Pompano Beach Airpark
MASTER PLAN UPDATE

Prepared for the City of Pompano Beach

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2021

pompano beach
Florida's Warmest Welcome

Kimley»Horn

Chapter 1:
Inventory of Existing Conditions

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This Master Plan Update for the Pompano Beach Airpark (Airpark or PMP) details an assessment of existing infrastructure and provides a 20-year development program culminating with an updated Airport Layout Plan (ALP). The contract for this project was finalized in December 2017, and work began in earnest in January 2018. The analyses and recommendations outlined in this Master Plan Update follow guidance published in Federal Aviation Administration (FAA) Advisory Circular (AC) 50/5070-6B *Airport Master Plans*, FAA AC 150/5300-13A *Airport Design*, and various other airport planning publications. The Master Plan Update outlines a recommended development plan for the City of Pompano Beach, the Airpark Sponsor, that is intended to satisfy forecast demand in a safe, financially feasible manner that considers the Airpark's environmental setting, the community's socioeconomic conditions, and other factors.

Throughout the course of the Master Plan Update process, stakeholder input was collected via interviews with tenants and Airpark users, at public workshops and meetings with the Planning Review Committee (PRC) that were scheduled at strategic project milestones, and through coordination with the FAA and the Florida Department of Transportation Aviation Office. This document is organized as follows:

- Inventory of Existing Conditions
- Forecasts of Aviation Demand
- Demand/Capacity Analysis and Facility Requirements
- Development Alternatives
- Financial Analysis
- Airport Layout Plan (appendix)

1 - Inventory of Existing Conditions

This chapter presents an overview of the existing conditions at the Pompano Beach Airpark, which includes the local vicinity and setting, physical facilities, operational activity, and general services and activities supported by the Airpark. This information provides insight into opportunities and constraints of the Airpark and its surroundings from both physical and operational perspectives. In other words, this inventory establishes the baseline of this Master Plan Update. Information and data for this inventory was acquired from multiple sources, including the City of Pompano Beach (the City), the FAA, and tenant and stakeholder interviews. Web-based research and on-site data validation was performed to supplement information where needed.

1.1 - Airpark Overview

The following provides a general overview of the Airpark, including a brief history, and its role in the state and regional stage.

1.1.1 - Airpark Location

The Airpark is located in the City of Pompano Beach, FL within Broward County, as depicted in **Figure 1-1**. The FAA classifies the Airpark as a *regional* general aviation (GA) airport per the General Aviation Airports Asset Report (ASSET 2, 2014). Under this classification, such airports support regional economies by connecting communities to statewide and interstate markets. They also are located in a metropolitan statistical area (MSA), have at least 1 based jet, 1,000 annual instrument operations, and 10 annual domestic flights over 500 miles. The Florida Aviation System Plan (FASP) also classifies the Airpark as a regional general aviation airport. **Figure 1-2** and **Table 1-1** illustrate Pompano Beach Airpark in the context of the surrounding airports.

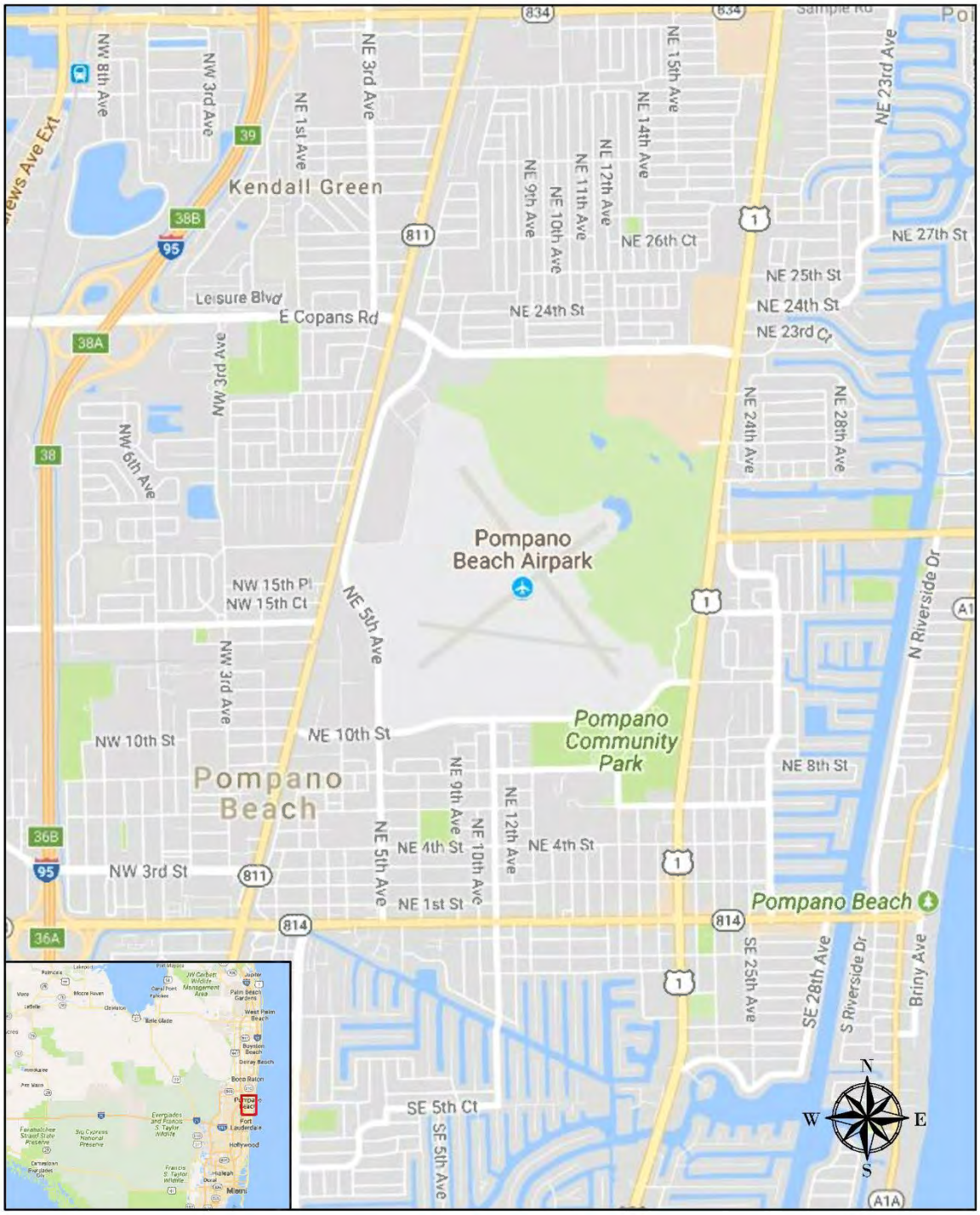
Table 1-1. Vicinity Airports		
Airport	**Airport Code**	**Distance from PMP**
Fort Lauderdale Executive Airport	FXE	4 NM
Boca Raton Airport	BCT	8 NM
Fort Lauderdale/Hollywood International Airport	FLL	11 NM
North Perry Airport	HWO	16 NM
Palm Beach County Park Airport	LNA	21 NM
Miami-Opa Locka Executive Airport	OPF	22 NM
Palm Beach International Airport	PBI	26 NM
Miami International Airport	MIA	29 NM
Miami Executive Airport	TMB	39 NM
Source: AirNav KPMP Pompano Beach Airpark, March 2018.		

1.1.2 - Airpark History

The history of the Airpark dates back to World War II when it was an auxiliary training field serving the Naval Air Station – what is now Fort Lauderdale-Hollywood International Airport. In 1947, the Airpark was acquired by the City of Pompano Beach under the Surplus Property Act of 1947[1]. After the City acquired the Airpark in 1947, the Airpark was renamed Pompano Beach Airpark, and it is still owned and operated by the City. Since that time, several land ownership transactions have occurred. Additional lands surrounding the Airpark, including land along Copans Road and the Florida East Coast Railway tracks to the west of the Airpark, and the land that is now the City Golf Course, have been transferred to the City from the Airpark since 1947.

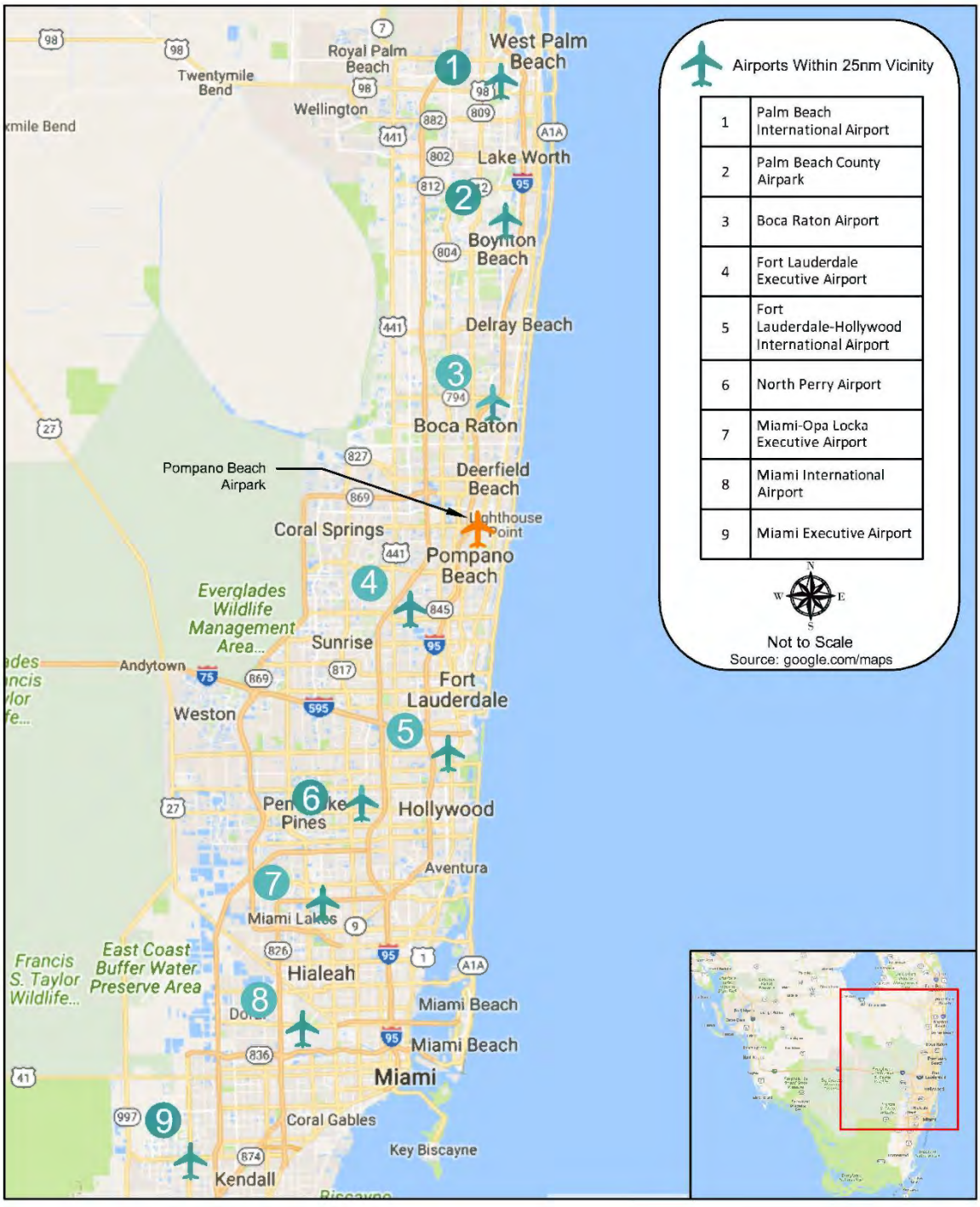
[1] City of Pompano Beach; http://pompanobeachfl.gov/pages/pw_airpark/airpark

Figure 1-1. Airport Location Map



Sources:
google.com/maps.
Kimley-Horn.

Figure 1-2. Airport Vicinity Map



Sources:
google.com/maps.
Kimley-Horn.

1.2 - Airport Activity Overview

This section provides an overview of the general types of activity occurring at the Airpark. To establish context, there were approximately 150,000 aircraft operations in 2017[2], with nearly one third being itinerant operations, and two thirds local operations. The Airpark is well-positioned geographically and is established as a regional general aviation asset in a favorable, year-round flying climate. It actively caters to the general aviation sector, including corporate aviation, personal aviation, flight training, and helicopter activity. In comparison to other nearby general aviation airports, the Airpark has fewer large corporate aircraft operations, with a heavy focus on recreational and educational aviation.

1.2.1 - Flight Training

A significant portion of the aviation activity at the Airpark is associated with flight training. The Airpark is also home to numerous flight training institutions, which heavily contribute to local aviation activity. Fixed-wing flight schools located at the Airpark currently include American Flyers, Paul Kramer's Learn to Fly, Florida Aviation Academy, Orange Wings Aviation, Tailwheel Aviation, Florida Coast to Coast, and Dare to Dream. South Florida Aircraft Maintenance also operates a small flight training operation as an ancillary business. In addition to these institutions, helicopter training is also prevalent at the Airpark and is highlighted below in the next subsection.

1.2.2 - Helicopter Activity

There were 12 helicopters based at the Airpark as of 2017. Discussions with tenants and Airpark staff have indicated congestion, particularly in the midfield area north of Runway 10-28, due to limited practice landing area available on the Airpark property. The Airpark also sees helicopter activity from Broward Sheriff's Office Fire Rescue.

1.2.3 - Goodyear Blimp

The Goodyear Blimp base-of-operations location is a unique attribute of the Airpark. Goodyear currently holds a lease with the Airpark, occupying approximately 32.5 acres on the west side of the Airpark. The Goodyear facilities include a 45,000-square foot hangar – which can accommodate two fully-inflated blimps – and a 3,500 square foot operations/administration building. Goodyear's leased property includes the hangar as well as a large mooring circle for the airship. Arrival and departure activity for the blimp generally occurs to the east and northeast.

1.2.4 - Aircraft Maintenance

The Airpark is home to several aircraft maintenance organizations, the largest of which is Daher-Socata, an aircraft manufacturer of personal turboprop aircraft. Daher-Socata operates a 30,000 square-foot hangar and office facility at the Airpark, and the majority of the active Socata aircraft fleet have scheduled maintenance performed there.

1.3 - Airfield Facilities

Airfield facilities accommodate the takeoff and landing of aircraft and the movement of those aircraft about an airport. The following describes the primary airfield infrastructure systems at the Airpark

[2] FAA Terminal Area Forecast, 2018.

including the runways, taxiways, aprons, navigational aids, and the Air Traffic Control Tower (ATCT) as they existed at the time of this Master Plan Update. **Figure 1-3** illustrates key facilities.

1.3.1 - Runways

The Airpark has three paved asphalt runways. Runway 15-33 is 4,918 feet long and 150 feet wide. Runway 6-24 provides crosswind coverage and is 4,001 feet long and 150 feet wide. The third runway, 10-28 is the smallest runway at the Airpark with a length of 3,502 feet and width of 100 feet. However, Runway 10-28 is the most heavily utilized runway, especially with touch and go operations. The runway system at the Airpark can accommodate a wide range of general aviation aircraft, including business jets and smaller recreational airplanes. The rated pavement strength of the runway system, limits aircraft to a gross weight of 30,000 pounds.

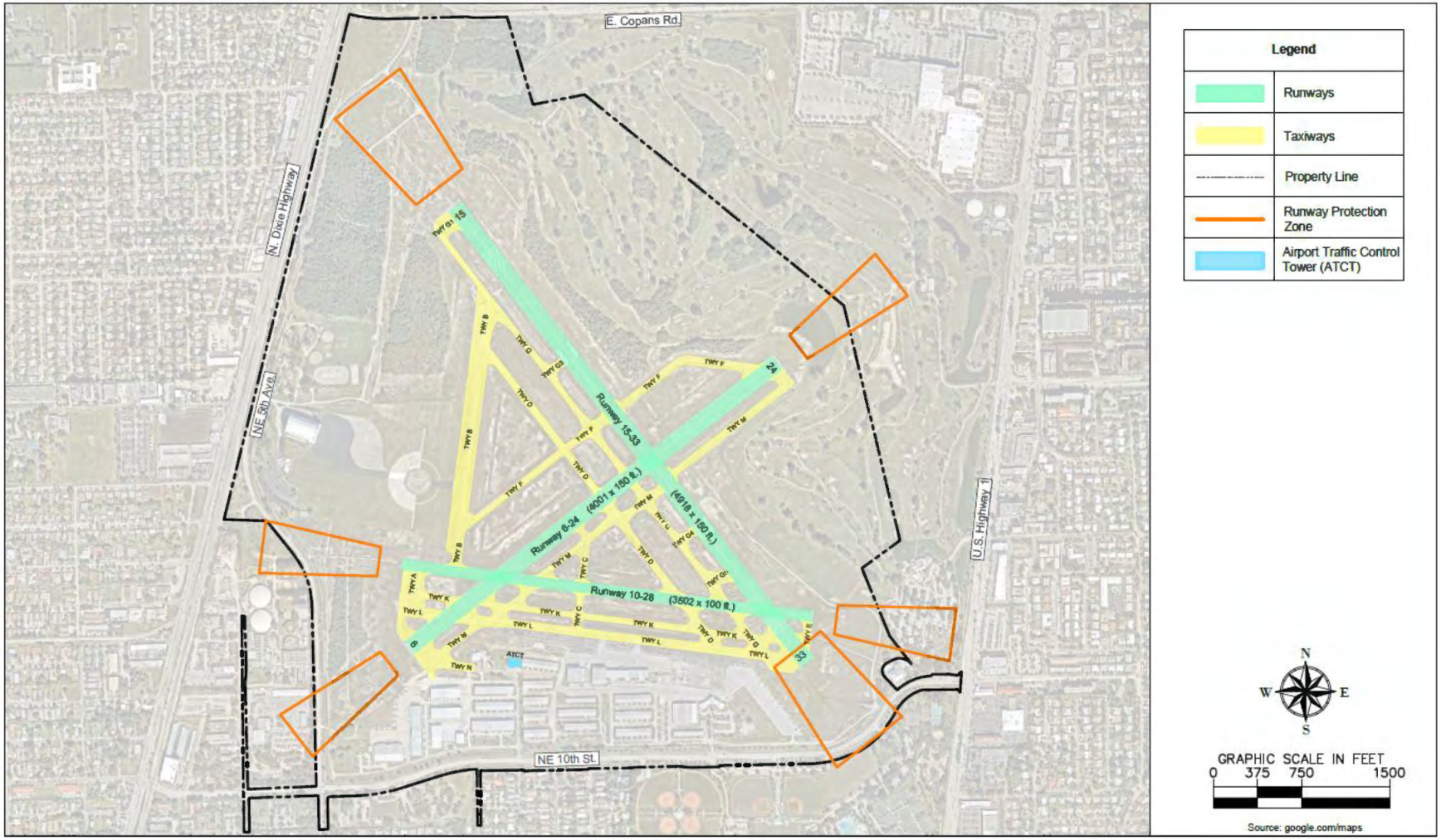
Existing runway data is presented in **Table 1-2**.

Table 1-2. Existing Runway Data

	Runway 15-33	Runway 6-24	Runway 10-28
Runway Design Code	B-II	B-II (Small)	B-I (Small)
Length (feet)	4,918	4,001	3,502
Width (feet)	150	150	100
Displaced Threshold (feet)	500/340	0/0	0/0
Effective Runway Gradient (%)	0.10%	0.16%	0.23%
Runway Surface Type	Asphalt	Asphalt	Asphalt
Pavement Strength (lbs.)			
Single Wheel	30,000	20,000	26,000
Dual Wheel	N/A	N/A	N/A
Pavement Condition Index	Good	Fair	Fair
Runway Markings	NPI/NPI	VISUAL/VISUAL	VISUAL/VISUAL
Runway Lighting	MIRL	MIRL/REIL	MIRL/REIL
Instrument Approaches	LOC/GPS-LPV	GPS-LPV/GPS-LPV	NONE/NONE
Approach Lighting	MALS/PAPI-4L	PAPI-2L	PAPI-2L
Visibility Minimums	¾ mile / ¾ mile	1 ¼ mile / 1 mile	N/A
Declared Distances			
TORA	N/A	N/A	N/A
TODA	N/A	N/A	N/A
ASDA	N/A	N/A	N/A
LDA	N/A	N/A	N/A

Sources:
Form 5010, accessed 2/12/2018.
FAA web data sheet published 6/22/2017.
PMP Airport Layout Plan, 8/2016.
Airport Pavement Evaluation Report, Florida Department of Transportation, 9/2017.

Figure 1-3. Airport Airfield Facilities



Sources:
google.com/maps.
Kimley-Horn.

1.3.2 - Taxiways

The runway system at the Airpark is served by a system of taxiways that provide access between the runways and aircraft apron areas. Taxiways allow for controlled and organized movement between areas of the airfield and allow for circulation around the runways, terminal area, cargo area, general aviation facilities, and other parking areas. The taxiway system at the Airpark is illustrated in **Figure 1-3.**

1.3.3 - Lighting, Markings and Signage

All three runways are equipped with Medium-Intensity Runway Lights (MIRL). As an additional visual aid, Runway 6-24, Runway 10-28 and Runway 33 are equipped with Runway End Identifier Lights (REIL), which consists of a pair of synchronized flashing lights on either side of the runway threshold.

Runway 15 is also equipped with a Medium Intensity Approach Lighting System (MALS). This system helps pilots transition from instrument flight to visual flight for landing when approach visibility minimums are reduced in instrument weather conditions.

The rotating beacon indicates the Airpark location at night or in adverse weather conditions. The rotating beacon is located south of the airfield and directly south of the ATCT. The optical rotating beacon system projects two beams of light, one green and one white, 180 degrees apart. The beacon continuously operates between sunset and sunrise.

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

1.3.4 - Navigational Aids

Navigational aids, or NAVAIDs, assist pilots in locating an airport and safely and efficiently maneuvering aircraft through landing and take-off in a variety of meteorological conditions. NAVAIDs are any visual or electronic device, airborne or on the surface, that provide point-to-point guidance information or position data to aircraft in flight. In addition to the lighting system and markings previously discussed, runways are generally equipped with other navigational aids to assist pilots in takeoff and landing procedures. Some indicate weather conditions, while others give either visual or instrument course guidance.

1.3.4.1 - Precision Approach Path Indicators

Precision Approach Path Indicator Lights (PAPI) provide pilots with visual descent guidance information during an approach to a runway. All runways at the Airpark are equipped with PAPIs.

1.3.4.2 - Localizer Antenna

Runway 15 is equipped with a localizer (LOC) antenna which is used to establish and maintain an aircraft's horizontal position until visual contact confirms the runway alignment and location, usually as part of a localizer approach. The LOC antenna is located on the extended runway centerline of Runway 15, outside of the RSA. The Airpark does not have a glideslope antenna, which comprises the second necessary component of an instrument landing system (ILS), along with a localizer antenna.

1.3.4.3 - Automated Surface Observing System

The Automated Surface Observing System (ASOS) measures atmospheric indicators such as cloud cover, ceiling, visibility, wind speed and direction, temperature, dew point, precipitation accumulation, icing, and sea level pressure, and it detects lightning. ASOS equipment is generally installed in a location that best represents the meteorological conditions affecting operations. The Airpark's ASOS is in the middle portion of the airfield, north of Runway 10-28 and east of Taxiway M.

1.3.4.4 - Lighted Wind Indicators

The Airpark is equipped with seven Lighted Wind Indicators, located midfield and at each runway end. The lighted wind indicators are used by pilots to discern the direction, speed, and gusts of the wind at an airport and can also be used to determine the runway in use.

1.3.5 - Air Traffic Control Tower

The ATCT is operated by Robinson Aviation, Inc. under the Federal contract tower program. The ATCT operates from 7:00AM to 9:00PM daily and is contiguous to the current administration building. Six controllers staff the ATCT.

1.3.6 - Runway Utilization

Based on information gathered from the ATCT and Airpark administration, Runway 10-28 is the most frequently utilized runway at the Airpark, comprising approximately 80% of use. Runway 15-33 is utilized approximately 20% of the time and serves the larger aircraft at the Airpark. Runway 6-24 is utilized the least, and it is generally only used sporadically throughout the year, mainly in the winter. Peak traffic periods are generally later morning hours until noon and again from early through late afternoon. All aircraft traffic patterns are north of the runways.

1.4 - Potential Airfield Issues

During the inventory process, airfield issues and concerns were identified by Airpark Management and tenants, and they are described in further detail below. It should be noted that these areas are not designated as official FAA Hot Spots.

1.4.1 - Taxiway M / Taxiway L / Runway 6

One location of concern is in the western portion of the airfield in the vicinity of Taxiway M, Taxiway L, and the threshold of Runway 6. This area is subject to a high level of westbound taxiing traffic on Taxiway L, departing on Runway 10. The intersection of Taxiway L with Taxiway M immediately east of Runway 6 results in a wide expanse of pavement with a very gradual south jog in the Taxiway L centerline before reaching the hold line for Runway 6-24. This area is depicted in **Figure 1-4.**

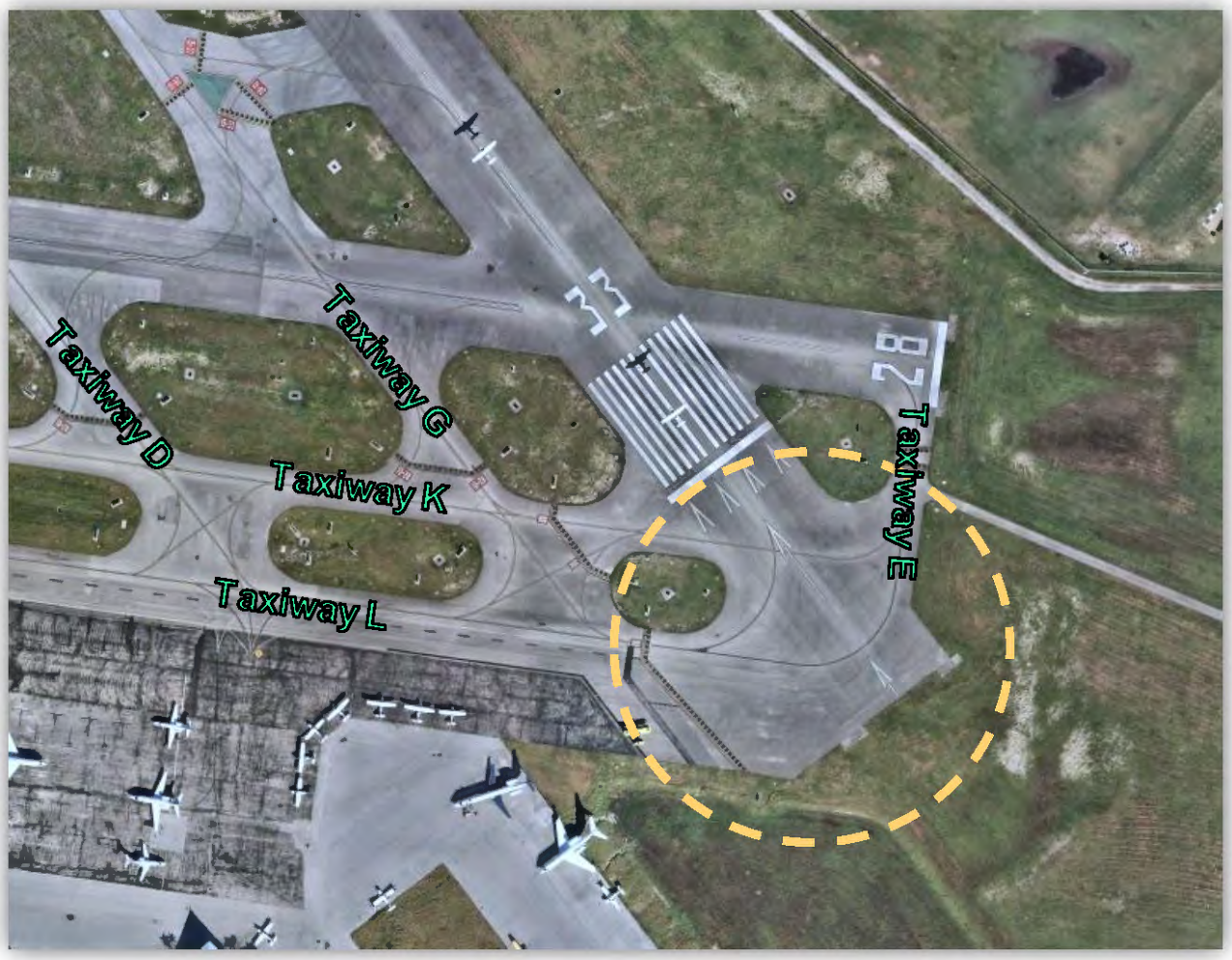
Figure 1-4. Taxiway L / Taxiway M / Runway 6-24 Vicinity

Source:
Kimley-Horn.

1.4.2 - Runway 33 / Runway 28 Thresholds

Another area of concern is in the eastern portion of the airfield in the vicinity of Taxiway L, Taxiway E, and the thresholds of Runway 33 and Runway 28. The portion of Taxiway L leading up to the Runway 33 threshold opens into a wide expanse of pavement associated with the displaced landing threshold of Runway 33 with a wide runway hold line. In order for aircraft to taxi for departure on Runway 28, aircraft must cross this wide expanse through the displaced threshold and taxi onto Taxiway E, where there is essentially no room for an aircraft to hold between the hold line for Runway 10-28 and the hold line for Runway 15-33, as the two runway safety areas overlap each other. This area is depicted in **Figure 1-5**.

Figure 1-5. Runway 33 / Runway 28 Threshold and Taxiway L / Taxiway E



Source:
Kimley-Horn.

1.4.3 - Helicopter Landing and Practice Areas

The Airpark is heavily utilized by helicopter companies for helicopter pilot training. As such, a significant amount of hover taxiing and helicopter landings occur on taxiways north of Runway 10-28. A concern expressed during the inventory process was the congestion of helicopter operations on the taxiways in the midfield.

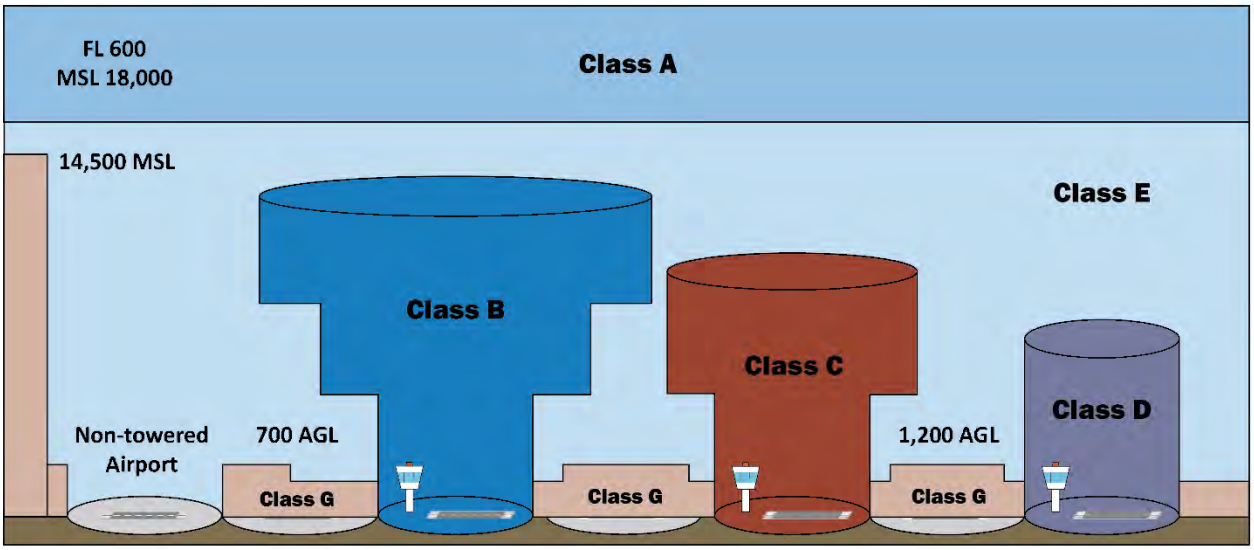
1.5 - Airspace

The U.S. National Airspace System (NAS) is an integrated collection of controls, procedures, and policies implemented and regulated by the FAA to ensure safe and efficient air operations. The NAS is divided into airspace classes to designate the level of service and operating rules for a given area. The following describes the airspace classifications, aeronautical charts, instrument approach capabilities, departure procedures, and air traffic control (ATC) at the Airpark.

Airspace is generally categorized as controlled, uncontrolled, or special use. Within these categories, the Federal Aviation Regulations (FAR) Parts 71 and 73 establish specific airspace classifications that impose various requirements upon the operation of aircraft, including visibility minimums, cloud clearance, communication with the ATC, and specific aircraft equipment. The general classifications are depicted in **Figure 1-6**.

Pompano Beach Airpark falls into Class D airspace. Class D airspace is generally cylindrical, although in the case of the Airpark, the airspace is irregular due to the close proximity of other busy airports. Aircraft are required to communicate with the ATCT in Class D airspace, which usually extends 2,500 feet above ground level (AGL) with a radius of 4 nautical miles. The sectional chart in **Figure 1-7** shows the airspace in the vicinity of the Airpark.

Figure 1-6. Airspace Classifications



Sources:
FAA Aeronautical Information Manual.
Kimley-Horn.

Figure 1-7. Airport Airspace Map

Source:
FAA National Aeronautical Charting Office.

1.5.1 - Airspace Considerations

As illustrated in **Figure 1-7**, Pompano Beach Airpark is located among several other busy tower-controlled airports in the vicinity serving both general aviation and commercial service operations. Fort Lauderdale/Hollywood International Airport (FLL) is approximately 11 nautical miles south of the Airpark and has class C airspace that adjoins the Airpark's Class D airspace. Fort Lauderdale Executive Airport (FXE) is a very busy general aviation airport approximately 4 nautical miles southwest of the Airpark, and its airspace also adjoins that of the Airpark. Boca Raton Airport (BCT) is located approximately 7.5 nautical miles north of the Airpark.

The proximity of several airports with tower-controlled airspace such as Class D and Class C results in limited areas for flight training practice over land, with most flight training occurring to the west in a designated Alert Area. The overlap of neighboring airport airspaces presents local operating challenges and limitations. The ATCTs at the Airpark and FXE have established agreements on traffic pattern altitudes between the two airports to minimize conflicts and ensure safe aircraft separation. Under this agreement, traffic pattern operations at the Airpark are kept to the north of all runways.

1.5.2 - Instrument Approaches

Instrument approach procedures allow an approaching aircraft to land at an airport during inclement weather conditions. These approach procedures are established by the FAA and allow equipped aircraft and properly trained pilots to approach an airport during instrument meteorological conditions (IMC).

Visual meteorological conditions (VMC) are defined as a cloud ceiling greater than 1,000 feet AGL and visibility conditions equal to or greater than 3 statute miles. Pilots may approach an airport using visual cues under VMC conditions. Conversely, IMC is designated when cloud ceilings are lower than 1,000 feet AGL and visibility becomes less than 3 statute miles. Under these conditions, properly trained pilots with adequately equipped aircraft must follow FAA-published instrument approach procedures to land at an airport.

Pompano Beach Airpark has five published instrument approaches (refer to **Table 1-2)**. Four GPS approaches are published for Runway 6, 15, 24 and 33. Runway 15 also has a localizer approach. Based on information from the ATCT, the Airpark is in IMC approximately 5% of the time on an annual basis.

1.5.3 - Meteorological Conditions & Climate

Local climate and meteorological conditions affect operations at an airport in a variety of ways. Winds, precipitation, and temperature characteristics of an area can influence airport development decisions pertaining to NAVAIDs, runway orientation, and required runway length. This section addresses the meteorological conditions at the Airpark.

1.5.3.1 - Local Weather Conditions

The average annual temperature at the Airpark is 76 degrees Fahrenheit (F), the average low is 58 degrees F (January), and the average high is 92 degrees F (July)[3]. Average monthly precipitation ranges from 2 to 8 inches.

[3] The Weather Channel; Almanac Records & Averages - Pompano Beach, FL Monthly Weather; 2018; https://weather.com/weather/monthly/l/USFL0412:1:US

1.5.3.2 - Crosswind Coverage

Wind speed and direction influence runway use. A runway is ideally oriented with the prevailing wind, as aircraft performance is best when taking off and landing into the direction of the wind. FAA airport planning criteria indicate that the primary runway should be capable of operating under allowable wind conditions at least 95 percent of the time. Based on existing data, the crosswind coverage at the Airpark is nearly 100 percent for all weather conditions at 10 knots, including both IFR and VFR conditions. The Airpark's Wind Roses are shown in **Figure 1-8, Figure 1-9,** and **Figure 1-10.**

1.6 - Ground Access Facilities

This section includes a general overview of the automobile parking, access roadways, and fencing facilities.

1.6.1 - Automobile Parking

Automobile parking for landside facilities is primarily accessed from NE 10th Street as well as off of Dixie Highway. A visual count of parking using aerial imagery indicates there are approximately 370 parking stalls for various Airport facilities, including ATCT, the administration building, Airpark tenants and hangars, and FBOs.

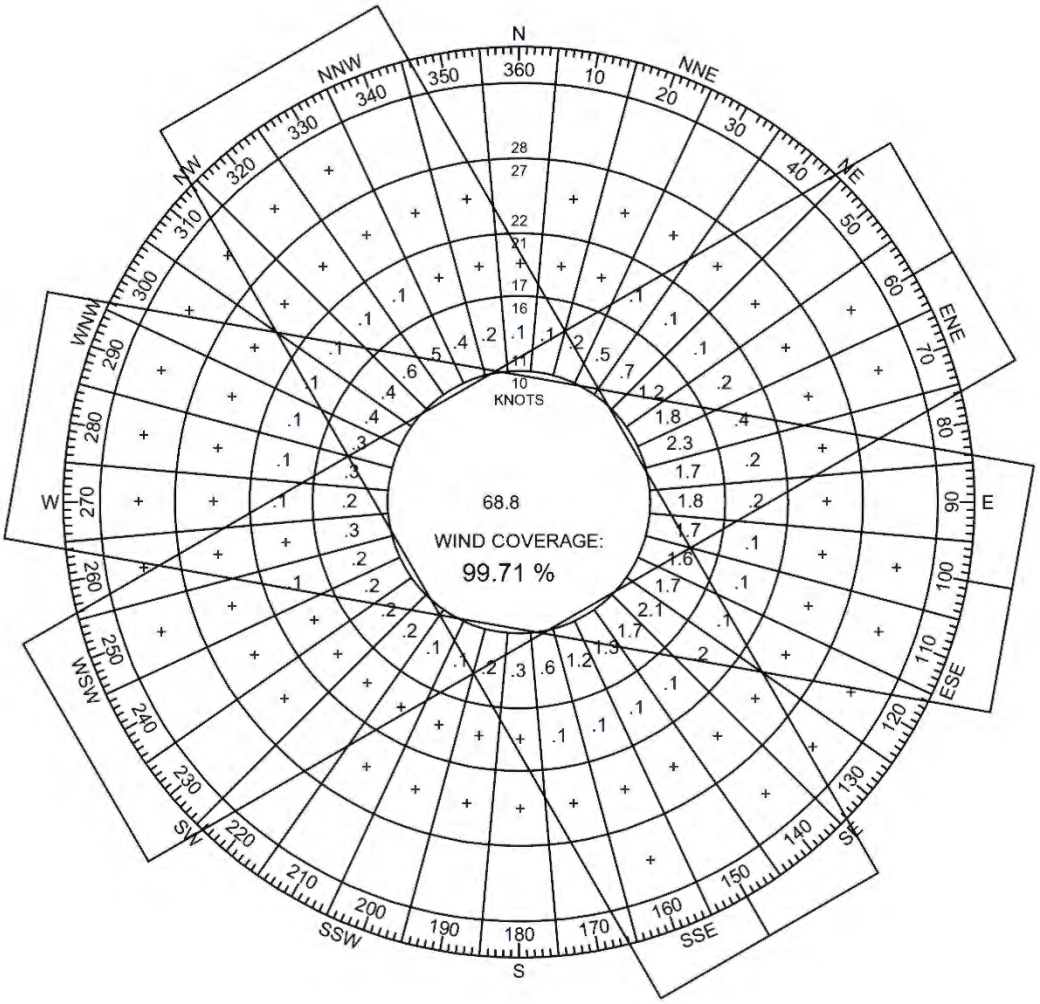
1.6.2 - Regional and Access Roadways

This section includes a brief listing of freeways, highways, and arterial roadways that provide vehicular access to the Airpark. These roadways contain high traffic volumes, as they serve densely populated urban areas and carry a large number of passenger trips. **Figure 1-11** illustrates the access roadways, including the identification of regional roadways near the Airpark.

