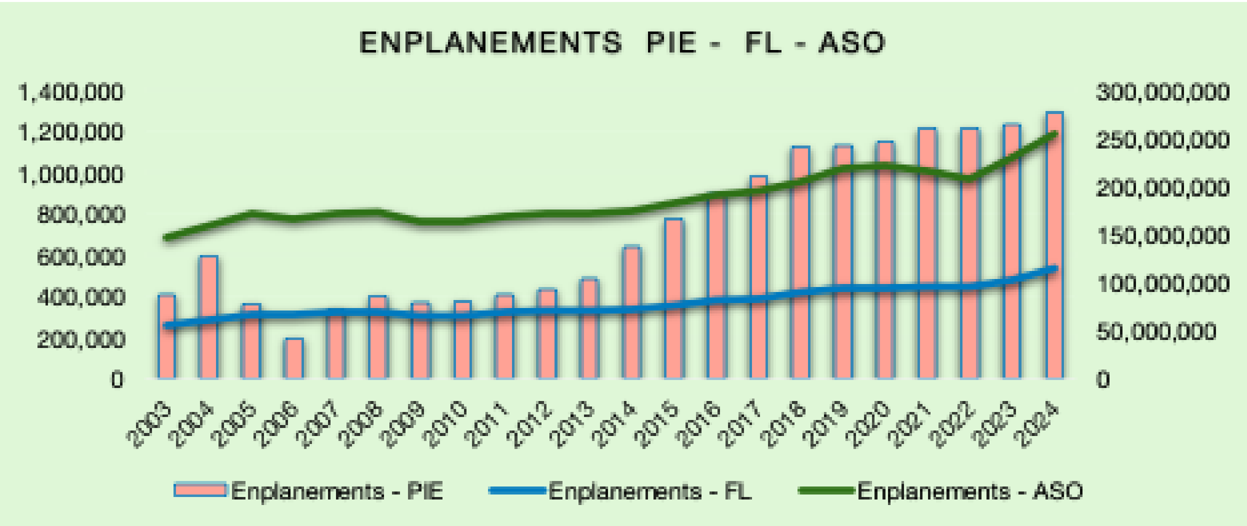


Chart 4.4.1

The graph below displays the flight operations trend across St. Pete–Clearwater International Airport (PIE), Florida State, and Southern Region (ASO).

- Operations at PIE maintain a steady volume over time, with slight fluctuations. Despite the flat trend, the airport supports consistent activity levels.
- Flight operations in Florida reflect a stable trend, reflecting constant airline strategies, fleet utilization, and operational efficiencies.
- The Southern Region experiences a steady upward trajectory in operations, which indicates sustained regional demand for aviation services.

The data suggests that PIE and Florida contribute reliably to a broader increase in regional air operations, but PIE's specific contribution appears stable and expansive.

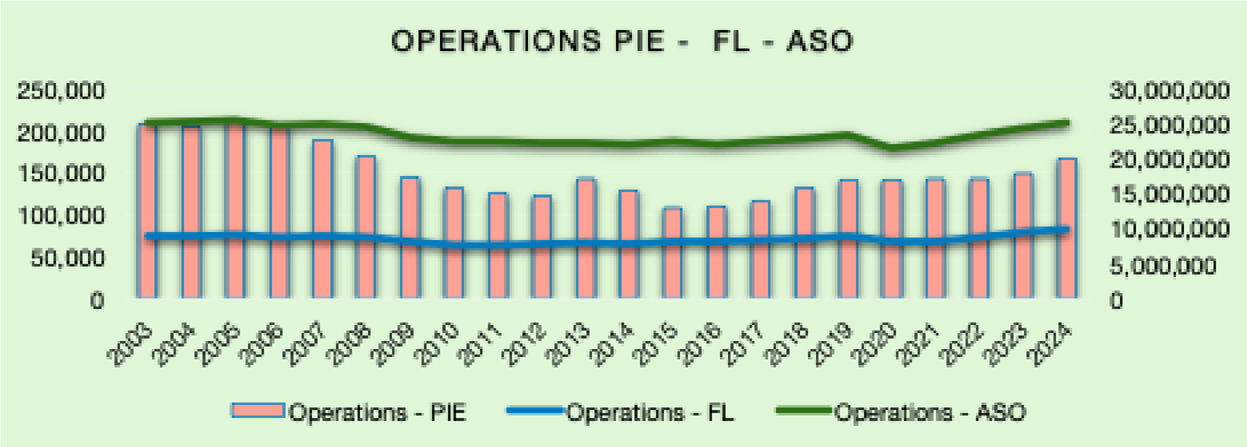


Chart 4.4.2

The below graph represents data on based aircraft, aircraft stationed at St. Pete–Clearwater International Airport (PIE), Florida State, and Southern Region (ASO).

- The number of aircraft based at PIE remains stable, with some variations over the years. After a peak in 2006, the numbers declined slightly but recovered by 2024, indicating a modest resurgence in general aviation.
- Florida State shows a consistent but slow growth in based aircraft numbers, reflecting a healthy general aviation sector across the state.
- The number of aircraft based in the southern region steadily increases, reinforcing the ASO region's status as a major hub for general aviation.

While PIE sees stable activity, its growth potential in based aircraft appears limited compared to broader state and regional trends.

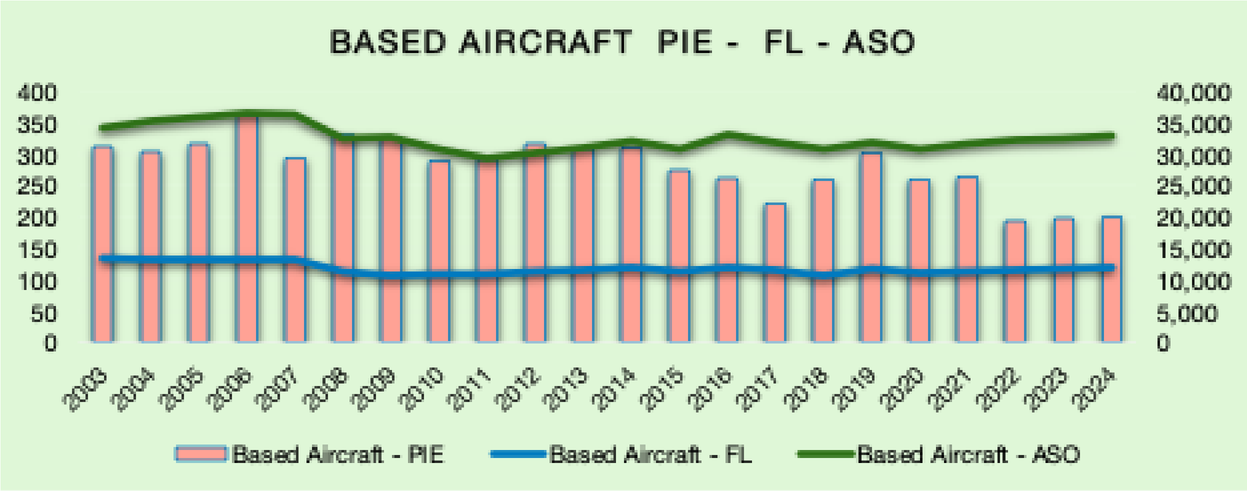


Chart 4.4.3

Based on the analysis of historical aviation activity in St. Pete Clearwater International Airport (PIE), Florida State, and the Southern region, the projections show a steady phase with stable growth in terms of Enplanements, Operations, and based aircrafts.

- The total operations of the air carrier, air taxi commuter, general aviation, and military aircraft provide us with the data to calculate total airport operations, proposing the trends in the aviation industry of a particular airport or region.
- The total operations represent the entire amount of work done in all sectors. This shows that the Airport operations at the St. Pete-Clearwater International Airport (PIE), Florida State, and the ASO Southern Region display a promising and bright future.
- The substantial expansion of fleets increases the number of aircraft based at an airport, St. Pete Clearwater International Airport (PIE), Florida State, and ASO southern region show stability and growth that indicates an increasing prevalence of commercial airline operations.
- St. Pete Clearwater International Airport has demonstrated resilience and adaptability over the past two decades, and the visual representation shows a clear upward trend with relative growth in total operations, enplanements, and based aircraft.
- Enplanements, Operations, and Based aircraft data of PIE from 2003 to 2024 are considered to project the future trends of St. Pete Clearwater International Airport as they form the baseline for our forecast analysis.
- Future infrastructure developments will be crucial in maintaining and enhancing PIE's operational capabilities.

An Airport Master Plan that considers existing conditions, environmental aspects, forecasting requirements, and financial feasibility will ensure that PIE is on track to meet future demands.

5. FORECASTING

Forecasting helps to project or predict the future level of demand and identify requirements or needs that may include Airside facilities, Landside facilities, Personnel, Airspace, and Finance. Master plan forecasts provide the basis and justification for new or expanded facilities and are to be constantly reviewed for current events and economic changes. Forecasting is essential in an Airport Master plan, as it predicts future aviation activity by analyzing past values and conditions to ensure that the airport can accommodate anticipated demand. These past values help understand trends and predict future demands to determine if there is a need to improve airside and landside facilities to meet capacity demands. An erroneous forecast may result in an investment that is not necessary and results in premature capital investment cost and unnecessary operational expense, whereas an underestimated facility requirement would result in a loss of potential revenue; therefore, appropriate methodologies and precise techniques are used in this forecast.

This section analyzes PIE's aviation activity over five and ten years to determine the forecast, and all the information is extracted from the Terminal Area Forecast (TAF), which estimates future passenger traffic, aircraft movements, cargo volumes, and other operational factors. These factors contribute to an accurate forecast analysis that lays the foundation for decision-making of PIE's capacity, infrastructure, and financial planning. Historical analysis of data examines past trends in air travel and helps determine passenger growth rates in the future. Economic factors like GDP growth, population shift, and tourism influence enplanements. FAA's

Air Traffic Flow Management System Count (TFMSC) provides detailed historical aviation operations data for airport operations, including data for flights that fly under Instrument Flight Rules (IFR) and are captured by the FAA's route computers. It includes detailed reports providing Aircraft Model, Time, Date, Weight Class, ARC, Flight type, and user class (Commercial, air taxi, GA). The operator's fleet composition, airline operations, airport's existing capacity, international trade trends, E-commerce growth, freight carriers, regulatory changes, technological advancements, and environmental factors are also being considered in this forecast. Considering all the factors in the analysis, we can determine when and where new infrastructure, such as terminals, runways, and taxiways, will be needed to meet future demands. It helps allocate space within the airport to expand existing facilities and enhance commercial development. It assists in budgeting for a capital improvement plan by projecting the potential revenue streams from passenger facility charges, rentals, landing fees, hangar utilization, retail concessions, lounges, advertisements, etc. Some of the commonly used methodologies to project or predict future demand and identify future needs, such as airside facilities, landside facilities, airspace, finance, and budgeting, could be carried out using Market Share Analysis (ratio analysis), Trend Analysis, Regression Analysis (econometric), surveys, simulation, gravity models and by comparing with other airports.

Forecasting also helps evaluate potential environmental impacts such as noise pollution, land usage, and water consumption from increased operations to guide sustainability measures. A lucid forecast ensures that airports can handle future growth efficiently and safely with enhanced customer experience.

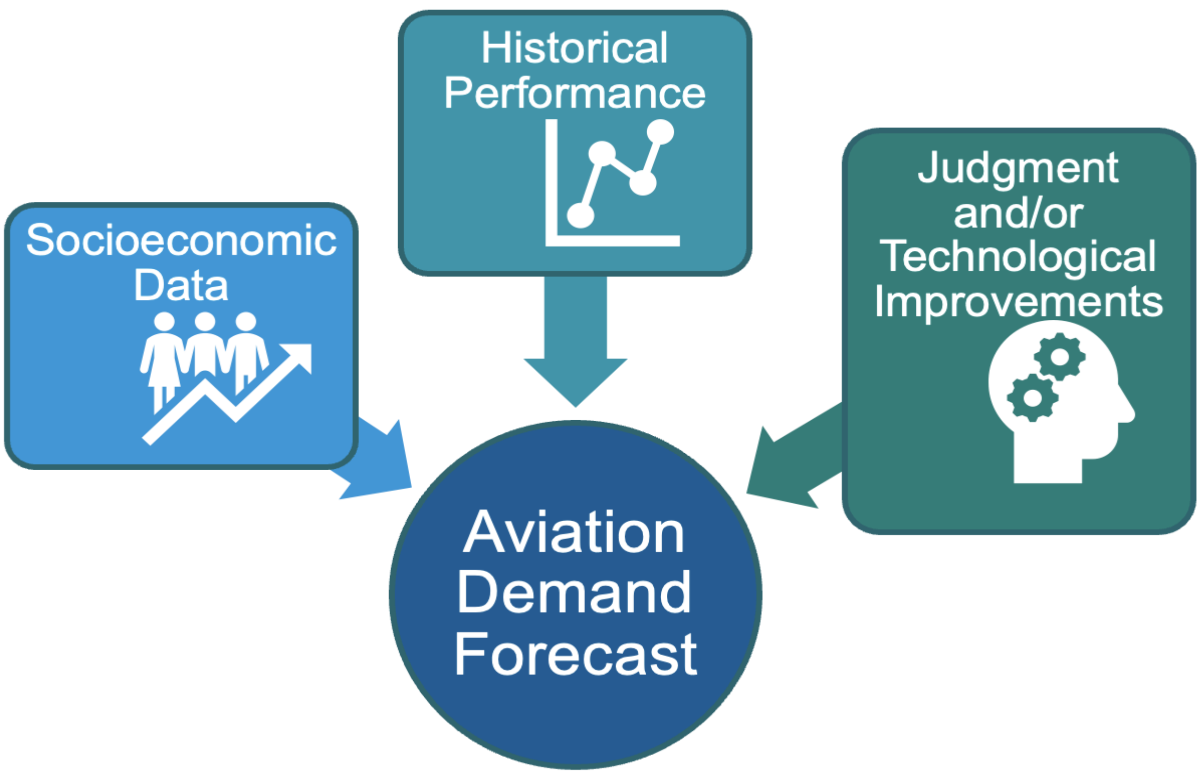
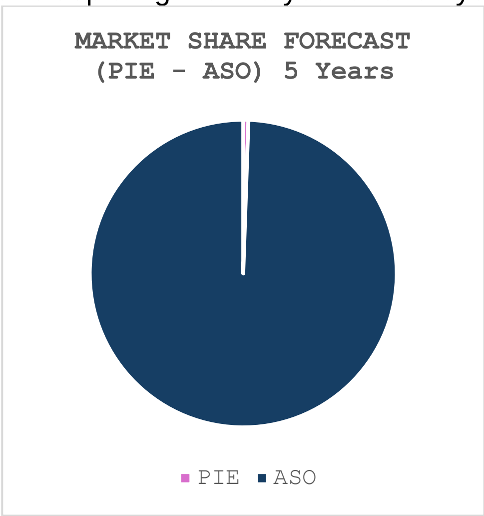


Figure 5.1

5.1 Market Share Analysis

Market share analysis is a forecasting methodology that compares local forecasts to regional or national forecast data. Historical market shares are calculated and used to project future market shares where a top-down relationship between national, regional, and local forecasts is considered to project the growing or declining future market share. The local forecasts are a market share percentage of regional forecasts and a market share percentage of national forecasts. Since the future market share may decline or grow, the projection of an appropriate local share of demand based on historical trends considering five-year and ten-year average market share is calculated, and the values resulting from the share analysis are compared with historical values to determine the requirement of future demands.