1.6.2.1 - Regional Roadways

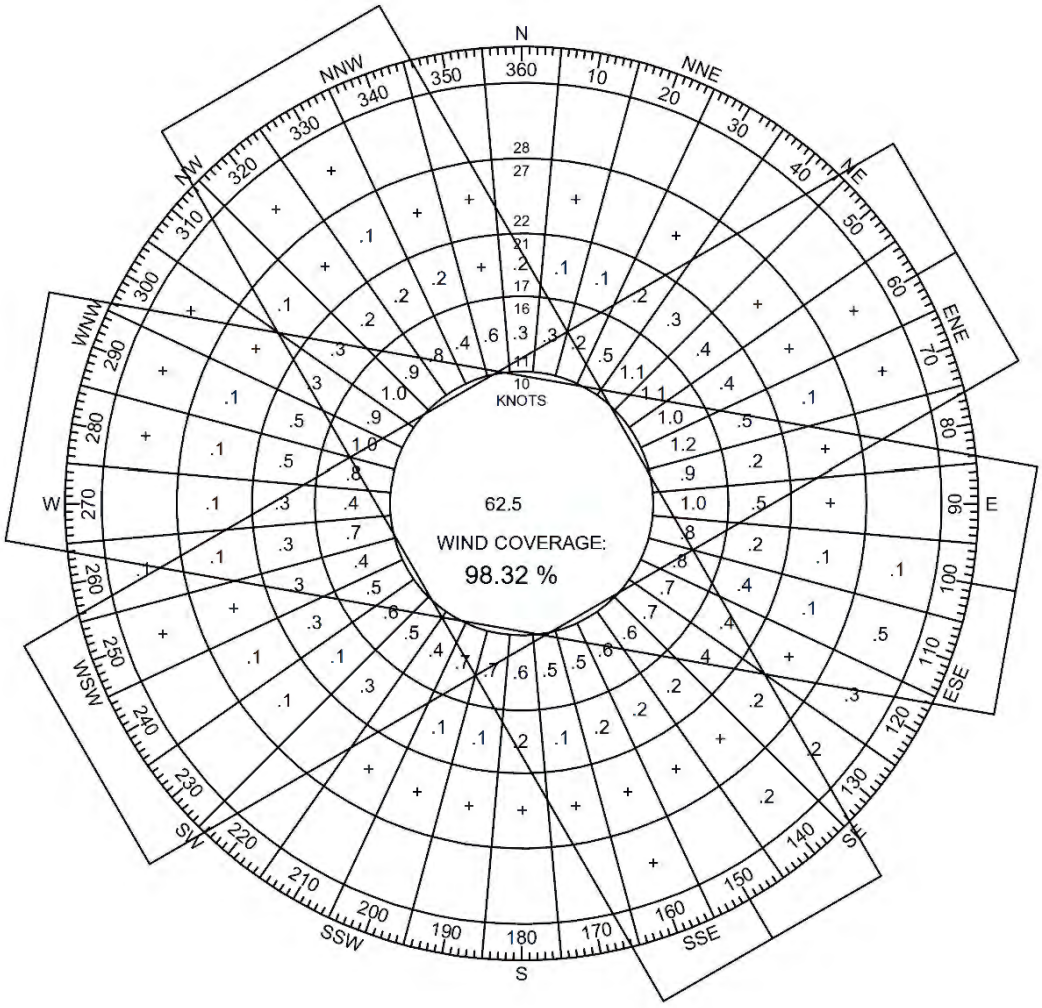
- **North Dixie Highway** is a four-lane, north-south oriented highway located to the west of the Airpark. It stretches southbound until it terminates in Fort Lauderdale, Florida. It stretches north until it terminates in Deerfield Beach, Florida.
- **US Highway 1** is a six-lane, north-south oriented highway located to the east of the Airpark. It stretches south parallel to the Atlantic Ocean until it terminates in Key West, Florida. It stretches north until it terminates in Jacksonville, Florida.
- **Atlantic Boulevard** is a four-lane, east-west oriented highway located to the south of the Airpark It stretches east until it terminates at the intersection of Pompano Beach Boulevard and Briny Avenue. It stretches west until it terminates at the intersection of West Atlantic Boulevard and Sawgrass Expressway.
- **East Copans Road** is a six-lane divided arterial road that runs in an east-west orientation and is located on the north side of the Airpark. It provides access to NE 5th Avenue which leads to the west side of the airfield. East Copans Road also provides access to the regional roadway system, connects west with North Dixie Highway and Interstate 95, and connects east with US Highway 1.

Figure 1-8. All Weather Wind Rose



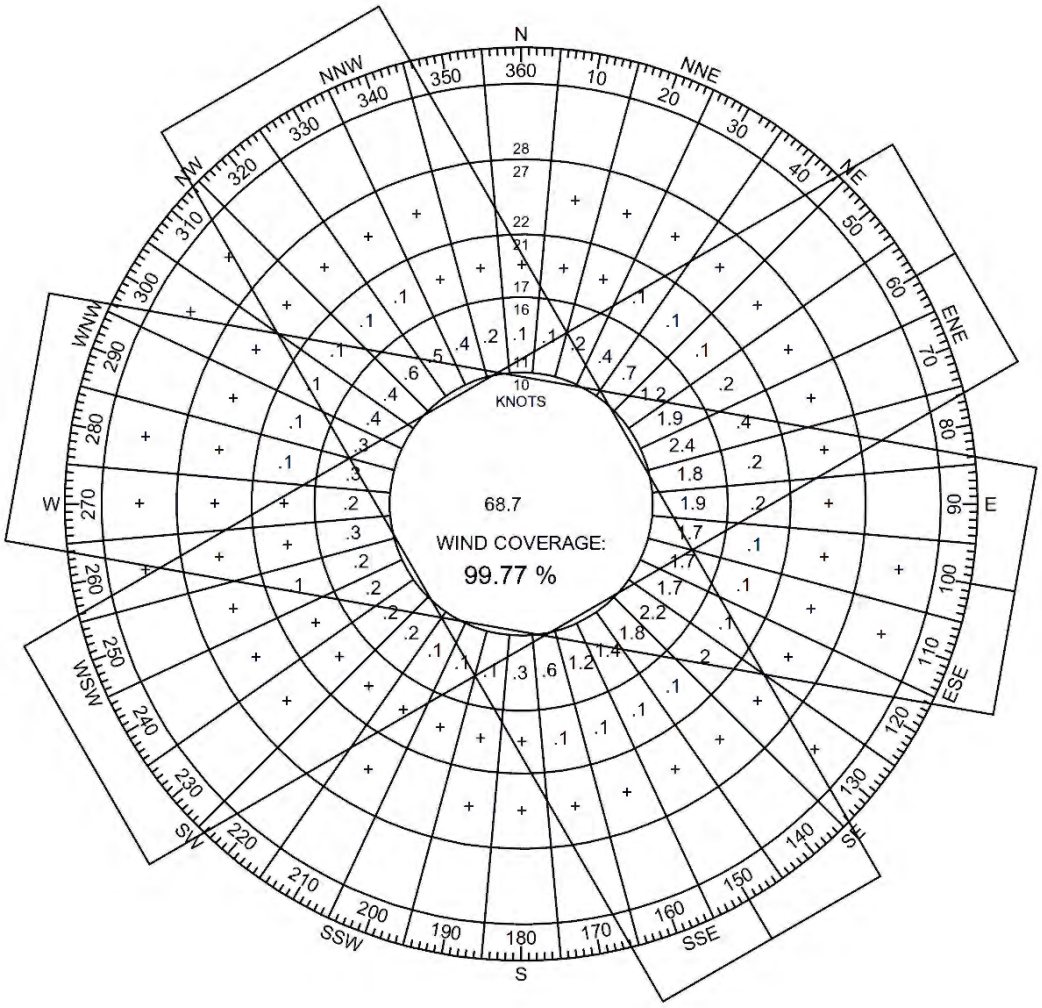
Source:
FAA AGIS Wind Analysis Tool.

Figure 1-9. IFR Wind Rose



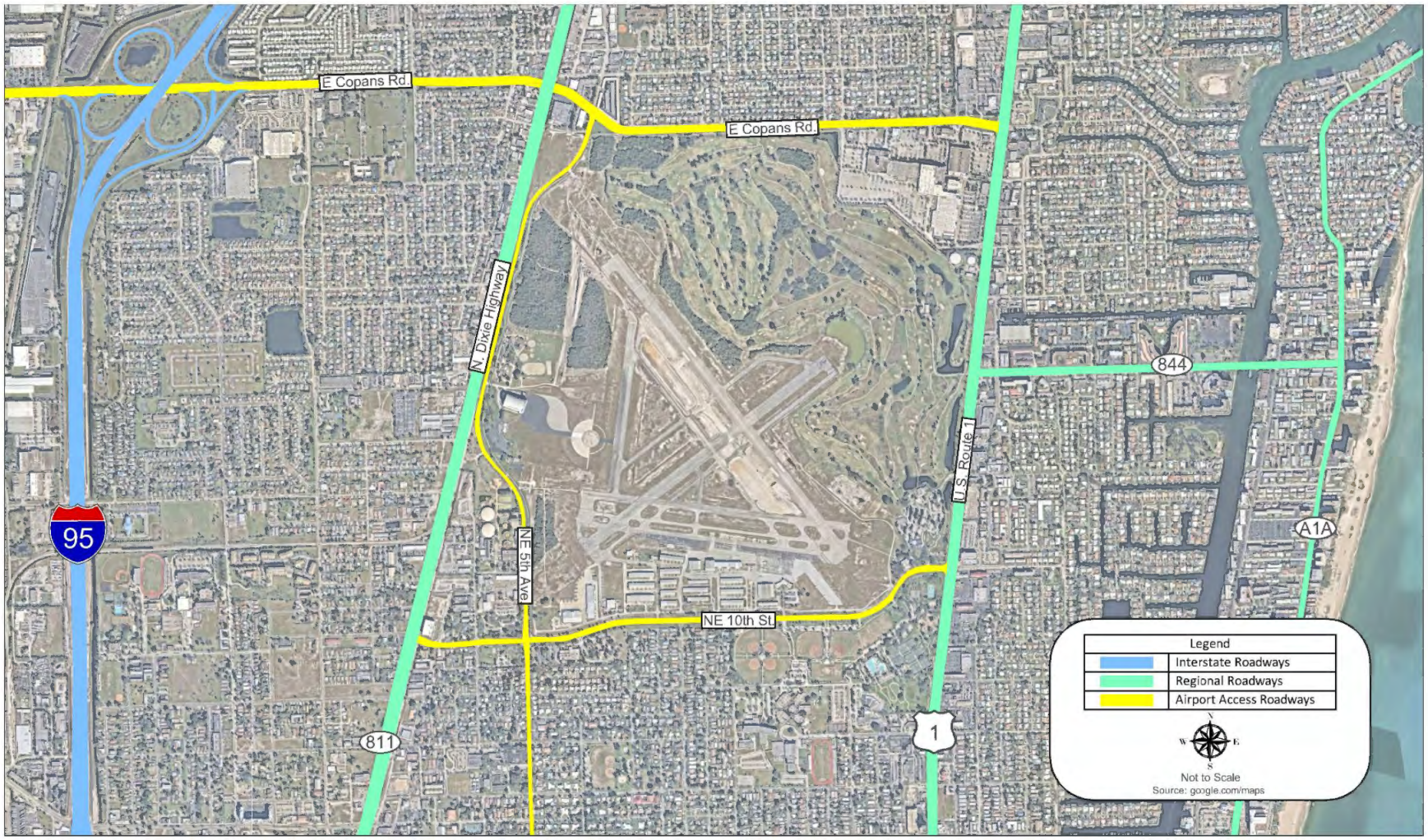
Source:
FAA AGIS Wind Analysis Tool.

Figure 1-10. VFR Wind Rose



Source:
FAA AGIS Wind Analysis Tool.

Figure 1-11. Airport Roadway Access



Sources:
google.com/maps.
Kimley-Horn.

1.6.2.2 - Airport Access Roadways

- **NE 5th Avenue** is a two-lane road located west of the airfield that provides access from East Copans Road to the west side of the airfield. NE 5th Avenue is north-south oriented and runs parallel to North Dixie Highway. It also provides access to the Goodyear Airship Operations building and parking facilities located west of Runway 15-33 and north of Runway 10-28.
- **NE 10th Street** is a two-lane road located south of the Airpark aprons and general aviation facility areas. It provides access to the parking facilities associated with the general aviation activities at the south portion of the airfield. It also provides access from the regional roadway systems, connects west to North Dixie Highway, and connects east to US Highway 1.

1.7 - General Aviation Facilities

General Aviation (GA) describes most aviation activity that is not categorized as air carrier or military. Nearly all activity at the Airpark is GA activity, with a significant portion of flight training. Other activity includes aircraft rental, corporate aviation, air taxi/charter, scenic rides, air ambulance, and mapping and surveying. Fixed base operators (FBOs) provide many of these services at the Airpark.

1.7.1 - Fixed Base Operators

An FBO refers to an organization or commercial business allowed to operate at an airport and provide aeronautical services such as fueling, hangar rentals, tie-down and parking, aircraft rental, aircraft maintenance, flight instruction, and similar services. Depending on the size of the Airpark and user demands, one or multiple FBOs are often the primary providers of support services to general aviation operators at public-use airports. In the case of the Airpark, the FBOs also sublease to tenants, such as aircraft maintenance organizations, flight training institutions, and other private aviation businesses.

At the time of this Master Plan Update, the FBOs at the Airpark included the following:

- **Sheltair Aviation** is a traditional FBO that provides services such as full-service aviation fuel, aircraft parking, a passenger terminal lounge, and flight planning rooms. It also leases conventional hangar space and T-hangars. Sheltair recently constructed two additional 20,000 square-foot conventional hangars immediately west of their existing facility.
- **Pompano Aviation** provides self-serve avgas and Jet-A fuel to based tenants as well as hangar leasing, but it does not provide traditional FBO services such as hangar space and tie-down spaces to itinerant aircraft.

1.7.2 - Aircraft Hangars

The Airpark has several types of hangars: T-hangars, box hangars and conventional hangars. The hangars are south of the apron and provide approximately 128 units for aircraft storage. **Table 1-3** outlines the types and quantities of hangars at the Airpark. The Goodyear Blimp facility is not included in this summary below, as it is a unique operator with a specific use.

Table 1-3. Hangar Space						
FBO	Conventional Hangar		Box Hangar		T-Hangar	
	Sq Ft	Number	Sq Ft	Number	Sq Ft	Number
Sheltair Aviation	65,000	3	22,000	6	162,300	112
Pompano Aviation	32,000	1	33,600	7	--	--
Aviation Center of Pompano	--	--	52,800	11	16,500	11
Total	**97,000**	**4**	**108,400**	**24**	**178,800**	**123**

Sources:
Tenant Interviews (2018).
Airport Layout Plan dated 8/2016.

1.7.3 - Apron Space and Tiedowns

Tiedown spaces are located throughout the apron areas and are designated for various tenants as well as some tiedowns owned by the City. There are approximately 120 tiedowns across the Airpark, including 35 tiedowns owned by the City.

1.8 - Support Facilities

Support facilities are vital to the ongoing operation of an airport – these facilities for Pompano Beach Airpark include fuel storage, firefighting, administration and maintenance, and utilities.

1.8.1 - Fuel Storage

The Airpark has several fuel storage tanks and trucks that are owned by various tenants. A summary of the fuel storage facilities is presented below in **Table 1-4.**

Table 1-4. Fuel Storage Facilities				
FBO	Jet A (gal)		Avgas (gal)	
	Tank	Truck	Tank	Truck
Sheltair Aviation	15,000	6,000	15,000	2,000
Pompano Aviation	12,000	--	12,000	--
American Flyers	--	--	10,000	--
Total	**33,000**		**39,000**	

Source:
Tenant Interviews (2018).

1.8.2 - Airpark Administration and Maintenance

The administration building and maintenance facilities are located in the southern vicinity of the Airpark at the end of a road accessed from NE 10th Street. The administration building is collocated with the ATCT and is approximately 3,000 square feet in size. The administration building was renovated in 2019 and includes office and storage space, as well as a lounge/kitchen area.

Airpark maintenance facilities are located immediately west of the administration building and include approximately 4,500 square feet of maintenance equipment and vehicle storage.

1.8.3 - Fire Station

Pompano Beach Fire Station 24 was formerly located on the property on the northeast side of 10th Street, west of US 1. It was not an official Aircraft Rescue and Firefighting (ARFF) station and was demolished in early 2018. It was rebuilt in its current location and includes one bay for an ARFF-type vehicle. The Airpark is not a FAR Part 139 certificated airport with official ARFF requirements; however, a need in the master planning process has been expressed to identify access points for city firefighting equipment to access the airfield in the event of an aircraft emergency.

1.9 - Zoning and Land Use

This section provides an overview of the City's land use and zoning within and immediately surrounding the Airpark environs, as well as significant proposed land developments as of the writing of this Master Plan Update.

1.9.1 - Zoning

Zoning is the division of land within a municipality into multiple zones or areas in which various land uses may be permitted or prohibited. The majority of the land encompassing the Airpark property is zoned for transportation uses by the City. Some portions of the Airpark property, however, are currently zoned for parks and recreational uses, which has been an issue identified for the Master Plan Update to address. The current zoning in the Airpark vicinity is shown in **Figure 1-12.**

1.9.1.1 - Airpark Overlay District

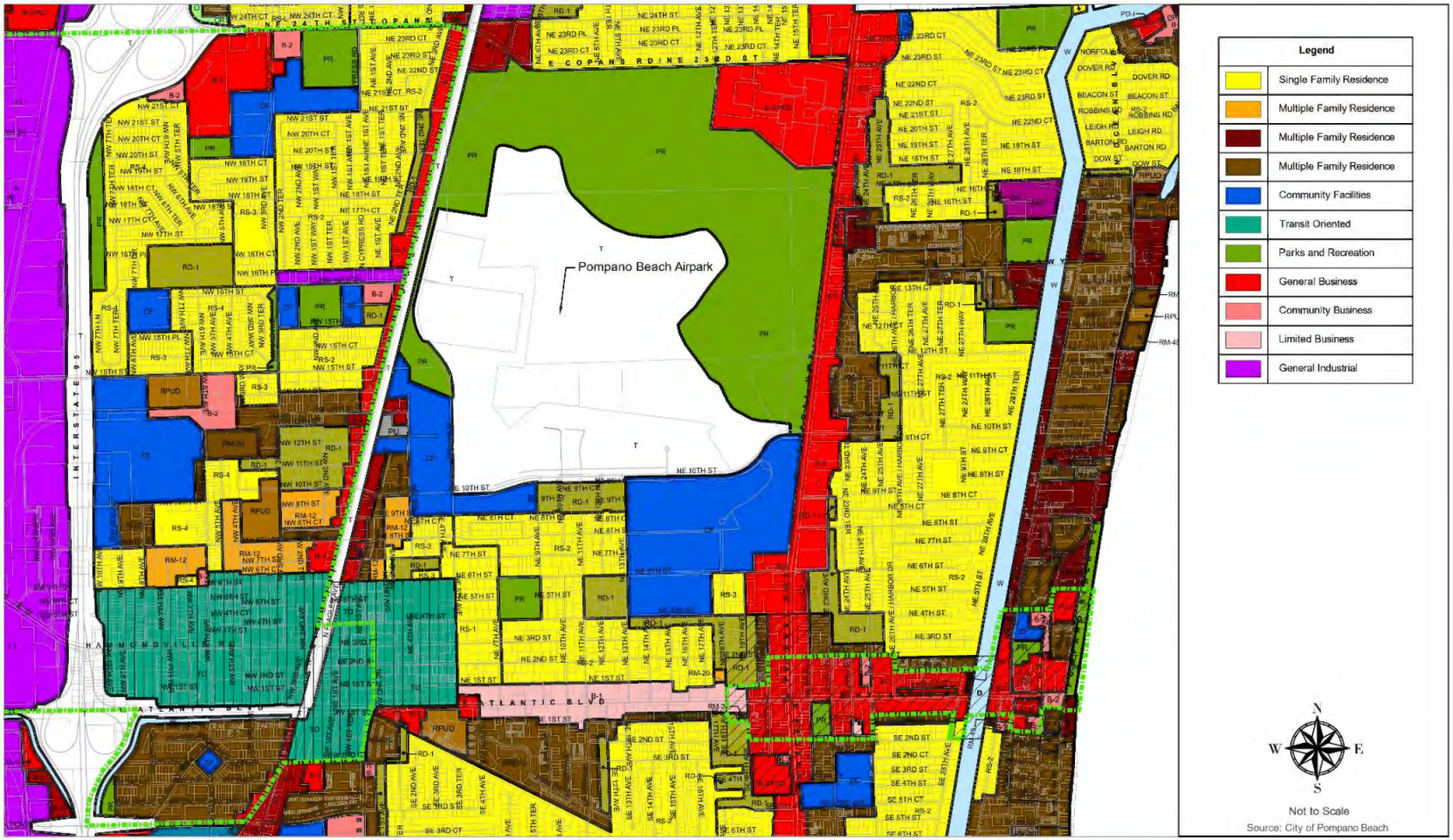
The City has adopted an Airpark Overlay (APO) district that delineates zones that are consistent with airspace surfaces defined in Florida Statute Chapter 333 and FAR Part 77. The specific zones and delineations are described in Chapter 155 of the Pompano Beach Code of Ordinances.

1.9.2 - Future Land Use

The proposed future land use in the Airpark vicinity is depicted in **Figure 1-13** and is consistent with the current zoning. A significant proposed development is the redevelopment of downtown Pompano Beach, approximately one mile southwest of the Airpark. A majority of the downtown area is proposed to be redeveloped as a transit oriented corridor with surrounding high density multifamily housing, known as the "Innovation District." The implementation of this redevelopment is still in the early stages.[4]

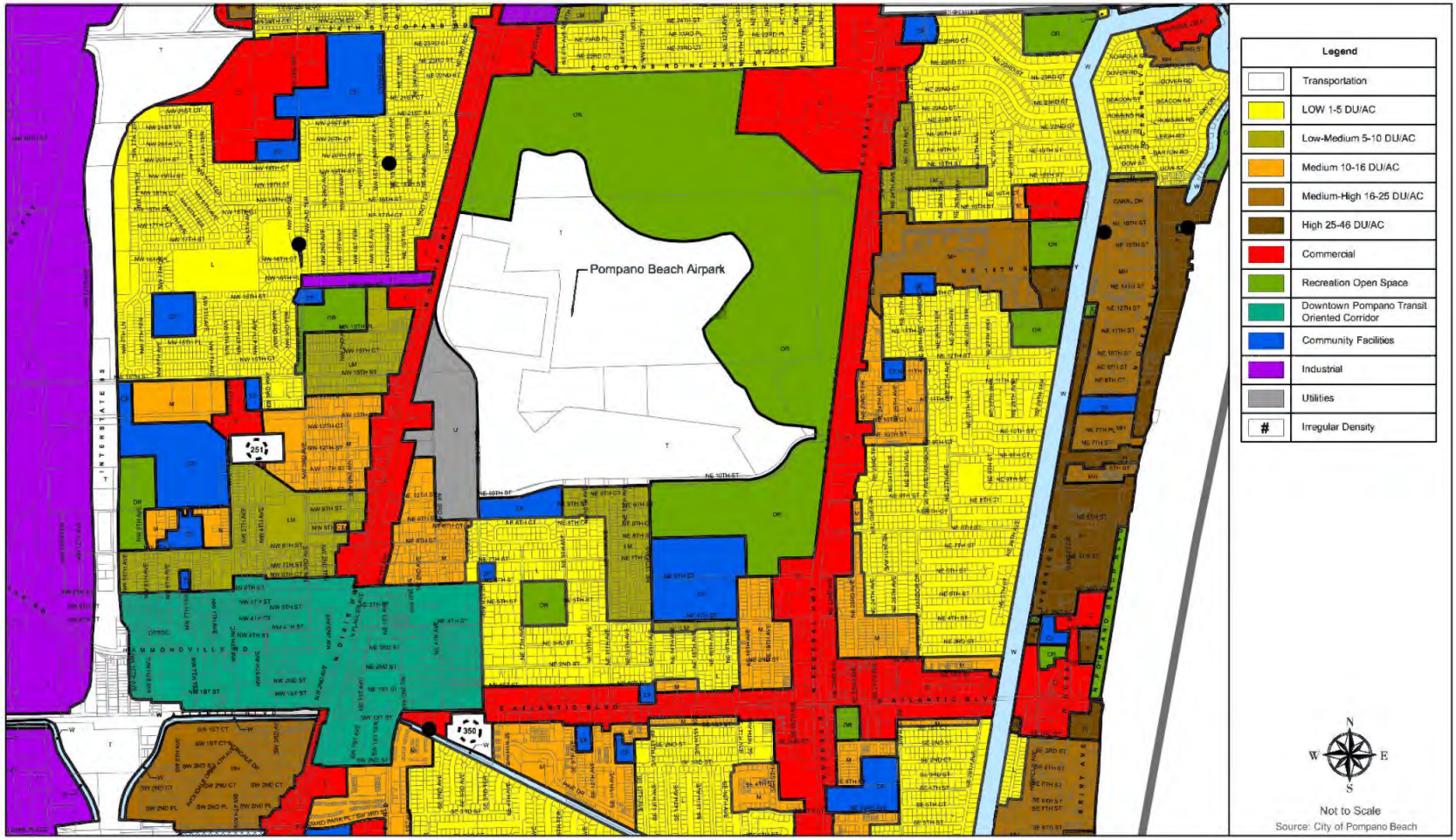
[4] Community Redevelopment Agency; Innovation District Presentation; http://pompanobeachfl.gov/pages/cra/cra

Figure 1-12. Existing Zoning Map



Sources:
City of Pompano Beach.
Kimley-Horn.

Figure 1-13. Future Land Use Map



Sources:
City of Pompano Beach.
Kimley-Horn.

1.10 - Environmental Considerations

A cursory-level inventory of the environmental conditions on or near the Airpark was undertaken for this Master Plan Update. This included readily-available information found from existing reports, studies and environmental documents, as well as known environmental and land use restrictions based on discussions with Airpark staff.

1.10.1 - Local Areas of Particular Concern and Environmentally Sensitive Lands

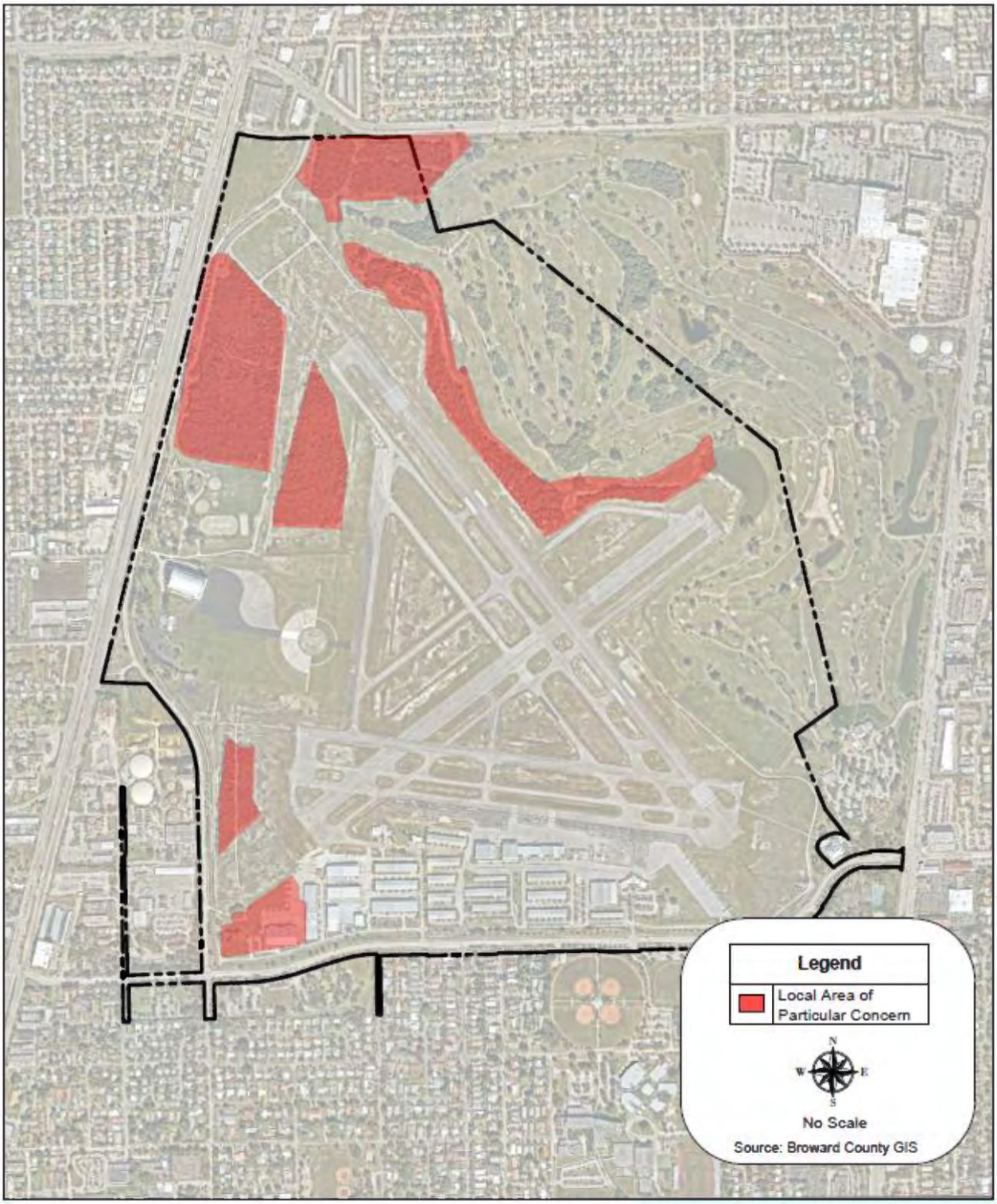
Per the Broward County Land Use Plan, local areas of particular concern (LAPC) are areas that have been declared to be environmentally sensitive from the standpoint of one or several environmental characteristics, including marine resources, natural landforms and features, native vegetation, wildlife, economic resources, and cultural resources.

There are six protected natural lands on the Airpark property which are designated as the Pompano Beach Airpark Tree Preserve and also designated as LAPCs, as depicted in **Figure 1-14.**

1.10.2 - Wellfield Protection Zones

There are several potable water wells on the western portion of the Airpark property. These wells provide potable water for community use from subsurface aquifers. Each wellfield is surrounded by a protection zone delineated into three sub-zones. Each zone has varying restrictions on land use and activities within the zone, as well as notification requirements. These requirements are promulgated in Chapter 27, Article XIII of the Broward County Code. Any proposed development on the airfield within these zones will need to conform to these requirements.

Figure 1-14. Local Areas of Particular Concern



Sources:
Broward County GIS.
Kimley-Horn.

1.10.3 - Section 4(f) and 6(f) Resources

According to Section 4(f) of the U.S. DOT Act of 1966 (Title 49, U.S.C. Section 1653(f); amended and recodified in 49 U.S.C. Section 303), the Secretary of Transportation will not approve any program or project that requires the use of publicly owned land from a park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance or land from a historic site of national, state, or local significance unless there is no feasible alternative that would avoid such use and the program includes all possible planning efforts to minimize resultant harm.

Section 6(f) of the Land and Water Conservation Fund Act (L&WCFA) (16 U.S.C. Section 4601 et. seq.; Title 36 C.F.R. Part 59) prohibits the conversion of lands purchased with L&WCFA funds to non-recreational uses without the explicit approval of the Secretary of the Department of the Interior (DOI) through the National Park Service (NPS) and the replacement of those lands with a reasonable equivalent.

Figure 1-15 depicts the public parks and recreation areas surrounding the Airpark, including:

- Pompano Beach Baseball Park
- Pompano Community Park
- Kester Park
- Harbor's Edge Park
- Alsdorf Park
- Cresthaven Park
- Lovely Park
- Novelty Park
- Coleman Park
- Mitchell Moore Park

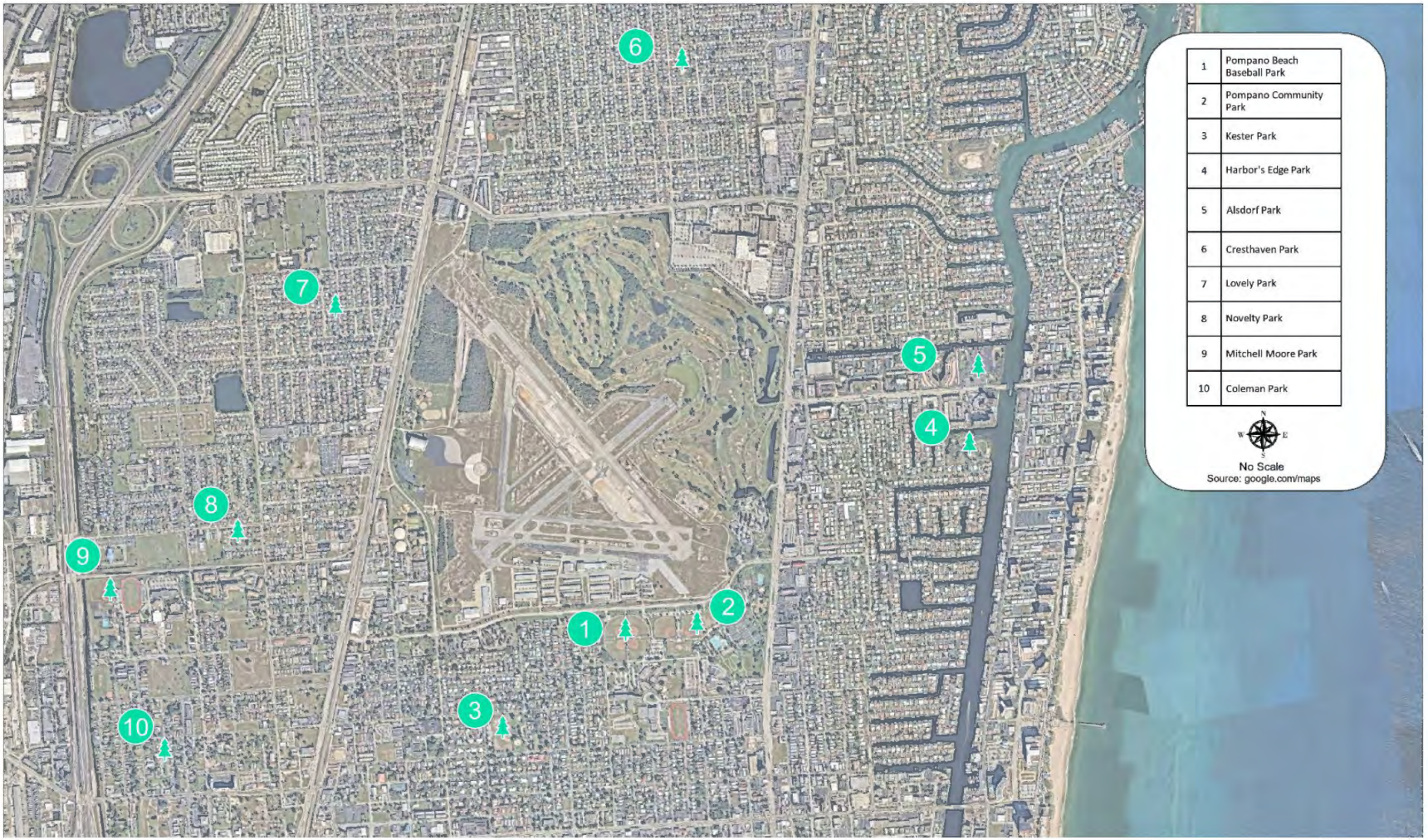
Additional research would be needed to determine if any L&WCFA funds were used in the development of these or other nearby recreational facilities. Future Airpark development actions must take into consideration the potential for direct and constructive-use impacts to any local Section 4(f) or Section 6(f) resources.

1.10.4 - Hazardous Materials

Hazardous materials are usually considered to be associated with industrial wastes, petroleum products, dangerous goods, or other contaminated substances. The statutory framework regarding hazardous materials in FAA actions is provided by the Resource Conservation and Recovery Act (42 U.S.C. Section 6901, et seq. (RCRA)), the Comprehensive Environmental Response Compensation and Liability Act (42 U.S.C. Section 9601 (CERCLA)), and the Community Environmental Response Facilitation Act (Public Law [P.L.] 102-426). These statutes address the use, storage, and disposal of hazardous materials and the environmental threats caused by mishandling these materials.

Hazardous substances in regular use at the Airpark include aircraft and vehicle fuels. Smaller amounts of hazardous substances are also stored on the Airpark, including lubricants and solvents, used oils, filters, cleaning residues, spent batteries, herbicides, fertilizers, paints, and fire-fighting foam. Aircraft maintenance operators and/or fixed based operators are responsible for storage compliance, disposal, and care of fluids or spills. Further analyses would be needed to determine if the Airpark or its tenants possess a threshold quantity of the regulated substances.

Figure 1-15. Vicinity Parks and Recreation



Source:
google.com/maps.
Kimley-Horn.

1.10.5 - Historic & Archeological Sites

The National Historic Preservation Act (36 C.R.F. Part 800 (NHPA)), as amended, provides for the preservation of cultural resources eligible for inclusion in the National Register of Historic Places (NRHP). Section 106 of the NHPA directs heads of federal or independent agencies that have direct or indirect jurisdiction over a federal or federally-assisted undertaking to 'take into account the effect on any district, site, building, structure, or object that is included in or eligible for the inclusion in the National Register.'

Currently, there are no sites, buildings, structures, or objects on or near the Airpark that are recognized by the National Register of Historic Places.

1.10.6 - Farmlands

Prime farmland – as defined by the United States Department of Agriculture (USDA) – is land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, without intolerable soil erosion. The soil on Airpark property is not classified as prime farmland.

1.10.7 - Wetlands

According to The U.S. Fish and Wildlife Service the Airpark property includes one identified Wetland, a Freshwater Pond located east of the Runway 24 end spanning 4.04 acres. The Freshwater Pond is classified as a PUBHx defined as a, System Paulustrine (P), Class Unconsolidated Bottom (UB), Water Regime Permanently Flooded (H), and Special Modifier Excavated (x).

1.10.8 - Flood Zones

The City of Pompano Beach Stormwater Master Plan identifies the Airpark located in a Zone "X" FEMA flood zone and is defined as an area of minimal flood hazard, usually depicted on Flood Insurance Rate Maps (FIRMs) as above 500-year flood level.

1.11 - Summary

Information obtained during the inventory process from data sources as well as tenant and user discussions has been summarized within the preceding narrative and was used to inform subsequent efforts in the master planning process based on the existing and anticipated Airpark activity, as well as constraints and challenges.

Chapter 2:
Aviation Activity Forecasts

Contents

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2 - Aviation Activity Forecasts

The following presents historical trends, assumptions, and methodologies used to assemble projections of future aviation demand at the Airpark. It is important to recognize that there can be short-term fluctuations in an airport's activity due to a variety of factors that can be difficult to anticipate. The forecasts developed in this document are intended to consider the routine ebb and flow in aviation activity levels while projecting what the long-term trend of activity will most likely be. These resulting projections provide a meaningful framework to guide the analyses for future facility needs and development alternatives.

This forecast analysis includes methodologies that consider historical aviation trends at the Airpark, in the Miami/Ft. Lauderdale metropolitan region, and nationwide. Data were collected from FAA sources including FAA Terminal Area Forecast (TAF) records, Air Traffic Activity System (ATADS), Traffic Flow Management System Counts (TFMSC), Form 5010-1 *Airport Master Record*, and ATCT records, as well as the 2035 Florida Aviation System Plan (FASP). In addition, socioeconomic data for the Miami/Ft. Lauderdale Metropolitan Statistical Area (MSA), Broward County, and state of Florida were examined to track local and regional trends and conditions that could potentially influence general aviation demand at the Airpark. Projections of aviation activity for the Airpark were prepared for near-term (2022), mid-term (2027), and long-term (2037) timeframes using 2017 as the base year for forecasts.

It should be noted that although the recommended forecasts presented in this chapter were approved by the FAA in December 2018, final publication of this Master Plan Update occurred in 2020 during a global COVID-19 pandemic. Though COVID-19 had significant impacts on aviation activity at numerous commercial and non-commercial airports throughout the U.S., aircraft operations at Pompano Beach were approximately 15% higher in 2020 than in 2017. As such, the approved forecasts are still considered valid for future planning purposes.

2.1 - Historical and Existing Aviation Activity

The FAA categorizes a wide range of GA uses including personal and recreational flying, business transportation, instructional flying, commercial sight-seeing operations, and on-demand operations including air taxi (i.e., charter), air tours, and medical transport services. Because PMP supports each of these GA activities, as well as limited military activity, the Airpark is impacted by many factors encompassing economic, social, and industrywide trends within multiple geopolitical arenas.

At GA airports such as PMP, there are two primary indicators of activity; based aircraft and aircraft operations. A based aircraft is generally defined as an aircraft that is considered airworthy and is stored at an airport for the majority of the year. An aircraft operation represents either a take-off or landing conducted by an aircraft; as a result, a take-off and a landing—such as those that occur with flight training "touch-and-go" practice flights—count as two operations. Historical based aircraft and operations data provide a baseline for the consideration of projections of future activity at the Airpark. While historical trends do not always correlate with future levels of activity, they often provide insight into an airport's role at a local, regional, or national level.

The following sections summarize overall historical aviation-related activity at the Airpark in terms of aircraft operations and the number of based aircraft.

2.1.1 - Based Aircraft

Several sources were consulted to obtain existing and historical based aircraft data. The FAA's TAF is the official FAA forecast of aviation activity for U.S. airports and contains historic data and projections for active airports in the National Plan of Integrated Airport Systems (NPIAS). Additional sources that were utilized include Airpark Management inventory results, and the Form 5010 *Airport Master Record*. These additional sources provide "snapshot" estimates of based aircraft in 2017.

An inventory of stored aircraft at the Airpark was conducted in Summer 2018. Inventory efforts included evaluation of rental agreements and leases, and correspondence with tenants and fixed base operators. Known itinerant aircraft were excluded from the inventory process. In total, 199 based aircraft were identified at the Airpark. Aircraft N-numbers for these aircraft were entered into the FAA's National Based Aircraft Inventory Program in September 2018: a total of 166 aircraft were verified. The remaining 33 based aircraft were either registered at other airports, registered out-of-state, or de-registered.

For the purposes of this Master Plan Update, the 166 verified aircraft were used for the base year 2017 estimate to develop based aircraft forecasts. Annual historical based aircraft estimates utilize the FAA TAF to supplant estimates from 2008-2016.

Historical and existing estimates of based aircraft at PMP are presented in **Table 2-1**.

Table 2-1. Historical Based Aircraft

Year	FAA TAF	Airpark Count	5010 Airport Master Record	FAA Database Verified Aircraft
2008	83	--	--	
2009	68	--	--	
2010	68	--	--	
2011	74	--	--	
2012	76	--	--	
2013	78	--	--	
2014	74	--	--	
2015	145	--	--	
2016	134	--	--	
2017	127	199	131	166

Sources:
Form 5010, accessed 6/12/2018.
FAA Terminal Area Forecast issued January 2018.
Airpark Management.

2.1.2 - Aircraft Operations

Annual aircraft operations represent the number of take-offs and landings occurring at the Airpark during a calendar year. Historical operations data include operations conducted by based aircraft as well as operations conducted by itinerant aircraft. **Table 2-2** presents an overview of historical aircraft operations at the Airpark between 2008 and 2017 as recorded in the TAF and the FAA's ATADS database, which reports arrivals and departures at airports as reported by ATCTs.

Table 2-2. Historical Annual Aircraft Operations		
Year	**FAA TAF**	**FAA ATADS**
2008	116,761	116,931
2009	97,815	95,330
2010	108,542	111,173
2011	120,728	118,466
2012	129,807	135,476
2013	131,915	128,752
2014	133,805	138,402
2015	138,564	140,716
2016	149,804	145,660
2017	130,234	132,489

Sources:
FAA Terminal Area Forecast issued January 2018.
FAA Air Traffic Activity System (ATADS) database.

Both the TAF and ATADS reported significant declines in total operations between 2008 and 2010, which was largely attributed to the economic recession that occurred during that time, mimicking a trend that impacted numerous GA airports in the U.S. Between 2009 and 2017. After 2010, the Airpark experienced a significant increase in annual operations with a peak activity year occurring in 2016.

It should be noted that the minor discrepancy between annual operations identified in the TAF and ATADS is attributed to the TAF reporting data based on the FAA fiscal year while ATADS reports operational data based on the calendar year.

Airport forecasts conducted as part of a planning study such as this Master Plan Update are reviewed by the FAA in terms of their divergence from the TAF. If an airport's 5-year forecasts differ by more than 10 percent of the TAF and/or 10-year forecasts differ by more than 15 percent then the forecasts must be reviewed and approved by FAA headquarters rather than by the local FAA Airports District Office (ADO) unless:

- Five and ten-year forecasts do not exceed 200 based aircraft or 200,000 total annual operations, AND
- Any related development associated with the forecasts will not require an Environmental Impact Study (EIS) and/or Benefit/Cost Analysis (BCA).

The FAA review and approval process is described in greater detail in subsequent sections. For the purposes of this Master Plan Update, historical operations reported in the ATADS database were used as the preferred source to develop forecasts.

2.1.3 - Regional Activity Comparison

An important aspect for consideration in the forecasting process is an airport's role within the area that it serves and how its activity compares with the local and regional markets. The Miami/Ft. Lauderdale metropolitan area is home to many airports that serve both commercial and general aviation activity. **Table 2-3** identifies historical activity at the Airpark compared with other airports in the region that are equipped with an ATCT. These airports include Boca Raton (BCT), Fort Lauderdale/Hollywood International (FLL), Fort Lauderdale Executive (FXE), North Perry (HWO), Palm Beach County Park (LNA), Miami International (MIA), Miami-Opa Locka Executive (OPF), Palm Beach International (PBI) and

Miami Executive (TMB). Historically, the Airpark has accounted for 2.9 to 6.0 percent of based aircraft in the region and 9.3 to 14.0 percent of annual GA operations.

Table 2-3. Comparison of Regional Activity at Airports with ATCTs

Year	PMP*		BCT		FLL		FXE		HWO	
	BAC	Ops	BAC	Ops	BAC	Ops	BAC	Ops	BAC	Ops
2008	83	116,793	223	76,652	94	48,183	695	170,850	257	171,937
2009	68	95,319	204	47,061	55	43,303	627	141,103	228	172,404
2010	68	111,171	297	46,137	57	45,041	708	140,900	247	118,472
2011	74	118,420	172	50,209	49	41,589	554	135,470	247	134,272
2012	76	135,440	215	46,082	76	35,798	554	143,895	252	124,774
2013	78	128,267	232	40,882	71	35,399	644	144,144	253	142,916
2014	74	137,763	182	48,807	94	35,391	817	152,807	258	154,441
2015	145	140,655	178	54,297	88	37,704	933	146,292	245	167,883
2016	134	145,544	234	53,747	85	36,350	990	144,700	244	170,441
2017	166	132,414	238	55,856	85	37,469	1,004	156,054	246	210,203
AAGR 2008-2017	10.0%	1.3%	0.7%	-2.7%	-1.0%	-2.2%	4.4%	-0.9%	-0.4%	2.2%
Year	**LNA**		**MIA**		**OPF**		**PBI**		**TMB**	
	BAC	Ops	BAC	Ops	BAC	Ops	BAC	Ops	BAC	Ops
2008	218	139,675	28	21,849	140	82,189	113	79,454	420	305,798
2009	193	139,675	28	18,050	124	78,048	126	62,930	413	229,861
2010	258	121,220	28	17,374	253	79,937	127	60,527	452	193,754
2011	255	121,220	28	18,940	278	94,997	149	62,899	455	168,807
2012	295	121,220	28	18,004	278	87,820	149	58,481	455	197,760
2013	307	124,700	28	18,404	285	92,243	136	57,860	445	234,351
2014	294	124,700	28	18,294	287	115,352	148	58,924	445	252,103
2015	273	124,700	28	18,105	268	124,294	165	60,819	434	256,935
2016	269	124,700	28	18,351	267	115,569	171	59,815	427	276,431
2017	276	126,859	28	17,675	267	104,853	172	58,077	434	281,620
AAGR 2008-2017	2.7%	-0.9%	0.0%	-1.9%	9.1%	2.8%	5.2%	-2.7%	0.3%	-0.8%

Sources:
FAA Terminal Area Forecast issued January 2018.
FAA Air Traffic Activity System (ATADS) database.
Airpark Management.

Notes:
*2017 based aircraft at PMP is based on FAA-verified estimate, historical GA operations at PMP are based off ATADS report, all other values for other airports utilize FAA TAF.
BAC = Based Aircraft
Ops = GA Operations
AAGR = Average Annual Growth Rate

Table 2-4 presents an overview of historical activity in the region for airports listed in **Table 2-3**. As shown, between 2008 and 2017 regional GA operations declined an average of 0.3 percent per year, while the number of based aircraft during that time increased 2.6 percent per year. Growth in based aircraft and GA operations at PMP outpaced the region during that timeframe, and the Airpark's market share increased in both categories.

Table 2-4. Historical Activity: Regional Comparison						
Year	GA Operations			Based Aircraft		
	Regional Airports	PMP*	% PMP	Regional Airports	PMP*	% PMP
2008	1,213,380	116,793	9.6%	2,188	83	3.8%
2009	1,027,754	95,319	9.3%	1,998	68	3.4%
2010	934,533	111,171	11.9%	2,427	68	2.8%
2011	946,823	118,420	12.5%	2,187	74	3.4%
2012	969,274	135,440	14.0%	2,302	76	3.3%
2013	1,019,166	128,267	12.6%	2,401	78	3.2%
2014	1,098,582	137,763	12.5%	2,553	74	2.9%
2015	1,131,684	140,655	12.4%	2,612	145	5.6%
2016	1,145,648	145,544	12.7%	2,715	134	4.9%
2017	1,181,080	132,414	11.2%	2,750	166	6.0%
AAGR 2008-2017	-0.3%	1.3%	--	2.6%	10.0%	--

Sources:
FAA Terminal Area Forecast issued January 2018.
FAA Air Traffic Activity System (ATADS) database.
Airpark Management.

Note:
*2017 based aircraft at PMP is based on FAA-verified estimate, historical GA operations at PMP are based off ATADS report, all other values for other airports utilize FAA TAF.

2.2 - National Aviation Trends

Preparation of forecasts of aviation-related demand requires a general understanding of recent and anticipated national trends in the aviation industry. The FAA's 2017-2021 NPIAS Report identified 5,136 public use airports located throughout the U.S. 65% (3,332) of those airports are included in the NPIAS, which indicates they are considered significant to the national transportation system and thus eligible for federal funding. General aviation airports comprise 85 percent of the airports listed in the NPIAS.

Because of its role in the regional economy, level of activity, vicinity within a metropolitan area, and other factors, the NPIAS defines PMP as a regional general aviation airport. Regional general aviation airports have high levels of activity with some jets and multi-engine propeller aircraft and an average of 90 total based aircraft, including three jets.

The following sections examine key trends most applicable to the Airpark in its role as a regional general aviation airport. These trends are considered in the development of the forecasts of future activity.

2.2.1 - FAA General Aviation Forecast Trends

The FAA publishes annual forecasts that summarize the primary trends affecting aviation activity including U.S. and international economic conditions, projected fuel costs, and emerging technologies. FAA forecasts provide detailed analyses of historical and forecasted aviation trends and provide a general framework for anticipated future regional and national aviation activity. The *FAA Aerospace Forecast Fiscal Years 2018-2038* specifically identify the historical and future trends affecting general aviation activity.

General aviation activity has historically experienced cyclical periods of growth and decline based on factors such as economic conditions, pilot demographics, regulatory conditions, technologies, and industry reliance on general aviation activity. While national general aviation activity experienced rebounded growth during the mid- and late-1990s, the terrorist attacks of 2001 and the economic downturn of 2008 suppressed this nationwide activity, although some pockets of the U.S. have continued to realize growth in general aviation.

Measures of general aviation activity in the U.S. that are annually monitored and forecasted in the FAA Aerospace Forecasts include active pilots, active hours flown, and active aircraft fleet. Each of these measures will continue to evolve through the 21-year FAA forecast horizon as each category (and sub-category therein) aligns and realigns with current and projected future conditions.

Future growth is anticipated to be focused in the corporate and business aviation sectors that are most often tied to turboprop and jet general aviation aircraft, while the greatest decreases are expected to occur within the piston aircraft category as the fleet, and its pilots, continue to age. The following sections summarize key findings of each measure, based on the most recent available information contained in *FAA Aerospace Forecast Fiscal Years 2018–2038*.

2.2.2 - Active Pilots

The FAA defines an active pilot as a person with a pilot certificate and a valid medical certificate. As shown in **Table 2-5**, between 2010 and 2017, the total number of active pilots in the U.S. decreased from 508,469 to 460,185, which reflected an annual growth rate of -1.4 percent. Much of this decrease can be attributed to the aging pilot population and the rising cost to own and operate aircraft. The FAA projects nearly flat growth in total pilots between 2018 and 2038. The historical trend of declining pilots is anticipated to halt largely because of legislation that relieved some of the limitations associated with pilot medical certificates as well as a projected international shortage of commercial pilots, the majority of which obtain airline transport licenses.

Table 2-5. FAA Projected GA Forecast: Active Pilots

Year	Rec.	Sport Pilot	Private	Commercial	Airline Transport	Rotorcraft Only	Glider Only	Total	Instrument Rated*
2010	212	3,682	202,020	123,705	142,198	15,377	21,275	508,469	318,001
2015	190	5,482	170,718	101,164	154,730	15,566	19,460	467,310	304,329
2016	175	5,889	162,313	96,081	157,894	15,518	17,991	455,861	302,572
2017	153	6,097	162,455	98,161	159,825	15,355	18,139	460,185	306,652
2018	150	6,385	162,450	96,650	161,300	15,250	18,050	460,235	307,000
2023	125	7,915	157,450	92,000	165,900	15,650	17,650	456,690	308,600
2028	100	9,520	149,600	90,150	171,000	17,100	17,350	454,820	313,000
2033	85	11,050	142,400	89,400	177,100	18,950	17,150	456,135	318,600
2038	65	12,340	136,650	89,150	183,900	21,050	17,100	460,255	325,100
AAGR 2010-2017	-4.6%	7.5%	-3.1%	-3.3%	1.7%	0.0%	-2.3%	-1.4%	-0.5%
AAGR 2018-2038	-4.1%	3.3%	-0.9%	-0.4%	0.7%	1.6%	-0.3%	0.0%	0.3%

Source:
FAA Aerospace Forecast Fiscal Years 2018-2038.
Note:
*Instrument rated pilots should not be added to other categories in deriving total.
Rec.- Recreational pilots

2.2.3 - Active Hours Flown

Aircraft hours flown by active aircraft reflects aircraft utilization, frequency, and duration of use. Between 2010 and 2017, single-engine piston hours flown have decreased from 12,161 to 11,878, with the lowest hours reported in 2015 at 11,217. This downward trajectory is projected to continue throughout the forecast horizon at an average annual growth rate of -1.1 percent, primarily due to the retiring fleet of single-engine aircraft coupled with aging owners who are no longer flying. Within these same timeframes, multi-engine piston aircraft have historically decreased at 1.2 percent and are anticipated to continue to decline at a moderate average annual growth rate of -0.3 percent through 2038. While rotorcraft operations declined approximately -0.7 percent between 2010 and 2017, they are anticipated to experience growth at an average annual growth rate of 2.2 percent between 2018 and 2038. A summary of historical and projected active general aviation hours flown is provided in **Table 2-6**.

Table 2-6. FAA Projected GA Forecast: GA Hours Flown (In Thousands)

Year	Single-Engine Piston	Multi-Engine Piston	Turbo Prop	Turbo Jet	Rotor-Craft	Experi-mental*	Light Sport*	Other	Total
2010	12,161	1,818	2,325	3,375	3,405	1,226	311	181	24,802
2015	11,217	1,608	2,538	3,837	3,294	1,295	191	162	24,142
2016	11,865	1,683	2,708	3,847	3,128	1,224	187	193	24,834
2017	11,878	1,666	2,674	4,274	3,237	1,248	197	195	25,369
2018	11,765	1,647	2,642	4,604	3,344	1,273	208	196	25,679
2023	10,608	1,578	2,621	5,616	3,817	1,415	269	196	26,120
2028	10,021	1,546	2,863	6,331	4,248	1,556	336	196	27,097
2033	9,625	1,545	3,259	7,067	4,681	1,677	409	197	28,460
2038	9,419	1,556	3,742	7,849	5,152	1,799	490	198	30,206
AAGR 2010-2017	-0.3%	-1.2%	2.0%	3.4%	-0.7%	0.3%	-6.3%	1.1%	0.3%
AAGR 2018-2038	-1.1%	-0.3%	1.8%	2.7%	2.2%	1.7%	4.4%	0.1%	0.8%

Source:
FAA Aerospace Forecast Fiscal Years 2018-2038.

Note:
*Experimental Light-sport category that was previously shown under Sport Aircraft is moved under Experimental Aircraft category starting in 2012.

As total piston hours are projected to wane, turboprop and jet hours are anticipated to steadily increase. Combined turboprop and turbo jet aircraft hours increased 2.7 percent between 2010 and 2017, a trend that is anticipated to continue at an average annual growth rate of 2.4 percent over the forecast horizon. Turbo jets are anticipated to grow most significantly, reaching 7,849 hours (in thousands) by 2038—compared to just 4,604 hours (in thousands) in 2017. Much of this growth is associated with an overall upsurge in corporate and business activity as more business enterprises realize the productivity benefits of corporate air travel.

2.2.4 - Active General Aviation Aircraft Fleet

In its *FAA Aerospace Forecast Fiscal Years 2018–2038*, the FAA reports projected growth rates of the active general aviation and air taxi fleet for all airports in the U.S. An active aircraft is defined as one that has a current registration and was flown at least one hour during the calendar year. As depicted in **Table**

2-7, driven by turboprop, jet, and rotorcraft activity, the overall forecast for the number of general aviation aircraft in the fleet remains stable through 2038. While significant growth is not anticipated, this reverses the historical downward trajectory reported from 2010 to 2017.

Table 2-7. FAA Projected GA Forecast: Active GA and Air Taxi Aircraft

Year	Single-Engine Piston	Multi-Engine Piston	Turbo Prop	Turbo Jet	Rotor-Craft	Experi-mental	Light Sport	Other	Total
2010	139,519	15,900	9,369	11,484	10,102	24,784	6,528	5,684	223,370
2015	127,887	13,254	9,712	13,440	10,506	27,922	2,369	4,941	210,031
2016	129,652	12,986	9,779	13,751	10,577	27,585	2,478	4,986	211,794
2017	130,330	12,935	9,430	14,075	10,805	27,865	2,585	5,025	213,050
2018	130,500	12,895	9,195	14,390	11,030	28,140	2,705	5,050	213,905
2023	125,330	12,720	9,025	16,220	12,125	25,595	3,330	5,045	213,390
2028	118,740	12,465	9,870	18,120	13,235	30,980	3,995	5,060	212,465
2033	112,620	12,170	11,225	20,085	14,450	32,105	4,705	5,060	212,420
2038	107,800	11,845	12,855	22,195	15,785	33,105	5,440	5,065	214,090
AAGR 2010-2017	-1.0%	-1.2%	0.1%	2.9%	1.0%	1.7%	-12.4%	-1.7%	-0.7%
AAGR 2018-2038	-1.0%	-0.9%	1.7%	2.2%	1.8%	0.8%	3.6%	0.0%	0.0%

Source:
FAA Aerospace Forecast Fiscal Years 2018-2038.

Note:
*Experimental Light-sport category that was previously shown under Sport Aircraft is moved under Experimental Aircraft category, starting in 2012.

2.2.5 - General Aviation Activity Trends

In recent years, the general aviation community, including aircraft manufacturers, suppliers, and service providers, has experienced significant changes that have resulted in major shifts within the industry. In addition to broad shifts in the economic and political climates, the aviation industry has specifically faced new regulations; game-changing technologies such as the evolution toward more autonomous vehicles, unmanned aerial systems (UAS), and NextGen; and demographic and social transformations affecting both pilots and the passengers they serve. Given that many of these changes are just now being realized and will continue to evolve, it is difficult to project their long-term impacts with any certainty. **Table 2-8** provides a summary of historical and projected GA activity described in previous tables, as well as historical and forecast GA avgas and Jet A fuel consumption in the U.S.

Nationwide, general aviation activity declined following the events of September 11, 2001, and rising fuel costs and economic volatility further accelerated this decline from 2008 to 2014. The industry began to rebound by 2015 in all categories except avgas consumption, indicating that fuel consumption was primarily attributable to jet aircraft in accordance with associated trends in the U.S. fleet mix.

Forecast data indicate that the total number of active U.S. general aviation aircraft is projected to slightly decrease through the forecast year of 2025, with the total number of hours flown reflecting a conversely increasing rate. This indicates that a fewer number of aircraft will fly more hours in the coming years. GA

fuel consumption in the U.S. is anticipated to increase through 2038, however, growth is limited to jet fuel, as avgas consumption is expected to decrease at a -0.6 percent annual rate during that timeframe.

Table 2-8. U.S. General Aviation Activity

Year	Active U.S. GA Aircraft	U.S. GA Hours Flown (thousands)	U.S. Avgas Consumption (million gal.)	U.S. Jet Fuel Consumption (million gal.)	U.S. GA Fuel Consumption (million gal.)
2010	223,370	24,802	221	1,435	1,656
2015	210,031	24,142	196	1,383	1,578
2016	211,794	24,834	206	1,437	1,643
2017	213,050	25,369	209	1,535	1,744
2018	213,905	25,679	207	1,615	1,823
2023	213,390	26,120	194	1,832	2,026
2028	212,465	27,097	188	1,967	2,155
2033	212,420	28,460	185	2,105	2,290
2038	214,090	30,206	184	2,247	2,430
AAGR 2010-2017	-0.7%	0.3%	-0.7%	1.0%	0.7%
AAGR 2018-2038	0.0%	0.8%	-0.6%	1.7%	1.4%

Source:
FAA Aerospace Forecast Fiscal Years 2018-2038.

2.2.6 - National and International Pilot Shortage

For years, analysts have been anticipating an airline pilot shortage based on changing federal requirements and fewer numbers of trained pilots coming out of the military. Part of the shortage in experienced pilots can be credited to the recent increase in FAA pilot qualification requirements. In 2013, the FAA published a rule requiring first officers—also known as co-pilots—to hold an Airline Transport Pilot (ATP) certificate, requiring 1,500 hours of total time as a pilot. Previously, first officers were required to have only a commercial pilot certificate, which requires 250 hours of flight time. This new requirement has discouraged many students from entering flight training programs due to the increased cost associated with the new training requirements or led U.S. pilots to look for jobs with foreign airlines where flight-hour requirements are not as stringent.

The pilot population is also still responding to a 2010 FAA regulatory change that increased the duration of validity of pilot certificates under the age of 40 from 36 months to 60 months. Since this change, the number of student pilot licenses has increased from 119,119 in 2010 to an estimated 149,121 by the end of 2017. Pilots 40 years of age or older also must pass a comprehensive medical exam every 2 years, which can deter pilots from obtaining and renewing their licenses.

Additionally, the industry is confronting waning interest from students interested in a career as a pilot due to high educational costs, low salary expectations post-graduation, demanding travel schedules, and general industry upheaval since September 11, 2001. These issues are compounded by the declining availability of military-trained pilots to meet the aviation industry's growing needs. Government Accountability Office (GAO) Report 14-232: *Aviation Workforce, Current and Future Availability of Airline*

Pilots noted that 70 percent of airline pilots hired had come from the military prior to 2001; fewer than 30 percent were hired from the military as of February 2014.

Flight schools at the Airpark specialize in commercial and GA training. Based on commercial pilot licensing projections identified in the *FAA Aerospace Forecast Fiscal Years 2018–2038*, the demand for such training in the U.S. is anticipated to continue through 2038. As such, it is anticipated that demand for pilot training at the Airpark will be strong both in the immediate future and long-term. Its location in a generally sunny, year-round favorable climate also supports the notion of strong sustained demand for pilot training.

2.2.7 - Business Use of Aviation

Business use of aviation is important at the Airpark and throughout the nation. In this Master Plan Update, references to business and corporate aircraft are used interchangeably, as they both refer to aircraft that support a business enterprise. The FAA defines business use as, “Any use of an aircraft (not for compensation or hire) by an individual for transportation required by the business in which the individual is engaged.” The agency defines corporate transportation as, “Any use of an aircraft by a corporation, company, or other organization (not for compensation or hire) for the purposes of transporting its employees and/or property, and employing professional pilots for the operation of the aircraft.”

While business-related aviation is often considered to specifically pertain to corporate jets or turbo props, multi- and single-engine piston aircraft are often used for regional business travel. This is particularly true in areas with high populations and limited or congested transportation connectivity outlets. Business aviation offers companies multiple benefits associated with time savings, employee satisfaction, and schedule control among others. The National Business Aircraft Association’s (NBAA’s) 2017 Annual Report noted that nationwide, business aviation contributes $200 billion in annual economic activity. At the Airpark, business use of aviation primarily consists of single- and multi-engine piston aircraft; however, PMP has experienced an increase in itinerant turboprop and jet activity in recent years.

The FAA’s 2015–2019 Report to Congress estimated that business aircraft usage annually comprises 8.7 percent of all aviation activity, and an additional 9.7 percent of the nation’s general aviation activity is considered corporate. These figures represent a small decline in the use of business/corporate aviation compared to 2008 and 2012, when they totaled 9.6 percent and 11.9 percent, respectively.

2.2.8 - NextGen

NextGen is an initiative from the FAA to develop technology geared toward making air travel safer and more efficient, and to replace older/existing air traffic management technology. There are many initiatives being developed specifically for airports to help accommodate the demand for additional capacity in a safe, efficient, and environmentally responsible manner, such as the FAA’s En-Route Automation Modernization (ERAM), which processes data from 64 radars and tracks 1,900 aircraft at a time.

While NextGen is an FAA-driven initiative, it requires aircraft operators of both private and airline carriers to equip aircraft and pursue NextGen practices. Specifically, the FAA initially required that aircraft be equipped with Automatic Dependent Surveillance-Broadcast Out (ADS-B) equipment by January 1, 2020, to fly in most controlled airspace. This equipment continuously transmits aircraft data, such as airspeed, altitude, and location, to ADS-B ground stations. While certain exemptions may apply, and there are rebates for the installation of this equipment, the requirement of ADSB equipment in all aircraft may be a minor deterrent to small and recreational aircraft activity in the future. In the *FAA Aerospace Forecast Fiscal Years 2018–2038*, the FAA projects a decline in single- and multi-engine operations through 2038.

While the requirement for aircraft to be equipped with ADS-B technology is not the sole reason for these negative projections, it likely has some impact.

2.2.9 - Unmanned Aircraft Systems

Unmanned Aircraft Systems (UAS), commonly referred to as drones, have revolutionized the National Airspace System (NAS) in recent years. Developments in UAS technology and growth in their demand and use in several industries have increased concern due to the current NAS not being tailored to accommodate manned and unmanned aircraft operating in the same environment. For UAS and manned aircraft to operate safely and efficiently in an integrated system within the NAS, continued study is needed that may affect policies at all levels.

To compound the issue, requirements and regulations regarding the operation of UAS are ever-evolving, and, in many instances, are not followed. The FAA has promoted numerous outreach efforts, such as B4UFLY to support the safe integration of UAS into the NAS, but the effects are difficult to determine due to the complexity involved with collecting accurate data on their use. The presence of UAS in the NAS, and the expansion of their abilities based on improved battery life, improved range, and reduced cost, will ultimately have an ever-increasing impact on the NAS. It is unknown at this juncture how UAS will impact future activity at the Airpark or at other airports throughout the U.S. This growing segment of the aviation industry needs continued monitoring.

2.3 - Socioeconomic Trends

Depending on the role of an airport and the population base that it serves, the socioeconomic profile of the surrounding region can often influence existing and future aviation-related activity. The geographical areas that were examined for this Master Plan Update included the Miami/Ft. Lauderdale MSA, Broward County, and the state of Florida. This analysis examined historical trends and future projections of population, employment, per capita personal income (PCPI), and gross regional product (GRP). Data were obtained from Woods and Poole Economics, Inc., an independent firm that specializes in long-term economic and demographic projections.

The role and type of activity at PMP combined with socioeconomic factors play a vital part of the master planning process. Socioeconomic factors provide a general understanding of the existing conditions in the area along with developing future projections of the aviation activity for the Airpark. The following sections provide a summary of socioeconomic data considered in the development of forecasts.

2.3.1 - Population

Florida's population experienced significant, constant growth since the 1950's and the state is consistently ranked as one of the fastest-growing in the U.S. Despite significant state-wide impacts associated with the tumultuous housing market, this trend continued through the 2008-2010 economic downturn, bolstered by a high incoming transient population and the state's popularity as a destination for retirees. **Table 2-9** shows historical population comparatively for Broward County, the Miami/Ft. Lauderdale MSA, and the state of Florida.

As shown, between 2008 and 2017, Florida experienced an average annual population growth rate of 1.41 percent. The Miami/Ft. Lauderdale MSA and Broward County experienced slightly less population growth during that timeframe with average annual growth rates of 1.34 percent and 1.33 percent respectively.

Table 2-9. Resident Population			
Year	**Broward County**	**Miami/Ft. Lauderdale MSA**	**Florida**
2008	1,728,984	5,474,388	18,291,278
2009	1,741,282	5,530,449	18,571,749
2010	1,753,580	5,586,510	18,852,220
2011	1,782,493	5,672,338	19,112,490
2012	1,811,405	5,758,165	19,372,760
2013	1,840,318	5,843,993	19,633,030
2014	1,869,230	5,929,820	19,893,300
2015	1,893,550	6,004,670	20,158,750
2016	1,920,276	6,087,110	20,451,122
2017	1,947,002	6,169,550	20,743,494
AAGR 2008-2017	1.33%	1.34%	1.41%
Source: Woods and Poole, Inc.			

2.3.2 - Economic Indicators

In addition to population, other demographic factors can influence demand for general aviation in a particular region. Local, regional, and statewide economic performance also can significantly impact aviation demand. Economic trends are summarized in this analysis through an examination of employment, earnings, and economic productivity data.

Employment is often used to understand economic activity due to the availability of data from various agencies, as well as the simplicity of data to gain a snapshot of the overall health of a specific catchment area. **Table 2-10** summarizes the historical employment rates for Broward County, the Miami/Ft. Lauderdale MSA, and Florida from 2008 to 2017. Data show similar trends among these three areas, with employment growth maintaining a steady, aggressive rate of increase over the past ten years. Employment growth in the Miami/Ft. Lauderdale MSA has outpaced statewide and county increases during this timeframe.

Table 2-10. Employment			
Year	**Broward County**	**Miami/Ft. Lauderdale MSA**	**Florida**
2008	958,638	3,067,558	9,685,528
2009	972,459	3,104,629	9,781,439
2010	986,280	3,141,700	9,877,350
2011	1,016,115	3,244,805	10,135,845
2012	1,045,950	3,347,910	10,394,340
2013	1,075,785	3,451,015	10,652,835
2014	1,105,620	3,554,120	10,911,330
2015	1,128,550	3,626,250	11,132,260
2016	1,151,046	3,697,536	11,349,524
2017	1,173,542	3,768,822	11,566,788
AAGR 2008-2017	2.27%	2.31%	1.99%
Source: Woods and Poole, Inc.			

GRP is defined as the market value of all goods and services produced within a geographic area. According to many economists, a healthy economy is defined by a 2 percent annual growth rate. As shown in **Table 2-11**, the GRP of Broward County, the Miami/Ft. Lauderdale MSA, and the state of Florida experienced robust growth between 2008 and 2017 with average annual growth rates of 2.33, 2.41, and 2.12 percent, respectively. These figures have been converted to 2018 dollars to adjust for inflation.

Table 2-11. Gross Regional Product ($2018)

Year	Broward County (Mil.)	Miami/Ft. Lauderdale MSA (Mil.)	Florida (Bil.)
2008	$82,253	$271,139	$810.0
2009	$83,918	$275,618	$825.1
2010	$85,583	$280,097	$840.2
2011	$87,390	$258,184	$855.4
2012	$89,196	$236,272	$870.5
2013	$91,002	$214,360	$885.7
2014	$92,809	$192,448	$900.8
2015	$95,569	$317,989	$926.6
2016	$98,388	$327,042	$952.6
2017	$101,207	$336,095	$978.6
AAGR 2008-2017	2.33%	2.41%	2.12%

Source:
Woods and Poole, Inc.

PCPI offers insight to the economic potential of an area and provides a broad indicator of individual economic well-being. PCPI is a composite measure of market potential and indicates the general ability of persons to purchase products and services.

Table 2-12 summarizes the historical PCPI for Broward County, the Miami/Ft. Lauderdale MSA, and Florida. PCPI has slowly improved in the years following the 2008–2010 economic recession. It should be noted that PCPI data obtained from Woods and Poole is reported in constant dollars (year 2018) to adjust for inflation over time.

Table 2-12. Per Capita Personal Income ($2018)

Year	Broward County	Miami/Ft. Lauderdale MSA	Florida
2008	$45,632	$49,052	$43,907
2009	$45,825	$49,447	$44,198
2010	$46,018	$49,842	$44,488
2011	$46,097	$50,288	$44,804
2012	$46,177	$50,734	$45,119
2013	$46,256	$51,180	$45,435
2014	$46,336	$51,626	$45,751
2015	$47,095	$52,468	$46,540
2016	$47,816	$53,273	$47,297
2017	$48,537	$54,079	$48,055
AAGR 2008-2017	0.69%	1.09%	1.01%

Source:
Woods and Poole, Inc.

2.3.3 - Socioeconomic Trends - Summary

Over the past two decades, the Miami/Ft. Lauderdale metropolitan area experienced a significant population increase that has changed the demographics, employment base, and economic condition of Pompano Beach and the surrounding community. This shift has also brought economic changes, as the area continues significant development and redevelopment to a robust and diversified economic base. The City of Pompano Beach has significant employment in industries that include construction, manufacturing, retail trade, finance and insurance, real estate, professional services, educational services, health care, and others.

The City's location within the Miami/Ft. Lauderdale MSA with close access to major transportation corridors, desirable destination for tourism and retirees, and favorable climate will all contribute to the continued development of the region. As a result, the forecast assumptions about future Airpark activities are rooted in anticipated population growth and strong economic growth through the forecast horizon.

2.4 - Previous Forecasts

Prior to the development of forecasts for this Master Plan Update, previous forecasts for the Airpark were examined to gauge their continued validity. Forecasts of total aircraft operations and based aircraft identified in the 2008 Master Plan Update, Florida Aviation System Plan (FASP) 2035, and the FAA TAF issued January 2018 are shown in **Table 2-13**.

Table 2-13. Comparison of Previous Forecasts

Year	Based Aircraft			Aircraft Operations		
	FAA TAF	2008 Master Plan*	FASP 2035*	FAA TAF	2008 Master Plan*	FASP 2035*
2014	74	192	74	133,805	144,930	133,805
2015	145	197	75	138,564	146,940	135,533
2016	134	201	76	149,804	148,950	137,261
2017	**127**	**205**	**77**	**130,234**	**150,960**	**138,990**
2022	138	231	82	126,110	166,025	148,075
2027	140	258	87	127,681	179,900	158,234
2032	140	285	93	129,273	193,775	169,000
2037	140	312	99	130,882	207,650	179,767

Sources:
FAA Terminal Area Forecast issued January 2018.
FASP 2035.
2008 Master Plan Update.

Note:
*2008 Master Plan Update and FASP 2035 estimates have been extrapolated for inter-years and years that exceed their respective planning horizons.

According to the National Based Aircraft Inventory Program and ATCT records, there were 166 verified based aircraft at the Airpark and 132,489 aircraft operations that occurred in base year 2017. As shown in **Table 2-13**, both the 2008 Master Plan Update and the FASP 2035 produced operations forecasts well above current levels of activity, and based aircraft forecasts that vary significantly from the 166 FAA-verified based aircraft. The FAA TAF estimates for based aircraft in base year 2017 are much lower than the number reported by Airpark Management, though total operations are roughly in line with the ATCT. It should be noted that the discrepancy between operations reported by the ATCT and the TAF is largely attributed to the TAF reporting data by fiscal year, and the ATCT reporting by calendar year.

The FAA TAF uses a time-series approach to project general aviation aircraft activity at airports that does not necessarily account for historical trends or anticipated changes. The TAF projects negligible growth in operations at PMP, and an increase of 13 based aircraft over the 20-year forecast horizon.

Based on an analysis of previous forecasts, it has been determined that updated forecasts of aviation activity are required as a specific component of this Master Plan Update. Previous forecasting efforts yielded projections that were too aggressive or too conservative given current levels of activity, and the FAA TAF projects significantly lower-than-anticipated levels of future activity due to its simplistic approach to general aviation forecasting and low estimate of based aircraft at the Airpark.