Pie charts depicting the five-year and ten-year market share of PIE in the ASO Southern Region



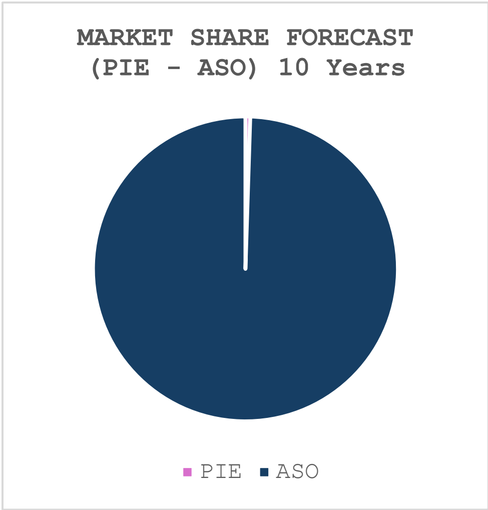
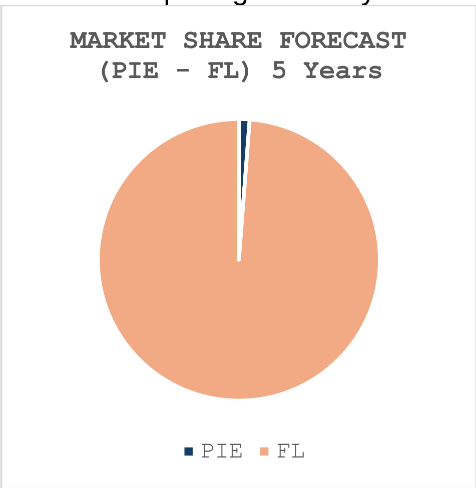


Chart 5.1.1

Pie charts depicting the five-year and ten-year market share of PIE in Florida State



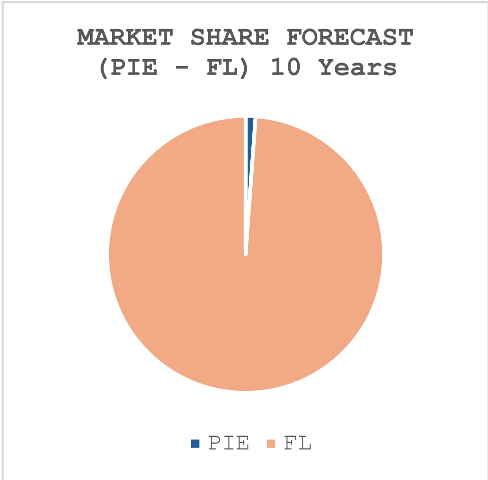


Chart 5.1.2

5.2 Market Share Analysis on PIE Enplanements

Based on the average market share for the recent five and 10-year period, the five and 10-year projection rate of PIE enplanements for 2029 will be 1,589,807 (5 years) and 1,469,595 (10 years). The ASO Southern region enplanements would be 291,742,787, in 2034 PIE enplanements would grow to 1,767,179 (5Year), 1,633,556 (10Year), the ASO Southern region enplanements by 324,292,032, by 2039 PIE enplanements are expected to reach 1,962,338 (5Year), 1,813,959 (10Year), the ASO Southern region enplanements at 360,105,427 and by 2044 PIE enplanements would cross the 2,000,000 milestone with a forecasted growth of about 2,173,203 (5Year), 2,008,879 (10Year), and the ASO Southern region enplanements at 398,800,930 respectively.

YEAR	PIE Enplanements Forecast Five Year Projection	PIE Enplanements Forecast Ten Year Projection	ASO Southern Region Enplanements Forecast Projection from TAF
2029	1,589,807	1,469,595	291,742,787
2034	1,767,179	1,633,556	324,292,032
2039	1,962,338	1,813,959	360,105,427
2044	2,173,203	2,008,879	398,800,930

Table 5.2.1

PIE ENPLANEMENTS FORECAST 5 YEARS AND 10 YEARS BASED ON ASO

Chart 5.2.1

PIE ENPLANEMENTS FORECAST 5 YEARS AND 10 YEARS BASED ON ASO

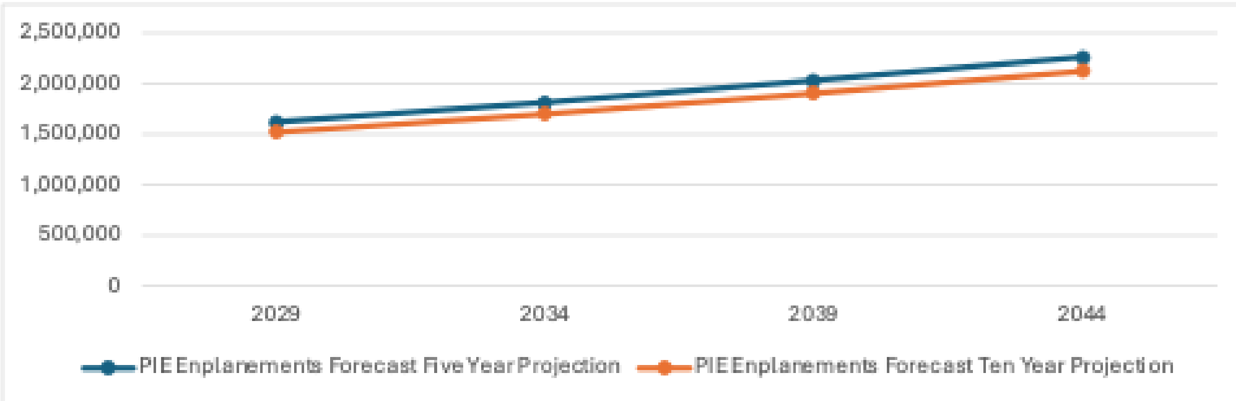


Chart 5.2.2

Based on the average market share for the recent five and ten-year period, the five and ten-year projection rate of PIE enplanements for 2029 will be 1,619,321 (5Year), 1,522,089 (10Year), and the Florida State enplanements would be 130,805,391, in 2034 PIE enplanements would grow to 1,813,047 (5Year), 1,704,183 (10Year), the Florida State enplanements by 146,454,180, by 2039 PIE enplanements are expected to reach 2,027,370 (5Year), 1,905,637 (10Year), the Florida State enplanements at 163,766,736 and by 2044 PIE enplanements showcases a forecasted growth of about 2,258,359 (5Year), 2,122,756 (10Year), and the Florida State enplanements at 182,425,532 respectively.

YEAR	PIE Enplanements Forecast Five Year Projection	PIE Enplanements Forecast Ten Year Projection	FL Enplanements Forecast Projection from TAF
2029	1,619,321	1,522,089	130,805,391
2034	1,813,047	1,704,183	146,454,180
2039	2,027,370	1,905,637	163,766,736
2044	2,258,359	2,122,756	182,425,532

Table 5.2.2

PIE ENPLANEMENTS FORECAST 5 YEARS AND 10 YEARS BASED ON FL STATE

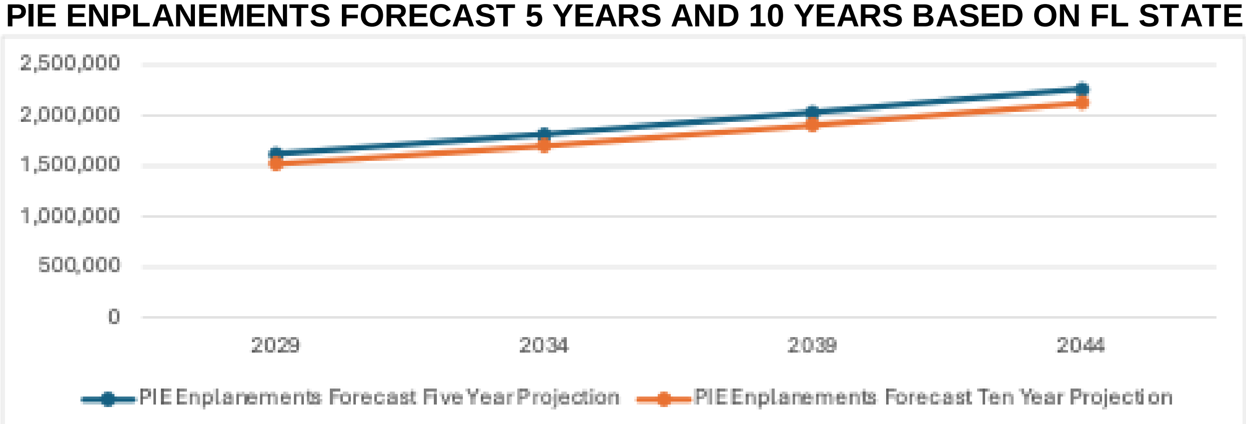


Chart 5.2.3

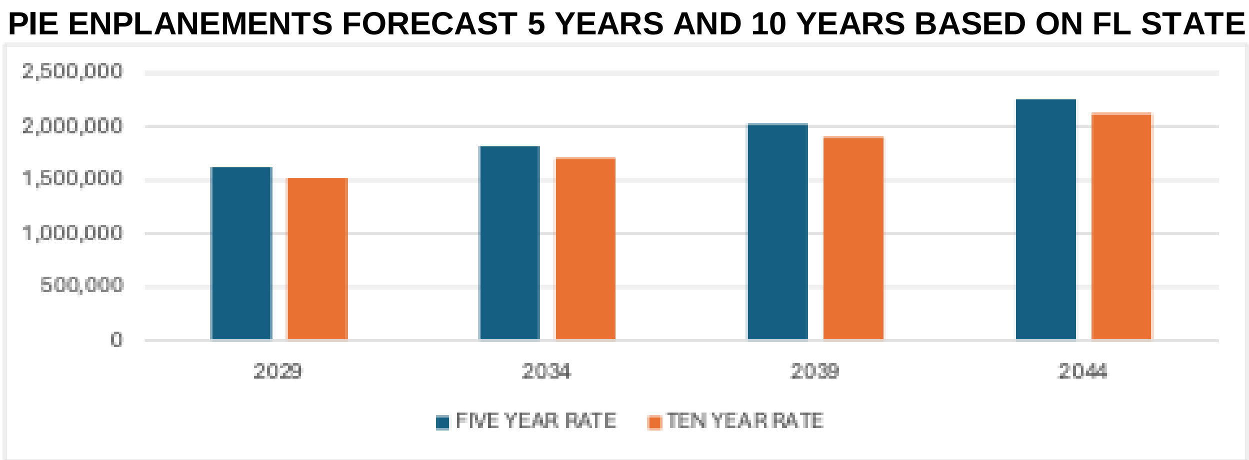


Chart 5.2.4

To determine the market share for PIE, the market shares of the ASO Southern region and Florida State are analyzed and compared with PIE enplanements over five years and ten years. Over the last five years, PIE has accounted for 0.54% of all enplanements in the ASO Southern region and 1.23% in Florida. In the previous ten years, it has accounted for 0.50% of the ASO Southern region and 1.16% of Florida State, respectively. Based on the FAA TAF data, the ASO Southern region and Florida State are projected to grow. Eventually, PIE enplanements are forecasted to obtain considerable growth in consecutive years and over five to ten years.