The following sections identify the assumptions, approach, and methodologies used to develop updated forecasts of based aircraft and aircraft operations at the Airpark.

2.5 - Forecast Assumptions and Approach

Forecast assumptions have been developed based on input provided by Airpark staff, tenants, and an examination of the trends identified in previous sections. These assumptions provide general guidelines that aid in the development of forecasts of aviation demand and include the following:

- The Airpark will continue to operate as a general aviation airport through the planning period.
- Airports in the Miami/Ft. Lauderdale metropolitan area will remain open for the foreseeable future.
- The Airpark will continue to seek general aviation, corporate, business aviation, and flight training tenants and itinerant operations.
- The aviation industry on the national level will grow as forecasted per *FAA Aerospace Forecast Fiscal Years 2018–2038*.
- The socioeconomic characteristics of Broward County, the Miami/Ft. Lauderdale MSA, and the state of Florida will continue to grow as forecasted.
- Both Federal and state aviation programs will be in place through the planning period to assist in funding future capital development needs.
- Facility requirements to accommodate projected demand will occur as necessary; future development at the Airpark could be constrained based on the built-out environment surrounding the Airpark, length of existing runways, and the lack of developable land attributed to an intersecting three-runway airfield configuration. Runway extensions and closure/redevelopment of runways that may not be needed within a 20-year horizon are potential options that will be addressed in subsequent chapters of this Master Plan Update. The ability to implement such improvements if needed result in an unconstrained approach to the development of forecasts.

The overall approach to develop forecasts for this Master Plan Update was based on detailed analyses of local and regional trends in aviation activity, and a determination of how existing and future activity at PMP will be influenced by local, regional, and national aviation and non-aviation factors over a 20-year timeframe. This analysis entailed data collection from various resources including Airpark records, the ATCT, FAA databases, Woods and Poole Inc., FASP 2035, and the 2008 Master Plan Update. In addition, data and information were obtained through in-person interviews with tenants and members of the Planning Review Committee (PRC). This information provided a thorough understanding of tenant goals, facility needs, user demand, and potential impacts to future aviation activity at the Airpark.

2.6 - Based Aircraft Forecasts

While the FAA maintains historical records of based aircraft in the TAF for all NPIAS airports, including PMP, Airpark Management conducted a based aircraft inventory in 2018, which identified 199 aircraft,

166 of which were verified by the FAA's National Based Aircraft Inventory Program. As noted previously, the FAA's TAF reported 127 based aircraft in base year 2017. For the purposes of this Master Plan Update, the 166 verified aircraft in the National Based Aircraft Inventory Program are used as a base year estimate for forecasts.

2.7 - Based Aircraft Methodologies

Several methodologies were utilized to develop forecasts of based aircraft including socioeconomic comparisons, regional market share, and FAA forecast comparisons. Descriptions and results of these methodologies and the preferred forecast methodology are presented in the following sections. It should be noted that because accurate historical based aircraft counts were not available, specific types of forecasting methodologies such as linear regression were not used since they are less effective indicators of future activity compared with variable comparison methodologies, which examine established projections of data such as socioeconomic projections or regional aviation activity forecasts identified in the TAF.

2.7.1 - Based Aircraft Forecast - Socioeconomic Methodology

The following sections describe socioeconomic comparison methodologies for population, employment, per capita personal income, and gross regional product.

2.7.1.1 - Population Variable

Socioeconomic characteristics of a community or region do not always dictate aviation-related activity at a local airport; however, the consistent growth in population in and around the Miami/Ft. Lauderdale area over the past several decades has had significant impacts at the Airpark.

The socioeconomic population variable methodology assumed that the number of based aircraft at the Airpark beginning in base year 2017 will mimic population projections for the compared geographic areas through 2037. **Table 2-14** identifies forecast based aircraft based on projected populations of Broward County, the Miami/Ft. Lauderdale MSA, and the state of Florida.

Table 2-14. Based Aircraft Forecast: Socioeconomic Population Variable Methodology

Year	Broward County		Miami/Ft. Lauderdale MSA		Florida	
	Population	Based Aircraft	Population	Based Aircraft	Population	Based Aircraft
2017	1,947,002	166	6,169,550	166	20,743,494	166
2022	2,083,756	178	6,591,466	177	22,243,254	178
2027	2,227,520	190	7,035,180	189	23,829,884	191
2037	2,520,641	215	7,939,947	214	27,109,773	217
AAGR 2017-2037	1.30%		1.27%		1.35%	

Sources:
Woods and Poole, Inc.
Kimley-Horn.

As shown, the socioeconomic population variable methodology produced a range of based aircraft from 214 to 217 by the end of the 20-year planning period, with average annual growth rates ranging from 1.27 percent to 1.35 percent.

2.7.1.2 - Employment Variable

Similar to the socioeconomic population variable methodology, the socioeconomic employment variable methodology assumed that between 2017 and 2037, the number of based aircraft at the Airpark would increase at the same rate as growth in employment for the compared geographic areas. **Table 2-15** identifies forecast based aircraft based on projected employment for Broward County, the Miami/Ft. Lauderdale MSA, and the state of Florida.

Table 2-15. Based Aircraft Forecast: Socioeconomic Employment Variable Methodology

Year	Broward County		Miami/Ft. Lauderdale MSA		Florida	
	Employment	Based Aircraft	Employment	Based Aircraft	Employment	Based Aircraft
2017	1,173,542	166	3,768,822	166	11,566,788	166
2022	1,286,794	182	4,128,840	182	12,661,760	182
2027	1,401,628	198	4,496,460	198	13,773,922	198
2037	1,631,861	231	5,240,040	231	16,008,243	230
AAGR 2017-2037	1.66%		1.66%		1.64%	

Sources:
Woods and Poole, Inc.
Kimley-Horn.

As shown, the socioeconomic employment variable methodology produced a range of based aircraft from 230 to 231 by the end of the 20-year planning period, with average annual growth rates ranging from 1.64 percent to 1.66 percent.

2.7.1.3 - Per Capita Personal Income Variable

Individual income can be an indicator of a local population's propensity to travel or own an aircraft. Commercial service is not provided at the Airpark. However, PMP has experienced an increase in business travel and jet/turboprop operations in recent years. **Table 2-16** identifies forecast based aircraft based on projected PCPI of Broward County, the Miami/Ft. Lauderdale MSA, and the state of Florida.

Table 2-16. Based Aircraft Forecast: Socioeconomic PCPI Variable Methodology

Year	Broward County		Miami/Ft. Lauderdale MSA		Florida	
	PCPI ($2018)	Based Aircraft	PCPI ($2018)	Based Aircraft	PCPI ($2018)	Based Aircraft
2017	$48,537	166	$54,079	166	$48,055	166
2022	$52,163	178	$58,146	178	$51,899	179
2027	$55,717	191	$62,125	191	$55,733	193
2037	$61,851	212	$69,106	212	$62,390	216
AAGR 2017-2037	1.22%		1.23%		1.31%	

Sources:
Woods and Poole, Inc.
Kimley-Horn.

As shown, the socioeconomic PCPI variable methodology produced a range of based aircraft from 212 to 216 by the end of the 20-year planning period, with average annual growth rates ranging from 1.22 percent to 1.31 percent. It should be noted that forecasts of PCPI were converted to constant dollars ($2018) to adjust for inflation over time.

2.7.1.4 - Gross Regional Product Variable

The final socioeconomic variable examined to project based aircraft at the Airpark was GRP. As noted, GRP is a measurement of a geographic market's economic output in terms of goods and services produced. As with other socioeconomic methodologies presented in this section, the socioeconomic GRP variable methodology assumed that the number of based aircraft at the Airpark will mimic growth rates for the compared geographic areas. Results of this methodology are presented in **Table 2-17**.

Table 2-17. Based Aircraft Forecast: Socioeconomic GRP Variable Methodology

Year	Broward County		Miami/Ft. Lauderdale MSA		Florida	
	GRP ($2018) in millions	Based Aircraft	GRP ($2018) in millions	Based Aircraft	GRP ($2018) in billions	Based Aircraft
2017	$101,207	166	$336,095	166	$978.6	166
2022	$115,722	190	$382,774	189	$1,112.7	189
2027	$131,302	215	$433,007	214	$1,256.8	213
2037	$166,025	272	$545,055	269	$1,577.6	268
AAGR 2017-2037	2.51%		2.45%		2.42%	

Sources:
Woods and Poole, Inc.
Kimley-Horn.

As shown, the socioeconomic GRP variable methodology produced a range of based aircraft from 268 to 272 by the end of the 20-year planning period, with average annual growth rates ranging from 2.42 percent to 2.51 percent. Forecasts of GRP were converted to constant dollars ($2018) to adjust for inflation over time.

2.7.2 - Based Aircraft Forecast – Regional Market Share Methodology

The second type of methodology used to project based aircraft at the Airpark entailed application of a market share projection. Market share compares the individual share of a specific entity (based aircraft at PMP) with that of a larger market. The market selected for comparison with the Airpark included all NPIAS airports equipped with an ATCT within a 40-mile radius of PMP. These airports were described previously in Section 2.1.3. These airports included Boca Raton (BCT), Fort Lauderdale/Hollywood International (FLL), Fort Lauderdale Executive (FXE), North Perry (HWO), Palm Beach County Park (LNA), Miami International (MIA), Miami-Opa Locka Executive (OPF), Palm Beach International (PBI) and Miami Executive (TMB).

In 2017, the Airpark accounted for 6.0 percent of based aircraft within the regional market according to the FAA TAF. Three market share methodologies were developed to account for potential changes in based aircraft demand at PMP. The first methodology (Market Share Low Growth Scenario) assumed that the Airpark's market share of regional airport based aircraft would remain constant at 6.0 percent throughout the 20-year planning horizon.

The second methodology (Market Share High Growth Scenario) assumed that the Airpark's market share of based aircraft would increase at a constant rate to 10.0 percent by 2037. This growth rate indicates that based aircraft at the Airpark would not only increase because of local demand, but also because the Airpark would capture some relocated based aircraft from regional airports that cater to other types of aviation activity such as corporate/business operations.

The third methodology (Market Share Medium Growth Scenario) assumed that the Airpark's market share of regional airport based aircraft would increase at a constant rate to 8.0 percent by 2037, which is the mean market share percentage of the Low Growth and High Growth scenarios.

Results of the Low Growth, High Growth, and Medium Growth market share methodologies are depicted in **Table 2-18**. As shown, the Low Growth methodology projected 207 based aircraft by 2037, the Medium Growth methodology projected 275 based aircraft, and the High Growth methodology projected 342 based aircraft.

Table 2-18. Based Aircraft Forecast: Market Share Methodology

Year	Regional Airports Based Aircraft	PMP Low Growth Based Aircraft	PMP Low Growth %	PMP Medium Growth Based Aircraft	PMP Medium Growth %	PMP High Growth Based Aircraft	PMP High Growth %
2017	2,750	166	6.0%	166	6.0%	166	6.0%
2022	2,906	175	6.0%	190	6.5%	204	7.0%
2027	3,084	186	6.0%	216	7.0%	247	8.0%
2037	3,424	207	6.0%	275	8.0%	342	10.0%
AAGR 2017-2037	1.10%	1.10%	N/A	2.55%	N/A	3.69%	N/A

Sources:
FAA Terminal Area Forecast issued January 2018.
Kimley-Horn.

2.7.3 - Based Aircraft Forecast – FAA Aerospace Forecast Methodology

The final methodology employed to forecast based aircraft at the Airpark utilized national general aviation fleet mix projections identified in the *FAA Aerospace Forecast Fiscal Years 2018-2038*. The Aerospace Forecasts project that single-engine piston aircraft will decline one percent annually through 2038, multi-engine piston aircraft will decline 0.4 percent annually, turboprop aircraft will increase 1.7 percent annually, jet aircraft will increase 2.2 percent annually, and rotorcraft (helicopters) will increase 1.8 percent annually. These projections were applied to the existing based aircraft fleet at the Airpark, and the results are depicted in **Table 2-19**.

Table 2-19. Based Aircraft Forecast: FAA Aerospace Forecast Methodology

Year	Single-Engine Piston	Multi-Engine Piston	Turboprop	Jet	Rotorcraft	Other/ Experimental*	Total
2017	105	36	10	3	12	1	166
2022	100	35	11	3	13	1	162
2027	95	35	12	4	14	1	159
2037	86	33	14	5	17	1	155
AAGR 2017-2037	-1.00%	-0.40%	1.70%	2.20%	1.80%	0.80%	-0.52%

Source:
FAA Aerospace Forecast Fiscal Years 2018-2038.
Kimley-Horn.

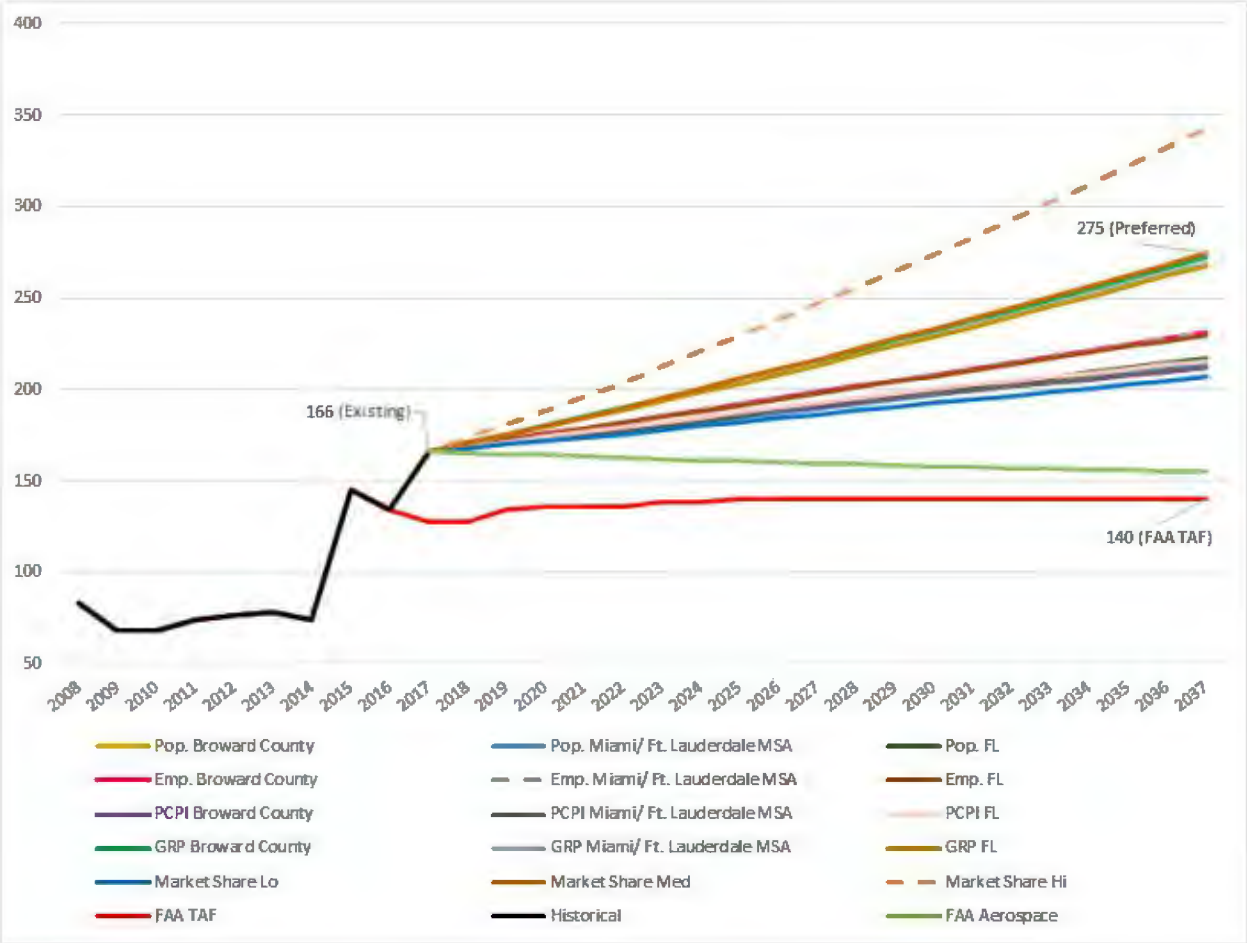
Note:
*Other includes blimp; not included in total or forecast

As shown, the FAA Aerospace Forecast methodology projected a decline in based aircraft at the Airpark from 166 in base year 2017 to 155 in 2037, which represents an average annual growth rate of -0.52 percent.

2.7.4 - Based Aircraft Forecast – Preferred Methodology

A summary of based aircraft forecast methodology results including the FAA TAF is provided in **Figure 2-1**. The summary presented below represents a range of potential based aircraft activity at the Airpark over the next 20 years, which can assist Airpark Management with facility planning in the event that activity exceeds or falls short of the preferred forecast.

Figure 2-1. Based Aircraft Forecast Methodologies Summary



Source:
Kimley-Horn.

Based on known demand for additional aircraft parking hangars and ramp space at the Airpark, and the fact that the Airport identified 199 based aircraft (33 more than the number verified in the FAA's National Based Aircraft Inventory Program) in 2017, the recommended forecast should project relatively strong growth compared to the FAA's forecast of 140 based aircraft by 2037.

The forecasts assumed that factors that impact aviation demand at PMP today will likely remain relatively constant in the future. Based on this assumption and considering that the market share forecast approach utilized generally accepted projections of aviation activity developed by the FAA, the Market Share Medium Growth Scenario methodology is the preferred forecast for based aircraft. This methodology resulted in an increase in based aircraft from 166 in base year 2017 to 275 in 2037, which reflects an average annual growth rate of 2.55 percent.

2.7.5 - Based Aircraft Fleet Mix

An airport's fleet mix impacts aircraft storage and apron requirements, as well as airfield design, pavement strength needs, and airfield capacity. As with most general aviation airports, the majority of the fleet at PMP is comprised of single-engine piston aircraft. As noted, one of the basic assumptions in the development of forecasts is that facility requirements necessary to accommodate projected demand will be implemented as needed. These facility needs could include additional runway length, apron improvements, and others. As such, it is anticipated that the Airpark's fleet mix will adapt over time to reflect local and national aviation trends, and the fleet mix forecast was not constrained. As identified in the previous section, the FAA projects declines in both single- and multi-engine piston aircraft and increases in jet, turboprop, rotorcraft and other/experimental aircraft through 2037.

The Airpark's overall proportion of single- and multi-engine piston aircraft is projected to decline gradually over the planning horizon, although decreases in the actual number of aircraft within these categories are not expected. Conversely, it is anticipated that the proportion of turboprop, jet, rotorcraft, and other/experimental aircraft will increase gradually through 2037. The existing and projected fleet mix is shown in **Table 2-20**.

Table 2-20. Based Aircraft Fleet Mix

Year	Single-Engine Piston		Multi-Engine Piston		Turboprop		Jet		Rotorcraft		Other/ Experimental		Total
	#	%	#	%	#	%	#	%	#	%	#	%	#
2017	105	63.3	36	21.7	10	6.0	3	1.8	12	7.2	0	0.0	166
2022	120	62.1	40	21.3	12	6.5	4	1.9	14	7.6	1	0.5	191
2027	133	61.0	45	21.0	15	7.0	4	2.0	17	8.0	2	1.0	216
2037	163	59.0	55	20.0	22	8.0	8	3.0	24	9.0	3	1.0	275
AAGR 2017-2037	2.2%	N/A	2.1%	N/A	4.0%	N/A	5.2%	N/A	3.6%	N/A	100%	N/A	2.6%

Sources:
FAA Aerospace Forecast Fiscal Years 2018-2038.
Kimley-Horn.

As shown, the percentage of single-engine piston aircraft is anticipated decline from 63.3 percent in 2017 to 59.0 percent in 2037. The proportion of multi-engine piston aircraft is anticipated to decline from 21.7 percent to 20.0 percent, turboprops are projected to increase from 6.0 percent of the fleet to 8.0 percent, jet aircraft are anticipated to increase from 1.8 percent of the fleet to 3.0 percent, rotorcraft are projected to increase from 7.2 percent to 9.0 percent, and other/experimental aircraft are projected to increase from 0.0 percent to 1.0 percent.

2.8 - Aircraft Operations Forecasts

Annual aircraft operations are used to determine funding and design criteria at airports. Accurately gauging aircraft operations can help inform the adequacy of airfield capacity and other facility needs at an airport. Aircraft operations at GA airports comprise nearly all segments of the overall aviation industry, except for commercial air carrier and military operations. GA operations incorporate flight training, corporate aviation, law enforcement, medical operations, and personal/recreational activity, among others. As previously noted, an operation is defined as a takeoff or a landing. The following sections present forecasts of annual aircraft operations at the Airpark over the 20-year planning horizon.

2.8.1 - General Aviation Operations Methodologies

Aircraft operations forecasts were developed using several methodologies including socioeconomic, market share, linear regression, and operations per based aircraft (OPBA). The following sections describe results of these methodologies as they pertain to GA operations. It should be noted that a forecast of military operations was also developed, which is presented following the sections applicable to GA operations forecasts.

2.8.1.1 - GA Operations Forecast - Socioeconomic Methodology: Population Variable

Socioeconomic forecasts of GA operations were developed using the same methodologies employed to project based aircraft activity. The population variable methodology for aircraft operations applied a regression analysis that utilized population projections for Broward County, the Miami/Ft. Lauderdale MSA, and the state of Florida. Results of this methodology are shown in **Table 2-21**.

Table 2-21. GA Operations Forecast: Socioeconomic Population Variable Methodology

Year	Broward County		Miami/Ft. Lauderdale MSA		Florida	
	Population	GA Operations	Population	GA Operations	Population	GA Operations
2017	1,947,002	132,414	6,169,550	132,414	20,743,494	132,414
2022	2,083,756	141,715	6,591,466	141,169	22,243,254	141,988
2027	2,227,520	151,492	7,035,180	150,993	23,829,884	152,116
2037	2,520,641	171,427	7,939,947	170,411	27,109,773	173,052
AAGR 2017-2037	1.30%		1.27%		1.35%	

Sources:
Woods and Poole, Inc.
Kimley-Horn.

As shown, the socioeconomic population variable methodology produced a range of GA operations from 170,411 to 173,052 by the end of the 20-year planning period, with average annual growth rates ranging from 1.27 percent to 1.35 percent.

2.8.1.2 - GA Operations Forecast - Socioeconomic Methodology: Employment Variable

The employment variable methodology assumed that GA operations at the Airpark will increase at the same rate as employment rates within the designated geographic areas starting in base year 2017. Results of this methodology are depicted in **Table 2-22**.

Table 2-22. GA Operations Forecast: Socioeconomic Employment Variable Methodology

Year	Broward County		Miami/Ft. Lauderdale MSA		Florida	
	Employment	GA Operations	Employment	GA Operations	Employment	GA Operations
2017	1,173,542	132,414	3,768,822	132,414	11,566,788	132,414
2022	1,286,794	145,193	4,128,840	145,063	12,661,760	144,949
2027	1,401,628	158,150	4,496,460	157,979	13,773,922	157,681
2037	1,631,861	184,127	5,240,040	184,104	16,008,243	183,259
AAGR 2017-2037	1.66%		1.66%		1.64%	

Sources:
Woods and Poole, Inc.
Kimley-Horn.

As shown, the socioeconomic employment variable methodology projected a range of GA operations from 183,259 to 184,127 by 2037, with average annual growth rates ranging from 1.64 percent to 1.66 percent.

2.8.1.3 - GA Operations Forecast - Socioeconomic Methodology: Per Capita Personal Income Variable

The PCPI variable methodology assumed that GA Operations at PMP will increase at the same rate as PCPI with Broward County, the Miami/Ft. Lauderdale MSA, and the state of Florida between 2017 and 2037. Results are depicted in **Table 2-23**. Monetary values have been converted to 2018 dollars to adjust for inflation over time.

Table 2-23. GA Operations Forecast: Socioeconomic PCPI Variable Methodology

Year	Broward County		Miami/Ft. Lauderdale MSA		Florida	
	PCPI ($2018)	GA Operations	PCPI ($2018)	GA Operations	PCPI ($2018)	GA Operations
2017	$48,537	132,414	$54,079	132,414	$48,055	132,414
2022	$52,163	142,307	$58,146	142,372	$51,899	143,006
2027	$55,717	152,000	$62,125	152,115	$55,733	153,570
2037	$61,851	168,734	$69,106	169,210	$62,390	171,915
AAGR 2017-2037	1.22%		1.23%		1.31%	

Sources:
Woods and Poole, Inc.
Kimley-Horn.

As shown, the socioeconomic PCPI variable methodology produced a range of GA operations between 168,734 and 171,915 by 2037, with average annual growth rates between 1.22 percent and 1.31 percent.

2.8.1.4 - GA Operations Forecast - Socioeconomic Methodology: Gross Regional Product Variable

The fourth socioeconomic methodology to forecast GA operations utilized GRP projections for Broward County, the Miami/Ft. Lauderdale MSA, and Florida. GRP for the geographic regions has been converted to constant dollars ($2018) to adjust for inflation. Results of this methodology are depicted in **Table 2-24**.

Table 2-24. GA Operations Forecast: Socioeconomic GRP Variable Methodology						
Year	Broward County		Miami/Ft. Lauderdale MSA		Florida	
	GRP ($2018) in millions	GA Operations	GRP ($2018) in millions	GA Operations	GRP ($2018) in billions	GA Operations
2017	$101,207	132,414	$336,095	132,414	$978.6	132,414
2022	$115,722	151,405	$382,774	150,804	$1,112.7	150,557
2027	$131,302	171,789	$433,007	170,595	$1,256.8	170,048
2037	$166,025	217,219	$545,055	214,739	$1,577.6	213,456
AAGR 2017-2037	2.51%		2.45%		2.42%	
Sources: Woods and Poole, Inc. Kimley-Horn.						

As shown, the GRP variable methodology projected a range of GA operations between 213,456 and 217,219 by 2037, reflecting average annual growth rates between 2.42 percent and 2.51 percent.

2.8.1.5 - GA Operations Forecast - Regional Market Share Methodology

The regional market share methodology for GA operations employed a similar approach to the methodology utilized to project based aircraft, however, some of the assumptions were modified because accurate historical annual GA operations data were available from the ATCT at the Airpark as well as from FAA databases for nearby airports. Three market share methodologies were developed which included Low Growth, Medium Growth, and High Growth scenarios.

In 2017, the Airpark's share of GA operations compared with the surrounding region (which includes the same nine airports identified previously in Section 2.1.3) was 11.2 percent. The Low Growth Scenario assumed that the Airpark's market share would remain constant throughout the 20-year planning horizon. This percentage was applied to projections of GA operations for airports in the region reported in the FAA TAF.

Between 2008 and 2017, the Airpark's share of GA operations increased from 9.6 percent to 11.2 percent. The High Growth Scenario assumed that the annual rate of change during that timeframe would continue through 2037.

The Medium Growth Scenario assumed that the Airpark's market share would increase at the average rate of the combined High Growth and Low Growth scenarios. Results of the market share methodologies are depicted in **Table 2-25**.

Table 2-25. GA Operations Forecast: Market Share Methodology							
Year	Regional Airports GA Operations	PMP Low Growth GA Operations	PMP Low Growth %	PMP Medium Growth GA Operations	PMP Medium Growth %	PMP High Growth GA Operations	PMP High Growth %
2017	1,181,080	132,414	11.2%	132,414	11.2%	132,414	11.2%
2022	1,211,574	135,833	11.2%	140,636	11.6%	145,440	12.0%
2027	1,240,211	139,043	11.2%	148,877	12.0%	158,711	12.8%
2037	1,302,184	145,991	11.2%	166,642	12.8%	187,292	14.4%
AAGR 2017-2037	0.49%	0.50%	N/A	1.16%	N/A	1.77%	N/A

Sources:
FAA Terminal Area Forecast issued January 2018.
FAA Air Traffic Activity System (ATADS) database.
Kimley-Horn.

As shown, the Low Growth Scenario projected 145,991 GA operations by 2037, the Medium Growth Scenario projected 166,642 GA operations, and the High Growth Scenario projected 187,292, which represent average annual growth rates between 0.49 percent and 1.77 percent.

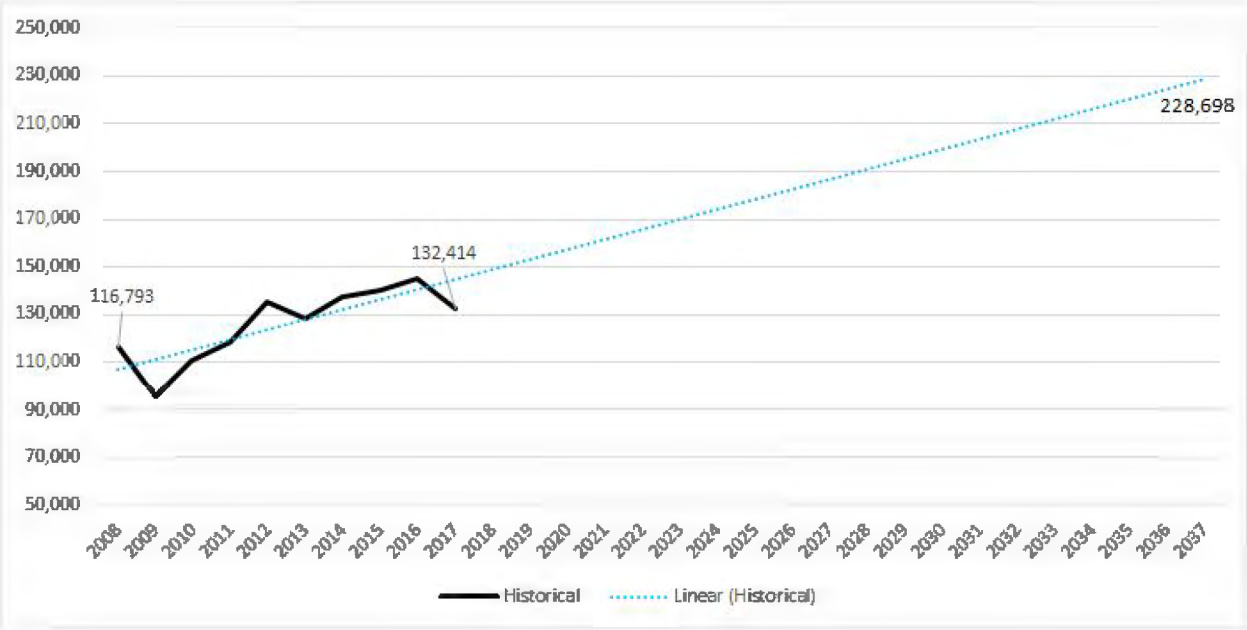
2.8.1.6 - GA Operations Forecast – Linear Regression Methodology

Because of the availability of accurate historical GA operations data provided by the Airpark's ATCT (and in the FAA's ATADS database), a linear regression methodology was developed. Linear regression (also referred to as trend analysis) utilizes historical data (annual GA operations at PMP) to project future activity by creating a linear model. Results of the trend analysis methodology are depicted in **Table 2-26** and **Figure 2-2**.

Table 2-26. GA Operations Forecast: Linear Regression Methodology	
Year	GA Operations
2008	116,793
2009	95,319
2010	111,171
2011	118,420
2012	135,440
2013	128,267
2014	137,763
2015	140,655
2016	145,544
2017	132,414
2022	165,931
2027	186,854
2037	228,698
AAGR 2017-2037	2.77%

Sources:
FAA Air Traffic Activity System (ATADS) database.
Kimley-Horn.

Figure 2-2. Linear Regression Model: GA Operations



Sources:
FAA Air Traffic Activity System (ATADS) database.
Kimley-Horn.

As shown, the linear regression methodology projected 228,698 GA operations by 2037, which represents an average annual growth rate of 2.77 percent.

2.8.1.7 - GA Operations Forecast – Operations per Based Aircraft Methodology

The final methodology employed to forecast GA operations examined OPBA. In base year 2017, the Airpark had 166 based aircraft and 132,414 GA operations, which translated to 798 OPBA. Without accurate historical based aircraft data to identify if OPBA has increased or decreased in recent years, this methodology assumed that this figure would remain constant through the 20-year planning horizon, and this figure was applied to the preferred forecast for based aircraft (Market Share Medium Growth Scenario). Results of this methodology are depicted in **Table 2-27**.

Table 2-27. GA Operations Forecast: OPBA Methodology

Year	OPBA	Preferred Forecast Based Aircraft	GA Operations
2017	798	166	132,414
2022	798	190	151,305
2027	798	216	172,649
2037	798	275	218,996
AAGR 2017-2037	N/A	2.55%	

Sources:
FAA Air Traffic Activity System (ATADS) database.
Airpark Management.
Kimley-Horn.

As shown, the OPBA methodology projected 218,996 GA operations by 2037, which reflects an average annual growth rate of 2.55 percent.

2.8.1.8 - General Aviation Operations Forecast – Preferred Methodology

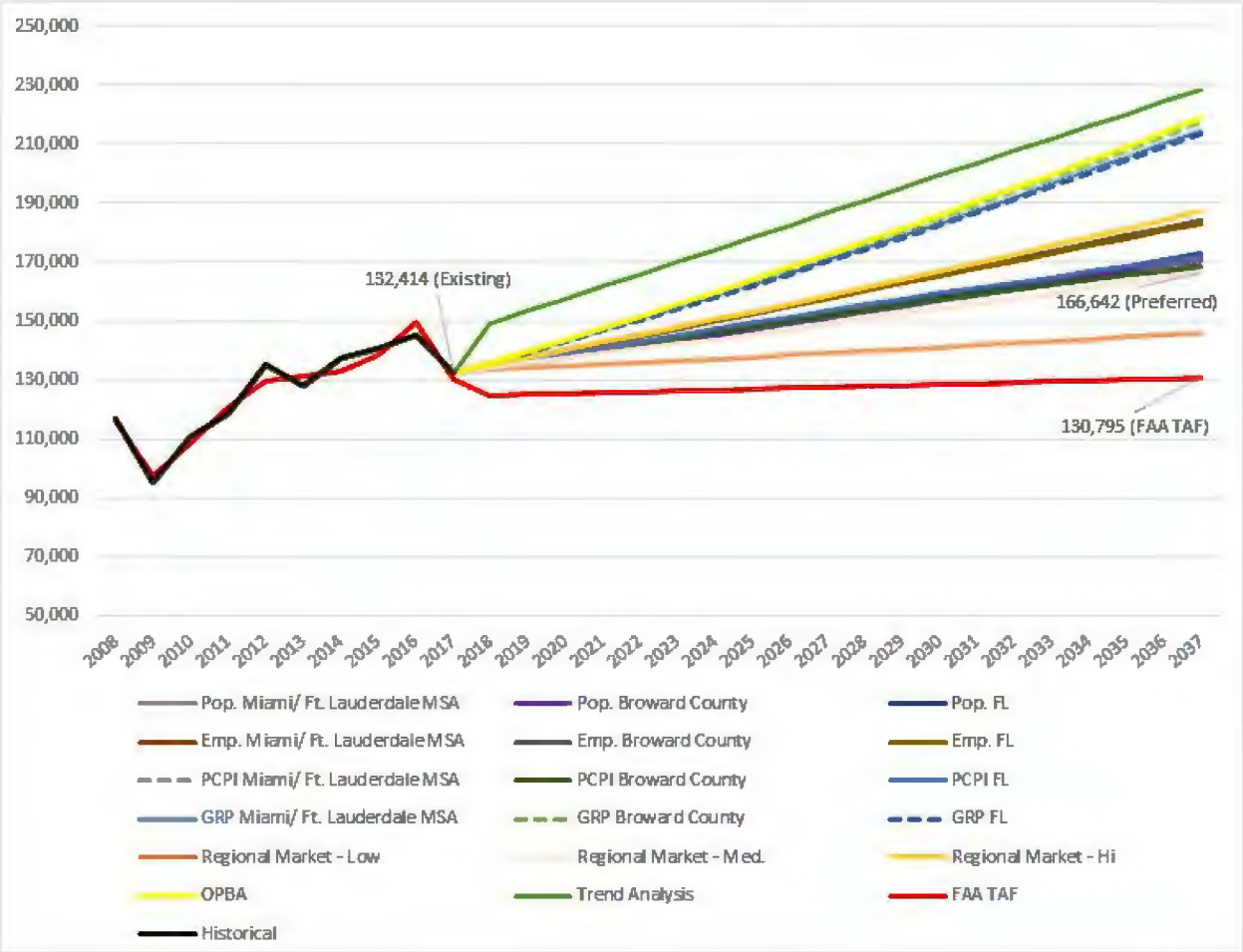
Between 2000 and 2004, the Airpark regularly experienced over 175,000 annual operations before activity declined through 2009 attributed to a combination of increasing costs of aircraft ownership and operation, and the economic downturn that occurred between 2008 and 2010. From 2010 to 2017, annual GA operations have fluctuated on a year-to-year basis, but overall, they have increased at an average annual rate of 1.4 percent. While the FAA projects that GA operational activity will remain relatively stagnant through 2037, there are several factors that indicate the Airpark will continue to see incremental, positive growth in GA operations.

Socioeconomic indicators for Broward County, the Miami/Ft. Lauderdale MSA, and the state of Florida project strong growth over the next 20-years. Similar to forecast based aircraft, though positive growth in GA operations is anticipated, it is unlikely to keep pace with local economic and demographic conditions.

Between 2008 and 2017, the Airpark's market share of regional GA operations fluctuated between 9.3 percent and 14.0 percent; while its market share overall has increased approximately 1.2 percent annually during that timeframe. Although turboprop and jet operations are anticipated to experience the most significant growth in GA activity nationwide, PMP will likely see an increase of smaller piston-powered aircraft relocating from other nearby airports that cater to larger corporate activity. This is evidenced by the Airpark's increasing historical share of operational activity in the region and several nearby airports experiencing decreases in based aircraft and annual GA operations. As such, it is anticipated that future GA operations at PMP will continue to follow patterns that have occurred between 2008 and 2017. This anticipated growth is best demonstrated by the Regional Market Share Medium Growth Methodology, which projects an increase from 132,414 GA operations in 2017 to 166,642 operations in 2037, and an average annual growth rate of 1.16 percent. Projections of this methodology will be used to identify facility needs in the subsequent chapter.

A summary of GA operations forecast methodologies including the FAA TAF is shown in **Figure 2-3**. Similar to the based aircraft summary, the preferred methodology for GA operations was developed as a "most likely to occur". The summary presented below represents a range of potential operational activity at the Airpark over the next 20 years, which can assist Airpark Management with facility planning in the event that activity exceeds or falls short of the preferred forecast.

Figure 2-3. GA Operations Forecast Methodologies Summary



Source:
Kimley-Horn.

2.8.1.9 - Military Operations Forecast

Between 2008 and 2017, an average of approximately 160 annual military operations occurred at the Airpark. Military activity at most general aviation airports is not contingent on the same factors that drive GA activity, and therefore, forecasting military operations is difficult. As a result of this uncertainty, the FAA's TAF forecast is the preferred methodology for military operations at PMP. The TAF projects 15 local military operations, 72 itinerant military operations, and 87 total military operations annually through 2037 (see **Table 2-28**).

Table 2-28. Military Operations Forecast			
Year	**Local Military Operations**	**Itinerant Military Operations**	**Total Military Operations**
2017	4	71	75
2022	15	72	87
2027	15	72	87
2037	15	72	87
AAGR 2017-2037	6.83%	0.07%	0.74%

Source:
FAA Terminal Area Forecast issued January 2018.