YEAR	PIE Enplanements Forecast (Five Year based on ASO)	PIE Enplanements Forecast (Five Year based on FL)	PIE Enplanements Forecast (Ten Year based on ASO)	PIE Enplanements Forecast (Ten Year based on FL)	PIE Enplanements Forecast FAA - TAF
2029	1,589,807	1,619,321	1,469,595	1,522,089	1,427,388
2034	1,767,179	1,813,047	1,633,556	1,704,183	1,567,254
2039	1,962,338	2,027,370	1,813,959	1,905,637	1,725,520
2044	2,173,203	2,258,359	2,008,879	2,122,756	1,894,042

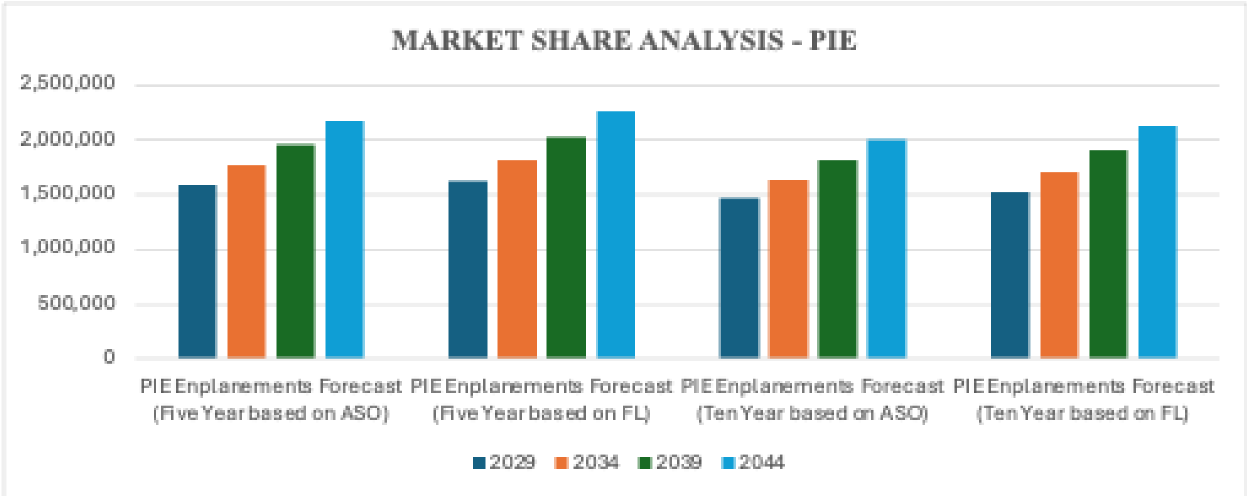


Table 5.2.3

Chart 5.2.5

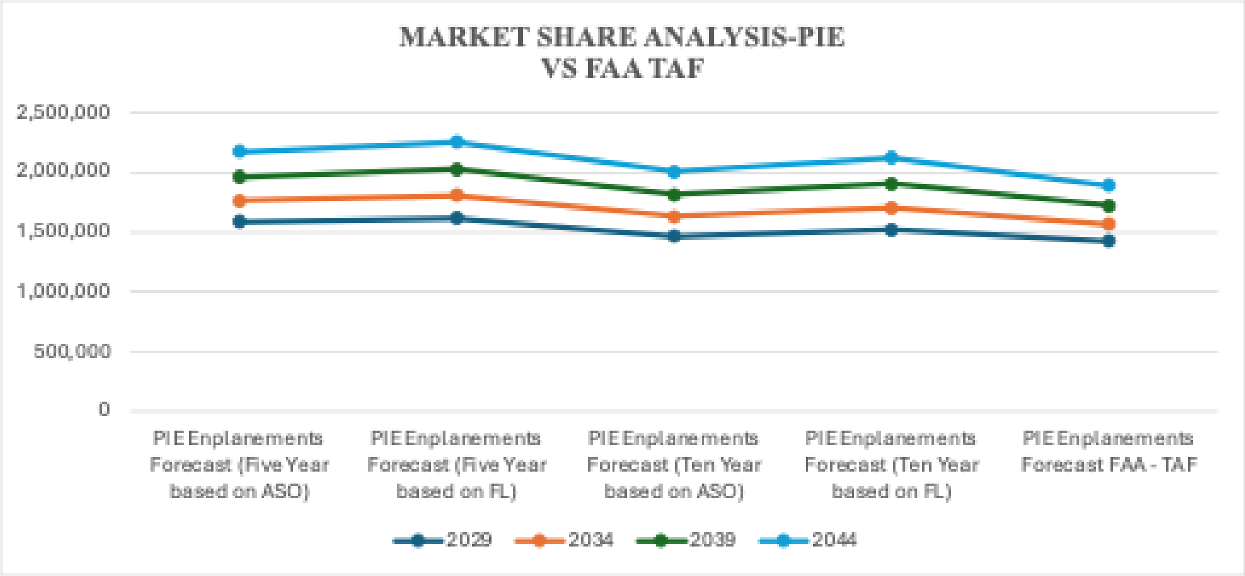


Chart 5.2.6

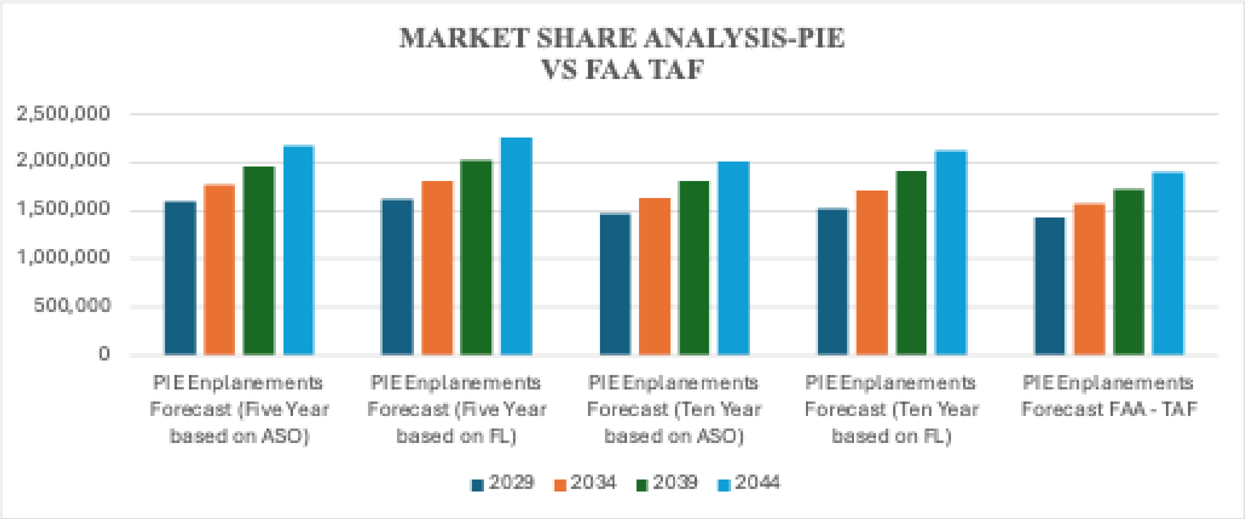


Chart 5.2.7

Appendix B details the calculations of tables and charts for Market Share Analysis.

5.3 Trend Analysis

Trend Analysis or Time Series Analysis is used to analyze and forecast future aviation activities and project trends. It is a precious technique because it is simple to apply, and they are frequently used as a backup or expedient technique as a reasonable method of projecting variables would be complicated and costly to project by other means. It captures economic growth and recession, comparing and analyzing recent performance to the long-term trend line. Trend analysis usually works best for short-range forecasts because the risks of these changes occurring are less. Like market share, trend analysis is another forecast that helps plan future developments and immediate requirements. Instead of comparison, trend analysis uses a timeline and past growth to determine future growth.

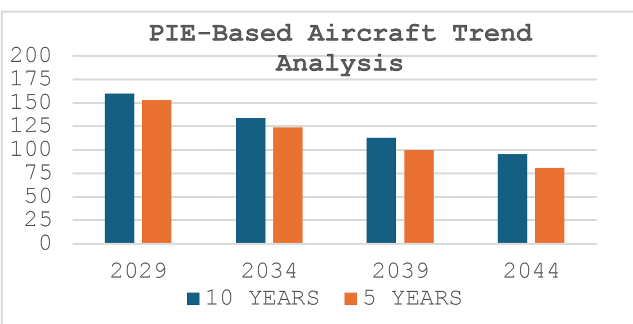
Trend analysis in airport planning is crucial to forecast and adapt to changes based on aviation demand, technology, and regulations. Trend analysis involves studying historical data, identifying patterns, and predicting future developments to ensure that airports are well-prepared to accommodate evolving needs. Trend analysis in airport planning is essential to ensure that airports can adapt to changing passenger and cargo demands, integrate innovative technologies, meet environmental goals, and remain competitive in a fast-changing industry. Trend analysis helps identify passenger growth rates and demographic changes, air traffic growth, cargo trends, security requirements, environmental and sustainability trends, regional economic and tourism trends, airline strategies, and regulatory changes. Trend analysis in an airport master plan is crucial for identifying future infrastructure, technology, and service needs, allowing airports to remain competitive, safe, efficient, and sustainable over the long term.

(Previous Year Data * Trend Analysis Growth Rate) + Previous Rate = Trend Analysis Forecast Value.

5.4 Trend Analysis on PIE-Based Aircraft

Based aircraft at an airport refers to aircraft stationed or permanently assigned to that airport. These aircraft call the airports their “Base,” where they are stored, maintained, and operated. Based aircraft at PIE range from general aviation small single-engine planes, corporate jets, and helicopters to larger commercial aircraft. Based aircraft at PIE help schedule operations, manage hangar space and ensure that the maintenance service providers and their facilities meet demands. Based aircraft contribute to overall airport activity, influencing forecasting of flight operations, which is crucial for capacity planning and planning of airport operations. The number of based aircraft can affect the amount of funding or grants an airport might receive from agencies like the FAA and NPIAS, particularly for improvements and expansions. The St. Pete-Clearwater International Airport (PIE) supports various general aviation activities and commercial services. The airport houses numerous aircraft, from small private planes to corporate jets. Two leading Fixed Base Operators (FBOs), Signature Flight Support and Sheltair Aviation, provide comprehensive services, including fueling, maintenance, aircraft storage, and passenger amenities for general aviation. Additionally, the airport is home to Elite Air, a charter and aircraft management company that operates a fleet of jets and turboprops. Clearwater Aviation, a Part 141 Flight Academy, offers pilot training and aircraft rental services, making PIE an essential regional recreational and business aviation hub.

A graph showing forecast-based aircraft using TAF, 10 years, and 5 years (FAA).



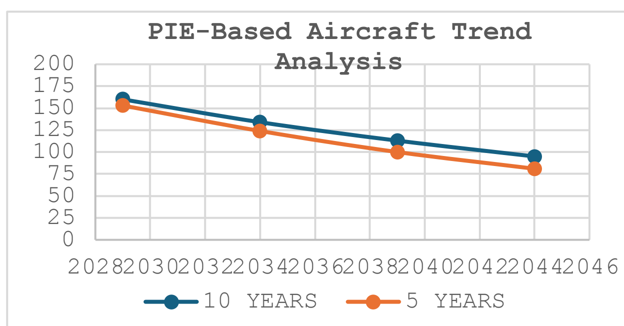


Chart 5.4.1

PIE BASED AIRCRAFT TREND ANALYSIS				
YEAR	BASED AIRCRAFT (PIE)		10 YEAR TREND ANALYSIS	05 YEAR TREND ANALYSIS
2013	307			
2014	310	0.98%		
2015	273	-11.94%		-2.73%
2016	261	-4.40%		
2017	222	-14.94%		
2018	259	16.67%	-3.43%	
2019	302	16.60%		
2020	259	-14.24%		
2021	263	1.54%		-4.13%
2022	193	-26.62%		
2023	197	2.07%		
10 years Average		-3.43%	05 years Average	-4.13%

Table 5.4.1

BASED AIRCRAFTS		
FORECAST	10 YEARS	5 YEARS
2029	160	153
2034	134	124
2039	113	100
2044	95	81

Table 5.4.2

A graph showing forecast-based aircraft using TAF, 10 years, and 5 years (FAA)

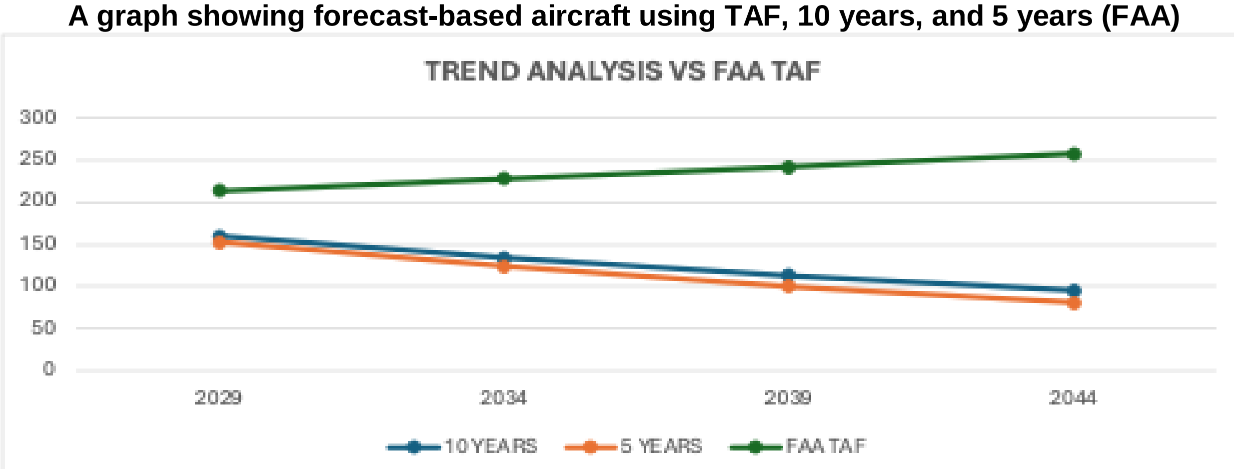


Chart 5.4.2

A graph showing forecast-based aircraft using TAF, 10 years, and 5 years (FAA)