2.8.1.10 - Aircraft Operations Summary

A summary of total aircraft operations is presented in **Table 2-29**. As shown, total aircraft operations are anticipated to increase from 132,489 in 2017 to 166,729 in 2037, which represents an average annual growth rate of 1.16 percent.

Table 2-29. Aircraft Operations Forecast Summary			
Year	**Military Operations**	**General Aviation Operations**	**Total Operations**
2017	75	132,414	132,489
2022	87	140,636	140,723
2027	87	148,877	148,964
2037	87	166,642	166,729
AAGR 2017-2037	0.74%	1.16%	1.16%

Sources:
FAA Terminal Area Forecast issued January 2018.
FAA Air Traffic Activity System (ATADS) database.
Kimley-Horn.

2.8.1.11 - Local/Itinerant Operations

General aviation and military operations are classified as either local or itinerant. Local operations are those that remain within a 20-mile radius of an airport and include touch-and-go and most training activity. Itinerant operations are performed by an aircraft that lands at an airport, arriving from outside the airport area, or that departs an airport and leaves the airport's 20-mile radius prior to its return.

Between 2008 and 2017, the Airpark averaged 64.6 percent local operations and 35.4 percent itinerant operations based on information provided in the FAA's ATADS database. While local/itinerant percentages have fluctuated from year-to-year during this timeframe, they have remained relatively consistent over the course of 10 years. As such, it was assumed that the 64.6/35.4 percent split of local and itinerant traffic will remain consistent throughout the forecasting period. Local and itinerant operations forecasts are presented in **Table 2-30**.

Table 2-30. Local/Itinerant Operations					
Year	Total Operations	Local Operations	% Local	Itinerant Operations	% Itinerant
2008	116,931	73,934	63.2%	42,997	36.8%
2009	95,330	61,059	64.1%	34,271	35.9%
2010	111,173	73,115	65.8%	38,058	34.2%
2011	118,466	80,327	67.8%	38,139	32.2%
2012	135,476	91,480	67.5%	43,996	32.5%
2013	128,752	83,142	64.6%	45,610	35.4%
2014	138,402	89,891	64.9%	48,511	35.1%
2015	140,713	90,325	64.2%	50,388	35.8%
2016	145,660	93,037	63.9%	52,623	36.1%
2017	132,489	79,761	60.2%	52,728	39.8%
2022	140,723	90,931	64.6%	49,793	35.4%
2027	148,964	96,256	64.6%	52,708	35.4%
2037	166,729	107,735	64.6%	58,994	35.4%
AAGR 2017-2037	1.16%	1.51%	N/A	0.56%	N/A

Sources:
FAA Air Traffic Activity System (ATADS) database.
Kimley-Horn.

2.8.1.12 - Operational Fleet Mix

An airport's operational fleet mix impacts airside and itinerant aircraft parking needs, and other facilities. An analysis of historical data provided in the FAA's TFMSC database was utilized to identify operational fleet mix trends and to project the Airpark's future operational fleet mix. The TFMSC database groups aircraft operations into three types; piston (which includes piston rotorcraft), turbine (also referred to as turboprop, which includes turbine rotorcraft), and jet.

Between 2008 and 2017, the proportion of annual piston operations at the Airpark declined from 99.7 percent to 98.9 percent. This coincided with an increase of turbine operations from 0.2 percent to 0.9 percent, and an increase of jet operations from 0.1 percent to 0.3 percent during the same timeframe. To project the future operational fleet mix, a linear regression was applied to activity by aircraft type between 2008 and 2017. Results of this methodology are depicted in **Table 2-31**.

Table 2-31. Operational Fleet Mix

Year	Total Operations	Piston Operations	#	Turbine Operations	#	Jet Operations	#
2008	116,931	116,541	99.7%	233	0.2%	157	0.1%
2009	95,330	95,020	99.7%	197	0.2%	113	0.1%
2010	111,173	110,679	99.6%	254	0.2%	240	0.2%
2011	118,466	117,828	99.5%	262	0.2%	376	0.3%
2012	135,476	134,672	99.4%	317	0.2%	487	0.4%
2013	128,752	127,581	99.1%	373	0.3%	798	0.6%
2014	138,402	137,232	99.2%	452	0.3%	718	0.5%
2015	140,713	139,414	99.1%	849	0.6%	450	0.3%
2016	145,660	144,351	99.1%	942	0.6%	367	0.3%
2017	132,489	130,974	98.9%	1,127	0.9%	388	0.3%
2022	140,723	138,534	98.4%	1,442	1.0%	747	0.5%
2027	148,964	145,973	98.0%	2,032	1.4%	959	0.6%
2037	166,729	161,872	97.1%	3,405	2.0%	1,452	0.9%
AAGR 2008-2017	1.40%	1.31%	N/A	19.14%	N/A	10.58%	N/A
AAGR 2017-2037	1.16%	1.06%	N/A	5.68%	N/A	6.82%	N/A

Sources:
FAA Traffic Flow Management Systems (TFMSC) Database.
Kimley-Horn.

As shown, piston operations are anticipated to increase at a 1.06 percent average annual growth rate, and turbine and jet operations are anticipated to increase at 5.68 percent and 6.82 percent average annual growth rates, respectively.

2.8.1.13 - Daytime/Nighttime Operations

Another component of the forecast is the development of forecasts of daytime/evening operations. This is an important element to include in the planning process because noise impacts created by aircraft arriving or departing at night are greater than during the day. The FAA defines nighttime operations as those that are conducted between 10:00PM and 7:00AM. According to the FAA's TFMSC database, which creates a summary of traffic by day and hour based on the DZ (departure) and AZ (arrival) message times received by the FAA Air Traffic Airspace (ATA) lab, 93.7 percent of operations at the Airpark in 2017 were conducted during daytime hours. The remaining 6.3 percent were conducted during nighttime hours. As shown in **Table 2-32**, this split is anticipated to remain constant throughout the projection period.

Table 2-32. Daytime/Nighttime Operations					
Year	Total Operations	Daytime Operations	% Daytime	Nighttime Operations	% Nighttime
2017	132,489	124,181	93.7%	8,308	6.3%
2022	140,723	131,899	93.7%	8,824	6.3%
2027	148,964	139,623	93.7%	9,341	6.3%
2037	166,729	156,274	93.7%	10,455	6.3%

Sources:
FAA Traffic Flow Management Systems (TFMSC) Database.
Kimley-Horn.

2.8.1.14 - Touch and Go Operations

A touch-and-go operation is defined as an operation conducted by an aircraft that lands and departs on a runway without stopping or exiting the runway. This type of operation is typically associated with flight training. Based on conversations with the Airpark manager, approximately 85 percent of local operations (including those categorized as military) are considered touch-and-go operations. This figure was applied to forecasts of local operations described in Section 2.8.1.11 and held constant throughout the projection period. Based on these estimates, touch-and-go operations are anticipated to increase from 67,797 in 2017 to 91,574 in 2037, which represents an average annual growth rate of 1.51 (see **Table 2-33**).

Table 2-33. Touch and Go Operations				
Year	Total Operations	Local Operations	% Local Touch and Go	Touch and Go Operations
2017	132,489	79,761	85.0%	67,797
2022	140,723	90,931	85.0%	77,291
2027	148,964	96,256	85.0%	81,817
2037	166,729	107,735	85.0%	91,574
AAGR 2017-2037	1.16%	1.51%	N/A	1.51%

Sources:
FAA Air Traffic Activity System (ATADS) database.
Airpark Management.
Kimley-Horn.

2.8.1.15 - Annual Instrument Approaches

As defined by the FAA, an Instrument Approach Procedure (IAP) is a series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing or to a point from which a landing may be visually made. All operations that are not categorized as instrument operations are considered visual operations. According to the FAA's ATADS database, 4.4 percent of total operations at the Airpark were instrument operations in 2017. It was assumed that 50 percent of these operations were IAPs. To forecast instrument operations and approaches, these figures were held constant throughout the planning period, as depicted in **Table 2-34**.

Table 2-34. Annual Instrument Approaches						
Year	Total Operations	Visual Operations	% Visual	Instrument Operations	% Instrument	Instrument Approach Procedures
2017	132,489	126,689	95.6%	5,800	4.4%	2,900
2022	140,723	134,563	95.6%	6,160	4.4%	3,080
2027	148,964	142,443	95.6%	6,521	4.4%	3,261
2037	166,729	159,430	95.6%	7,299	4.4%	3,649

Sources:
FAA Air Traffic Activity System (ATADS) database.
Kimley-Horn.

2.8.2 - Peak Activity Forecasts

The capacity of an airport relates to the activity levels during a peak, or design, period. Aviation demand forecasts were used to determine operational peaking characteristics and determine facility requirements.

To ensure that a facility isn't overbuilt, several factors are used to analyze airport facilities. The average day of the peak month, or the design day, is an accepted industry methodology used in evaluating peaking characteristics. Metrics such as average annual day do not adequately take into consideration increased activity at certain times of the year. Considering only the busy or peak day of the peak month, however, may result in facilities that are overbuilt.

The following factors were used to develop peaking characteristics for PMP:

- Peak Month — the calendar month when peak volumes of aircraft operations occur
- Design Day — the average day in the peak month; derived by dividing peak month operations by the number of days in that month (also referred to as Peak Month Average Day, abbreviated as PMAD)
- Design Hour — the peak hour within the design day; derived by averaging the 20 busiest hours in terms of aircraft operations during the peak month

The FAA's ATADS database was used to determine peak month and design hour operations for the Airpark. It was assumed that peaking characteristics would remain consistent with projected growth of total operations throughout the 20-year planning horizon. Peak monthly, daily, and hourly operations projected for the Airpark are summarized in **Table 2-35**.

Table 2-35. Peak Operations Forecast					
Year	Total Operations	Peak Month %	Peak Month Operations*	Design Day Operations	Peak Hour Operations
2017	132,489	10.6%	14,075	454	84
2022	140,723	10.6%	14,950	482	89
2027	148,964	10.6%	15,825	510	94
2037	166,729	10.6%	17,712	571	106

Sources:
FAA Air Traffic Activity System (ATADS) database.
Kimley-Horn.

Note:
*Peak month was determined to be May

2.9 - Design Aircraft Determination

Facility planning for general aviation airports is impacted by existing and anticipated levels of aviation-related demand, both based aircraft and annual aircraft operations, as well as the size and type of aircraft that currently operate and are projected to operate. The FAA classifies airports by Airport Reference Code (ARC), which identifies the overall planning and design criteria for an airport. Per FAA AC 150-5300-13A, the ARC is assigned based on the size of the largest aircraft that generally records at least 500 operations annually at an airport; this aircraft is known as the airport's "design aircraft." However, this document further adds that, "The first consideration of the airport planner should be the safe operation of aircraft likely to use the airport. Any operation of an aircraft that exceeds design criteria of the airport may result in either an unsafe operation or a lesser safety margin unless air traffic control (ATC) Standard Operating Procedures (SOPs) are in place for those operations."

The ARC is comprised of the Aircraft Approach Category (AAC) and the Aircraft Design Group (ADG). The AAC is based on the approach speed of the airport's critical aircraft, and the ADG is based on the critical aircraft's wingspan and tail height. The ARC consists of a letter and a numeric identifier. The first is the letter, which represents the AAC; the second is the number which represents the ADG.

Aircraft approach speeds included in AAC categories A and B typically correspond to small, piston-engine or turboprop aircraft, whereas C, D, and E apply to larger turboprop or turbine powered aircraft. Similarly, the wingspan and tail height of small, piston-engine aircraft normally correspond to ADG I. Typical aircraft in ADG II include aircraft models such as a Beechcraft King Air 300, Cessna Citation, or smaller business jets. Design groups III, IV, and V represent larger corporate jets and air carrier aircraft. Group VI includes large commercial air carrier and cargo aircraft such as Airbus A-380 or C-5 military cargo aircraft. **Table 2-36** summarizes the classifications for determining AAC and ADG, which combine to identify the ARC.

Table 2-36. FAA ARC Determination

Aircraft Approach Category (AAC)	Approach Speed (knots)	Airplane Design Group (ADG)	Wingspan (feet)	Tail Height (feet)
A	Less than 91	I	Less than 49	Less than 20
B	91 to 120	II	49 to 78	21 to 29
C	121 to 140	III	79 to 117	30 to 44
D	141 to 165	IV	118 to 170	45 to 59
E	166 or Greater	V	171 to 213	60 to 65
		VI	214 up to but less than 262	66 up to but less than 80

Source:
FAA Advisory Circular 150/5300-13A, Change 1, *Airport Design*.

The design aircraft can consist of multiple aircraft that are considered collectively as a "family" of aircraft. The design aircraft is used to determine the appropriate design standards for pavement surfaces, safety area dimensions, runway lengths, separation standards, and taxiway criteria in an attempt to ensure that the airfield layout and geometry provide a safe and efficient operating environment for the aircraft that typically use an airport.

The 2008 Airport Master Plan Update recommended an existing (2008) and future ARC designation of B-II, represented by a design aircraft grouping that included the Beechcraft King Air 200, 300, 350, and the Cessna Citation II.

An analysis of the FAA's TFMSC database was initially conducted using base year 2017 data to identify the recommended existing and future design aircraft for this Master Plan Update. Based on the results at that time, the recommended existing ARC was B-I with a design aircraft of the Beechcraft King Air A90, and the Beechcraft Baron 58. A regression analysis identified that annual operations conducted by aircraft with ARC designations that exceed B-II were anticipated to surpass 500 by 2022. As such, it was recommended that the future ARC for the Airpark be B-II, with a design aircraft represented by a combination of the Beechcraft Super King Air 200 and the Cessna Citation Sovereign, which regularly operate at PMP.

The FAA approved the submitted forecast for this Master Plan Update in December 2018. A reevaluation of operational activity was conducted in March 2020, which has impacted the existing and future ARC and design aircraft. Consecutive 12-month operations data by ARC and aircraft type reported in the FAA's TFMSC database were analyzed for January 2017 through January 2021. It was identified that starting with the 12-month timeframe of August 2019 through July 2020, annual activity conducted by aircraft with ARCs of B-II and greater (B-II, B-III, C-II, C-III, D-II, and D-III) consistently exceeded the FAA's threshold of 500 operations that delineate substantial use of an Airport (see **Table 2-37**). As such, based on operational activity, the Airpark's existing and future ARC should be B-II.

Although several B-II aircraft models including the Beechcraft Super King Air 90/200/300/350, Cessna Citation CJ3/CJ4, Citation II//III/IV/V/XLS, Citation Sovereign, Embraer Phenom 300, Dassault Falcon 2000, and other models composed the majority of B-II operations during the assessed timeframe, the most frequent aircraft type in operation was identified as the King Air 350. It is recommended that this aircraft be utilized as the existing and future Design Aircraft at the Airpark and for primary Runway 15-33.

Table 2-37. Historical Operations by ARC – 2021 Update		
12-Month Period		B-II+ Operations
Jan-17	Dec-17	252
Feb-17	Jan-18	219
Mar-17	Feb-18	204
Apr-17	Mar-18	193
May-17	Apr-18	177
Jun-17	May-18	173
Jul-17	Jun-18	176
Aug-17	Jul-18	185
Sep-17	Aug-18	195
Oct-17	Sep-18	183
Nov-17	Oct-18	188
Dec-17	Nov-18	205
Jan-18	Dec-18	206
Feb-18	Jan-19	241
Mar-18	Feb-19	273
Apr-18	Mar-19	291
May-18	Apr-19	321
Jun-18	May-19	330
Jul-18	Jun-19	339
Aug-18	Jul-19	339
Sep-18	Aug-19	337
Oct-18	Sep-19	332
Nov-18	Oct-19	350
Dec-18	Nov-19	389
Jan-19	Dec-19	422
Feb-19	Jan-20	437
Mar-19	Feb-20	464
Apr-19	Mar-20	469
May-19	Apr-20	463
Jun-19	May-20	477
Jul-19	Jun-20	493
Aug-19	Jul-20	**515**
Sep-19	Aug-20	**527**
Oct-19	Sep-20	**546**
Nov-19	Oct-20	**552**
Dec-19	Nov-20	**534**
Jan-20	Dec-20	**554**
Feb-20	Jan-21	**542**

Sources:
FAA Traffic Flow Management Systems (TFMSC) Database.
Kimley-Horn.

Operational activity and existing pavement strength and design were considered in recommending ARC designations for individual runways at the Airpark. Primary Runway 15-33 receives the majority of aircraft operations by larger aircraft (those weighing 12,500 lbs. or more). As such, it's recommended existing

and future ARC is B-II, consistent with the Airpark's future ARC. Runway 10-28 is limited to small aircraft (weighing less than 12,500 lbs.) and is therefore recommended to be designated a B-I (small) facility currently, and a B-II (small) facility in the future. Runway 6-24 is capable of accommodating both large and small aircraft, however, because it is the least frequently utilized runway at the Airpark, from an operational standpoint its existing and recommended future ARC is B-II (small).

In summary, the Airpark's existing and future ARC is B-II with a design aircraft represented by a Beechcraft Super King Air 350.

2.10 - FAA TAF Comparison

FAA ADOs or Regional Airports Divisions are responsible for forecast approvals. When reviewing a sponsor's forecast, the FAA must ensure the forecast is based on reasonable planning assumptions, uses current data, and is developed using appropriate methodologies. Additional discussion on assumptions and methodologies can be found in the APO report, Forecasting Aviation Activity by Airport. After a thorough review of the forecast, FAA then determines if the forecast is consistent with the TAF.

For all classes of airports, forecasts for based aircraft and total operations are considered consistent with the TAF if they meet the following criteria: forecasts differ by less than 10 percent in the 5-year forecast period and 15 percent in the 10-year forecast period. If the forecast is not consistent with the TAF, differences must be resolved if the forecast is to be used in FAA decision making. This may involve revisions to the airport sponsor's submitted forecasts, adjustments to the TAF, or both. Forecasts that are not consistent with the TAF are reviewed at FAA headquarters unless five and ten-year forecasts do not exceed 200 based aircraft or 200,000 total annual operations, and any related development associated with the forecasts will not require an EIS and/or BCA.

Based on these criteria, forecasts developed for this Master Plan Update have been determined to be **inconsistent** with the TAF. This is attributed to the following factors:

- The TAF identified an estimate of 127 based aircraft at PMP in base year 2017; 166 based aircraft were verified by the National Based Aircraft Inventory Program in 2018, a figure that is utilized as the base year estimate for 2017. Management and tenants have identified significant demand for development of additional tie-downs and aircraft storage hangars, which suggests that the number of based aircraft will increase in the future if/when development to accommodate additional aircraft occurs.
- Total operations at PMP have increased from approximately 117,000 in 2008 to 134,000 in 2017, which reflects an average annual growth rate of 1.4 percent. The preferred forecast in the Master Plan Updates identified that total annual operations were anticipated to increase 1.16 percent through 2037. The TAF projects 0.02 percent average annual growth between 2017 and 2037, reflecting an increase of only 648 annual operations by 2037. Based on historical trends and demand for additional based aircraft at PMP, an annual growth rate of 0.02 percent was estimated to be significantly lower than what is likely to occur.

A comparison of forecasts of aviation with TAF forecasts are presented in the FAA template tables below. Based on conversations with staff at the FAA Orlando ADO, it was identified that forecasts did not need to be forwarded to FAA headquarters for review and approval.

Appendix B

Template for Summarizing and Documenting Airport Planning Forecasts (1)

A. Forecast Levels and Growth Rates

Airport Name: Pompano Beach Airpark (PMP) — Specify base year: 2017 — Average Annual Compound Growth Rates

	2017	2022	2027	2032			
	Base Yr. Level	Base Yr.+5yrs.	Base Yr.+10yrs.	Base Yr.+15yrs.	Base Yr. to +5	Base Yr. to +10	Base Yr. to +15
Operations							
Itinerant							
General aviation	52,657	49,721	52,636	55,700	-1.1%	0.0%	0.4%
Military	71	72	72	72	0.3%	0.1%	0.1%
Local							
General aviation	79,757	90,916	96,241	101,835	2.7%	1.9%	1.6%
Military	4	15	15	15	30.3%	14.1%	9.2%
TOTAL OPERATIONS	132,489	140,723	148,964	157,623	1.2%	1.2%	1.2%
Instrument Operations	5,800	6,160	6,521	6,900	1.2%	1.2%	1.2%
Peak Hour Operations	84	89	94	100	1.2%	1.2%	1.2%
Based Aircraft							
Single Engine (Nonjet)	105	119	132	146	2.5%	2.3%	2.2%
Multi Engine (Nonjet)	36	40	45	50	2.4%	2.4%	2.2%
Turbo-Prop	10	12	15	18			
Jet Engine	3	4	4	6	3.8%	3.7%	4.9%
Helicopter	12	14	17	21	3.6%	3.6%	3.7%
Other	0	1	2	2	0.0%	0.0%	0.0%
TOTAL	166	191	216	244	2.8%	2.7%	2.6%

B. Operational Factors

	Base Yr. Level	Base Yr.+5yrs.	Base Yr.+10yrs.	Base Yr.+15yrs.
GA operations per based aircraft	798	738	689	647

(1) Table is developed from Appendix B in the FAA Report, "Forecasting Aviation Activity By Airport."

Appendix C
Template for Comparing Airport Planning and TAF Forecasts (1)

Based Aircraft	Year	PMP Forecast	TAF	PMP/TAF % Difference
Base yr.	2017	166	127	30.7%
Base yr. + 5yrs.	2022	190	138	37.5%
Base yr. + 10yrs.	2027	216	140	54.6%
Base yr. + 15yrs.	2032	245	140	74.7%
Itinerant Operations				
Base yr.	2017	52,728	50,441	4.5%
Base yr. + 5yrs.	2022	49,793	49,430	0.7%
Base yr. + 10yrs.	2027	52,708	50,179	5.0%
Base yr. + 15yrs.	2032	55,772	50,940	9.5%
Local Operations				
Base yr.	2017	79,761	79,416	0.4%
Base yr. + 5yrs.	2022	90,931	76,303	19.2%
Base yr. + 10yrs.	2027	96,256	77,125	24.8%
Base yr. + 15yrs.	2032	101,850	77,956	30.7%
Total Operations				
Base yr.	2017	132,489	130,234	1.7%
Base yr. + 5yrs.	2022	140,723	126,110	11.6%
Base yr. + 10yrs.	2027	148,964	127,681	16.7%
Base yr. + 15yrs.	2032	157,623	129,273	21.9%

Note: TAF data is on a U.S. government fiscal year basis (October through September).

(1) Table is developed from Appendix C in the FAA Report, "Forecasting Aviation Activity By Airport."

Chapter 3:
Facility Requirements

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3 - Facility Requirements

The purpose of this chapter is to identify the Airpark's facility development needs over a 20-year planning horizon. Recommendations have been developed to ensure that the Airpark can support current and projected future aviation demand.

The demand, capacity, design standards and overall airport facility requirements at the Airpark were evaluated using guidance sourced from several FAA publications: AC 150/5060-5, *Airport Capacity and Delay*; AC 150/5300-13A *Airport Design*; AC 150/5325-4B *Runway Length Requirements for Airport Design*; AC 150/5360-13 *Planning and Design Guidelines for Airport Terminal Facilities*; Federal Aviation regulation (FAR) Part 77 *Objects Affecting Navigable Airspace*; and Order 5090.3C *Field Formulation of the National Plan of Integrated Airport Systems (NPIAS)*.

Forecasts described in Chapter 2 were utilized to develop facility requirements for PMP. A summary of these forecasts is presented in **Table 3-1**.

Table 3-1. Forecast Summary

Year	Based Aircraft	Annual Operations	Peak Month Operations	Design Day Operations	Peak Hour Operations
2017	166	132,489	14,075	454	84
2022	191	140,012	14,950	482	89
2027	216	148,964	15,825	510	94
2037	275	166,729	17,712	571	106
AAGR 2017-2037	1.10%				

Sources:
FAA Air Traffic Activity System (ATADS) Database.
FAA Terminal Area Forecast Issued January 2018.
Kimley-Horn.

3.1 - Airfield Demand and Capacity

Airfield and airspace capacity requirements were based on the following objectives:

- Confirm that the airfield provides sufficient capacity throughout the planning horizon.
- Confirm that access to runways, taxiways, and aprons can meet operational demand, future requirements, and FAA design criteria.

3.1.1 - Airfield Capacity

Airfield capacity refers to the maximum number of aircraft operations (takeoff and landings) an airfield can accommodate in a specified amount of time (i.e. hourly or annually). Delay is the difference between constrained and unconstrained aircraft operating times. As demand approaches capacity, congestion and the average amount of delay per aircraft can increase. While specific aircraft maintenance and weather-related delays are unavoidable, optimizing airfield configuration to enhance traffic flow efficiency can help reduce the overall amount of aircraft delay.

Using methodologies described in FAA AC 150/5060-5, *Airport Capacity and Delay* (effective September 23, 1983), an assessment of airfield capacity was performed to evaluate the Airpark's ability to accommodate current and projected levels of aircraft activity. This evaluation is used in long-range planning to help identify and justify any capacity-related airfield improvements that may be needed over

the planning horizon. The analysis also determined the average amount of aircraft delay that could be expected during peak periods of activity. The estimated airfield capacity and delay at PMP can be expressed in the following measurements:

- **Hourly Capacity** is the maximum number of aircraft operations the airfield can safely accommodate under continuous demand in a one-hour period.
- **Annual Service Volume (ASV)** is the maximum number of aircraft operations the airfield can accommodate in a one-year period without excessive delay.
- **Peak Period Delay** is the total amount of aircraft delay, expressed in minutes, that could be experienced during the average peak hour of the peak month.

3.1.1.1 - Airfield Capacity Calculation Factors

Calculations of airfield capacity and delay consider variations in six key operational factors and assumptions specific to PMP, which are described below.

Meteorological Conditions

Meteorological conditions influence the utilization of runways. Variations in wind and visibility minimums can reduce airfield capacity since operating aircraft require more separation during IMC conditions than they do during VMC conditions. As noted in Chapter 1, the ATCT identified that the Airpark operates under IMC approximately 5 percent of the time and under VMC 95 percent of the time.

Runway Use Configurations

An airfield's capacity is directly related to the number and orientation of runways available during various operating conditions. An airfield may have multiple operating configurations dependent on weather conditions, time of day, and/or the type of approach procedures available. Based on information gathered from the ATCT and Airpark administration, Runway 10-28 is the most frequently utilized runway at the Airpark, comprising approximately 80 percent of use. Runway 15-33 is utilized approximately 20 percent of the time and serves the larger aircraft at the Airpark. Runway 6-24 is utilized the least amount of the time and is generally only used sporadically throughout the year, mainly in the winter and early spring months.

Aircraft Fleet Mix

The aircraft fleet mix index is a ratio of the various classes of aircraft operating at an airport based on weight. Due to differing performance characteristics, the size of aircraft operating at an airport have a significant impact on an airfield's capacity. The FAA states that heavier aircraft operating at an airfield require greater separation between other aircraft upon approach and departure to avoid wake turbulence. The FAA has established four classes of aircraft based on their maximum certificated takeoff weight (MTOW):

- Class A – 12,500 lbs. or less, single engine
- Class B – 12,500 lbs. or less, multi-engine
- Class C – 12,500 to 300,000 lbs.
- Class D – over 300,000 lbs.

A mix index is then calculated for each of the runway-use configurations by adding the percentage of class C aircraft to three-times the percentage of class D aircraft (C+3D). Operations by aircraft weight class data were collected from the FAA's Traffic Flow Management System Counts (TFMSC) database to develop mix index calculations. According to the database, there were approximately 1,100 operations conducted by Class C aircraft in 2017, which represented 0.66 percent of total operations. There were no Class D operations conducted at the Airpark in 2017. Therefore, according to the FAA AC 150/5060-5, during VFR and IFR conditions at the Airpark the aircraft mix index is zero (0).

Percentage of Touch-and-Go Operations

A touch-and-go (T&G) operation is defined as a landing followed by an immediate takeoff without coming to a stop or exiting the runway. It is a practice maneuver typically associated with flight training activity. This factor is the ratio of T&G operations to total aircraft operations at an airport. An airfield with a higher percentage of T&Gs typically has a greater airfield capacity than one with a higher percentage of itinerant (or origin and destination) flight operations. Based on feedback provided by Airpark Management and the ATCT, it was estimated that approximately 85 percent of local operations at the Airpark in 2017 were touch-and-go, which translates to approximately 51 percent of total operations.

Location of Taxiway Exits

The location and number of exit taxiways affect airfield capacity because they directly relate to runway occupancy time. Runway capacities are highest when the runways are complimented with full-length, parallel taxiways, ample runway entrance and exit taxiways, and no active runway crossings. These components reduce the amount of time an aircraft remains on the runway. FAA AC 150/5060-5 identifies the criteria for determining taxiway exit factors based on the mix index, percentage of aircraft arrivals, the number of exit taxiways, and an exit taxiway's distance from the landing threshold. At PMP, Runway 10-28 is equipped with a full-length parallel taxiway and 6 connector taxiways, and Runway 15-33 is equipped with a full-length parallel taxiway and 5 connector taxiways. While intersecting runways may occasionally be used for taxiing purposes when not in use, they were not considered in the determination of taxiway exit factor.

Peak Activity Characteristics

As noted previously, peak month activity at the Airpark typically occurs in May and represents approximately 10.6 percent of annual operations. In 2017, the Airpark experienced 14,075 operations during the peak month. Design day operations were determined by dividing peak month operations by the number of days in the peak month (30), which resulted in 454 design day operations in 2017. Peak hour operations were determined via an analysis of historical peak hour activity during the peak month and resulted in 84 peak hour operations in 2017.

3.1.1.2 - Annual Service Volume and Weighted Hourly Airfield Capacity

The weighted runway capacity is a function of the different annual runway use configurations, the percent of time each runway use configuration is used, the hourly capacity for each runway use configuration, and the ASV weighted factor – as demonstrated in the following equation:

$$c_w = \left(\frac{(p_1 \cdot c_1 \cdot w_1) + (p_2 \cdot c_2 \cdot w_2) + \cdots + (p_n \cdot c_n \cdot w_n)}{(p_1 \cdot w_1) + (p_2 \cdot w_2) + \cdots + (p_n \cdot w_n)} \right)$$

Where:

- c_w = weighted hourly capacity
- p_n = percent of time configuration "n" is used
- c_n = hourly capacity of configuration "n"
- w_n = ASV weighting factor (based on the percent of maximum capacity)

The result of the weighted hourly capacity is approximately 138 aircraft operations. The ASV is thereby determined using the following equation:

Annual Service Volume = (c_w x D x H) where:

- c_w = weighted hourly capacity
- D = ratio of annual demand to the average daily demand during the peak month
- H = ratio of average daily demand to the design hour demand during the peak month

There were 132,489 total operations at the Airpark in 2017. The average daily demand during the peak month in 2017 was approximately 454 operations per day. The ratio of annual demand to average daily demand during the peak month was 292 (132,489 ÷ 454). The ratio of average daily demand during the peak month to the average peak hour demand during the peak month was 5.4 (454 ÷ 84).

The resultant ASV for the Airpark in 2017 equals 217,601 aircraft operations (138 x 292 x 5.4) for the predominant dual runway configuration. Because the taxiway exit factor is equal for all dual runway configurations at PMP, this calculation is accurate whenever two runways are in operation.

This equation was repeated for forecast activity levels to identify future ASV at the Airpark and is described in **Table 3-2**. A single-runway configuration was also calculated, which, because all runways have the same taxiway exit factors, can be applied to all runways. A configuration where all three runways were in operation was not considered as demand has not historically merited it, and Runway 6-24 operates as a crosswind facility rendering one of the other runways inoperable.

As shown in **Table 3-2**, a single-runway configuration actually has a higher capacity than a dual-runway configuration. This is attributed to a lower touch-and-go factor when multiple runways are in operation.

The preceding information was used to calculate the capacity of the Airpark in accordance with accepted industry methodologies. These calculations were based on the specific airfield configuration, and operational and meteorological characteristics of the Airpark on a typical day.

Table 3-2. Airfield Capacity Summary				
Year	**Weighted Hourly Capacity**	**Annual Operations**	**Annual Service Volume**	**Percent Capacity**
Dual Use Runway Configuration				
2017	138	132,489	217,601	61%
2022	138	140,723	217,038	65%
2027	138	148,964	218,073	68%
2037	138	166,729	216,738	76%
Single Use Runway Configuration				
2017	138	132,489	223,875	59%
2022	138	140,723	223,296	63%
2027	138	148,964	224,361	66%
2037	138	166,729	222,987	74%

Sources:
FAA AC 150/5060-5.
FAA Report No. FAA-RD-74-I24.
Kimley-Horn.

A demand that exceeds the annual service volume will likely result in significant delays on the airfield. However, regardless of how substantial an airport's capacity may appear, delays can occur even before an airport reaches its stated capacity. According to FAA Order 5090.3C, *Field Formulation of the National Plan of Integrated Airport Systems (NPIAS)*, for most every type of capacity enhancing project, the FAA recommends beginning to plan for such improvements when the activity levels reach 60 to 75 percent of the annual capacity. Based on the existing airfield configurations and the results of the capacity analysis, it is recommended that the Airpark examine development options that enhance airfield capacity. Such improvements will be presented in subsequent chapters of this Master Plan Update.

3.2 - FAA Design Standards

FAA design standards are determined by an airport's most demanding aircraft or grouping of aircraft that conduct 500 annual operations. As described in Chapter 2, this aircraft or grouping of aircraft is referred to as the design aircraft. At PMP, the existing and future design aircraft is represented by the Beechcraft King Air 350, which is classified as B-II.

It should be noted that the Airpark's previous ALP identified that Runway 10-28 was designed to accommodate small aircraft exclusively (those that weigh less than 12,500 lbs.). Since this facility is primarily used for training operations conducted by smaller single and twin-engine aircraft, it was recommended that Runway 10-28 be a B-I (small) existing and B-II (small) future ARC. Additionally, because Runway 6-24 experiences a small percentage of operations compared with overall Airpark activity, it's existing and future ARC is recommended as B-II (small).

Design standards, as identified in the FAA AC 150/5300-13A *Airport Design*, describe dimensions and separation criteria that apply to runways, taxiways and other related airfield facilities to provide clearance from potential hazards affecting routine aircraft movements on the airfield. Application of these standards is determined by the Runway Design Code (RDC) and relate to separation distances for aircraft hold lines, taxiways, aircraft parking areas, obstacle free areas, and safety areas. The RDC is comprised of the Aircraft Approach Category (AAC) and Airplane Design Group (ADG) – as described Chapter 2 – along with the runway's visibility minimums. The minimums and applicability for each runway at the Airpark are described in feet of Runway Visibility Range (RVR), shown in **Table 3-3**.

Table 3-3. Visibility Minimums

Runway	Runway Visibility Range (in feet)	Flight Visibility Category (statute miles)	Existing Runway/Designation	Ultimate Runway/Designation
6	5000	Not lower than 1 mile	6/ B-I((S)-5000	6/ B-II(S)-5000
24	5000	Not lower than 1 mile	24/ B-II(S)-5000	24/ B-II(S)-5000
10	VIS	Visual approach	10/ B-I(S)-VIS	10/ B-II(S)-VIS
28	VIS	Visual approach	28 B-I(S)-VIS	28/ B-II(S)-VIS
15	4000	Lower than 1 mile but not lower than ¾ mile	15/ B-II-4000	15/ B-II-4000
33	4000	Lower than 1 mile but not lower than ¾ mile	33/ B-II-4000	33/ B-II-4000

Source:
FAA AC 150/5300-13A.

Note:
(S) indicates small aircraft designation.

Table 3-4 compares existing conditions of all runways at PMP with FAA design standards as published in FAA AC 150/5300-13A *Airport Design*. As shown, the only non-standard condition at the Airpark is the 200' of separation between Runway 6-24 and parallel Taxiway M.

Table 3-4. FAA Runway Design Standards

Design Criteria	FAA B-II Standards	RWY 15-33	FAA B-II (Small) Standards	RWY 6-24	Runway 10-28
Runway Design:					
Runway Width	75	150	75	150	100
Shoulder Width	10	N/A	10	N/A	10
Blast Pad Width	95	N/A	95	N/A	95
Blast Pad Length	150	N/A	150	N/A	150
Runway Protection:					
RSA Length beyond runway end	300	300	300	300	300
RSA Length prior to threshold	300	300	300	300	300
RSA Width	150	150	150	150	150
ROFA Length beyond runway end	300	300	300	300	300
ROFA Length prior to threshold	300	300	300	300	300
ROFA Width	500	500	500	500	500
ROFZ Length beyond runway	200	200	200	200	200
ROFZ Width	250	250	250	250	250
Approach RPZ Length	1000	1700*	1000	1000	1000
Approach RPZ Inner Width	500	1000*	250	250	250
Approach RPZ Outer Width	700	1510*	450	450	450
Approach RPZ Area (Acres)	13.770	48.987*	8.035	8.035	8.035
Departure RPZ Length	1000	1000	1000	1000	1000
Departure RPZ Inner Width	500	500	250	250	250
Departure RPZ Outer Width	700	700	450	450	450
Departure RPZ Area (Acres)	13.770	13.770	8.035	8.035	8.035
Runway Separation:					
Holding Position	200	200	125	200	125
Parallel Taxiway/Taxilane Centerline	240	240	240	200	240
Aircraft Parking	250	250	250	250	250

Sources:
FAA AC 150/5300-13A.
2008 Approved Airport Layout Plan.
2017 Airport Layout Drawing.
Kimley-Horn.

Notes:
Red – indicates non-standard condition
Black – indicates standard condition
*FAA design standard for approach RPZ for runways with not lower than ¾ miles (includes RWY 15-33) is: Length = 1700', Inner Width = 1000', Outer Width = 1510', Acreage = 48.978ac

Taxiway Design Group (TDG) is a classification administered to aircraft based on outer-to-outer main gear width (MGW) and cockpit to main gear (CMG) distance. Based on the anticipated future critical aircraft (Beechcraft Super King Air 200 and the Cessna Citation Sovereign) the Airpark should plan for TDG 2 design standards. This translates to the following design standards found in **Table 3-5**.

Table 3-5. FAA Taxiway Design Standards	
Design Criteria	**FAA Design Standard for TDG 2 and ADG II**
Taxiway Centerline to Parallel Taxiway Centerline	105
Taxiway Centerline to Fixed or Movable Object	65.5
Taxiway Width	35
Taxiway Safety Area (TSA)	79
Taxiway Object Free Area (TOFA)	131
Taxiway Shoulder Width	15
Source: FAA AC 150/5300-13A.	

Although taxiways and taxiway connectors at the Airpark meet all standard geometry requirements described by the FAA, Taxiway C provides direct access from an aircraft parking apron to Runway 10-28. Direct access between an apron and a runway increases the risk of runway incursions. Another area of concern is the intersection of Taxiways K, L, and M, where a large expanse of pavement exists. Wide expanses of pavement can cause confusion to pilots and should be eliminated when possible. Additional discussion of non-standard taxiways and mitigation of wide expanses of pavement are presented in a subsequent subsection.

3.3 - Airside Facilities

Airside facilities consist of those related to aircraft arrival, departure, and ground movement, along with all associated navigational aids, airfield lighting, pavement markings, and signage. This section presents the required facilities in both a quantitative and qualitative manner for the airside portion of the Airpark. The results of forecasted aviation demand provided quantitative findings, whereas interviews, discussions, and a survey with Airpark personnel, Planning Review Committee (PRC) members, tenants, and users provided qualitative findings.