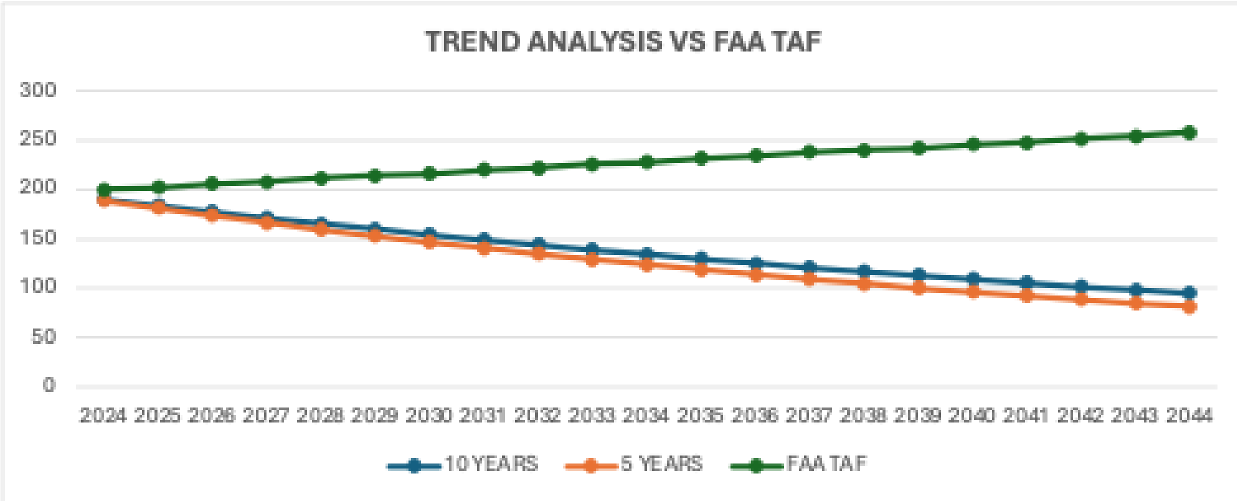


Chart 5.4.3

5.5 Trend Analysis of PIE Operations

Airport operations encompass various activities that ensure an airport's safe and efficient functioning. The St. Pete-Clearwater International Airport (PIE) operates under the oversight of the FAA, and much of its operational planning and forecasting is informed by data from the FAA Terminal Area Forecast (TAF). The TAF provides projections for U.S. airport's aviation activity, including passenger enplanements, aircraft operations, and based aircraft. The FAA categorizes PIE as a primary small hub airport and handles scheduled commercial services at a lower volume than large hub airports. Significant general aviation operations, including private pilots and corporate jets, typically account for a substantial portion of PIE's operations. PIE also supports military aviation activity, as it is close to several military installations. Smaller commercial operations, such as charter flights, provide non-scheduled service to various destinations.

Trend Analysis of PIE's operation is crucial to planning future operations as it helps the airport manage current capacity, predict future demands, and expand facilities based on forecasting the requirements. This forecast will reflect the anticipated number of commercial flights over time, help with capacity planning, and anticipate future growth and challenges. Forecasting helps airport authorities predict future economic contributions based on projected growth in airport operations.

Operations refer to aircraft operating in the airspace, and operations are used to measure the facilities and airfield characteristics needed. For PIE, operations continue to grow, as depicted in the Table, with an average growth rate of 0.82% for the last ten years and an average growth rate of 2.59% for the recent five years. The values are defined by calculating the average growth rate percent over the last ten years and multiplying it continuously by the previous year. PIE must manage noise impacts on the surrounding community based on its operational considerations; as the prediction of PIE's operations tends to grow, additional noise mitigation strategies are advised. PIE plays a crucial role in the local economy, supporting tourism, local businesses, and employment.

A table showing historical operations and growth percent (FAA)

PIE OPERATIONS TREND ANALYSIS				
YEAR	OPERATIONS PIE		10 YEAR TREND ANALYSIS	05 YEAR TREND ANALYSIS
2013	141,826		0.82%	-0.94%
2014	128,412	-9.46%		
2015	108,392	-15.59%		
2016	108,555	0.15%		
2017	114,871	5.82%		
2018	131,374	14.37%		
2019	140,533	6.97%		2.59%
2020	141,302	0.55%		
2021	141,987	0.48%		
2022	142,030	0.03%		
2023	149,000	4.91%		
10 years Average		0.82%	05 years Average	2.59%

Table 5.5.1

A chart comparing forecasted operations based on 5- and 10-year operations

OPERATIONS FORECAST AT PIE		
YEAR	10 YEARS	5 YEARS
2029	156509	173689
2034	163054	197361
2039	169874	224259
2044	176979	254827

Table 5.5.2

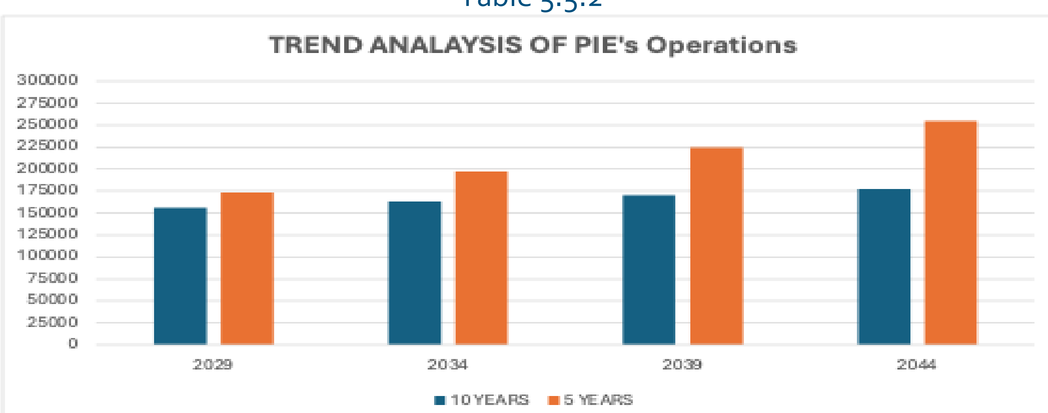


Chart 5.5.1

Based on our trend analysis calculation mentioned in the Appendix, the airport operations at PIE continue to grow, and the operations are projected at 156,509 by 2029, 163,054 by 2034, 169,874 by 2039, and 176,979 by 2044 based on the ten-year trend. Based on the five-year trend, the values are 173,689 by 2029, 197,361 by 2034, 224,259 by 2039, and 254,827 by 2044, respectively.

PIE projects continued growth in operations and passenger enplanements due to the rising popularity of Florida as a tourist destination, the expansion of low-cost carriers, and regional economic development. Forecasts help airports anticipate future demand for air service, including potential new routes and airlines. With the projected increase in operations, PIE may need help with terminal capacity, runway congestion, and parking availability. Trend analysis helps the airport plan for these challenges by forecasting the need for expansion or operational adjustments.

A graph depicting five vs 10-year trend analysis forecast

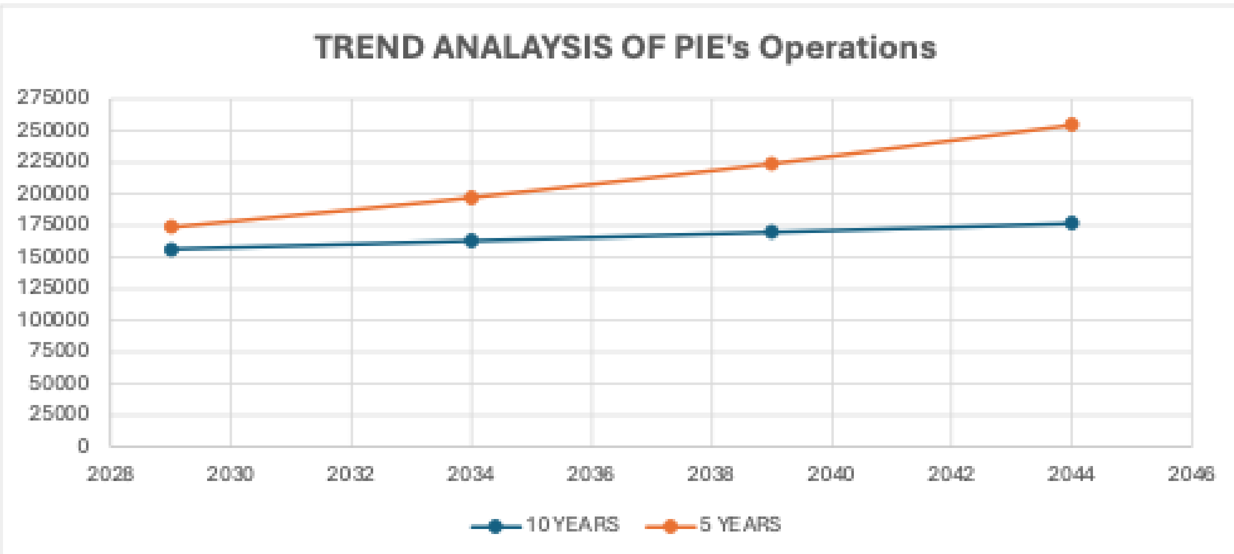


Chart 5.5.2

Appendix C details the calculations of tables and charts for Trend Analysis.

5.6 Peak Activity Forecast (ADPM)

Design hour passenger forecasts are required for appropriate terminal sizing and other facilities with peaking characteristics. In the U.S., the design hour is defined as the peak hour of an average day of the peak month (ADPM). The design hour measures the number of planned or deplaned passengers leaving or arriving on aircraft in an elapsed hour of a normally busy (design) day. Peak design hour is the 90th to 95th percentile hour. Peak activity is another forecasting model. Usually, the average day of the peak month is designated as Design Day or ADPM. It is used for the design day to determine ADPM and divide the peak month activity by the number of days in that month. This model determines the number of people in an area at a given time and is essential for calculating capacity.

This forecast model shows how many people the airport would need to accommodate at one time. It calculates terminal space and annual service volume, as it can show how many people the airport needs to provide service to at a given time. This peak activity will be a peak design hour forecast. Peak design hour forecasts are a three-step process where we need to determine the peak month, the design day, and estimate the amount of daily activity that occurs in the design hour, where we use the busiest month, divided by the number of days in that month, and multiplied by the percent of operations. This process is applied to existing conditions and activity in future years.

For 2024 and 2044, the peak month for PIE is March for both enplanements and operations.

ANNUAL OPERATIONS AT PIE		
PEAK ACTIVITY FORECCAST (ADPM)	2024	2044
Annual operations	150226	176979
Operations in peak month (March)	13520	15928
Operations per day of peak month	436	514
Peak hour operations	39	46

Table 5.6.1

In 2024, PIE’s annual operations range at 150,226, and the Operations in March (Peak Month) are determined to be 13,520, with daily operations at 436 and Peak Hour operations at 39. For 2044, PIE’s annual operations will increase and range at 176979, and the operations in March (Peak Month) will be determined to be 15928, with daily operations at 514 and peak hour operations at 46.

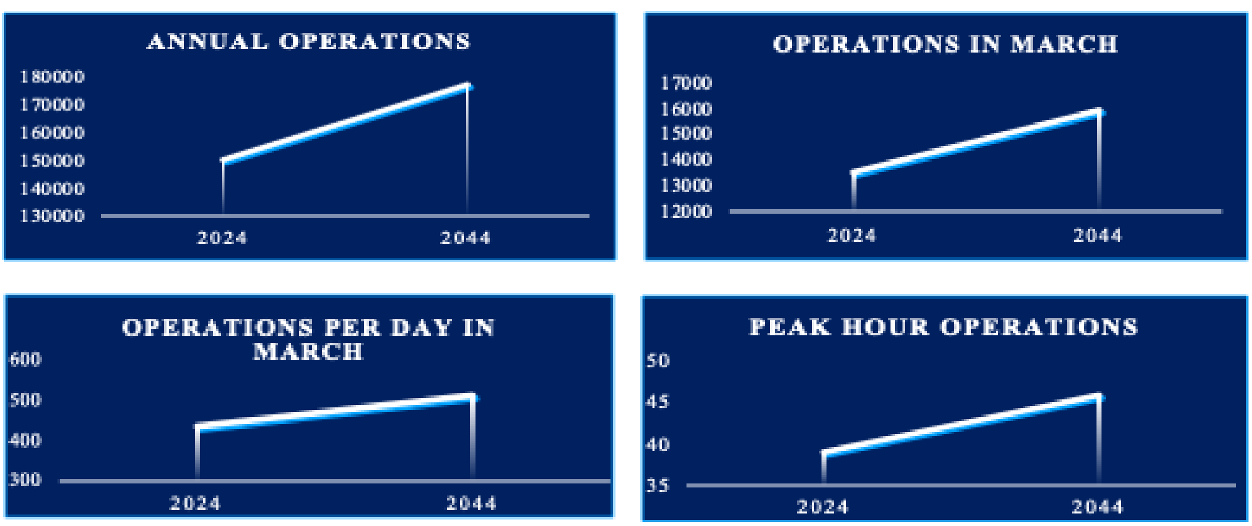


Chart 5.6.1

In 2024, PIE’s annual enplanements range at 1,385,547, and the enplanements in March (Peak Month) are determined to be 159,338, with daily enplanements at 5140 and Peak Hour enplanements at 920. For 2044, PIE’s annual enplanements increase and range at 2,173,204, and the enplanements in March (Peak Month) are determined to be 249,918, with daily enplanements at 8062 and Peak Hour enplanements at 1443.

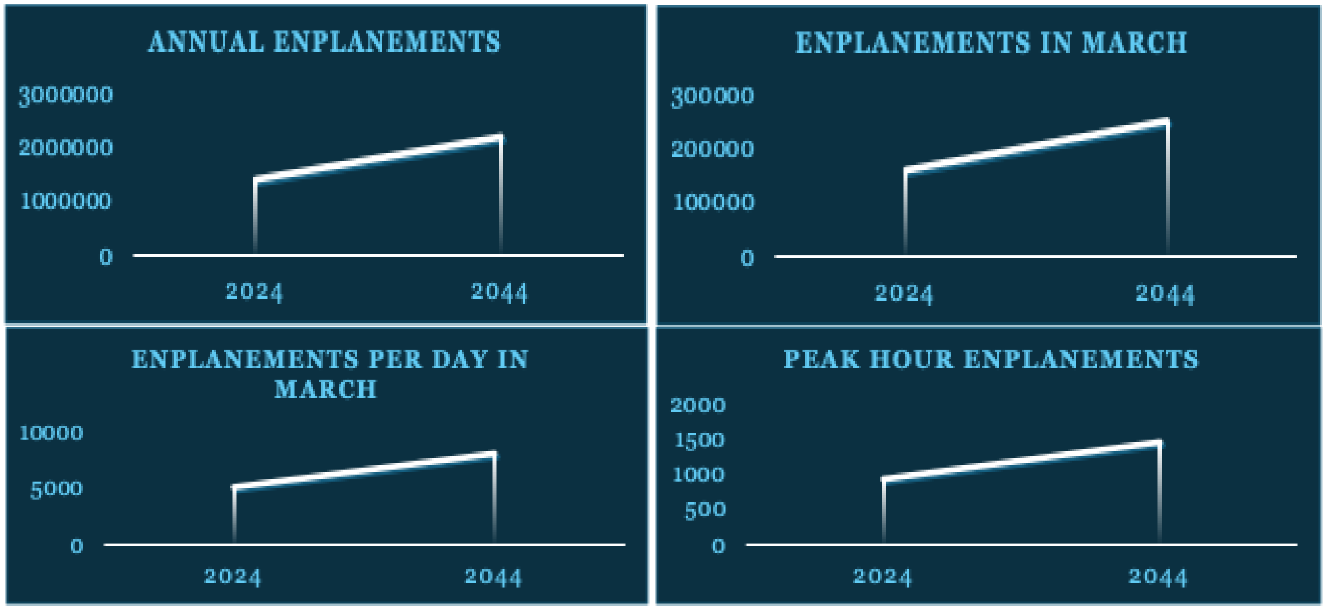


Chart 5.6.2

ANNUAL ENPLANEMENTS AT PIE		
PEAK ACTIVITY FORECCAST (ADPM)	2024	2044
Annual Enplanements	1385547	2173204
Enplanements in peak month (March)	159338	249918
Enplanements per day of peak month	5140	8062
Peak hour enplanements	920	1443

Table 5.6.2

The Peak Activity forecast (ADPM) for St. Pete-Clearwater International Airport (PIE) shows a significant rise in yearly operations and enplanements between 2024 and 2044, and the month of March is the Peak Month for both Operations and Enplanements in 2024 and 2044. The St. Pete-Clearwater International Airport (PIE) is a backup for the Tampa International Airport, the southwest Tampa area, and hosts multiple aviation-related activities.

Comparing the Peak Activity Forecast (ADPM) operations at PIE for 2024 and 2044, the annual operations display a steady growth from 150,226 to 176,979, and yearly enplanements are forecasted to have tremendous growth from 1,385,547 to 2,173,204. In the busiest month of the year (March), the operations are expected to increase from 13,520 to 15,928, and enplanements from 159,338 to 249,918. It is estimated that the number of operations per day in March will increase from 436 to 541 and enplanements from 5140 to 8062, while the peak hour operations will also rise from 39 to 46 and enplanements from 920 to 1443.

Appendix D details the calculations of tables for the Peak Activity Forecast (ADPM).

6. CAPACITY

Advisory Circular (AC) 150/5060-5, Airport Capacity and Delay, is a foundational document by the Federal Aviation Administration (FAA) that provides guidelines and methodologies for determining airport capacity and delay. Capacity refers to the maximum number of aircraft operations (takeoffs and landings) that can be accommodated at an airport or within its airspace during a specific period under defined conditions. These conditions may include the availability of runways, taxiways, gates, air traffic control resources, and prevailing weather conditions. Hourly Capacity is the number of aircraft operations that can be handled in one hour without excessive delays. It considers peak operating conditions and often reflects ideal weather and traffic management scenarios. It accounts for variability in traffic mix, operational practices, and weather conditions.

This chapter contains calculations for determining hourly airport capacity (Short Term), ASV, and long-range capacity for airport planning based on AC 150/5060-5. Hourly VFR and IFR values are based on runway utilizations that produce the highest sustainable capacity consistent with current ATC ties and practices; these values are representative of St. Pete-Clearwater International Airport (PIE) runway use configurations. To calculate the hourly airport capacity (Short Term) of St. Pete-Clearwater International Airport (PIE), Runway use configuration, Percent arrivals, Percent touch and go’s, taxiways, runway instrumentation, and the fleet composition are considered.

6.1 Short-Term Hourly Capacity

Based on PIE’s fleet composition, it is defined that 46.1 % of A, 33.3 % of B, 20.5% of C, and 0% of D aircraft are operated during VFR conditions, and 21.4% of A, 35.7% of B, 42.9% of C and 0% of D aircraft are operated during IFR conditions. The Mix Index %(C+3D) is 21% during VFR operations and 43% during IFR operations. The percentage of the mixed index is calculated individually for VFR and IFR operations. The percentage of arrivals at PIE for 2024 is 50 percent during VFR and IFR conditions; these percentages are anticipated to remain constant during the forecasting period. Ten percent of touch-and-go operations during VFR conditions and zero percent of touch-and-go operations during IFR conditions are considered for our short-term capacity calculation, respectively.

Mix Index –VFR Ops		Mix Index –IFR Ops	
Classification	VFR	Classification	IFR
A	18	A	6
B	13	B	10
C	8	C	12
D	0	D	0

Table 6.1.1

Departures and Arrivals occur as depicted below at St. Pete-Clearwater International Airport (PIE)

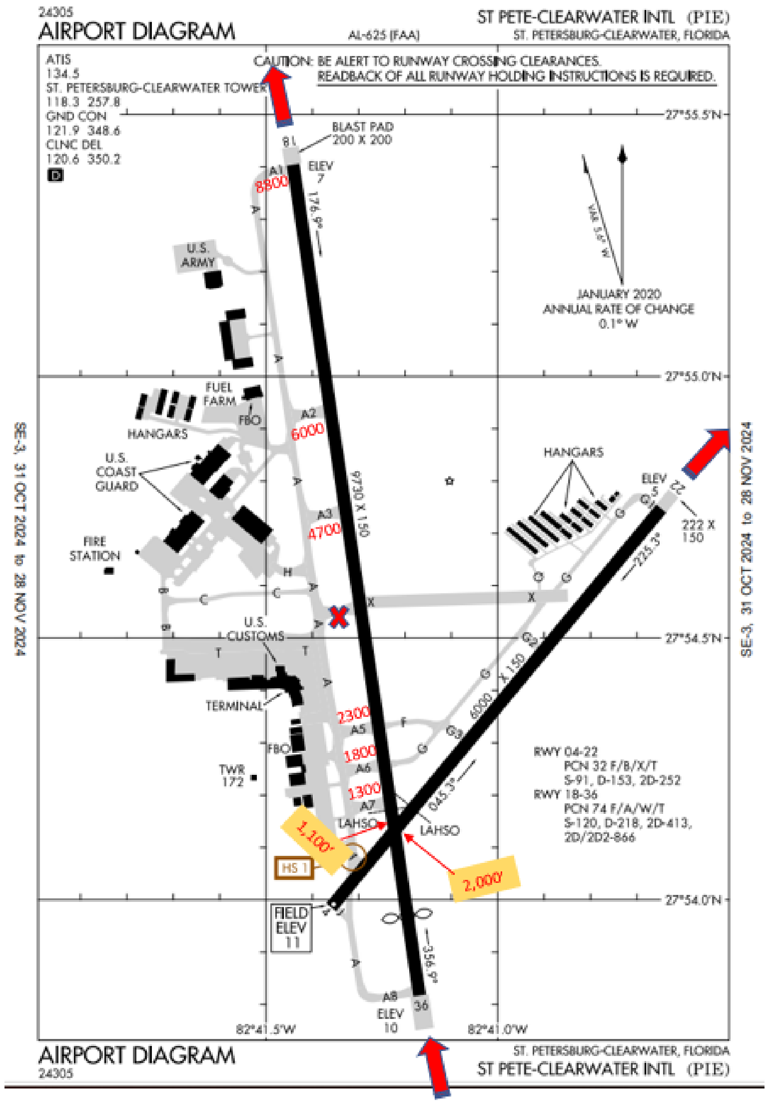


Figure 6.1.1

By AC 150/5060-5, Appendix 5, Figure A5-10, the short-term capacity for PIE is calculated. Hourly Capacity base "C," Touch and Go factor "T," and Exit factor "E" are considered to determine the Hourly capacity C*T*E of PIE, respectively.

The hourly capacity base "C" value during VFR operations is 87%, defined as 56% during IFR operations. The Touch and go factor "T" value is 1.03% during VFR and 1% during IFR operations. The Exit factor "E" is 0.92% during VFR and 0.99% during IFR operations. The hourly capacity at PIE is 82.44% during VFR operation and 55.44% during IFR operation, respectively.

Based on Figure 6.1.1, referring to AC 150/5060-5, the appropriate airport diagram and figure for capacity in VFR and IFR conditions are considered for our calculation.

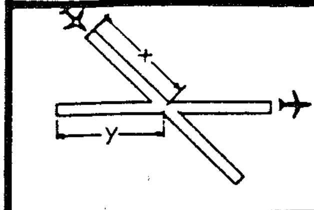
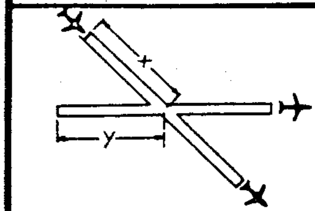
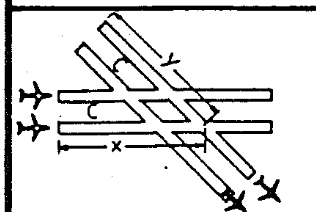
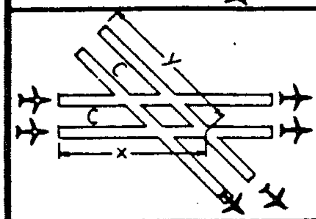
RUNWAY-USE DIAGRAM	DIAG. No.	RUNWAY INTERSECTION DISTANCE IN FEET (X)	(Y)	FIGURE No. FOR CAPACITY VFR	IFR	FOR DELAY VFR	IFR
	43	0 TO 1999	< 4000	3-27	3-59	3-85	3-91
	44	2000 TO 4999	< 4000	3-28	3-60	3-86	3-99
	45	5000 TO 8000	< 4000	3-29	3-61	3-86	3-99
	46	0 TO 1999	> 4000	3-30	3-62	3-86	3-99
	47	2000 TO 4999	> 4000	3-31	3-63	3-71	3-102
	48	5000 TO 8000	> 4000	3-32	3-64	3-71	3-102
	49	0 TO 1999	< 4000	3-27	3-59	3-85	3-91
	50	2000 TO 4999	< 4000	3-28	3-60	3-86	3-99
	51	5000 TO 8000	< 4000	3-29	3-61	3-86	3-93
	52	0 TO 1999	> 4000	3-30	3-62	3-86	3-99
	53	2000 TO 4999	> 4000	3-31	3-65	3-71	3-90
	54	5000 TO 8000	> 4000	3- 3	3-43	3-71	3-90
	55*	0 TO 1999	< 4000	3-33	3-59	3-85	3-91
	56*	2000 TO 4999	< 4000	3-34	3-60	3-86	3-99
	57*	5000 TO 8000	< 4000	3-35	3-61	3-86	3-99
	58*	0 TO 1999	> 4000	3-36	3-62	3-86	3-99
	59*	2000 TO 4999	> 4000	3-37	3-63	3-87	3-102
	60*	5000 TO 8000	> 4000	3-38	3-64	3-87	3-102
	61*	0 TO 1999	< 4000	3-33	3-44	3-85	3-91
	62*	2000 TO 4999	< 4000	3-39	3-44	3-85	3-91
	63*	5000 TO 8000	< 4000	3-35	3-44	3-86	3-91
	64*	0 TO 1999	> 4000	3-36	3-44	3-86	3-91
	65*	2000 TO 4999	> 4000	3-37	3-44	3-87	3-91
	66*	5000 TO 8000	> 4000	3- 9	3-44	3-71	3-91

Chart 6.1.1

Table 6.1.2 depicts the calculations of Short-Term capacity at St. Pete-Clearwater International Airport (PIE).

PIE - SHORT-TERM CAPACITY

	DEMAND	RUNWAY-USE		CAPACITY FIGURE NO.		AIRCRAFT MIX				MIX INDEX %(C+3D)	ARRIVALS %	TOUCH AND GO %	RUNWAY EXITS		HOURLY CAPACITY BASE C*	T & G FACTOR T	EXIT FACTOR E	HOURLY CAPACITY C x T x E
		DIAGRAM	NO.	VFR	IFR	%A	%B	%C	%D				LOCATION	NO.				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
VFR	39		50	3-28		46.1	33.3	20.5	0	21	50	10	4700	1	87	1.03	0.92	82.44
IFR	28		50		3-60	21.4	35.7	42.9	0	43	50	0	4700	1	56	1	0.99	55.44

Table 6.1.2

6.2 Annual Service Volume (ASV)

Annual Service Volume (ASV) is a long-term measure of airport capacity over a year. It estimates the total number of operations the airport can handle before delays become significant, considering varying daily and seasonal demands. Runway configuration, the number, length, and orientation of runways and their ability to accommodate simultaneous operations and weather conditions such as visibility, wind direction, and precipitation influence capacity.