3.3.1 - Runway Requirements

This section summarizes requirements, standards, and recommendations for runways at the Airpark.

3.3.1.1 - Runway Length and Width

Runway 15-33 is 4,918 feet long and 150 feet wide, Runway 10-28 is 3,502 feet long and 100 feet wide, and Runway 6-24 is 4,001 feet long and 150 feet wide. Recommended runway lengths are determined using charts published in FAA AC 150/5325-4B *Runway Length Requirements for Airport Design*. Runway length is based on several factors including elevation, aircraft seat capacity, aircraft weight of the operational fleet, and mean daily maximum temperature of the hottest month of the year at an airport.

According to the FAA's TFMSC database, there were over 1,000 operations at PMP in 2017 conducted by aircraft weighing between 12,500lbs. and 41,000lbs. It was assumed that most of these operations were conducted on Runway 15-33.

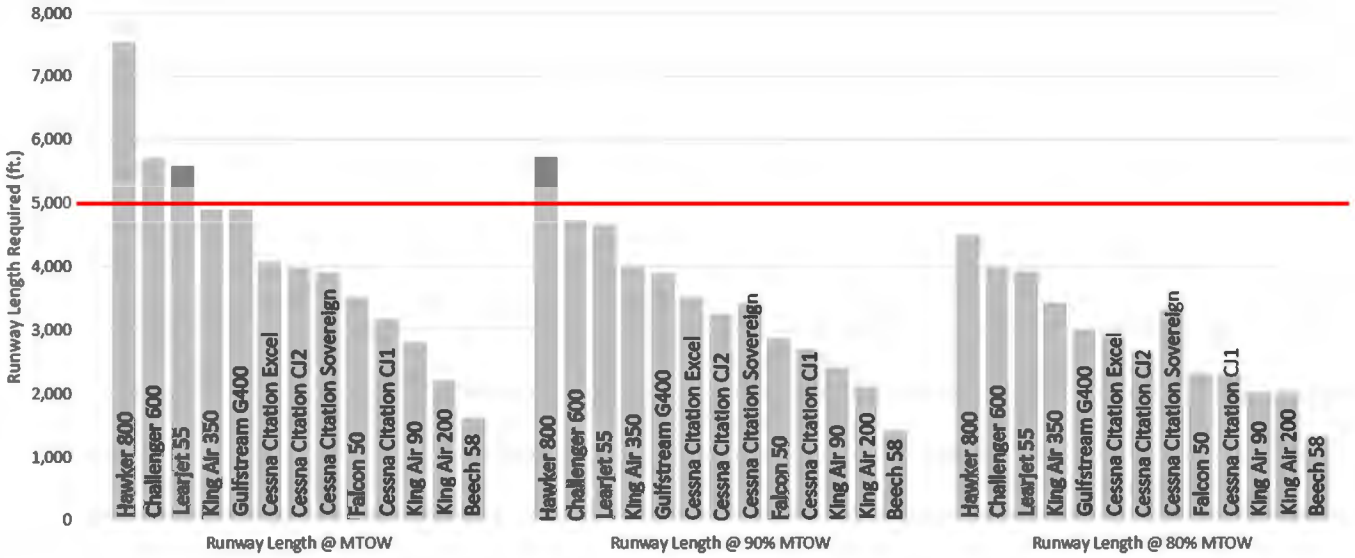
According to 2008-2018 data from the National Climatic Data Center, the mean daily maximum temperature of the hottest month of the year was 90.2° Fahrenheit. Application of this factor to Figure 3-1 (75 percent of the active general aviation fleet at 90 percent useful load) in FAA AC 150/5325-4B results in a recommended length of 6,800 feet for Runway 6-24 and Runway 15-33. Application of Figure 2-1

(100 percent of the active general aviation fleet weighing less than 12,500 lbs.) results in a recommended length of 3,700 feet for Runway 10-28. While Runway 10-28 is long enough to accommodate existing and projected aircraft activity, Runways 6-24 and 15-33 do not meet runway length recommendations identified in FAA AC 150/5325-4B.

The Airpark is unlikely to require a runway 6,800 feet long and extending either Runway 6-24 or 15-33 to such a length would have costly implications including relocation of housing, roads, land acquisition of RPZs and others. Based on feedback from Airpark Management, tenants, and members of the PRC, an extension of Runway 15-33 is desired to accommodate more medium sized corporate jet aircraft.

Early in the master planning process, stakeholders identified that an "ideal" length for Runway 15-33 was 5,000 feet. A runway length analysis of aircraft operations in 2018 by make and model was conducted using operational information reported in the FAA's TFMSC database. This analysis included the most demanding jet and turboprop aircraft that regularly operate at PMP in terms of runway length required for takeoffs. As shown in **Figure 3-1**, all the analyzed aircraft are able to takeoff with less than 5,000 feet of runway length at 80 percent of MTOW. At 90 percent MTOW, a BAE Hawker 800 requires 5,750 feet of runway length for takeoff. At MTOW, the Learjet 55 requires 5,600 feet of runway, the Bombardier Challenger 600 requires 5,700 feet of runway, and the Hawker 800 requires 7,550 feet of runway. It should be noted that these three aircraft accounted for 90 total operations in 2018.

Figure 3-1. Runway Length Requirements by Aircraft Type



Source:
Manufacturer Aircraft Planning Manuals.

Based on recent operational data, there is not adequate justification for a 6,800-foot runway per FAA AC 150/5325-4B, however, it is recommended that the ALP depict an extension to Runway 15-33 to the length possible without causing significant off-Airpark impacts. Development alternatives for an extension to Runway 15-33 are presented in Chapter 4.

As noted in **Table 3-4**, all three runways at the Airpark exceed the FAA design standard for width. Although excess width may provide an additional safety benefit for operating aircraft and negate the need for paved shoulders, it also increases maintenance and rehabilitation costs. The FAA may elect to not fund maintenance or reconstruction projects specific to the portions of the runways that exceed design

standard. In that event, additional funding would have to come from either State or local funds. If such funds are not anticipated to be readily available in the future, the City may desire to reduce the width of its runways to meet FAA standards prior to the next significant rehabilitation project.

3.3.1.2 - Runway Orientation

Primary runways should be oriented with the prevailing wind direction of an airport, and crosswind runways should be oriented to provide maximum crosswind coverage. As depicted in the wind roses in Section 1.6, the three runways at PMP provide 99.96 percent wind coverage for all weather conditions and a 10-knot crosswind component. During IFR conditions, the runways provide 99.48 percent coverage, and in VFR conditions, the runways provide 99.98 percent coverage.

The previous master plan update completed in 2008 recommended an ultimate closure of Runway 6-24. Doing so would provide additional land for aviation-related development at a geographically constrained airfield. As noted previously, Runway 6-24 is infrequently used compared to Runway 15-33 and Runway 10-28.

The FAA maintains that the desirable wind coverage of an airport be 95 percent. Based on an analysis of 2008-2017 wind data at PMP, if Runway 6-24 were closed, remaining Runways 15-33 and 10-28 would provide 99.97 percent wind coverage during all weather conditions and a 13-knot crosswind component, 100.00 percent coverage during VFR conditions, and 99.21 percent during IFR conditions. As such, the Airpark's remaining two runways would provide adequate wind coverage should Runway 6-24 be closed. The adequacy of wind coverage is a considered factor for development alternatives presented in Chapter 4, though the Airpark could utilize local or State funding to maintain a third runway.

3.3.1.3 - Runway Protection Zones

Runway Protection Zones (RPZs) are designated areas beyond the runway ends mandated by the FAA to maintain compatible land use and enhance the protection of people and property on the ground. These areas begin 200 feet beyond the runway end (unless there is a displaced threshold), are trapezoidal in shape, and are centered on the extended runway centerline. When an RPZ begins at a location other than 200 feet beyond the end of runway, two RPZs are required, i.e., a departure RPZ and an approach RPZ.

With a displaced threshold, the approach RPZ extends 200 feet from the runway threshold, and the departure RPZ begins 200 feet beyond the runway end or, if the Takeoff Run Available (TORA) and the runway end are not the same, 200 feet beyond the far end of the TORA.

Airports should maintain control of approach and departure RPZs through fee-simple acquisition, easements, or use-restrictions/agreements. Areas within the RPZ should be cleared of incompatible objects and activities, which includes habitable buildings and congregations of people.

Since Runway 15-33 has displaced landing thresholds on both ends, two RPZs are required (an approach and departure RPZ). **Table 3-6** identifies dimensions for each approach and departure RPZ at the Airpark and their ownership status.

Table 3-6. Runway Protection Zones				
Runway	**Approach RPZ Dimensions**	**Airpark Owned?**	**Departure RPZ Dimensions**	**Airpark Owned?**
6	1000x250x450	Partial	1000x250x450	Y
24	1000x250x450	Y	1000x250x450	Partial
10	1000x250x450	Partial	1000x250x450	Partial
28	1000x250x450	Partial	1000x250x450	Partial
15	1700x1000x1510	Partial	1700x1000x1510	Partial
33	1700x1000x1510	Partial	1700x1000x1510	Y

Sources:
2008 Approved Airport Layout Plan.
FAA AC 150/5300-13A.

Significant portions of the Airpark's RPZs are not owned or controlled by the Sponsor. It is recommended that the Airpark pursue control of these areas via fee simple land acquisition or avigation easements.

3.3.2 - Taxiway Requirements

The Airpark has full-length parallel taxiways on all three of its runways. All parallel taxiways and connectors adhere to FAA design standards. However, beyond the standard criteria, the FAA also provides additional guidance on taxiway geometry intended to enhance safety and reduce the risk of runway incursions. These runway incursion mitigation (RIM) criteria are meant to prevent incursions, which are the unauthorized presence of an aircraft, vehicle, or person in the runway environment. A runway incursion is not a collision or accident but could result in one. Incursions can occur from a pilot's loss of situational awareness, poor communication, an error by ATC personnel, inadequate or confusing airfield marking and signage, or complex or non-standard taxiway geometries.

Taxiway C provides direct access from an apron to Runway 10-28. It is recommended that portions of Taxiway C be removed or relocated to comply with RIM criteria. As previously noted, the wide expanse of pavement where Taxiways K, L, and M converge should also be reconfigured. Mitigation alternatives are presented in subsequent chapters.

3.3.3 - NAVAID and Lighting Requirements

Navigational Aids (NAVAIDs) are any visual or electronic devices airborne or on the surface that provide point-to-point guidance information or position data to aircraft in flight. As noted in Chapter 1, PMP is equipped with the following NAVAIDs:

- Precision Approach Path Indicator Lights (PAPIs)
- Localizer Antenna
- Medium Intensity Approach Lighting System (MALS) – Runway 15
- Automated Surface Observing System (ASOS)
- Lighted Wind Indicators
- Rotating Beacon
- Runway End Identifier Lights (REILs) – Runway 6-24, 10-28, 33

All NAVAIDs are in functioning condition. Based on projected levels of aviation activity, it is anticipated that existing NAVAIDs are adequate.

All runways are equipped with Medium Intensity Runway Lights (MIRLs), and all taxiways are equipped with edge lights. Airfield lighting is anticipated to be adequate throughout the 20-year planning horizon.

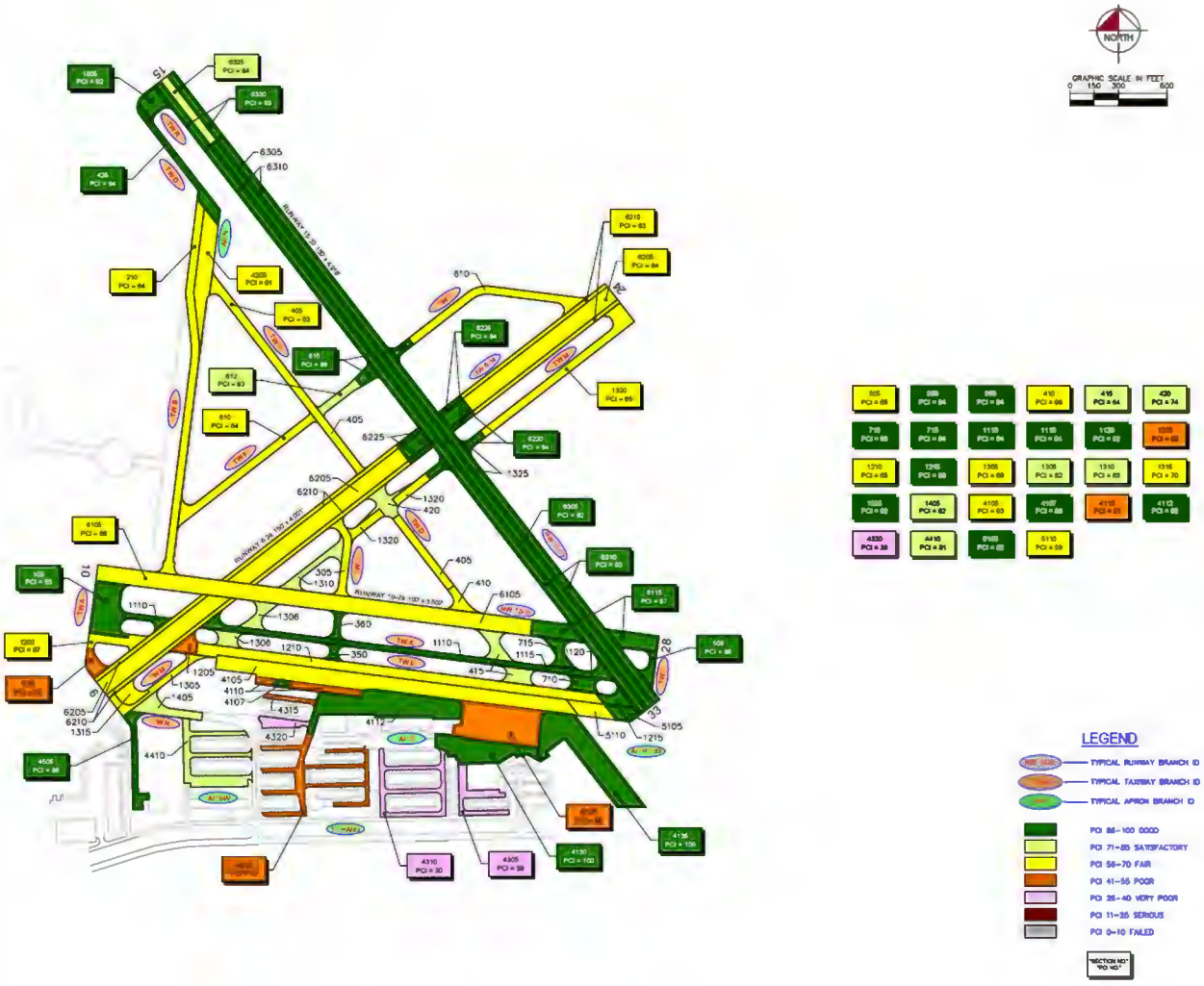
3.3.4 - Airfield Pavement

Pavement strength rating is related to the operating weight of aircraft anticipated to operate at an airport, the landing gear type and geometry, and the volume of annual aircraft operations, by type. Aircraft weighing more than the certified strength can operate on the runways on an infrequent basis. However, frequent activity by heavier aircraft can reduce the useful life of the pavement.

Runway 15-33 is constructed of asphalt and has a single wheel loading (SWL) strength of 30,000 pounds. Runway 6-24 and Runway 10-28 are also constructed of asphalt and have a SWL strength of 20,000 pounds and 26,000 pounds, respectively. Runway 6-24 and 10-28 are limited to 12,500 lbs. gross weight. According to FAA Form 5010-1 *Airport Master Record*, all runway pavements are in good condition.

According to the Airpark's 2017 FDOT *Airport Pavement Evaluation Report*, Runway 15-33 had pavement condition index (PCI) values that ranged between 84 (satisfactory) to 94 (good). Runway 6-24 had PCI values ranging from 63 (fair) to 94, and Runway 10-28 had PCI values ranging from 66 to 87. Most taxiway segments had "fair" to "good" PCI designations except for portions of Taxiways A and M on the western portion of the airfield that were in "poor" condition. Apron areas and taxilanes received PCI designations between 30 (serious) and 100. Specific areas in need of rehabilitation or reconstruction included the apron north of Sheltair and all aircraft storage hangar access taxilanes between NE 10th Street and Sheltair Aviation. A graphical representation of PCI values for Airpark pavements is presented in **Figure 3-2**. It is recommended that the Airpark continue to maintain and resurface as needed; additionally, further evaluation of the pavement condition should take place in the future.

Figure 3-2. Airpark Pavement PCI Values



Source:
2017 FDOT Statewide Airfield Pavement Management Program.

3.3.5 - Helicopter Landing Areas

As noted in Chapter 1, there is significant helicopter training activity that occurs on taxiways north of Runway 10-28, however, the Airpark does not have designated helipads. It is anticipated that the number of based helicopters at PMP will increase over the next 20-years, although, based on interviews with Airpark Management and ATCT staff, it was identified that designated helicopter landing areas are not needed at this time. If future demand changes, Airpark Management should examine potential locations for designated helicopter landing areas that provide access to landside and tenant areas but do not interfere with fixed wing aircraft operations.

It is important to note that helipads require FAA-approved approach and departure procedures; helicopter landing areas do not.

3.3.6 - Air Traffic Control Tower

The ATCT is operated by Robinson Aviation, Inc. under the Federal contract tower program. The facility is collocated with the existing Airpark administration building located on the north side of Access Road, situated between T-hangars to the east and a maintenance building to the west. The ATCT's height provides clearance over these structures, and based on discussions with the ATCT manager, there are no existing line of sight issues. However, the structure needs significant rehabilitation due to its aging infrastructure. Due to the potential costs of a thorough renovation of the facility, it is recommended that alternative locations be identified for a new facility. It is recommended that an ATCT siting and feasibility study be conducted to identify costs associated with renovating the existing facility and identify potential alternate locations.

3.4 - Airspace Protection

This section identifies existing obstructions to airspace as well as mitigation options for any obstructions.

Data from aerial surveys and the FAA Digital Obstacle Files (DOF) dated August 14, 2018 were used to analyze potential threats to airspace at PMP. The analysis considered Part 77 Surfaces, Runway End Siting Requirements, Glide Path Qualification Surfaces (GQS) and hazardous wildlife attractants. The Part 77 surface analysis offers a basic screening for potential threats. In conjunction with this, the Runway End Siting Requirements and GQS provide a secondary level of screening and are stricter in the sense that there is less tolerance for potential airspace obstructions. Additionally, wildlife can also present challenges to airspace protection, primarily as it pertains to bird strikes. This section identifies potential airspace threats at the Airpark and offers recommendations for mitigation. The analysis is based off existing conditions at the Airpark and is subject to change in the future. A detailed graphical representation of airspace issues is presented in the Airport Layout Plan.

3.4.1 - Part 77 Requirements

FAR Part 77 establishes imaginary surfaces around an airfield to identify potential hazards to air navigation. These standards promote compatible land use and limit the height of objects on and near an airport. The surfaces can vary in shape, size and slope depending on the available approach procedures to the runway ends. The Part 77 surfaces are described as follows:

- Primary Surface – The surface is longitudinally centered on the runway and extends 200 feet beyond the end of that runway. The elevation of any point on the surface is the same as the elevation of the nearest point on the runway centerline. For Runway 15-33, the primary surface is 1,000 feet wide; for Runway 10-28, it is 250 feet, and for Runway 6-24, it is 500 feet wide.
- Approach Surface – The surface is longitudinally centered on the extended runway centerline and extends outward from the end of the primary surface. Approach surfaces for runways at PMP have the following characteristics:
    - Runway 15-33: inner width = 1,000 feet, outer width = 4,000 feet, length = 10,000 feet, slope = 34:1
    - Runway 10-28: inner width = 250 feet, outer width = 1,250 feet, length = 5,000 feet, slope = 20:1
    - Runway 6-24: inner width = 500 feet, outer width = 2,000 feet, length = 5,000 feet, slope = 20:1
- Transitional Surface – The surface extends outward and upward from the sides of the primary surface and from the sides of the approach surfaces at a 7:1 slope to the height of the horizontal surface.

- Horizontal Surface – The surface is a horizontal plane, 150 feet above the established airport elevation. The horizontal surface extends 5,000 feet from the ends of the primary surface on Runways 10-28 and 6-24, and 10,000 feet on Runway 15-33.
- Conical Surface – The surface extends upward and outward from the outer limits of the horizontal surface for a horizontal distance of 4,000 feet. The slope of the conical surface is 20:1 measured in a vertical plane.

Penetrations to these imaginary surfaces, either natural or manmade, are identified as obstructions and must be evaluated by the FAA. If not removable, obstacles can be mitigated through appropriate marking and/or lighting. If not mitigated appropriately, obstacles could adversely affect approach and departure minimums and/or operational procedures.

In total, there were 228 identified obstacles to Part 77 surfaces. 41 of these were in the primary surface, 68 were in the runway approach surfaces, 16 were in the horizontal surface, 102 in the transitional surface, and 1 in the conical surface. These obstructions include trees, towers and poles that will need to be mitigated in accordance with FAA guidance. Refer to the ALP for a detailed summary of obstructions and recommendations to address the areas of concern.

It should be noted that in June 2021, the Airport requested an amendment to LPV approach procedures on Runway 15 and 33 that would change the visibility minimums from ¾ mile to 1 mile. At the time this document was completed, the status of that amendment was still pending. Once adopted, the amendment would shrink the Part 77 primary surface width to 500 feet, inner width of the approach surface to 500 feet, outer width of the approach surface to 2,000 feet, approach surface length to 5,000 feet, and the approach slope to 20:1.

3.4.2 - Hazardous Wildlife

The Airpark's proximity to the Atlantic Ocean, inlets, lakes, ponds, and golf course water hazards result in numerous birds within the surrounding area. According to the FAA's Wildlife Strike Database, there were seven bird strikes at PMP between 2009 and 2018, only one of which resulted minor damage. The Airpark completed a wildlife hazard management plan in 2018. The report noted that on-Airpark wildlife attractants included airfield turf, wooded areas, an existing pond, and landscape areas on and off the Airpark. The primary off-site attractant was the adjacent golf course pond east of Runway 24.

These attractant areas were identified as conducive to the presence of wading birds, waterfowl, shorebirds, doves, pigeons, raptors, and coyotes. Based on the existing attractants and wildlife identified at the Airpark, the following recommendations were established in the Report:

- Repair or block breaches under the existing perimeter fence.
- Adjust gates to minimize openings less than 6 inches.
- Where permitted, remove or exclude all forested areas within the perimeter fence.
- Maintain a consistent intermediate grass height throughout the Air Operations Area (AOA).
- Remove carrion from the AOA promptly.
- Remove unnecessary perch sites or install exclusionary devices on known perch sites on Airpark property.
- Reduce attractiveness of the stormwater pond east of Runway 24.
- Maintain landscaping around off-site parks and parking lots to reduce attractiveness to wildlife.
- Consider installing signage at off-site parks to discourage wildlife utilization.
- Wildlife that pose a threat to aviation should be dispersed from the AOA (via harassment) if permitted.

- If repeated harassment attempts are unsuccessful, hazardous wildlife should be removed from the AOA (lethal control or trapping if permitted).
- Gopher tortoises and burrowing owls within the AOA should be relocated and borrows should be filled.
- Airpark staff should communicate with neighbors to aid in reducing wildlife hazards.
- Airpark should obtain a US Fish and Wildlife Migratory Bird Depredation Permit.
- Airpark staff involved in the wildlife hazard management program should complete wildlife hazard management training as outlined in FAA AC 150/5200-36A, Appendix D.
- Airpark staff should consult an FAA-Qualified Airport Wildlife Biologist during major planning efforts and prior to development of construction plans on Airpark property that could create additional wildlife attractants.

In order to minimize safety hazards and disruptions to aviation operations, the Airpark should adhere to the recommendations identified in the 2018 *Wildlife Hazard Management Plan* to the extent possible.

3.5 - Landside Facilities

This section includes evaluation of the general aviation terminal building, aircraft parking aprons, aircraft storage hangars, vehicle access and parking, and FBO requirements.

3.5.1 - General Aviation Administration Building

The Airpark does not have a public terminal building. The general aviation terminal is owned and operated by Sheltair Aviation and provides basic pilot accommodations and services. The Airpark administration building at PMP (renovated in 2019) is approximately 2,600 square feet in size and includes space for administrative offices and the ATCT. As the majority of itinerant pilots utilize FBO amenities, it is anticipated that the existing administration building is adequate to accommodate projected levels of demand.

3.5.2 - Aircraft Parking Apron and Tie-Down Requirements

The configuration and sizes of aircraft parking aprons are dependent on the aircraft that frequent the airport, aircraft circulation needs, and FAA airfield design standards. ACRP Report 113 provides design criteria for apron layout and capacity. For the purpose of calculating the required aircraft apron size, the following planning criteria and assumptions were used:

Area Requirements

- 1,000 SF of apron for each based single engine-piston and experimental/other category aircraft and peak hour itinerant aircraft.
- 1,800 SF of apron for each based multi engine-piston aircraft and peak hour itinerant aircraft.
- 2,400 SF of apron for each based turboprop aircraft and peak hour itinerant aircraft.
- 3,600 SF of apron for each based jet aircraft and peak hour itinerant aircraft.
- 800 SF of apron for each based helicopter and peak hour itinerant aircraft.

Utilization Assumptions

- 20 percent of based single engine-piston aircraft and experimental/other category aircraft will require apron parking.
- 50 percent of based multi-engine, turboprop, jet, and helicopter aircraft will require apron parking.

- Itinerant aircraft apron requirements are based on design hour operations; itinerant operations were anticipated to account for 25 percent of peak hour operations presented in the Aviation Activity Forecasts chapter.
- 50 percent of itinerant aircraft will require apron parking; 50 percent will require hangar storage.

The primary aircraft parking apron is situated south of Taxiway L and measures approximately 560,000 SF or roughly 13 acres. This apron is utilized by both based aircraft and itinerant aircraft. There are additional aircraft parking aprons and designated spaces located south of the primary apron. As noted in the Inventory of Existing Conditions chapter, the Airpark has an estimated 120 designated aircraft tie-downs, 35 of which are owned by the City. Based on current demand, it was determined that the Airpark is at capacity for aircraft parking. Any additional increases in based aircraft or peak period activity will require additional apron space.

Based on the assumptions described previously, based aircraft, itinerant aircraft, and total aircraft parking apron and tie-down requirements are depicted in **Table 3-7** through **Table 3-9**.

Table 3-7. Based Aircraft Apron and Tie-Down Requirements

		Additional Apron Required (SF)				Additional Tie-Downs Required			
Aircraft Type	**Apron Required (SF)**	**2017***	**2022**	**2027**	**2037**	**2017**	**2022**	**2027**	**2037**
Single-Engine	1,000	--	3,000	5,600	11,600	--	3	6	12
Multi-Engine	1,800	--	3,600	8,100	17,100	--	2	5	10
Turboprop	2,400	--	2,400	6,000	14,400	--	1	3	6
Jet	3,600	--	1,800	1,800	9,000	--	1	1	3
Helicopter	800	--	800	2,000	4,800	--	1	3	6
Experimental/ Other	1,000	--	200	400	600	--	0	0	1
Total Additional Required			11,800	23,900	57,500		8	16	36

Sources:
ACRP Report 113, *Guidebook on General Aviation Facility Planning*.
Kimley-Horn.

Note:
*Airpark is currently at capacity.

Table 3-8. Itinerant Aircraft Apron and Tie-Down Requirements									
		Additional Apron Required (SF)				Additional Tie-Downs Required			
Aircraft Type	Apron Required (SF)	2017*	2022	2027	2037	2017	2022	2027	2037
Single-Engine	1,000	--	1,000	2,500	6,000	--	1	3	6
Multi-Engine	1,800	--	-	900	3,600	--	-	1	2
Turboprop	2,400	--	1,200	1,200	3,600	--	1	1	2
Jet	3,600	--	-	-	-	--	-	-	-
Helicopter	800	--	-	400	400	--	-	1	1
Experimental/ Other	1,000	--	-	500	500	--	-	1	1
Total Additional Required			2,200	5,500	14,100		2	5	11

Sources:
ACRP Report 113, *Guidebook on General Aviation Facility Planning*.
Kimley-Horn.

Note:
*Airpark is currently at capacity.

Table 3-9. Total Aircraft Apron and Tie-Down Requirements									
		Additional Apron Required (SF)				Additional Tie-Downs Required			
Aircraft Type	Apron Required (SF)	2017*	2022	2027	2037	2017	2022	2027	2037
Single-Engine	1,000	--	4,000	8,100	17,600	--	4	8	18
Multi-Engine	1,800	--	3,600	9,000	20,700	--	2	5	12
Turboprop	2,400	--	3,600	7,200	18,000	--	2	3	8
Jet	3,600	--	1,800	1,800	9,000	--	1	1	3
Helicopter	800	--	800	2,400	5,200	--	1	3	7
Experimental/ Other	1,000	--	200	900	1,100	--	0	1	1
Total Additional Required			14,000	29,400	71,600		9	21	47

Sources:
ACRP Report 113, *Guidebook on General Aviation Facility Planning*.
Kimley-Horn.

Note:
*Airpark is currently at capacity.

As shown, the analysis indicated that an additional 47 tie-downs and 71,600 SF of aircraft parking apron will be needed for based and itinerant aircraft by 2037. It should be noted that these projections do not include aircraft taxilanes and movement areas. Development alternatives for apron expansion are presented in the subsequent chapter.

3.5.3 - Aircraft Storage Hangar Requirements

Based and itinerant aircraft that are not accounted for in the analysis presented in Section 3.5.2 can be stored in a variety of ways beyond tie-down/apron storage. These include T-hangars, conventional (box) hangars, or T-shades.

Storage hangar requirements were determined using guidelines suggested in ACRP Report 113. The following was assumed for conventional storage hangars:

Area Requirements

- 1,000 SF of box hangar space for each based single engine-piston and experimental/other category aircraft and peak hour itinerant aircraft.
- 1,800 SF of box hangar space for each based multi engine-piston aircraft and peak hour itinerant aircraft.
- 2,400 SF of box hangar space for each based turboprop aircraft and peak hour itinerant aircraft.
- 3,600 SF of box hangar space for each based jet aircraft and peak hour itinerant aircraft.
- 800 SF of box hangar space for each based helicopter and peak hour itinerant aircraft.

Utilization Assumptions

- 80 percent of based single engine-piston aircraft will require hangar space. 80 percent of those will require T-hangars, 20 percent will require box hangars.
- 50 percent of based multi-engine, turboprop, experimental/other, and helicopter aircraft will require hangar space. 50 percent of those will require T-hangars, 50 percent will require box hangars.
- 100 percent of based jets will require hangars, all will be stored in box hangars.

For T-hangar storage requirements, 1,250 SF was assumed for all types of applicable aircraft (single-engine, multi-engine, turboprop, helicopter, and experimental aircraft).

The Airpark has 123 T-hangar units that encompass approximately 178,800 square feet and 24 box hangars that encompass approximately 108,400 square feet. It was assumed that aircraft hangar storage at PMP is currently at capacity. Based on the spatial assumptions described above, the Airpark will require an additional 54,970 square feet of box hangar space and 61,250 square feet (49 units) of T-hangar space by 2037 (see **Table 3-10**). Development alternatives for apron and storage hangars are presented in the subsequent chapter.

Table 3-10. Aircraft Storage Hangar Requirements

Hangar Requirement	2017*	2022	2027	2037
Aircraft Requiring Box Hangars	--	8	14	36
Aircraft Requiring T-Hangars	--	12	13	49
Total	--	20	27	85
Box Hangar Space Required (SF)	--	13,200	22,400	54,970
T-Hangar Space Required (SF)	--	15,000	16,250	61,250
Total Hangar Space Required (SF)	--	28,200	38,650	116,220

Sources:
ACRP Report 113, *Guidebook on General Aviation Facility Planning*.
Kimley-Horn.

Note:
*Airpark is currently at capacity.

3.5.4 - Airport Access and Vehicle Parking

Road access to the Airpark's west airfield area is provided by NE 5th Avenue and access to the south airfield area is provided by NE 10th Street. Based on projected levels of aviation-related demand, it is anticipated that existing Airpark access and the surrounding transportation network is adequate over the 20-year planning horizon. It should be noted that undeveloped areas of the Airpark property, such as an approximately 11-acre parcel north of Runway 15 will require additional access if demand merits development in the future.

As noted in the Inventory of Existing Conditions chapter, the Airpark has approximately 370 designated vehicle parking stalls for various facilities including the ATCT, the administration building, Airpark tenants and hangars, and FBOs. ACRP Report 113 identifies recommended vehicle parking spaces by type of facility. For the purposes of this Master Plan Update, parking requirements have been identified for the administration building, conventional hangar storage space, T-hangars, and the based aircraft apron. While pilots and tenants often park vehicles in aircraft storage hangars or on non-movement apron areas, designated parking spaces are desirable. The following assumptions were used to develop vehicle parking facility requirements:

- All applicable future facility improvements will require additional designated parking spaces.
- Conventional (box) hangars require one parking space per 1,000 SF of floor space.
- T-hangars require one parking space per two units.
- Terminal building requires 2.5 spaces per peak hour (design hour) operation.
- Based aircraft parking apron requires one space for every two tie-downs.

Vehicle parking requirements for the applicable facilities are depicted in **Table 3-11**. As shown, by 2037, it is anticipated that the Airpark will require 152 additional parking spaces.

Table 3-11. Vehicle Parking Requirements

Parking Facility	2017*	2022	2027	2037
Conventional (Box) Hangars	--	14	23	55
T-hangars	--	6	7	18
Aircraft Tie-Downs	--	5	11	24
Admin/Public	--	13	25	55
Total Additional Spaces	--	38	66	152

Sources:
ACRP Report 113, *Guidebook on General Aviation Facility Planning*.
Kimley-Horn.

Note:
*Airpark is currently at capacity.

3.5.5 - Airport Fencing and Security

The primary purpose of airport fencing is to restrict inadvertent entry to an airport by unauthorized people and wildlife. Airpark management and tenants have noted multiple incidents when unauthorized vehicles have entered portions of the airfield. The Airpark does have a full 7-foot tall perimeter fence (except for a small portion that is protected by the adjacent municipal golf course's lake), however, portions of the perimeter road that access restricted locations and tenant areas only have signage indicating restricted areas. As such, it is recommended that secure access gates be installed on the perimeter road on both

east and west locations that enter restricted airfield areas. Because this is a security issue, it is recommended that secure access gates be a near-term (0-5 year) improvement.

The Airpark is also equipped with limited closed-circuit TV monitoring. Each of the Airpark's access gates is equipped with a monitoring device, but there is no coverage around the fence line. A general aviation airport security assessment was conducted at PMP by the Florida Department of Transportation in 2018. The assessment identified the following security recommendations for PMP:

- Access control - The Airpark should upgrade the existing gate operators with new hydraulic gate operators. The gate operators have been known to malfunction and not close as programmed afterhours. This would require two (2) new operators at the electric vehicle access gates along NE 10th Street.
- The Airpark should also install one (1) pedestrian gate, secured with a cipher lock, near the main airport building to allow authorized pedestrian access to the AOA.
- The Airpark should expand its CCTV coverage to include monitoring of the fence line, fueling area, apron, and hangar area. This will include at least three (3) new cameras.
- The Airpark should provide additional high mast lighting for the aircraft parking areas. The Airpark would need approximately ten (10) high mast light poles.

These recommendations should be pursued by the Airpark to the extent possible.

Another security measure examined in this Master Plan Update is identification of access points for City firefighting vehicles to enter the airfield in the event of an aircraft emergency. Pompano Beach Fire Rescue Station 24 is located immediately east of the Airpark at the intersection of NE 10th Street and North Federal Highway. To minimize the time required to access the airfield, it is recommended that a secure access point for emergency vehicles be located on NE 10th Street between the fire station entrance and NE 18th Avenue. This location provides adequate turning capabilities for larger vehicles and immediate access to the perimeter road.

3.6 - Support Facilities

Support facilities include those that assist the functionality and operational capability of the Airpark. These include aviation fuel storage, maintenance and storage facilities, and utilities.

3.6.1 - Aviation Fuel Storage

Fueling and fuel storage at the Airpark is provided by various tenants. Tank and truck storage for Jet A fuel totals 33,000 gallons and avgas storage totals 39,000 gallons. It is typically recommended that general aviation airports have sufficient fuel storage capacity for up to a week of fueling demands. Based on fleet mix and operational forecasts, it is not anticipated that additional fueling facilities will be needed in the 20-year planning horizon, however, expansion of services will be demand-driven and tenant-funded. As such, unless the Airpark intends to provide fueling capabilities in the future, tenants will need to individually assess their fueling capabilities and requirements, and coordinate with the Airpark regarding any facility improvements.

3.6.2 - Maintenance and Storage

Typical maintenance equipment at a GA airport includes landscaping and mowing vehicles and chemical applications, tools, basic pavement repair materials, sweeping vehicles, storage containers, and other various implements to assist with the operations of the airport. Airpark maintenance facilities are located

immediately west of the administration building and include approximately 4,500 square feet of maintenance equipment and vehicle storage.

ACRP Report 113 describes general size requirements of maintenance and storage buildings based on overall acreage of an airport. PMP has an overall footprint of approximately 600 acres, 100 acres of which are occupied by the municipal golf course and Sand & Spurs Equestrian Park. Based on the Airpark's size, ACRP Report 113 recommends an equipment and storage building of approximately 4,000 square feet in size. As the Airpark is unlikely to expand its boundary in the future, the existing maintenance building is anticipated to accommodate projected demand.

3.7 - Facility Requirements Summary

A summary of facility improvements by type is presented in **Table 3-12**. Development alternatives for these facility requirements are presented in Chapter 4, Alternatives Analysis.

Table 3-12. Facility Requirements Summary
Airside Facilities
Mitigate RIM issues with direct apron-to-runway connector Taxiway C
Eliminate wide expanse of pavement at intersection of Taxiway K, L, and M
Potential Runway 15-33 extension
Acquire properties within existing and future approach and departure RPZs via easement or fee simple
Conduct an ATCT feasibility/siting study to confirm ultimate location
Remove/light obstructions within approach, departure, and Part 77 imaginary surfaces
Consider removal of Runway 6-24
Landside Facilities
Design, environmental documentation, and construction of additional 72,000 SF apron to accommodate 47 aircraft tie-downs
Design, environmental documentation, and construction of additional 55,000 SF box hangars and 61,000 SF (49 units) T-hangars
Support Facilities
Construction of 152 vehicle parking spaces to accommodate demand from additional hangar/apron space and terminal building
Construct two secure access gates and one emergency/fire access
Upgrade the existing gate operators with new hydraulic gate operators
Install one (1) pedestrian gate, secured with a cipher lock, near the main Airpark building to allow authorized pedestrian access to the AOA
Expand CCTV coverage to include monitoring of the fence line, fueling area, apron, and hangar area
Provide additional high mast lighting for the aircraft parking areas
Sources: ACRP Report 113, *Guidebook on General Aviation Facility Planning*. Kimley-Horn.

Chapter 4:
Alternatives Analysis

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4 - Alternatives Analysis

Development alternatives presented in this chapter are intended to accommodate aviation demand forecasts and facility requirements discussed in previous chapters of this Master Plan Update. Feedback from the Planning Review Committee, Airpark Management, and the public were also incorporated. The following sections present alternatives that were considered. The preferred alternatives are summarized in Section 4.7 and depicted on the Airport Layout Plan (ALP).

4.1 - Summary of Facility Needs

This section summarizes the recommended physical facility requirements described in Chapter 3 that accommodate forecast demand and describes the evaluation criteria used to identify preferred development alternatives. The following facilities were examined:

- Airside Facilities
    - Mitigate various RIM issues
        - Non-standard Taxiway C
        - Wide expanse of pavement at the intersection of Taxiways K, L, M and Runway 6-24
        - Safety enhancements at the intersection of runway ends 28 and 33
    - Address Runway 15-33 length needs
    - Reconstruct/reconfigure Taxiway M to meet standard FAA B-II separation requirements
    - Reconfigure Taxiway B to meet FAA standard and install holding pad/run-up area
    - Install/complete full perimeter vehicle service road (VSR)
    - Re-grade Runway 24 RSA to FAA standard
- General Aviation Facilities
    - Construct approximately 72,000 SF of additional aircraft parking apron that includes 47 aircraft tie-downs
    - Construct additional 55,000 SF of box hangars
    - Construct 61,000 additional SF of T-hangars (49 units)
- Support Facilities
    - Construct 152 vehicle parking spaces
    - Install two secure access gates, additional emergency vehicle access gates, and new hydraulic gate operators for all secure gates
    - Incorporate enhanced security (apron lighting, pedestrian gate, CCTV expansion)
    - Construct additional roadway access to existing tenant areas

Evaluation criteria were established to compare the development alternatives. Alternatives were evaluated based on:

- Ability to enhance safety
- Ability to satisfy forecast demand
- Environmental impacts (local areas of particular concern)
- Ability to foster revenue generation and future development
- Off-Airpark impacts (land acquisition, safety areas, road relocations, etc.)
- Impacts to existing facilities
- Cost of implementation

4.2 - Non-Development Alternatives

Non-development alternatives were identified to establish a baseline of effects that could occur as a result of inaction regarding needed facilities at the Airpark. The evaluation considers whether facility improvements should occur at the Airpark, or if another scenario would better serve existing and potential future Airpark tenants and users. The non-development alternatives that were examined include:

- No-build
- Relocation/transfer of aviation activities
- Construction of a new airport

The no-build alternative considers no additional airside, landside, or support facilities being constructed at the Airpark. No additional physical enhancements would be implemented except for routine maintenance for the operational functionality of the Airpark. This alternative does not satisfy projected levels of aviation demand identified in Chapter 2 and subsequent facility requirements presented in Chapter 3. As such, the no-build alternative is not recommended as a viable development strategy.

The second non-development alternative examined is the relocation or transfer of specific or all aviation activities at the Airpark to another airport. Previous chapters of this Master Plan Update detailed the unique mix of tenants and users at the Airpark that includes flight schools, fixed-base operators, a blimp operator, and others. Relocation of these tenants has been identified as an undesirable option. Additionally, the Airpark is situated in an area within the Miami/Fort Lauderdale metropolitan area that has several airports that are at or near capacity in terms of airfield operations and development potential, which limits the ability to relocate tenants or services currently provided at the Airpark.

In addition to the direct economic benefits provided by users and tenants, the Airpark acts as an economic driver within the community and provides a valuable service as a general aviation facility. The relocation/transfer of aviation activities is not recommended as a viable option.

In rare situations, new airports may be constructed to alleviate congestion or enhance operational safety or might be considered if the cost of redeveloping an existing airport exceeds the cost of building new facilities. Based on projected levels of activity and availability of developable land in the vicinity of Pompano Beach, construction of a new airport is not recommended as a viable development alternative for the Airpark.

4.3 - No Analysis Alternatives

Several of the recommended facility improvements identified in Section 4.1 do not require additional analysis using the developed evaluation criteria. These facilities represent “action or no-action” options and include:

- Acquire properties within existing and future RPZs
    - The Airpark should actively continue to acquire control of RPZs via fee simple acquisition or easements
- Remove/light obstructions (continual)
- Construct 152 vehicle parking spaces
    - Existing vehicle parking should expand in current location as demand merits; future development should have requisite designated vehicle spaces included in design and construction

- Install two secure access gates, additional emergency vehicle access gates, and new hydraulic gate operators for all secure gates
- Incorporate enhanced security
    - Apron lighting, pedestrian gate, CCTV expansion
- Construct additional roadway access to existing tenant areas
- Realign portions of Taxiway M to satisfy FAA-standard separation criteria
- Reconfigure Taxiway B to meet FAA standard and install run-up area/holding pad
- Install/complete full perimeter vehicle service road (VSR)
- Re-grade Runway 24 RSA to FAA standard

Assumptions were developed to establish a baseline for analysis and inform the feasibility of various facility implementation strategies. These assumptions include:

- The Airpark will not expand its physical boundary through fee simple acquisition or easements to implement physical improvements. The only exception to this assumption is the establishment of Airpark control of critical safety areas including approach and departure RPZs.
- Any closure or removal of runway and taxiway pavements should only occur when grant assurances have been satisfied unless the primary funding source authority is willing to forgive a significant portion of the outstanding balance of those assurances.
- Broward County will require an Environmental Impact Review (EIR) for any development that could potentially impact Local Areas of Particular Concern (LAPCs), of which, there are four Areas encompassing six parcels on Airpark property (Sites 42 A, B, C, and D).
- Existing or proposed Airpark tenant developments that include hangar construction and apron expansion will occur as planned and will satisfy that portion of demand identified in the summary of facility needs presented in Section 4.1 of this chapter.

4.4 - Airside Development Alternatives

Alternatives were developed for the following airside facilities:

- Runway 15-33 Extension
- Runway Ends 28 and 33 Intersection Reconfiguration
- Taxiway M
- RIM Issue: Taxiway K, L, and M Intersection
- RIM Issue: Direct Apron-Runway Connector Taxiway C

4.4.1 - Runway 15-33 Extension Alternatives

As described in Chapter 3, it was recommended that Runway 15-33 be extended to the extent practicable without incurring significant off-Airpark impacts. Extensions to runway end 15, 33, or both would better accommodate the existing and projected aircraft fleet mix, particularly for takeoffs while reducing the runway's noise footprint due to shifts in departure locations. Development alternatives for an extension to Runway 15-33 incorporate declared distances and do not relocate existing landing thresholds on either runway end due to a desire to not introduce lower flying aircraft over the nearby residential communities. The following sections describe extension alternatives to Runway 15-33.

4.4.1.1 Alternative 1 – Extend Runway 15

Alternative 1 includes a 422-foot extension to Runway 15 with a displaced threshold (see **Figure 4-1**). The entirety of the extension could be used for southbound departures. For northbound departures, the departure RPZ would remain on-Airpark property and would require departure threshold lighting. An extension to Runway 15 would require a corresponding extension to Taxiway G. The following bullets identify benefits and constraints associated with Alternative 1:

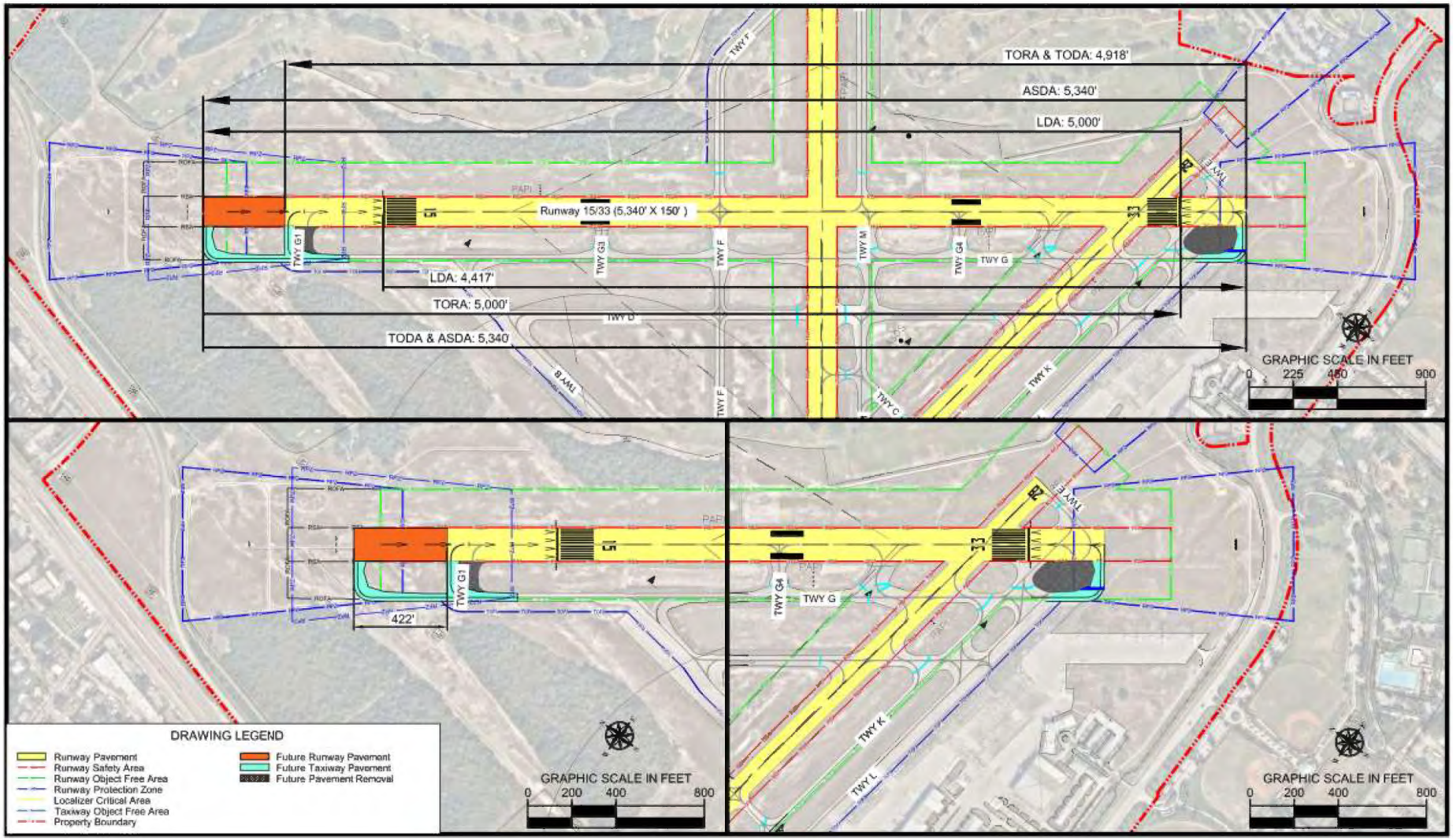
Alternative 1 – Benefits

- Provides additional takeoff length for southbound departures
- Provides additional landing length for northbound arrivals
- Minimal off-Airpark impacts
- No changes to existing RPZs
- No land acquisition or easements for RPZs

Alternative 1 – Constraints

- Requires the use of declared distances
- Extended portions of Runway 15 and Taxiway G create line-of-sight issues with ATCT
    - ATCT siting study recommended
- Extension of Taxiway G requires clearing of vegetation within a LAPC, triggering an EIR
- Requires departure threshold lighting
- Requires relocation of airfield lighting including relocation/embedding of MALS
- Does not fully satisfy runway length recommendation identified in Chapter 3
- Runway extension expands Runway Visibility Zone (RVZ), requiring approximately 51,000 SF of vegetation removal east of the runway

Figure 4-1. Runway 15-33 Extension Alternative 1



Source:
Kimley-Horn.

4.4.1.2 Alternative 2 – Extend Runway 33

Alternative 2 includes a 295-foot extension to Runway 33 that requires a displaced threshold (see **Figure 4-2**). The entirety of the extension could be used for northbound takeoffs. For southbound departures, the departure RPZ would remain on-Airpark and would require departure threshold lighting. An extension to Runway 33 would require a corresponding extension to Taxiway G. In order to implement an extension to Runway 33, the localizer antenna would have to be relocated or blast protection would be required, due to the proximity of the antenna to the existing end of full-strength runway pavement. Relocation of NE10th Street could be required for this purpose.

Any action that impacts the localizer also requires significant coordination with the FAA in the form of a National Change Proposal if the distance between the runway end and the localizer antenna is less than 600 feet. The following bullets identify benefits and constraints associated with Alternative 2:

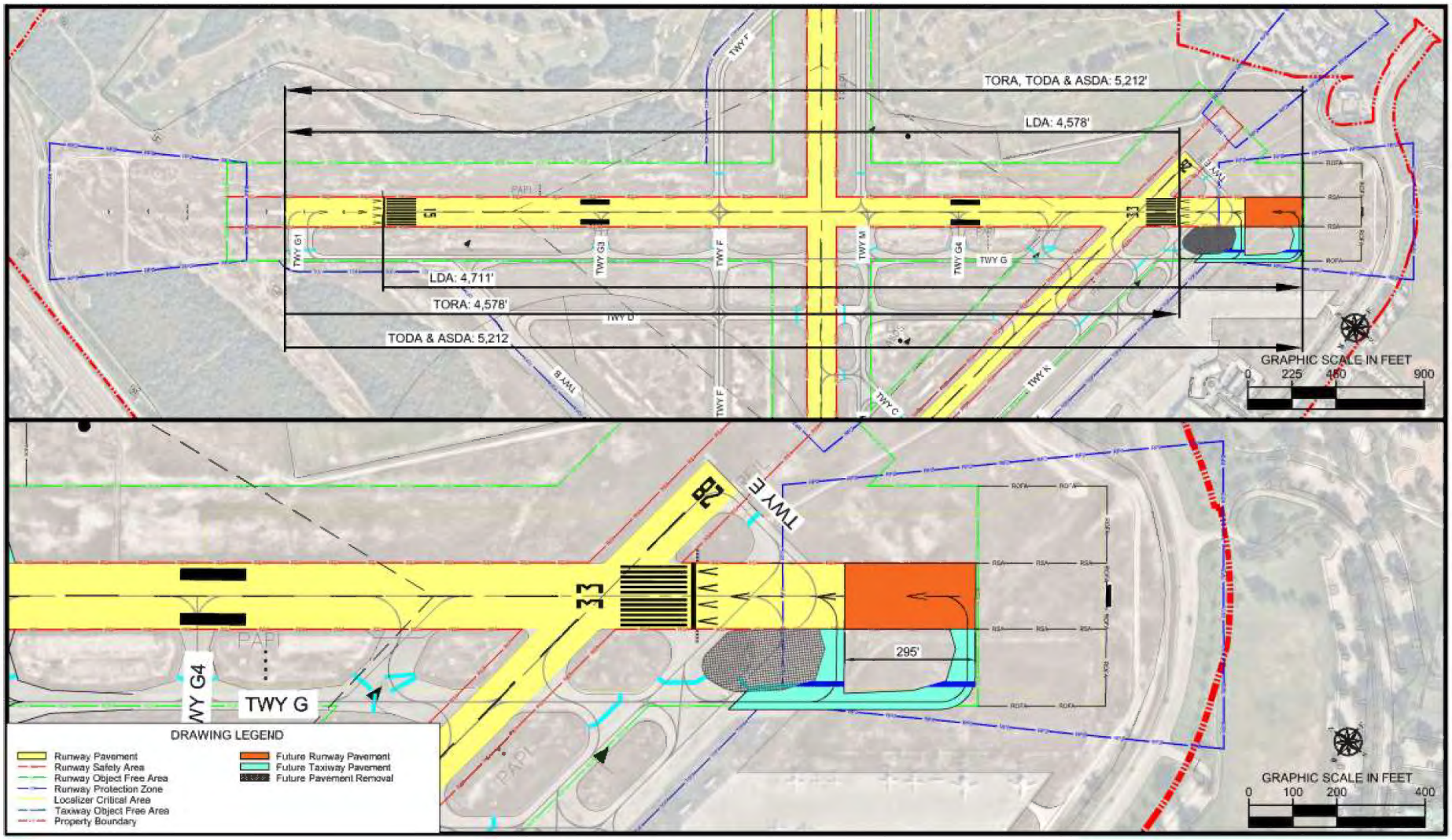
Alternative 2 – Benefits

- Provides additional takeoff length for northbound departures
- No changes to existing RPZs
- Minimal land acquisition (0.3 acres for RPZ)
- Minimal environmental impacts (no LAPCs affected)

Alternative 2 – Constraints

- Requires declared distances
- Extended portions of Runway 33 and Taxiway G create line-of-sight issues with ATCT
    - ATCT siting study recommended
- Requires departure threshold lighting
- Requires relocation of airfield lighting
- Requires localizer relocation or blast protection, which merits significant coordination with FAA
- May require relocation of NE 10th Street
- Does not fully satisfy runway length recommendation identified in Chapter 3

Figure 4-2. Runway 15-33 Extension Alternative 2



Source:
Kimley-Horn.

4.4.1.3 Alternative 3 – Extend Runway 15 and Runway 33

As noted in Chapter 3, based on the existing and projected operational fleet at PMP, it was recommended that Runway 15-33 be extended to the extent practicable without causing significant off-Airpark impacts. Alternative 1 and Alternative 2 propose extensions to Runway 15 or Runway 33 without acquisition of land solely for the purpose of providing additional runway length. Land acquisition as it pertains to Alternative 2 was only needed to accommodate the existing Runway 33 RPZ.

Alternative 3 implements a combination of the extensions described for Alternative 1 and Alternative 2 to provide the maximum attainable runway length while limiting significant off-Airpark impacts to the extent practicable. While this option does not fully accommodate runway length needs identified in Chapter 3, it better accommodates a greater proportion of the existing and projected operational fleet compared with Alternatives 1 and 2.

The 422-foot extension to Runway 15 and 295-foot extension to Runway 33 would result in at total runway length of 5,634 feet (see **Figure 4-3**).

As shown, Alternative 3 provides 5,212 feet of takeoff run available (TORA) departing Runway 33 and 5,000 feet of TORA departing Runway 15. The following bullets identify benefits and constraints associated with Alternative 3:

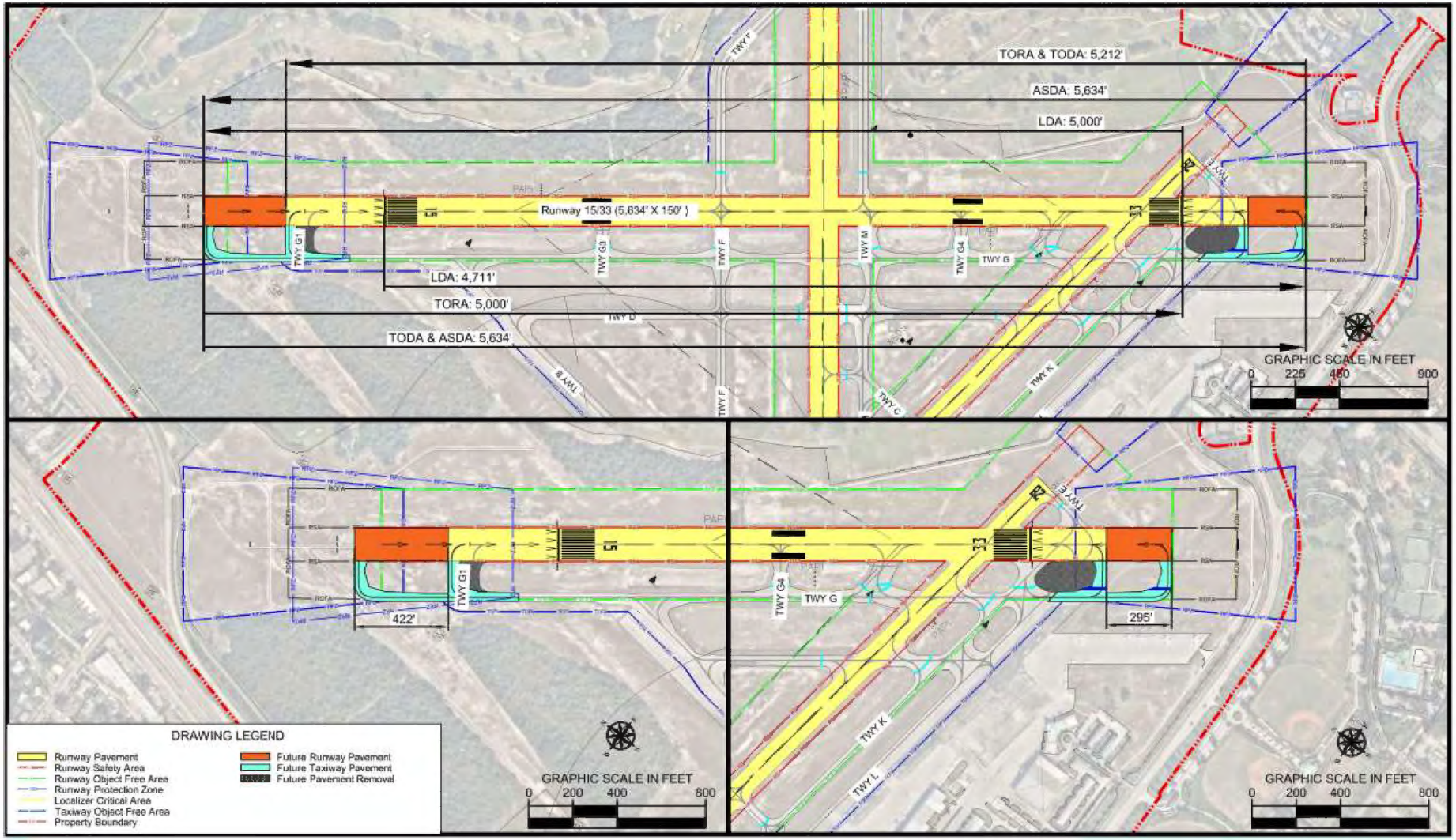
Alternative 3 – Benefits

- Provides maximum takeoff length in both directions without introducing significant off-Airpark impacts
- No changes to existing RPZs
- Maximum extension of primary runway could have secondary benefits such as elevated jet activity and increased fuel sales

Alternative 3 – Constraints

- Requires declared distances
- Does not fully satisfy runway length recommendation identified in Chapter 3, but better accommodates nearly all existing and projected operational aircraft in the fleet
- Extended portions of Runway 15-33 and Taxiway G create line-of-sight issues with ATCT
    - ATCT siting study recommended
- Extension of Taxiway G would require clearing of vegetation within a LAPC, triggering an EIR
- Requires departure threshold lighting on Runway 15 and Runway 33
- Requires relocation of airfield lighting including relocation/embedding of MALS
- Acquisition of 0.3 acres for RPZ
- Runway extension expands RVZ, requiring approximately 51,000 SF of vegetation removal east of the runway
- May require relocation of NE 10th Street

Figure 4-3. Runway 15-33 Extension Alternative 3



Source:
Kimley-Horn.

4.4.1.4 Recommended Alternative

Alternatives 1, 2, and 3 all provide additional length to accommodate the existing and future operational fleet at the Airpark. Declared distances for Alternatives 1, 2, and 3 are described in **Table 4-1**. As noted in Chapter 3, application of Figure 3-1 of FAA AC 150/5325-4B to existing ambient conditions at the Airpark results in a recommended runway length of 6,800 feet for takeoffs, though the majority of the existing and projected fleet at PMP requires approximately 5,500 feet or less of runway for takeoffs.

Table 4-1. Runway 15-33 Alternatives Declared Distances

Alternative	Runway	Runway Length (ft.)	LDA	ASDA	TORA	TODA
1	15	5,340	4,417*	5,340	5,000	5,340
1	33	5,340	5,000	5,340	4,918	4,918
2	15	5,212	4,711*	5,212	4,578	5,212
2	33	5,212	4,578	5,212	5,212	5,212
3	15	5,634	4,711*	5,634	5,000	5,634
3	33	5,634	5,000	5,634	5,212	5,212

Source:
Kimley-Horn.

Notes:
LDA = Landing Distance Available
ASDA = Accelerated Stop Distance Available
TORA = Takeoff Run Available
TODA = Takeoff Distance Available
*Contingent on Quantum Spatial Data, may. Threshold may shift based on obstacle clearance.

A matrix comparing each alternative to the evaluation criteria identified in Section 4.1 is presented in **Table 4-2.** Alternative 1 receives the highest score compared with Alternatives 2 and 3. Based on the results of this analysis, as well as feedback received from the PRC, Airpark Management, and the FAA, Alternative 1 is recommended as the preferred alternative for future improvements for Runway 15-33.

Table 4-2. Runway 15-33 Alternatives Evaluation Matrix

Evaluation Criteria	Alternative 1	Alternative 2	Alternative 3
Ability to satisfy forecast demand	0	0	1
Minimizes environmental impacts	1	2	1
Safety enhancement	2	1	2
Ability to enhance revenue/future development	2	2	3
Minimizes off-Airpark impacts	2	0	0
Impacts to existing facilities	2	1	1
Project Cost	2	1	0
Total	**11**	**7**	**8**

Source:
Kimley-Horn.

Notes:
0 = Does not satisfy evaluation criteria
1 = Satisfies evaluation criteria, with minor challenges
2 = Satisfies evaluation criteria
3 = Exceeds evaluation criteria

4.4.2 - Runways 28 and 33 Intersection Alternatives

The primary purpose of proposed modifications to the intersection of Runways 28 and 33 is to enhance safety and to a lesser extent, to provide additional runway length to Runway 10-28 without incurring any significant off-Airpark impacts. The existing configuration of the intersection requires aircraft entering Runway 28 to hold inside of the Runway 33 RSA. Pilot coordination with the ATCT alleviates this condition, however, a permanent solution is recommended. As such, two alternatives have been developed and are described in the following sections.

4.4.2.1 Alternative 1 – De-Couple Runway 10-28

Alternative 1 proposes de-coupling Runway 10-28 and Runway 15-33 by removing 870 feet of pavement from Runway 28 (see **Figure 4-4**). This distance reflects the point at which the RSAs of Runway 10-28 and Runway 15-33 do not overlap. The loss of 870 feet would shorten Runway 10-28 to 2,632 feet. While eliminating safety issues pertaining to the intersection of Runway 28 and Runway 33, Alternative 1 significantly constrains the functionality of Runway 10-28, especially when use of Runway 15-33 is limited by strong crosswinds.

To mitigate the loss of useable pavement attributed to de-coupling the runway, Alternative 1 includes a 363-foot extension to Runway 10 to provide a total runway length of 2,996 feet. This extension is the maximum allowable distance that keeps the RPZ from extending over North Dixie Highway and adjacent railroad tracks. NE 5th Avenue is currently within the Runway 10 RPZ, which would continue to be the case if an extension were constructed. A 363-foot extension to Runway 10 results in a net loss of 507 feet of runway pavement compared to existing conditions. A concurrent extension of parallel Taxiway K would also be required for access to Runway 10.

The following bullets identify benefits and constraints associated with Alternative 1:

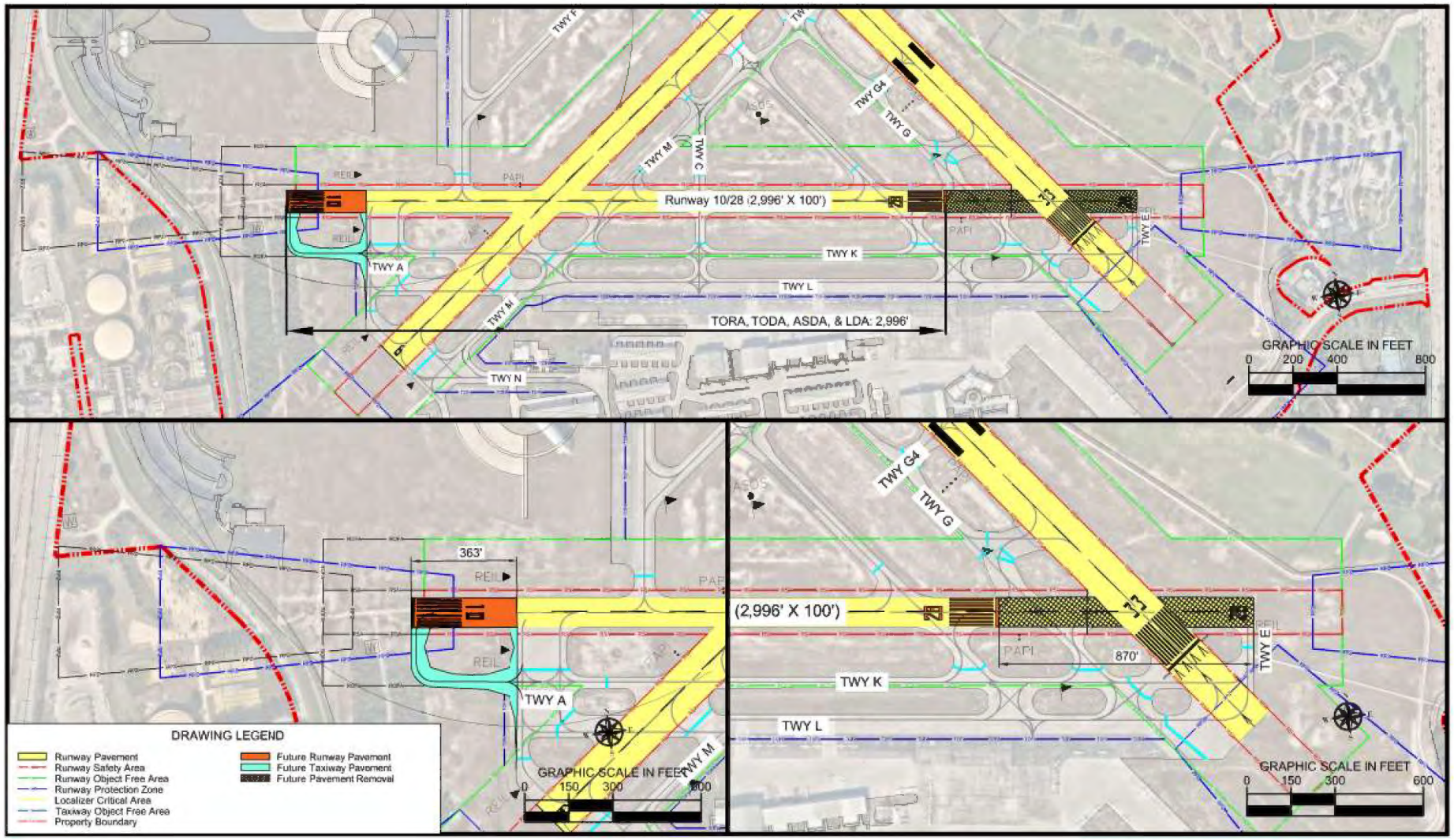
Alternative 1 – Benefits

- Permanent separation of intersecting runways 10-28 and 15-33 enhances safety
- Eliminates portion of Runway 10-28 ROFA that currently extends over the adjacent golf course
- Provides potential development opportunity on areas currently occupied by Runway 28 and associated safety areas
- Reduces the amount of coordination needed between pilots and ATCT

Alternative 1 – Constraints

- Land acquisition or easement required for Runway 10 RPZ (5.14 acres)
- Loss of useable runway pavement, with or without extension to Runway 10
- May require relocation of NE 5th Avenue and other facilities between NE 5th Avenue and NE 3rd Avenue
- Potential environmental impacts associated with extension to Runway 10 (LAPCs and existing well heads)

Figure 4-4. Intersecting Runway 28 and 33 Alternative 1



Source:
Kimley-Horn.

4.4.2.2 Alternative 2 – Mitigate Runway 28 and Runway 33 Intersection

Alternative 2 includes a 185-foot extension to Runway 28, which allows for a reconfiguration of Taxiway E that provides enough space for most aircraft types that operate at PMP to hold outside the Runway 33 RSA before taxiing onto Runway 28.

The extension to Runway 28 does not incorporate any change to the location of the approach threshold but provides an additional 185 feet of takeoff distance for westward departures. The extended portion of the runway would also be usable for eastbound arrivals.

Alternative 2 provides two different Taxiway E reconfiguration options (see **Figure 4-5**). Option 1 includes an extension of Taxiway K as a full parallel taxiway with Taxiway E being relocated to the ultimate end of Runway 28. In this configuration, taxiing aircraft would continue straight on Taxiway K and cross Runway 33. Option 2 would relocate Taxiway E to the end of Runway 33 in an angled configuration. This configuration would require aircraft to utilize Taxiway L, cross Runway 33, then continue along Taxiway E to Runway 28.

The primary differences between Option 1 and Option 2 are the routes that aircraft would take to access Runway 28, and that Option 2 provides additional pavement for holding aircraft. The following bullets identify benefits and constraints associated with Alternative 2:

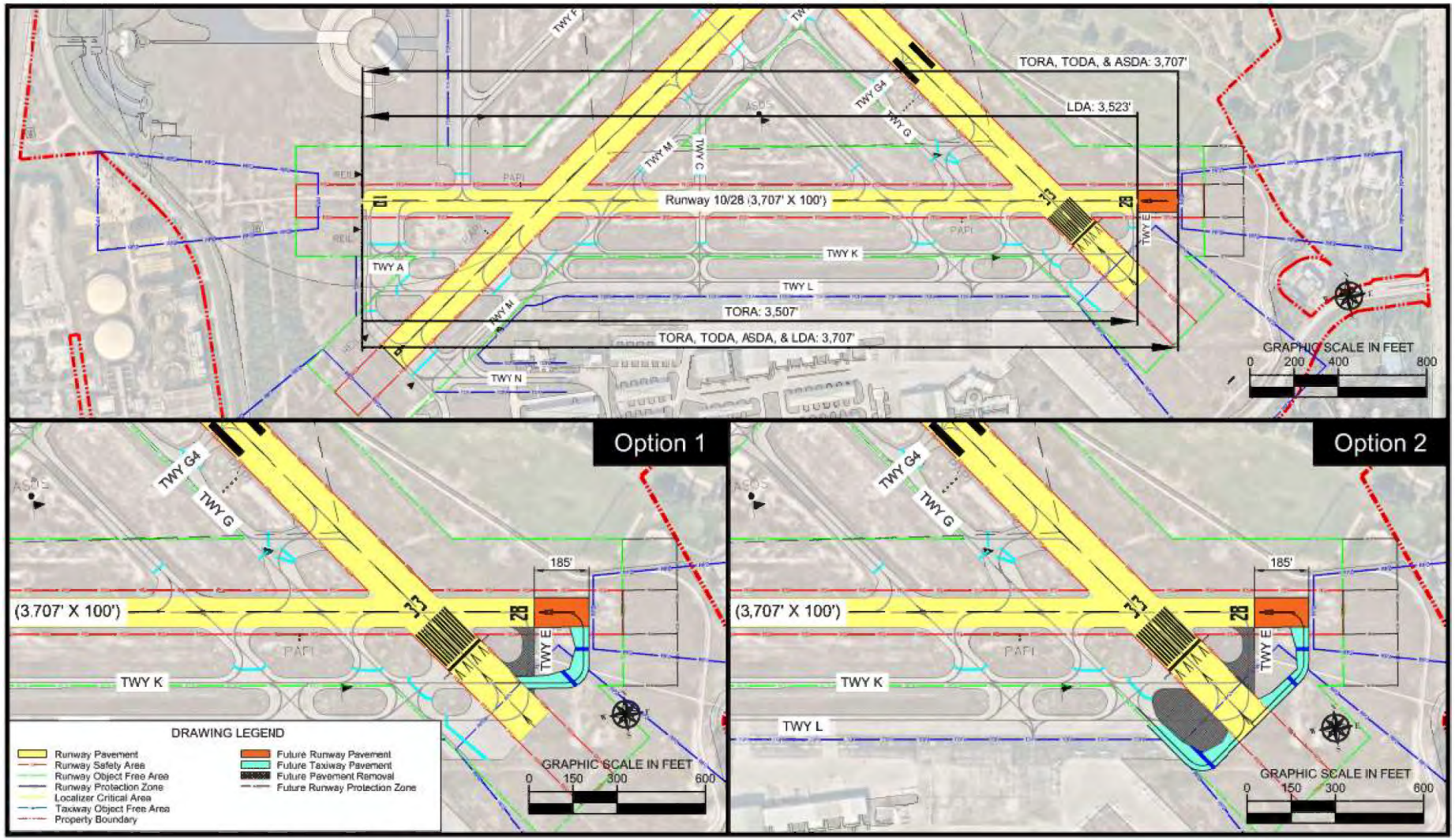
Alternative 2 – Benefits

- Provides additional takeoff length for westbound departures and eastbound arrivals
- Relocation of Taxiway E enhances operational capacity by relocating holding aircraft outside Runway 15-33 RSA
- Reduces level of coordination needed between pilots and ATCT
- No significant environmental impacts
- Eliminates wide expanse of pavement (RIM issue)

Alternative 2 – Constraints

- Requires additional land acquisition or easement for Runway 28 departure RPZ compared with existing conditions (5.12 acres total)
- Runway 28 ROFA extends over adjacent golf course
- Requires departure threshold lighting for eastbound departures
- Does not mitigate two runway thresholds in close proximity (RIM issue)

Figure 4-5. Intersecting Runway 28 and 33 Alternative 2



Source:
Kimley-Horn.

4.4.2.3 Recommended Alternative

The primary objective in reconfiguring the intersection of Runways 28 and 33 is to enhance operational safety and situational awareness. Both Alternative 1 and Alternative 2 achieve this objective. However, Alternative 1 significantly reduces the useable length of Runway 10-28, limiting its overall functionality. Alternative 2 enhances operational safety with the added benefit of a runway extension that can be utilized for westbound departures and eastbound arrivals. A matrix comparing each alternative to the evaluation criteria identified in Section 4.1 is presented in **Table 4-3**. As shown, Alternative 2 receives the higher score between the two alternatives.

Based on discussions with Airpark Management, PRC members, and the FAA, Alternative 2 was identified as the preferred alternative to mitigate safety issues at the intersection of Runway 28 and Runway 33 with Option 2 being the recommended taxiway configuration.

Table 4-3. Runway 28-33 Intersection Alternatives Evaluation Matrix

Evaluation Criteria	Alternative 1	Alternative 2
Ability to satisfy forecast demand	1	2
Minimizes environmental impacts	1	2
Safety enhancement	3	2
Ability to enhance revenue/future development	1	2
Minimizes off-Airpark impacts	0	1
Impacts to existing facilities	2	2
Project Cost	1	2
Total	**9**	**13**

Source:
Kimley-Horn.

Notes:
0 = Does not satisfy evaluation criteria
1 = Satisfies evaluation criteria, with minor challenges
2 = Satisfies evaluation criteria
3 = Exceeds evaluation criteria

4.4.3 - Taxiway M Alternatives

As noted in previous chapters, the FAA standard separation between Runway 6-24 and Taxiway M should be 240 feet. Portions of Taxiway M meet this standard, as improvements have been made incrementally over the course of several airfield improvement projects in recent years. The remainder of the taxiway is situated 200 feet from the Runway 6-24 centerline. Segments of Taxiway M between Runway end 6 and Taxiway D need to be reconstructed to meet FAA design standards and do not require additional analysis. However, the segment of Taxiway M between the Runway 24 end and Runway 15-33 is used less frequently than other segments and requires additional analysis to determine if it is necessary and if so, what it's optimal configuration should be. This section presents development alternatives pertaining to the portion of Taxiway M between Runway 24 and Runway 15-33 that does not currently meet FAA recommended runway-taxiway separation criteria.