Aircraft mix influences spacing requirements and operations, such as the type of aircraft used in the airport, ranging from small general aviation planes to large commercial jets. Ground facilities, such as the design geometry of terminals, gates, aprons, efficiency of the air traffic control, sequencing, and spacing of arrivals and departures, play a critical role.

This section determines the Annual Service Volume (ASV) of St. Pete-Clearwater International Airport (PIE) based on AC 150/5060-5, Chapter 3-6. The ASV is calculated based on the weighted capacity (Cw) for each runway configuration, and the percentage of time each runway way configuration was used is considered, including the times when the hourly capacity was zero. The hourly capacity for each runway uses configuration (C1 through Cn) is calculated, and the runway configuration that provides the maximum capacity and frequently used is determined. Dividing the hourly capacity of each runway use configuration by the hourly capacity of the runway use configuration offers the maximum capacity. ASV is determined using the weighting factor (W1 through Wn) for each runway use configuration as per Table 3-1 in Chapter 3 of AC 150/5060-5. The weighted hourly capacity is calculated in Excel for this project based on the below equation for the runway component's weighted capacity (Cw).

$$Cw = (P1*C1*W1) + (P2*C2*W2) +\ldots + (Pn*Cn*Wn) / (P1*W1) + (P2*W2) +\ldots + (Pn*Wn)$$

The ratio of annual demand to average peak hour demand during the peak month (D) and the ratio of average daily demand to average peak hour demand during the peak hour (H) is calculated based on the mix index, annual demand to average daily demand ratios and average daily to average peak hour demand ratios provided in Table 3-2 of advisory circular for Airport Capacity and Delay.

ASV is calculated by substituting the values in equation **ASV = Cw *D* H.**

The Annual Service Volume (ASV) projects the number of operations St. Pete-Clearwater International Airport (PIE) can handle in a year and within a specific time. Throughput refers to the maximum number of aircraft operations accommodated in an hour.

Use of Runway Configurations VFR Conditions occur at the airport 91% of the year and IFR conditions occur 9% of the year.			
Runway	Configuration	% Use VFR	% Use IFR
1	18/36	87%	8.5%
2	4/22	4%	0.5%

Table 6.2.1

Airfield Configuration			1		2	
			VFR	IFR	VFR	IFR
FAA AC 150/5060-5	Rwy Configuration		3-28	3-60	3-28	3-60
Percent of Aircraft in Each Mix Category		A	-	-	-	-
		B	-	-	-	-
		C	21.0%	43.0%	21.00%	43.00%
		D	0.00%	0.00%	0.00%	0.00%
Aircraft Mix Index			21%	43%	21%	43%
Hourly Capacity Base (C*)			87	56	87	56
Touch & Go Factor (T)			1.03	1.00	1.03	1.00
Exit Factor (E)			0.92	0.99	0.92	0.99
Hourly Capacity (C) = C* x T x E			82	55	82	55
Scenario % of Max Capacity			100.000%	62.248%	100.000%	62.248%
Weighting Factor (W)			1	8	1	8
% (P) Use of Rwy Config.			87.00%	8.50%	4.00%	0.50%
Weighted Hourly Capacity (Cw)			70.51			
Annual Demand			150,226			
Average *Day* in Peak Month			436			
Design Hour (Peak *Hour* of ADPM)			39			
Demand Ratios		Daily (D)	344.56			
		Hourly (H)	11.18			
ASV FORMULA			Cw x D x H			
ASV CALCULATION			271,617			

Table 6.2.2

Based on our trend analysis forecast, the total number of operations in 2024 is 150,226, 156,509 in 2029, 163,054 in 2034, 169,874 in 2039, and 176,979 in 2044. Concerning our final ASV value of 271617, the percentage of ASV for the specific years is derived. In the year 2024, St. Pete-Clearwater International Airport (PIE) will attain an ASV of 55.3% in 2024, 57.6% in 2029, 60.3% in 2034, 62.5% in 2039, and 65.2% in 2044. Based on our ASV calculation for PIE, 162,970 is 60%, and 217,294 is 80% of our Annual Service volume (ASV), respectively.

Year	Total Operations	ASV	% ASV	80% ASV	60% ASV
2024	150,226	271617	55.3%	217293.6	162970.2
2029	156,509	271617	57.6%		
2034	163,054	271617	60.0%		
2039	169,874	271617	62.5%		
2044	176,979	271617	65.2%		

Table 6.2.3

In 2034, the St. Pete-Clearwater International Airport (PIE) exceeds the 60% threshold, signifying the necessity for expansion, and by 2044-2050, this master plan forecasts that PIE will reach 80%, highlighting the need for immediate expansion. The mentioned table and graph signify the forecast calculations displaying consistent growth and demand with a notable rise in the ASV curve to proactively plan future infrastructure developments to address the increasing operational needs of the community and region.

Graph depicting the relationship between ASV and Forecast

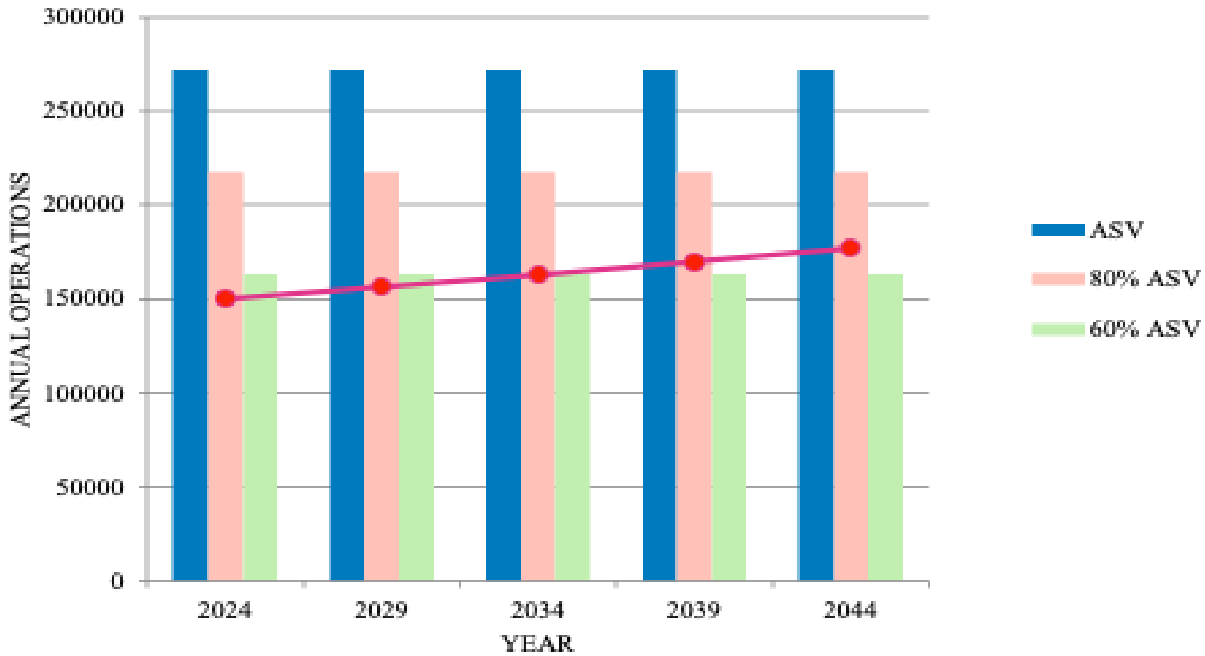


Chart 6.2.1

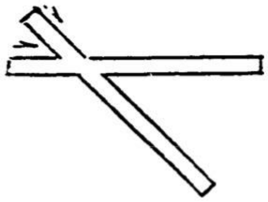
6.3 Long-Term Capacity

The Long-term capacity for this Airport Master plan is carried out in accordance with AC 150/5060-5, Appendix 5, Figure A5-1 (Hourly Capacity, ASV, delay for long-range planning), Figure 2-1 (Capacity and ASV for long-range planning) and Figure 2-2 (Average aircraft delay for long-range planning) to enhance the facility and functionality of St. Pete-Clearwater International Airport (PIE). The Long-term capacity calculation considers the Aircraft Mix, Mix Index, Runway Configuration, and sketch relating to the appropriate ASV, VFR, and IFR values as per Figure 2-1, Capacity, and ASV for long-range planning and based on our trend analysis forecast value for 2044, the annual demand is observed to be 176,979, and ASV 200,000. Annual demand divided by our ASV gives us a value of 0.88 for both VFR and IFR conditions, the Average Delay per aircraft minutes (Low - 1.2), (High- 2), and the Minutes of annual delay (Low - 212,375), (High 353,958) as per Figure 2-2 Average aircraft delay for long-range planning in AC 150/5060-5.

	LONG RANGE CAPACITY/ DELAY WORKSHEET															
	Aircraft Mix				Mix Index	Configuration		Capacity (Ops/Hour) (000)		ASV (000)	Annual Demand (000)	Annual Demand / ASV	Average Delay per Aircraft (Minutes)		Minutes of Annual Delay (000)	
	%A	%B	%C	%D	%(C+3D)	No.	Sketch	VFR	IFR				Low	High	Low	High
VFR	-	-	21	0	21	9		77	57	200	177	0.88	1.2	2	212	353
IFR	-	-	43	0	43	9		77	57	200	177	0.88	1.2	2	212	353

Table 6.3.1

9.



0to 20	98	59	230,000
21 to **50**	77	**57**	200,000
51 to 80	77	56	**215,000**
81 to 120	76	59	**225,000**
121 to 180	72	60	265,000

Chart 6.3.1

6.4 Capacity - ASV projection analysis

The Southern Region (ASO) includes eight states: Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Puerto Rico, and the U.S. Virgin Islands. ASO region is a critical component of U.S. aviation, consistently leading in enplanements, operations, and based aircraft activity. Regional growth is driven by increasing domestic demand and international passenger volume. The Southern Region supports many aircraft due to the extensive general aviation activity at smaller airports and non-hub facilities. These facilities cater primarily to general aviation, which dominates the non-hub activity in this region.This region is pivotal for aviation growth, with robust infrastructure and strategic importance as a link between domestic and international markets.

Enplanements

Our analysis anticipates significant growth driven by population increases and international tourism. Emerging trends in air mobility, like electric, vertical takeoff, and landing aircraft, might influence projections by 2050.

Operations

Continued expansion in commercial traffic is expected, with PIE managing greater efficiencies. General aviation may see gradual growth, offset by potential new infrastructure for urban air mobility.

Based Aircraft

Projections suggest modest increases, particularly in private jets and small aircraft, aligned with Florida's growing affluence and aviation industry.

Influencing Factors

- **Tourism:** Florida's theme parks, beaches, and cruise ports demand consistent air travel.
- **Demographics:** Population growth and increasing international migration.
- **Economic Trends:** Changes in fuel costs, airport capacity, and airline strategies.
- **Technology:** Advancements in air traffic management and aircraft efficiency.

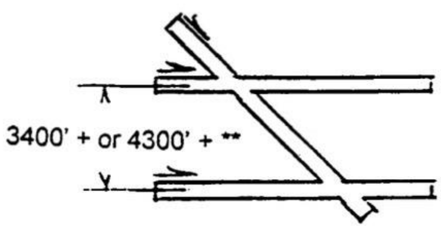
7. RECOMMENDATIONS:

Based on the detailed study carried out for the St. Pete-Clearwater International Airport, PIE's Airport Master Plan, assessment of existing airport conditions, aviation activity, and future demand forecast, these recommendations are provided to establish a practical and actionable development program identifying infrastructure and operational needs to develop cost-effective solutions meeting future demands.

7.1 New parallel runway 18L/36R

Adding a new runway would ensure better commercial and general aviation traffic handling. Potential construction of new runway 18L/36R parallel to the primary runway 18/36 can be accommodated to meet increasing aviation demand, as current operations show that 91% of traffic is handled by runway 18/36 and 9% from general aviation on 04/22. As St. Pete-Clearwater International Airport grows, the existing runway could face limitations, potentially leading to delays and inefficiencies. A new parallel runway would help accommodate rising air traffic demand, particularly at peak hours. With more capacity, air traffic control can better manage arrivals and departures, reducing congestion and optimizing scheduling, which would be beneficial during adverse weather conditions and peak hours. A new runway will potentially attract more airlines, increasing the airport's revenue, enhancing passenger service, and contributing to the region's local economic development.

12.



0 to 20	197	119	370,000
21 to so	149	114	320,000
51 to 80	126	111	305,000
81 to 120	111	105	315,000
121 to 180	103	99	370,000

Chart 7.1

However, several considerations must be weighed before establishing a practical action plan, as expanding an airport infrastructure has significant environmental consequences, including noise pollution, habitat disruption, and increased carbon emissions. Complying with regulations and the National Environmental Protection Act (NEPA) in the planning process is mandatory before this critical development. The construction of a new parallel runway requires land acquisition over the old Tampa Bay water body or might lead to complications in zoning, as well as displacement of local communities or businesses. It involves challenges in nearby residential or commercial areas affected by noise and air traffic.

Constructing a new runway involves substantial financial investment in infrastructure and long-term maintenance. Securing funding for such a project could pose challenges, especially if the economic returns are not immediately guaranteed. Gaining permits and approvals for such an expansion can be a lengthy and politically complex process involving coordination with local, state, and federal authorities. Public opposition to noise and environmental impacts is common in airport expansions as local communities may resist the expansion due to concerns about noise, pollution, or disruption of local life. Even though constructing a new parallel runway at St. Pete-Clearwater International Airport offers significant operational benefits, including enhanced capacity and safety, it also comes with challenges, such as high costs, environmental concerns, and potential public resistance. As a result, there is a need to engage in significant community outreach and mitigate the effects on surrounding neighborhoods before planning the construction of a new parallel runway at St. Pete-Clearwater International Airport. The decision regarding the airport's long-term plan and community interests should be thoroughly analyzed.

7.2 Runway extension 18/36 and 4/22

By extending the existing primary runway 18/36 and by extending, expanding, and strengthening the crosswind runway 4/22, St. Pete-Clearwater International Airport would be able to manage more significant traffic and heavier airplanes with a drastic increase in operational efficiency as longer runways can accommodate larger aircraft, increasing the airport's capacity for both passenger and cargo flights. Longer runways provide more room for takeoff and landing, reducing the risk of accidents and delays as enhanced capacity leads to fewer delays and improved scheduling flexibility. Meeting or exceeding FAA runway length standards can improve the airport's safety ratings. Increased air traffic stimulates local businesses and tourism and fosters overall economic growth. An increase in operation increases the passenger rate with better flight options for residents and tourists, enhances connectivity to other regions, and contributes to higher airport revenues from businesses, fees, and services. Potential access to federal grants and the state may also provide additional funding for airport improvement.

It is necessary to consider the environmental impact of extending the runways of St. Pete Clearwater International Airport, as extension into natural areas can disrupt local wildlife habitats, and construction near Old Tampa Bay could impact water quality and marine ecosystems. Encroachment of wetlands requires mitigation strategies as there is a need to protect aquatic life and water quality in Old Tampa Bay. Implementing wetland restoration projects, strategies to maintain water quality, or creating new habitats to offset impacts can help plan this project effectively. Significant financial investment is required for a runway extension and associated infrastructure, with increased costs for maintaining the extended runway and facilities. Still, it is comparatively cheaper than constructing a new runway. Increased flights can lead to higher air and noise pollution, affecting nearby communities; therefore, public involvement throughout the planning phase and decision-making processes helps address concerns proactively, ensuring balanced development.

Extending the runway at St. Pete Clearwater International Airport offers significant operational, safety, economic, and social benefits, including increased capacity, job opportunities, and improved connectivity. However, it poses substantial challenges, including environmental impacts, public opposition, inflated costs, and regulatory hurdles. Careful planning, stakeholder engagement, and robust mitigation strategies will be essential to balance these advantages and disadvantages effectively.

7.3 High-Speed Taxiway Exits (HSTE) - A2 and A3

High-speed taxiway exit will benefit St. Pete Clearwater International Airport, airlines, and air traffic control. Based on the airport design geometry, taxiways A2 and A3 at St. Pete Clearwater International Airport can be converted to high-speed taxiway exits, allowing aircraft to exit the runway more quickly, reducing the runway occupancy time. This increases runway availability and capacity, enabling more efficient use of the airport's runway system. With faster exits, multiple aircraft can be handled in a shorter amount of time, enhancing the throughput of the runway helps alleviate congestion, especially during peak operational times. It reduces the likelihood of bottlenecks on the taxiways and minimizes the risk of delays due to congestion on the ground with an improved traffic flow. It enhances PIE's operational efficiency, flexibility, and safety by accommodating more aircraft with quicker transitions, better scheduling, and supporting diversions with minimal delays. It also reduces the risk of accidents and incidents on the runway as HSTE shortens the time aircraft spend on the runway with a smoother transition to taxi lanes, reducing the likelihood of runway incursions.

High-speed taxiway exits help aircraft avoid burning fuel for extended periods, as it reduces engine time. It contributes to overall fuel efficiency and is valuable for airlines focused on operational cost management. Airlines benefit from reduced taxi times and savings on fuel, ground handling costs, and maintenance. Fuel consumption and associated carbon emissions are minimized by reducing the time aircraft spend on the runway. This helps in reducing the environmental impact of airport operations.

7.4 Hangars for MRO

The fleet composition of the U.S. includes a diverse range of models that cater to domestic and international operations. Considering the mass fleet composition of the A320 and B3737 family, turboprops, and General aviation aircraft, additional hangar spaces that are equipped to accommodate a Maintenance, Repair, and Overhaul (MRO) organization to perform heavy maintenance checks at St. Pete Clearwater International Airport would provide several benefits across various dimensions, including hangar rental, based aircraft support, revenue generation, operational efficiency, and broader strategic advantages.

American Airlines, Delta Airlines, United Airlines, and Southwest Airlines operate a balanced mix of over 2500 A320 family and B737 variant aircraft. Aircraft requires routine maintenance, inspections, and repairs, which can be conducted efficiently within an on-site MRO hangar. The proximity of the MRO to the airport and aircraft base minimizes ferrying time, ensuring quicker turnarounds and higher aircraft availability. MRO services at St. Pete Clearwater International Airport, including line and heavy maintenance, modifications, and component repairs based on the specific fleet type, offering competitive services and quick turnaround times, will foster stronger relationships with operators and attract non-based operators that contribute directly to the revenue stream. Hangar space could be rented for parking or storage, generating additional income.

An active MRO will facilitate and streamline operations, ensuring coordination between maintenance, ground handling, and other airport services, boosting PIE's revenue through land leases, utilities, and infrastructure charges. MRO ensures quicker response to AOG (Aircraft on Ground) situations, addressing unforeseen maintenance needs and minimizing cancellations and delays. Hangar facilities drive employment opportunities for technicians, engineers, administrative staff, and logistics personnel. Training programs can be aligned with the MRO, enhancing regional expertise in aviation maintenance. An MRO facility increases the airport's value proposition for airlines, especially those looking for long-term partnerships, because airlines often prefer airports with robust MRO infrastructure to support their growth. It would improve the airport's capability to attract international operators, diversifying their customer base. An MRO hangar provides a controlled environment for maintenance activities, reducing the reliance on open apron spaces and protecting aircraft from adverse weather conditions, ensuring uninterrupted operations. Operating an MRO within the airport can ease compliance with aviation regulatory bodies as audits and approvals are streamlined.

A well-equipped hangar and skilled MRO team enhance the airport's reputation as a reliable maintenance hub. Modern hangar facilities can integrate sustainable practices such as renewable energy, waste management, and water recycling, aligning with global aviation sustainability goals. Partnerships with Original Equipment Manufacturers (OEMs), component suppliers, and airlines foster a strong aviation ecosystem. An airport MRO facility may also support ancillary operations like parts distribution or training centers. Speed of service impacts operator satisfaction and repeat business as aircraft maintenance turnaround time is reduced and the efficiency of PIE’s hangar utilization is improved. St. Pete Clearwater International Airport is recommended to manage these factors as an MRO hangar can strategically become a pivotal revenue and an operational asset driving growth for the MRO and the airport, reflecting the facility's operational integrity. PIE’s compliance with 14 CFR PART 145 would give airlines the confidence to add new routes or use the airport as their base.

7.5 Extra Parking Space / Apron / Tarmac

Increased Aircraft handling capacity would significantly benefit St. Pete Clearwater International Airport, enhancing its operational efficiency, revenue potential, and overall strategic value as airports with ample apron or tarmac space can efficiently accommodate diverted flights during emergencies or weather-related disruptions and extra parking space allows the airport to handle more aircraft during peak times, reducing congestion and delays. Larger parking areas can handle heavier and larger aircraft, attracting more diverse traffic. Airlines pay parking fees based on aircraft size and duration, and additional parking spaces will directly contribute to higher revenue. Additional apron space attracts private jets, business charters, and other non-scheduled flights, generating supplementary income. Extra parking can be leased to MROs or airlines for temporary storage or pre-maintenance staging. Adequate apron space ensures smoother ground operations, including refueling, catering, and passenger boarding, reducing delays. It improves aircraft flow and supports flexible gate schedules, minimizing gate occupancy conflicts as parking areas help decongest taxiways and runways, optimizing the flow of arriving and departing flights. Airlines prefer airports with sufficient aprons and parking spaces for establishing hub operations, facilitating connections, and flight scheduling.

Airports with enough space attract logistics companies to establish regional distribution. Additional apron space allows airports to expand cargo operations by accommodating freighters or overnight parking for cargo aircraft. It enhances safety and resilience as properly spaced aprons minimize the risk of ground accidents, such as collisions between vehicles and aircraft. In emergencies, such as natural disasters or mass evacuations, extra space can be used for staging rescue operations or humanitarian flights. From a long-term planning perspective and scalability, extra space allows airports to plan for long-term growth, supporting the addition of gates, terminals, or other facilities, and this space can accommodate emerging aviation technologies like electric aircraft or autonomous ground vehicles based on future expansion.

St. Pete Clearwater International Airport would be able to efficiently reduce aircraft delays and measure the average occupancy of apron space, evaluate airline and passenger feedback regarding airport efficiency, support long-term growth and sustainability goals, and generate income. This would make PIE more competitive and resilient to fluctuating demand, contributing to its overall success.

7.6 Safety Management Systems (SMS) for PIE

Compliance with Advisory Circular 150/5200-37A, Safety Management Systems (SMS), ICAO Safety Management Document 9859, ICAO Annex 19, 14CFR Part 5, AC 120-92B, AC 120 - 66C, AC 00-58C and FAA Orders 8000.369C, 8000.373, 2150.3C would guide SMS implementation at PIE, offering numerous benefits. The improvements align with regulatory requirements, enhanced safety performance, and improved operational and organizational efficiency. An SMS would help PIE proactively identify, assess, and mitigate safety risks, reducing the likelihood of accidents and ensuring proactive risk management. SMS at PIE would foster a systematic hazard identification method, establishing formal mechanisms to identify hazards and providing a comprehensive approach to address potential safety concerns with improved monitoring and reporting through SMS tools, reducing the frequency and severity of accidents and contributing to increased operational reliability. Enhanced SMS capabilities would help PIE obtain and maintain certification such as PART 139 for commercial service airports essential for operating certain types of flight, and implementing SMS by AC 150/5200-37A ensures compliance with FAA guidelines meeting mandatory safety standards. Safety Management Systems in PIE would improve operational efficiency by reducing disruptions with optimized resources and a streamlined process as proactive risk management minimizes operational disruptions caused by safety incidents, such as runway incursions or equipment failures, and SMS tools help prioritize resource allocation based on risk, ensuring efficient use of personnel, equipment, and time. A straightforward safety procedure would reduce ambiguity and improve coordination among ground staff, air traffic control operators, and OEMs. It enhances stakeholder's confidence as airlines are more likely to operate at airports with robust SMS, knowing safety risks are effectively managed. An enhanced SMS demonstrates to regulators a commitment to safety, fostering a collaborative relationship and passengers feel safer traveling through airports with high safety standards, improving the airport's reputation. A strong safety record supported by SMS can lower airport operations insurance premiums, and by reducing the occurrence of safety incidents, PIE can avoid costly investigations, repairs, and potential litigation.

SMS promotes a safety culture, encouraging employees to report hazards and participate in safety initiatives without fear of reprisal, as SMS operates a "Just culture." Airports with an enhanced SMS foster an environment of continuous improvement and learning where past incidents are analyzed to improve safety standards. SMS incorporates safety assurance, using performance metrics and data analysis to measure and improve safety outcomes. Data from the SMS informs infrastructure and operational planning, such as designing runways and taxiways to mitigate risks. Aligning with AC 150/5200-37A ensures consistency with ICAO standards, making PIE compatible with international safety expectations. SMS enhancements would allow PIE to integrate with airline SMS programs and other stakeholders in the aviation ecosystem. SMS improves response capabilities with a robust emergency response plan, including processes for managing emergencies, ensuring coordination and efficient responses to crises as mandated safety exercises would improve staff readiness for handling emergencies, reducing response time. It supports sustainability and long-term growth with reputation management as high safety standards attract more airlines, passengers, and business partners. It supports infrastructure investment as SMS data would justify investments in modern technologies, facilities, or processes to enhance safety and efficiency, offering a distinct edge over less safety-focused facilities.

An SMS establishes management's commitment to safety, forming the backbone of the airport's safety culture with a safety policy and supports safety risk management (SRM), incorporating a systematic and comprehensive approach for identifying and mitigating risks, ensuring safer airport operations. It also upholds safety assurance, monitoring and measuring safety performance to ensure compliance and continuous improvement alongside safety promotion with training, communication, and awareness initiatives to embed safety as a core value. Enhancing SMS in PIE, according to AC 150/5200-37A, creates a safer, more efficient, and more reliable operating environment as it strengthens regulatory compliance, reduces risks, enhances stakeholder trust, and provides a framework for continuous improvement, ensuring long-term success and sustainability for airport operations.

7.7 LEED Certification for PIE

Achieving a LEED (Leadership in Energy and Environmental Design) certification for St. Pete Clearwater International Airport will enhance safety, efficiency, operations, and passenger trust. As airports typically fall under the LEED building design and construction (BD+C) or operations and maintenance (O+M) category, selecting the appropriate LEED rating system, like LEED for new construction or LEED for existing buildings, is required. It would help PIE assess the status by conducting a sustainability assessment identifying energy usage, water efficiency, material use, indoor environmental quality, and site selection practices. It would help PIE achieve short- and long-term goals with operational needs, budget, and community values by choosing the desired certification level: Certified, Silver, Gold, or Platinum. By installing solar panels, LED lighting, and efficient HVAC (Heating, Ventilation, and Air conditioning) systems, conserving water with the use of low-flow fixtures and rainwater harvesting systems, using sustainable construction materials, incorporating high-quality ventilation systems and low-emitting materials and optimizing land usage enhancing connectivity to public transportation and local ecosystems sustainability is guaranteed. Resilient infrastructure, better indoor air quality, and efficient lighting will improve safety as enhanced materials and designs reduce risks from extreme weather and other hazards, healthier environments reduce the likelihood of illnesses affecting passengers and staff, and better illumination improves visibility, reducing accidents. It enhances efficiency as energy and water-efficiency construction with innovative technology reduces operational costs, allowing funds to be reinvested in safety measures. Reliable water systems support emergency readiness and operational needs, and innovative technologies integrated with airport systems for automated monitoring and control would benefit PIE as it streamlines the facility, optimizes layout, reduces congestion, improves passenger flow and turnaround time, and encourages operational staff to adopt best practices for long-term efficiency supporting operational improvements.

Sustainable design elements like natural lighting and efficient layouts enhance comfort, attracting more passengers. Eco-conscious travelers prefer airports committed to sustainability, which would increase PIE enplanements. High-quality, energy-efficient hangars and operational facilities appeal to aircraft operators as energy-efficient systems reduce hangar and operational costs, attracting based aircraft with cost savings and infrastructure quality. Enhanced indoor air quality and clean energy foster confidence, demonstrate environmental responsibility, and strengthen brand reputation with passenger trust. San Francisco International Airport (SFO) has a Gold-certified terminal featuring water-efficient landscaping and natural ventilation systems, Boston Logan International Airport (BOS) has a silver-certified terminal incorporating energy-efficient HVAC and lighting, and Changi Airport, Singapore is known for its green mark certification which helps to achieve remarkable passenger trust and operational efficiency. PIE will meet sustainability goals by pursuing a LEED certification and creating a safe, more efficient, and trusted environment for passengers, operators, and aircraft owners.

APPENDIX – A
Historical Aeronautical Activity - PIE

APO TERMINAL AREA FORECAST DETAIL REPORT - PIE			
LOC ID: PIE, CITY: ST PETERSBURG-CLEARWATER, AIRPORT: ST PETE-CLEARWATER INTL			
Year	Enplanements	Operations	Based Aircraft
2003	408,420	207,098	312
2004	593,453	204,500	304
2005	358,120	213,556	316
2006	194,430	205,590	360
2007	333,516	187,884	293
2008	397,168	169,590	331
2009	364,120	143,751	328
2010	374,167	132,200	288
2011	407,369	125,623	291
2012	428,502	121,377	317
2013	482,815	141,826	307
2014	636,582	128,412	310
2015	773,083	108,392	273
2016	895,059	108,555	261
2017	984,233	114,871	222
2018	1,120,745	131,374	259
2019	1,132,887	140,533	302
2020	1,150,742	141,302	259
2021	1,211,479	141,987	263
2022	1,216,907	142,030	193
2023	1,234,084	149,000	197
2024	1,290,173	166,996	200

Historical Aeronautical Activity - ASO

APO TERMINAL AREA FORECAST SUMMARY REPORT - ASO			
REGION: ASO			
Year	Enplanements	Operations	Based Aircraft
2003	147,097,636	25,057,912	34,097
2004	158,465,017	25,208,569	35,255
2005	171,058,621	25,409,560	35,977
2006	165,430,764	24,738,262	36,495
2007	172,000,918	24,870,250	36,252
2008	173,150,595	24,590,930	32,424
2009	162,630,578	22,972,628	32,621
2010	162,913,063	22,384,255	30,813
2011	169,095,789	22,383,828	29,237
2012	170,789,344	22,248,878	30,151
2013	170,889,088	22,293,212	31,111
2014	173,781,263	22,136,920	32,143
2015	181,837,100	22,479,063	30,779
2016	190,462,825	22,084,741	33,028
2017	194,862,327	22,351,477	31,861
2018	205,214,488	22,842,304	30,827
2019	218,158,637	23,463,660	31,811
2020	220,732,473	21,545,096	30,877
2021	215,949,899	22,165,092	31,562
2022	207,782,046	23,297,482	32,289
2023	229,646,860	24,369,862	32,580
2024	254,259,426	25,182,623	32,890

Historical Aeronautical Activity - Florida

APO TERMINAL AREA FORECAST SUMMARY REPORT FLORIDA			
STATE: FL			
Year	Enplanements	Operations	Based Aircraft
2003	55,388,518	8,971,821	13,331
2004	61,175,810	8,911,326	13,209
2005	66,475,513	9,068,788	13,149
2006	66,240,039	8,825,420	13,266
2007	68,926,255	8,994,394	13,167
2008	69,414,686	8,793,432	11,225
2009	64,741,807	8,136,102	10,615
2010	65,366,623	7,636,144	10,919
2011	69,094,117	7,660,402	10,820
2012	69,848,049	7,712,381	11,279
2013	70,267,688	7,881,366	11,538
2014	71,564,866	7,867,890	11,822
2015	76,216,675	8,123,940	11,345
2016	80,699,802	8,186,968	11,983
2017	83,188,505	8,258,266	11,560
2018	89,632,087	8,623,420	10,746
2019	94,212,061	8,960,741	11,684
2020	94,334,275	8,089,827	11,032
2021	94,989,195	8,139,140	11,317
2022	94,671,261	8,789,174	11,500
2023	102,270,933	9,500,011	11,676
2024	114,102,448	9,872,872	11,830

APPENDIX – B

MARKET SHARE ANALYSIS CALCULATION

Market Share Forecast (PIE - ASO)			
YEAR	TOTAL AIRLINE ENPLANEMENTS (PIE)	SOUTHERN REGION ENPLANEMENTS (ASO)	MARKET SHARE %
2014	636,582	173,781,263	0.366312219
2015	773,083	181,837,100	0.425151413
2016	895,059	190,462,825	0.46993895
2017	984,233	194,862,327	0.505091474
2018	1,120,745	205,214,488	0.546133468
2019	1,132,887	218,158,637	0.519295049
2020	1,150,742	220,732,473	0.521328821
2021	1,211,479	215,949,899	0.561000031
2022	1,216,907	207,782,046	0.585665135
2023	1,234,084	229,646,860	0.537383355
FIVE YEAR AVERAGE	5,946,099	1,092,269,915	0.544934478
		0.544380003	0.54%
TEN YEAR AVERAGE	10,355,801	2,038,427,918	0.503729991
		0.508028805	0.50%
FIVE YEAR MARKET SHARE FORECAST ANALYSIS (PIE - ASO)			
2024	1385547.276	254,259,426	0.544934478
2029	1589807.033	291,742,787	0.544934478
2034	1767179.092	324,292,032	0.544934478
2039	1962338.629	360,105,427	0.544934478
2043	2130245.60	390,917,750	0.544934478
2044	2173203.766	398,800,930	0.544934478
TEN YEAR MARKET SHARE FORECAST ANALYSIS (PIE - ASO)			
2029	1469595.915	291,742,787	0.503729991
2034	1633556.224	324,292,032	0.503729991
2039	1813959.035	360,105,427	0.503729991
2044	2008879.889	398,800,930	0.503729991
FIVE YEAR MARKET SHARE FORECAST - PIE			
2029		1,589,807	
2034		1,767,179	
2039		1,962,338	
2044		2,173,203	
TEN YEAR MARKET SHARE FORECAST - PIE			
2029		1,469,595	
2034		1,633,556	
2039		1,813,959	
2044		2,008,879	

Market Share Forecast (PIE - FLORIDA)			
YEAR	TOTAL AIRLINE ENPLANEMENTS (PIE)	TOTA ENPLANEMENTS FL	MARKET SHARE %
2014	636,582	71,564,866	0.88951749
2015	773,083	76,216,675	1.014322653
2016	895,059	80,699,802	1.10912168
2017	984,233	83,188,505	1.183135819
2018	1,120,745	89,632,087	1.250383694
2019	1,132,887	94,212,061	1.202486166
2020	1,150,742	94,334,275	1.219855668
2021	1,211,479	94,989,195	1.275386111
2022	1,216,907	94,671,261	1.285402758
2023	1,234,084	102,270,933	1.206681081
FIVE YEAR AVERAGE	5,946,099	480,477,725	1.237962357
		1.237538951	1.23%
TEN YEAR AVERAGE	10,355,801	881,779,660	1.163629312
		1.17442049	1.16%
FIVE YEAR MARKET SHARE FORECAST ANALYSIS (PIE - FL)			
2029	1619321.502	130,805,391	1.237962357
2034	1813047.619	146,454,180	1.237962357
2039	2027370.545	163,766,736	1.237962357
2044	2258359.416	182,425,532	1.237962357
TEN YEAR MARKET SHARE FORECAST ANALYSIS (PIE - FL)			
2029	1522089.871	130,805,391	1.163629312
2034	1704183.767	146,454,180	1.163629312
2039	1905637.743	163,766,736	1.163629312
2044	2122756.963	182,425,532	1.163629312

FIVE YEAR MARKET SHARE FORECAST - PIE	
2029	1,619,321
2034	1,813,047
2039	2,027,370
2044	2,258,359

TEN YEAR MARKET SHARE FORECAST - PIE	
2029	1,522,089
2034	1,704,183
2039	1,905,637
2044	2,122,756

APPENDIX – C

Trend Analysis Calculation

PIE Based Aircraft Trend Analysis				
YEAR	BASED AIRCRAFT (PIE)		10 YEAR TREND ANALYSIS	05 YEAR TREND ANALYSIS
2013	307		-3.43%	-2.73%
2014	310	0.98%		
2015	273	-11.94%		
2016	261	-4.40%		
2017	222	-14.94%		
2018	259	16.67%		
2019	302	16.60%		-4.13%
2020	259	-14.24%		
2021	263	1.54%		
2022	193	-26.62%		
2023	197	2.07%		
10 years Average		-3.43%	05 years Average	-4.13%
2024	190		189	
2025	184		181	
2026	177		174	
2027	171		166	
2028	165		160	
2029	160		153	
2030	154		147	
2031	149		141	
2032	144		135	
2033	139		129	
2034	134		124	
2035	130		119	
2036	125		114	
2037	121		109	
2038	117		105	
2039	113		100	
2040	109		96	
2041	105		92	
2042	102		88	
2043	98		85	
2044	95		81	

PIE Operations Trend Analysis

YEAR	OPERATIONS - PIE		10 YEAR TREND ANALYSIS	05 YEAR TREND ANALYSIS
2013	141,826		0.82%	-0.94%
2014	128,412	-9.46%		
2015	108,392	-15.59%		
2016	108,555	0.15%		
2017	114,871	5.82%		
2018	131,374	14.37%		
2019	140,533	6.97%		2.59%
2020	141,302	0.55%		
2021	141,987	0.48%		
2022	142,030	0.03%		
2023	149,000	4.91%		
10 years Average		0.82%	05 years Average	2.59%
2024	150226		152857	
2025	151462		156813	
2026	152708		160872	
2027	153965		165035	
2028	155232		169307	
2029	156509		173689	
2030	157797		178185	
2031	159095		182797	
2032	160404		187528	
2033	161724		192382	
2034	163054		197361	
2035	164396		202469	
2036	165749		207710	
2037	167113		213086	
2038	168488		218601	
2039	169874		224259	
2040	171272		230063	
2041	172681		236018	
2042	174102		242127	
2043	175534		248394	
2044	176979		254827	

APPENDIX - D

Peak Activity Forecast (ADPM) Calculation

Peak Activity Forecast (ADPM) of annual Operations and annual enplanements for PIE 2024 and 2044 using the trend analysis forecast data for forecasted operations and market share forecast data for annual enplanements.

- The Peak month is March for 2024 and 2044 (31 Days)
- 11.5% of annual enplanements and 9% of annual operations occur during March 2024 and 2044.
- The peak hour of the peak day has 17.9% of the daily enplanements and 9% of the daily operations in 2024 and 2044.

Peak Activity Forecast (ADPM) for Enplanements at PIE 2024

⇒ 2024 Market shares five-year average (0.544934478) / 100 * ASO TAF Forecast Enplanements (254,259,426) = Total Annual Enplanements 2024 PIE **1,385,547**.

⇒ Enplanements in Peak Month (March) at PIE Annual Enplanements 2024 (1,385,547) * 11.5% (0.115) = **159,338.**

⇒ Enplanements per day in Peak Month 159,338 / 31= **5140.**

⇒ Peak Hour Enplanements 5140 * 17.9% (0.179) = **920.**

Peak Activity Forecast (ADPM) for Enplanements at PIE 2044

⇒ 2044 Market shares five-year average (0.544934478) / 100 * ASO TAF Forecast Enplanements (398,800,930) = Total Annual Enplanements 2044 PIE **2,173,204**.

⇒ Enplanements in Peak Month (March) at PIE Annual Enplanements 2044 (2,173,204) * 11.5% (0.115) = **249,918.**

⇒ Enplanements per day in Peak Month 249,918 / 31= **8062.**

⇒ Peak Hour Enplanements 8062 * 17.9% (0.179) = **1443.**

Peak Activity Forecast (ADPM) for Operations at PIE 2024

(Previous Year Data * Trend Analysis Growth Rate) + Previous Rate = Trend Analysis Forecast Value

⇒ 2024 Previous Year Data (149,000) * Trend Analysis five-year average Growth Rate 2.59 % (0.0259) + Previous Year Data (149,000) = Trend Analysis Forecast value for Total Operations at PIE in 2024 **150,226.**

⇒ Operations in Peak Month (March) at PIE Annual Operations 2024 (152,857) * 9 % (0.09) = **13520.**

⇒ Operations per day in Peak Month 13757 / 31= **436.**

⇒ Peak Hour Operations 444 * 9 % (0.09) = **39.**

Peak Activity Forecast (ADPM) for Operations at PIE 2044

⇒ 2044 Previous Year Data (248,394) * Trend Analysis five-year average Growth Rate 2.59 % (0.0259) + Previous Year Data (248,394) = Trend Analysis Forecast value for Total Operations at PIE in 2044 **176979.**

⇒ Operations in Peak Month (March) at PIE Annual Operations 2044 (254,827) * 9 % (0.09) = **15928.**

⇒ Operations per day in Peak Month 22934 / 31= **514.**

⇒ Peak Hour Operations 740 * 9 % (0.09) = **46.**

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