4.4.3.1 Alternative 1 - Reconstruct Standard Taxiway M

Alternative 1 proposes shifting Taxiway M 40 feet to the south to create a standard 240-foot separation from Runway 6-24. A small portion of the existing Taxiway could be repurposed in its current location. The primary impact associated with Alternative 1 is that the Taxiway M Object Free Area (OFA) would

extend over the adjacent golf course (see **Figure 4-6**). Because this is a non-compatible use, the golf course would require reconfiguration and the Airpark's perimeter fence would need to be relocated. The following bullets identify benefits and constraints associated with Alternative 1:

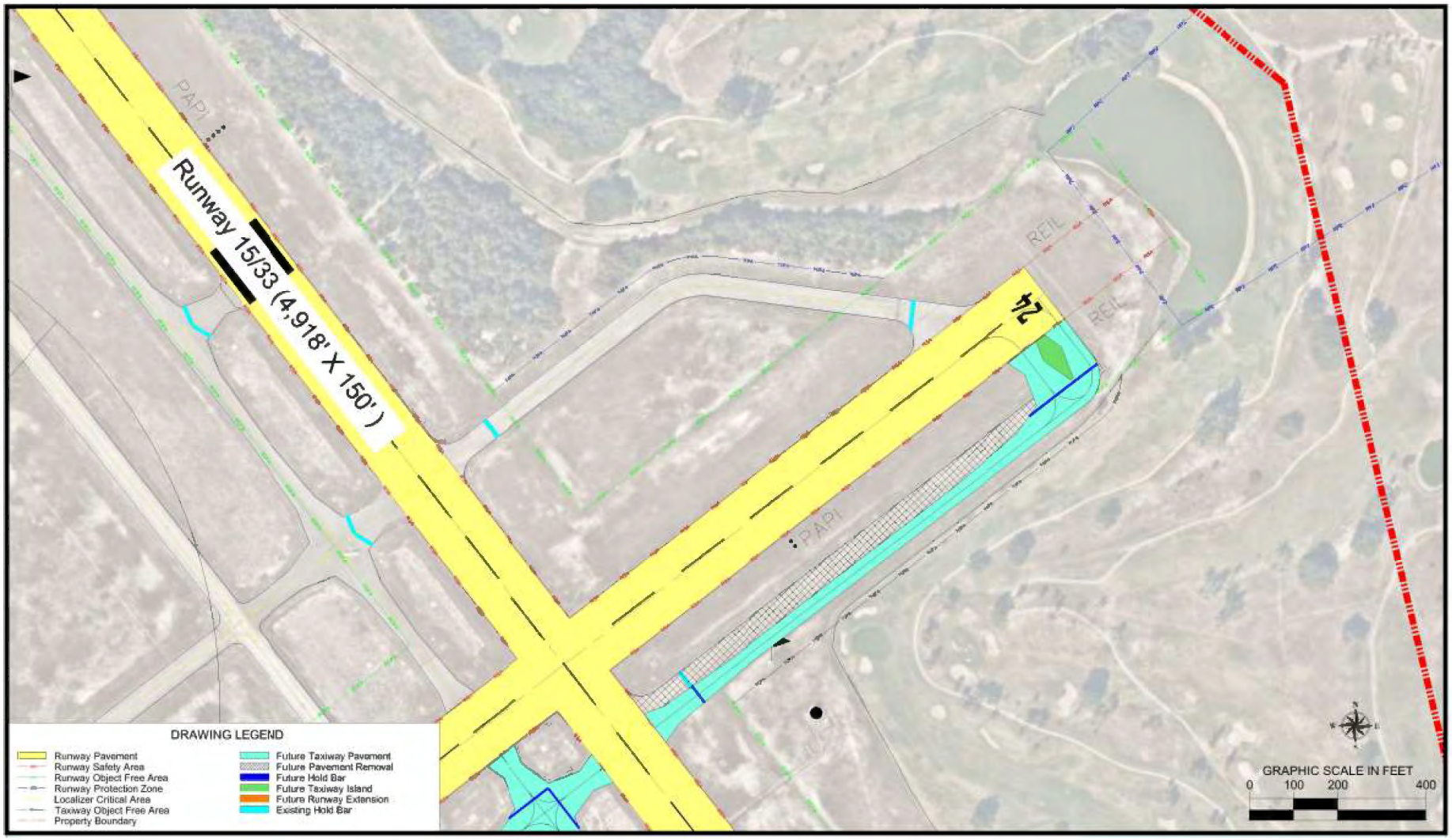
Alternative 1 – Benefits

- Satisfies FAA design standards
- Maintains airfield operational capacity and enhances operational capacity of Taxiway M with the added bypass taxiway connector
- Minimal environmental impacts (no LAPCs or well heads)
- Portion of existing Taxiway M pavement can be reused

Alternative 1 – Constraints

- Requires relocation of perimeter fence
- TOFA expands over golf course; requires gold course reconfiguration
- Requires relocation of taxiway lighting
- Requires reconfiguration of Runway 24 run-up area

Figure 4-6. Taxiway M Alternative 1



Source:
Kimley-Horn.

4.4.3.2 Alternative 2 – Remove Taxiway M

Alternative 2 includes removal of the entire portion of Taxiway M between Runway 15-33 and the Runway 24 end (see **Figure 4-7**). As noted in previous chapters of this Master Plan Update, Runway 6-24 is the least frequently used of the three runways at the Airpark. While removal of Taxiway M would reduce airfield operational capacity, it would also decrease the amount of pavement the Airpark would need to maintain and perform routine rehabilitation on. Taxiway F could also be used to access Runway 24 in its existing configuration. Additionally, the adjacent golf course would not incur any impacts.

The following bullets identify benefits and constraints associated with Alternative 2:

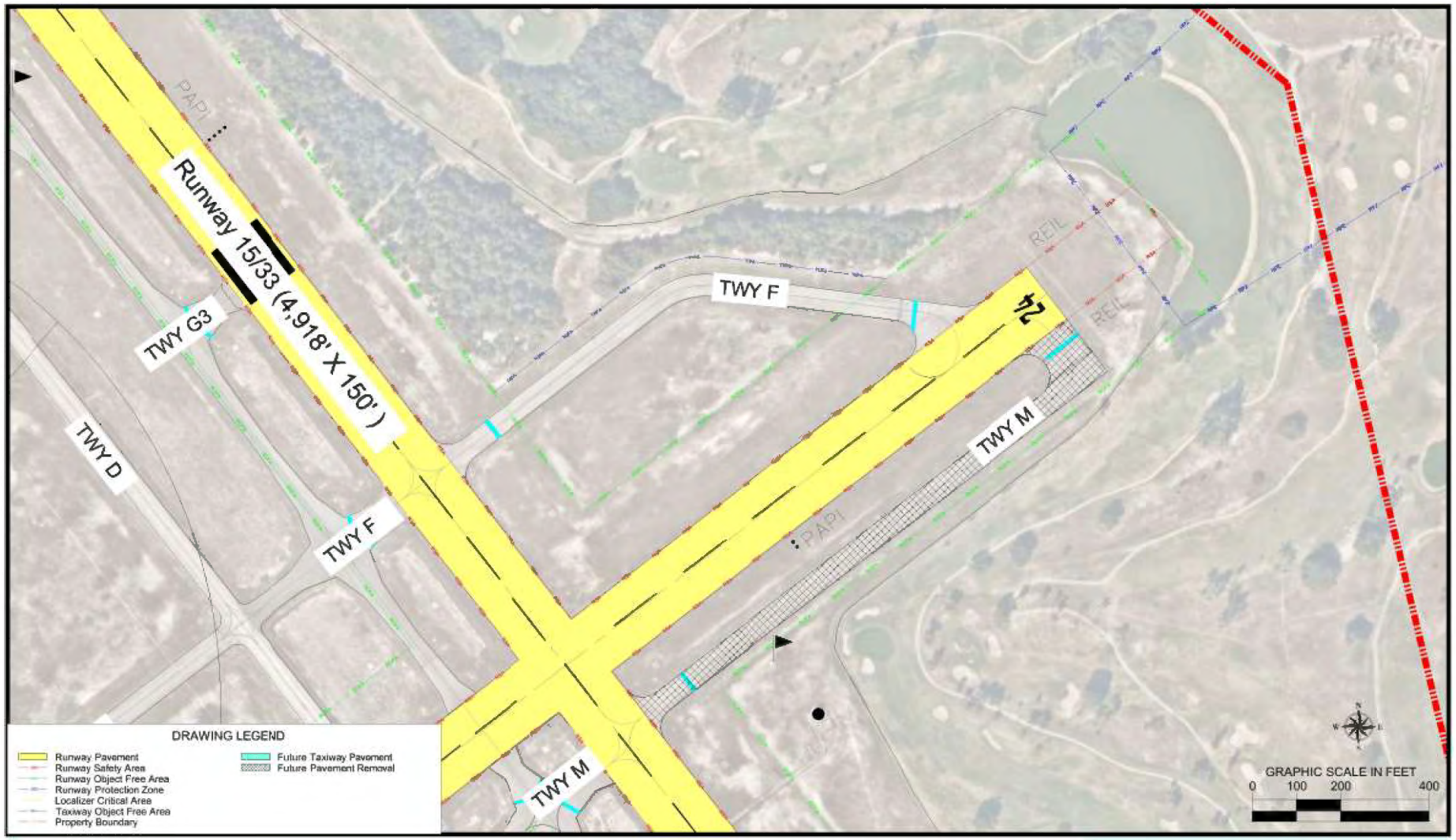
Alternative 2 – Benefits

- Reduces Airpark's impervious surface (lower maintenance and rehabilitation costs)
- No impacts to off Airpark facilities, including golf course
- Streamlines taxiing aircraft to single entrance point, reducing ATCT-pilot coordination
- No environmental impacts or impacts to existing facilities

Alternative 2 – Constraints

- Reduces airfield capacity
- Additional costs associated with removal of lighting
- Requires taxiing aircraft to cross the active arrival flow on Runway 24

Figure 4-7. Taxiway M Alternative 2



Source:
Kimley-Horn.

4.4.3.3 Recommended Alternative

A matrix comparing each alternative to the evaluation criteria identified in Section 4.1 is presented in **Table 4-4.** Based on discussions with Airpark Management and representatives from the ATCT, it was identified that the northeast portion of Taxiway M was considered an important asset, and removal would have a significant negative impact on the operational flow of the airfield. As such, Alternative 1 is the preferred long-term development option for Taxiway M.

Table 4-4. Taxiway M Alternatives Evaluation Matrix

Evaluation Criteria	Alternative 1	Alternative 2
Ability to satisfy forecast demand	2	2
Minimizes environmental impacts	2	2
Safety enhancement	2	1
Ability to enhance revenue/future development	2	2
Minimizes off-Airpark impacts	1	2
Impacts to existing facilities	2	1
Project Cost	2	2
Total	**13**	**12**

Source:
Kimley-Horn.

Notes:
0 = Does not satisfy evaluation criteria
1 = Satisfies evaluation criteria, with minor challenges
2 = Satisfies evaluation criteria
3 = Exceeds evaluation criteria

4.4.4 - Runway Incursion Mitigation: Taxiway K, L, and M Intersection

The intersections where Taxiways K and L intersect with Runway 6-24 and Taxiway M are configured such that there are multiple wide expanses of pavement and non-standard conditions that have the potential to inhibit pilot awareness. These intersections should be reconfigured to meet FAA standards and minimize the potential for incursions. The following sections describe alternatives that satisfy these requirements.

4.4.4.1 Alternative 1 – Reconstruct Intersection of Taxiway M, Taxiway L, and Runway 6-24

Alternative 1 proposes shifting Taxiway M to the south to satisfy a B-II small standard 240-foot separation from Runway 6-24 (see **Figure 4-8**). A small portion of the existing Taxiway M could be retained in its current location. The alternative also proposes a relocation of the western portion of Taxiway L that will retain the separation distance of 128 feet to Taxiway K along the entirety of Taxiway L. The 128-foot separation will still allow for aircraft to hold prior to the Runway 10 hold bars. In compliance with design standards set forth in AC 150/5300-13A, green painted taxiway islands are proposed to mitigate wide expanses of pavement between the intersections of Taxiways M, L, and K. Green painted taxiway islands are also proposed to delineate a bypass taxiway to both Runway 10 and Runway 6.

The following bullets identify benefits and constraints associated with Alternative 1:

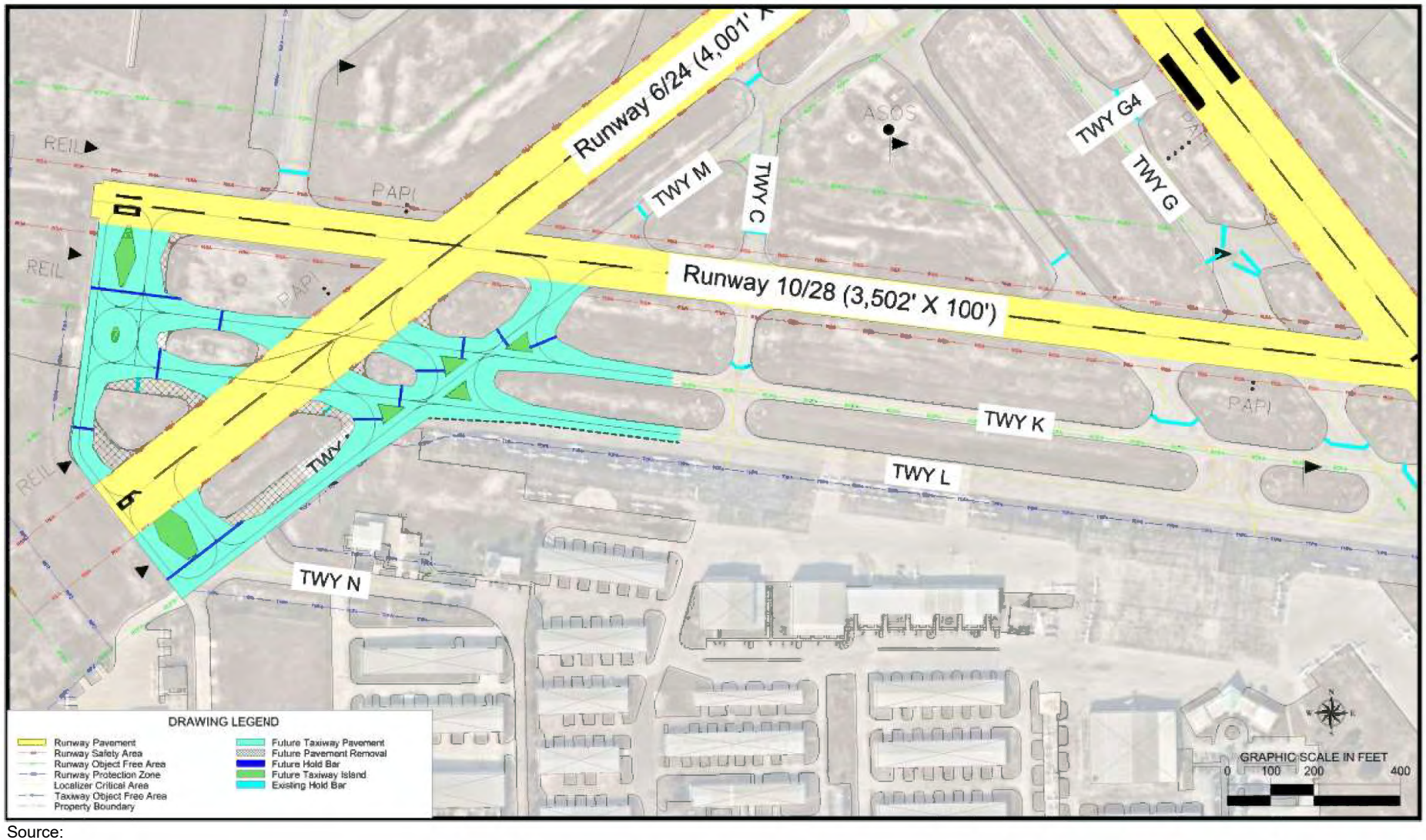
Alternative 1 – Benefits

- Satisfies FAA design standards
- Maintains operational capacity
- Portions of existing Taxiway M and Taxiway L can be retained
- Enhances safety through standard geometry
- No impact to existing facilities
- Reduces level of coordination needed between pilots and ATCT
- No significant environmental impacts
- No off-Airpark impacts
- Mitigates wide expanses of pavement
- Painted islands provide space for additional taxiway signage

Alternative 1 – Constraints

- Additional associated costs with pavement removal
- Requires relocation of lighting
- Painted islands require routine maintenance

Figure 4-8. Runway Incursion Mitigation: Wide Expanses of Pavement Alternative 1



Source:
Kimley-Horn.

4.4.4.2 Alternative 2 – Reconstruct Standard Intersection of Taxiway M, Taxiway L, and Runway 6-24

Alternative 2 maintains the shift of Taxiway M and Taxiway L and the green taxiway islands as proposed in Alternative 1 (see **Figure 4-9**). The difference between the alternatives exists at the intersection of Taxiway K, Taxiway M, and Runway 6-24. Alternative 2 does not allow eastbound taxiing aircraft to gain access to Taxiway M from Taxiway K. Removal of excess pavements at this intersection enhances pilot situational awareness.

The following bullets identify benefits and constraints associated with Alternative 2:

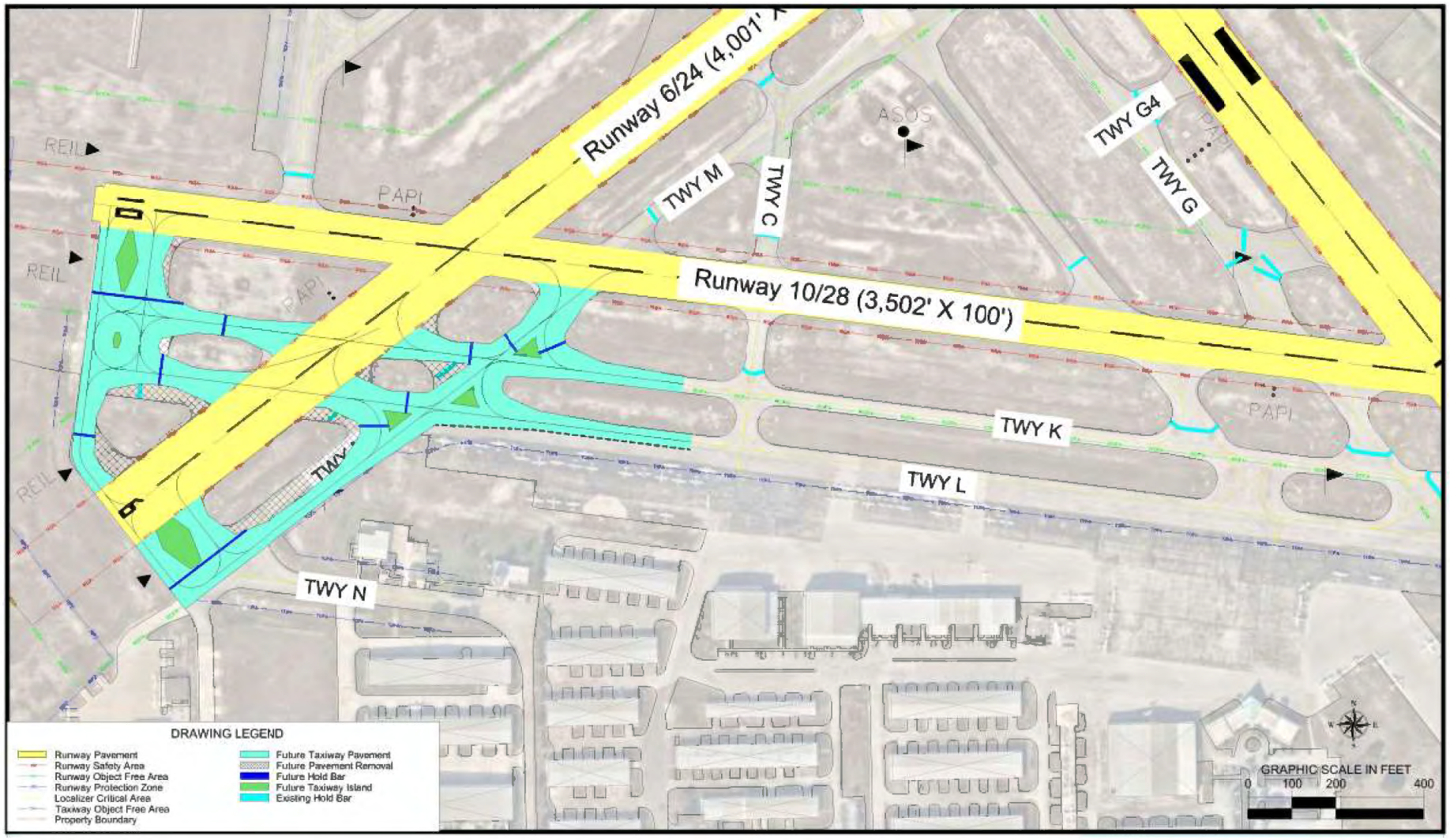
Alternative 2 – Benefits

- Satisfies FAA design standards
- Maintains operational capacity
- Portions of existing Taxiway M and Taxiway L can be retained
- Enhances safety through standard geometry
- No impact to existing facilities
- Reduces level of coordination needed between pilots and ATCT
- No significant environmental impacts
- No off-airport impacts
- Mitigates wide expanses of pavement
- Mitigates direct apron access
- Painted islands provide space for additional signage
- Enhances pilot situational awareness
- Reduces impervious surface

Alternative 2 – Constraints

- Additional associated costs with pavement removal
- Requires relocation of lighting
- Painted islands require routine maintenance

Figure 4-9. Runway Incursion Mitigation: Wide Expanses of Pavement Alternative 2



Source:
Kimley-Horn.

4.4.4.3 Recommended Alternative

A matrix comparing each alternative to the evaluation criteria identified in Section 4.1 is presented in **Table 4-5**. Based on discussions with Airpark Management and representatives from the ATCT, it was identified that the turning movement on Taxiway K onto Taxiway M from Runway 6-24 was not highly utilized. The removal of the turning movement would not drastically hinder airfield operational capacity and would ultimately enhance safety in the area. As such, Alternative 2 is the preferred long-term development option for the intersection of Taxiway M, Taxiway L, and Runway 6-24.

Table 4-5. Reconstruct Standard Intersection of Taxiway M, L, and Runway 6-24

Evaluation Criteria	Alternative 1	Alternative 2
Ability to satisfy forecast demand	2	2
Minimizes environmental impacts	2	2
Safety enhancement	1	2
Ability to enhance revenue/future development	2	2
Minimizes off-Airpark impacts	2	2
Impacts to existing facilities	2	2
Project Cost	1	2
Total	**12**	**14**

Source:
Kimley-Horn.

Notes:
0 = Does not satisfy evaluation criteria
1 = Satisfies evaluation criteria, with minor challenges
2 = Satisfies evaluation criteria
3 = Exceeds evaluation criteria

4.4.5 - Runway Incursion Mitigation: Direct Apron-Runway Connector Taxiway C

The FAA stipulates that taxiways that lead directly from an apron to a runway are not recommended as they may create the false expectation of a parallel taxiway prior to the runway. At the Airpark, Taxiway C connects the main apron to Runway 10-28 as it traverses across Taxiway K and Taxiway L. The following sections describe development alternatives that mitigate direct apron-runway connectivity. It should be noted that these development concepts are relatively simple in terms of analysis and implementation. As such, they are not subject to the same level of analysis in terms of the evaluation criteria as other alternatives presented in this chapter.

4.4.5.1 Alternative 1 – Remove Portion of Taxiway C

Alternative 1 includes relocation of the portion of Taxiway C that connects Taxiway L to Runway 10-28 to the north (see **Figure 4-10**). Relocation of this connector taxiway permanently mitigates the direct apron-runway connectivity without significantly impacting airfield connectivity.

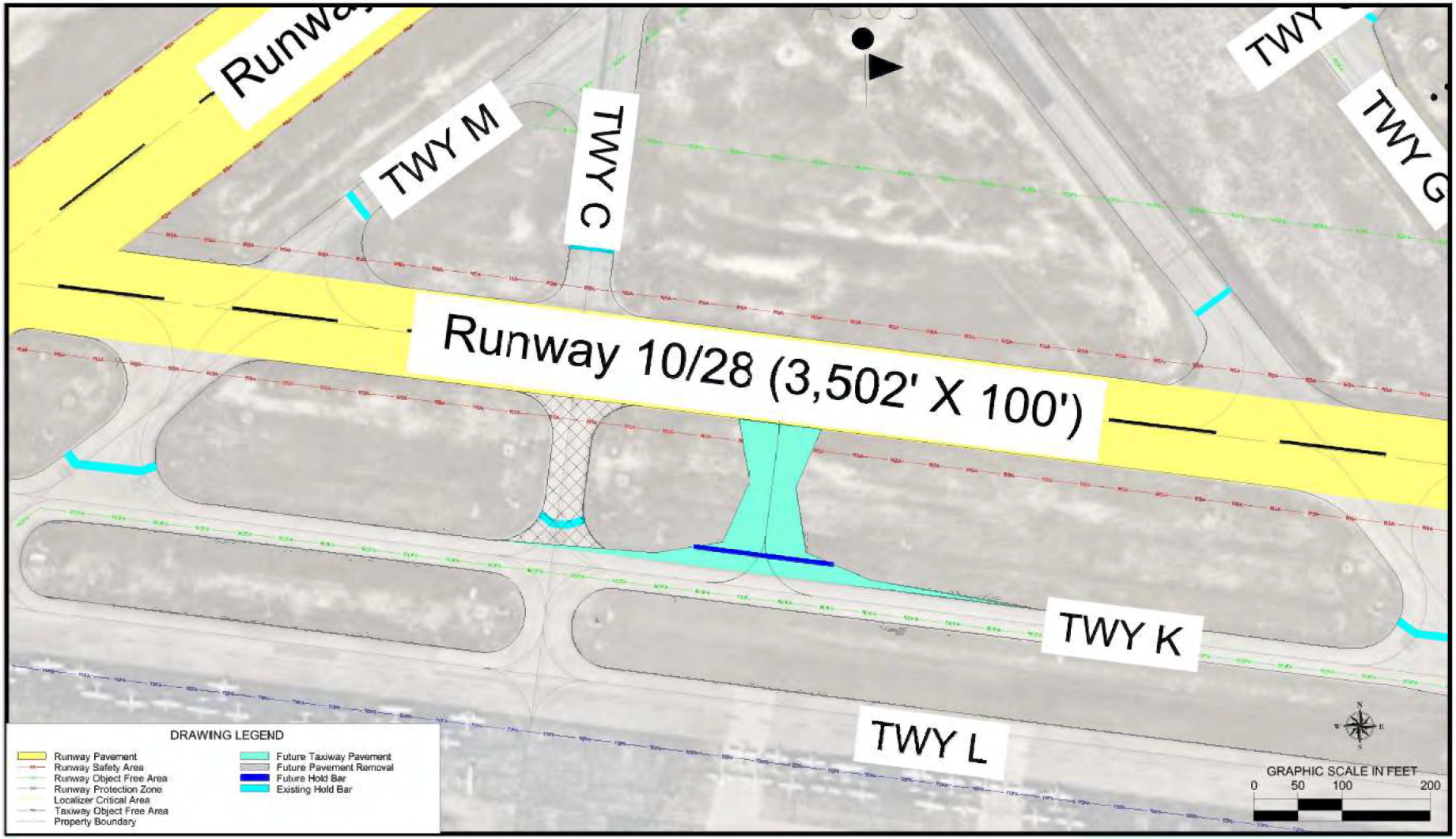
4.4.5.2 Alternative 2 – Relocate Portion of Taxiway C

Alternative 2 includes relocation of the portion of Taxiway C that connects to Taxiway L and the apron to the south (see **Figure 4-11**). The primary difference of Alternative 2 compared to Alternative 1 is that the relocated connector taxiway shifts slightly to the west of where a greater concentration of aircraft tie-downs are located and would require additional re-striping.

4.4.5.3 Recommended Alternative

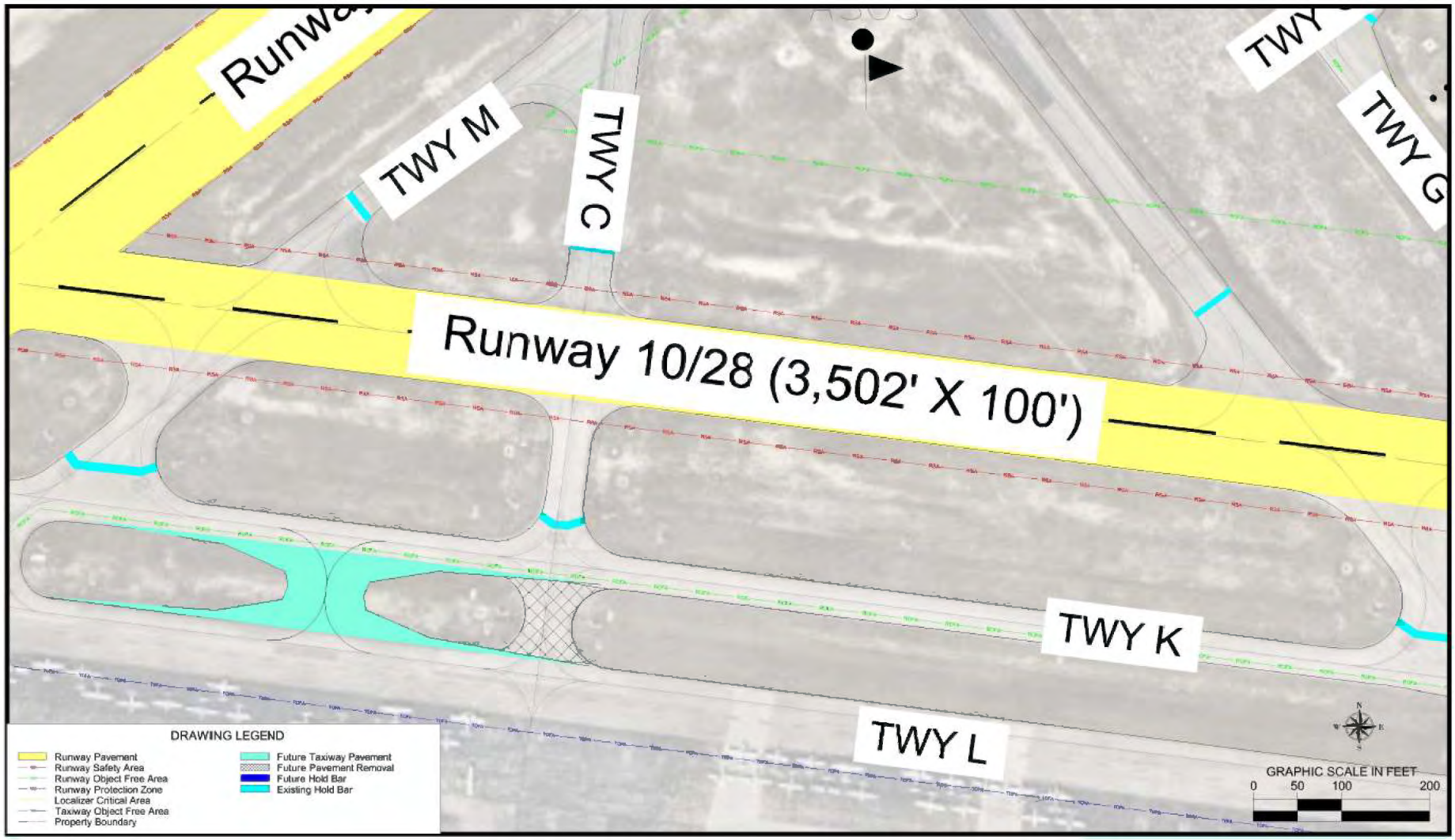
Based on feedback provided by Airpark Management, the PRC, and representatives from the ATCT, it was identified that Alternative 2 was preferable with respect to operational functionality, airfield safety, and congestion reduction near the apron area.

Figure 4-10. Runway Incursion Mitigation: Direct Apron-Runway Alternative 1



Source:
Kimley-Horn.

Figure 4-11. Runway Incursion Mitigation: Direct Apron-Runway Alternative 2



Source:
Kimley-Horn.

4.5 - General Aviation Development Alternatives and Land Use

This section presents development alternatives for landside facility needs pertaining to general aviation demand as well as recommended on-Airpark land uses based on the preferred alternatives presented in this chapter.

4.5.1 - Aircraft Parking Apron and Storage Hangar Expansion

The Facility Requirements chapter identified a need for an additional 72,000 SF (47 tie-downs) of aircraft parking apron, 55,000 SF of box hangars, and 61,000 SF (49 units) of T-hangars. At the time that this chapter was completed, there were two development proposals that, if constructed, would address the entirety of anticipated box hangar need and a portion of the apron need. However, areas that can be developed to accommodate the remaining deficit need to be identified.

An important issue to detail is that portions of the Airpark's property are zoned for "Public Recreation" use and are not currently used for any aviation purpose. Ideally, the Airpark could repurpose these areas that are needed for aeronautical use as demand for development warrants. In order to do this, the City would have to re-zone such areas for "Transportation" use. It should be noted that the alternatives presented in this section identify potential development options under the assumption that zoning constraints will remain in effect.

4.5.1.1 Alternative 1 – South General Aviation Development

Alternative 1 proposes general aviation development on approximately 18 acres south of Taxiway L that are currently occupied by Runway 6 (see **Figure 4-12)**. This alternative would require closure of Runway 6-24 or significant shortening to provide additional area for aeronautical development. With the exception of the Goodyear facility, all tenants and services are situated in the south portion of the Airpark. Opening this area would create a contiguous pattern of development, and closure of Runway 6-24 would not significantly impact the overall capacity of the airfield. The primary advantage of Alternative 1 is that it would allow for future development to occur in a seamless configuration in proximity to existing infrastructure and services.

As noted, Runway 6-24 is the least used of the three runways at the Airpark, and adequate crosswind coverage is provided by Runway 15-33 and Runway 10-28. Additionally, the runway width design standard for a B-II runway is 75 feet, so at a width of 150 feet, Runway 10-28 is twice the FAA design standard and incurs additional costs associated with maintenance and rehabilitation.

The following bullets identify benefits and constraints associated with Alternative 1:

Alternative 1 – Benefits

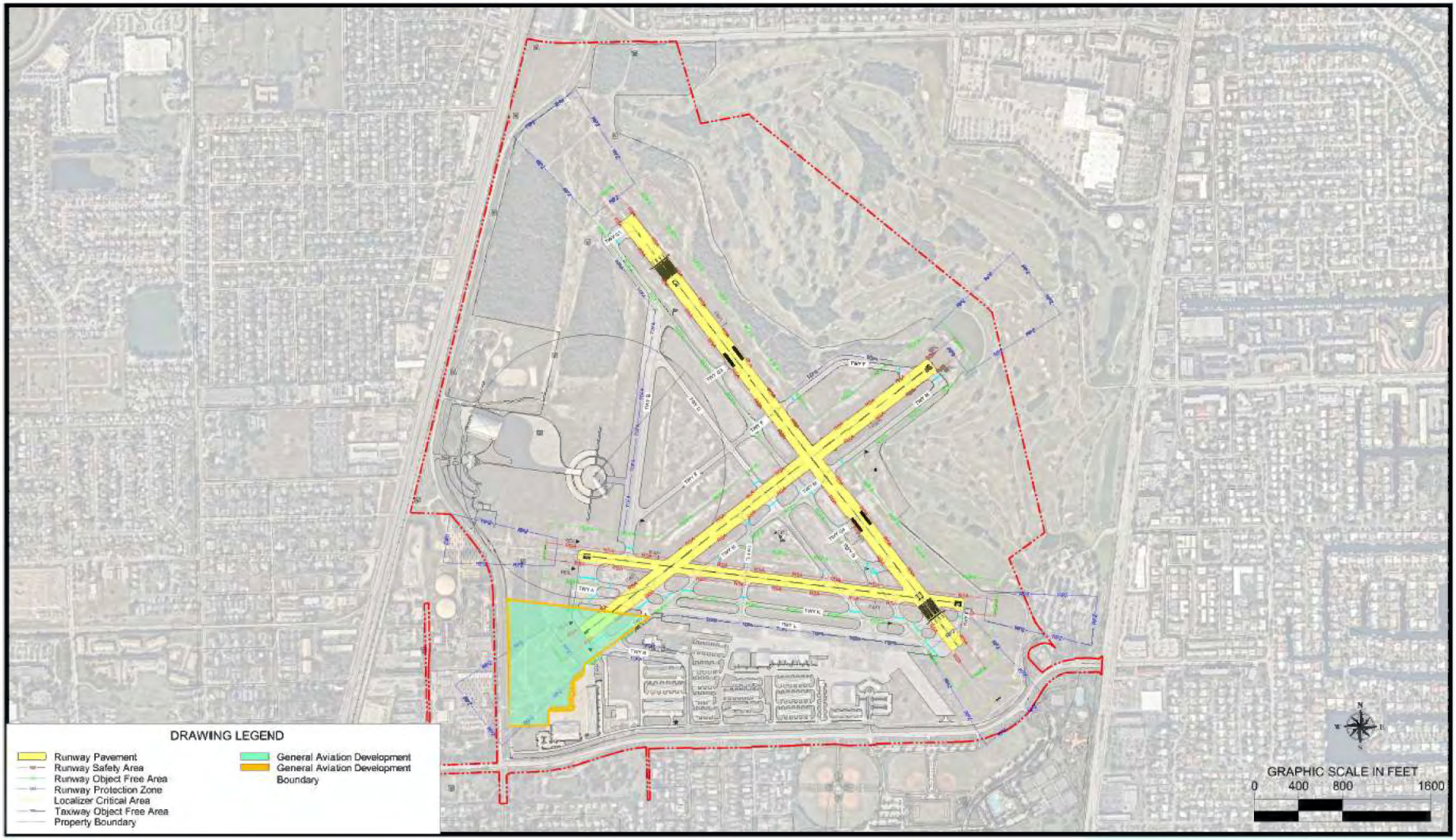
- Minimal impact to airfield capacity (two active-runway configuration is predominant at the Airpark)
- The proposed development area has access to existing infrastructure and services as well as NE 10th Street
- Removal or shortening Runway 6-24 would reduce maintenance costs
- Removal or shortening Runway 6-24 would reduce noise impacts at the Airpark

Alternative 1 – Constraints

- Removal or shortening Runway 6-24 would reduce airfield capacity if Runway 10-28 or 15-33 are closed for rehabilitation or reconstruction

- Potential environmental issues and impacts with well heads and vegetation
- If future demand exceeds available land development envelope, other areas will need to be identified to accommodate demand

Figure 4-12. Landside Development Alternative 1



Source:
Kimley-Horn.

4.5.1.2 Alternative 2 – West General Aviation Development

General Aviation Alternative 2 proposes development on the Airpark's west side, north of the Goodyear facility. There are approximately 42 acres of land that could be made available for aircraft parking apron, hangars, and other aeronautical development (see **Figure 4-13**). Much of the existing area is currently used for recreational purposes and there are two parcels that are primarily designated as LAPCs.

The primary advantage of locating future development in this area is that the land envelope available is significantly larger than the area identified in Alternative 1, and the entirety of the parcel is owned by the Airpark or the City. Though a significant amount of property in this area is currently owned by the Airpark and subleased to a non-aeronautical tenant, development on other parcels would require environmental permitting and rezoning.

Despite the area's location on the Airpark's west side, the area has excellent access to Taxiway B and all three runways.

The following bullets identify benefits and constraints associated with Alternative 2:

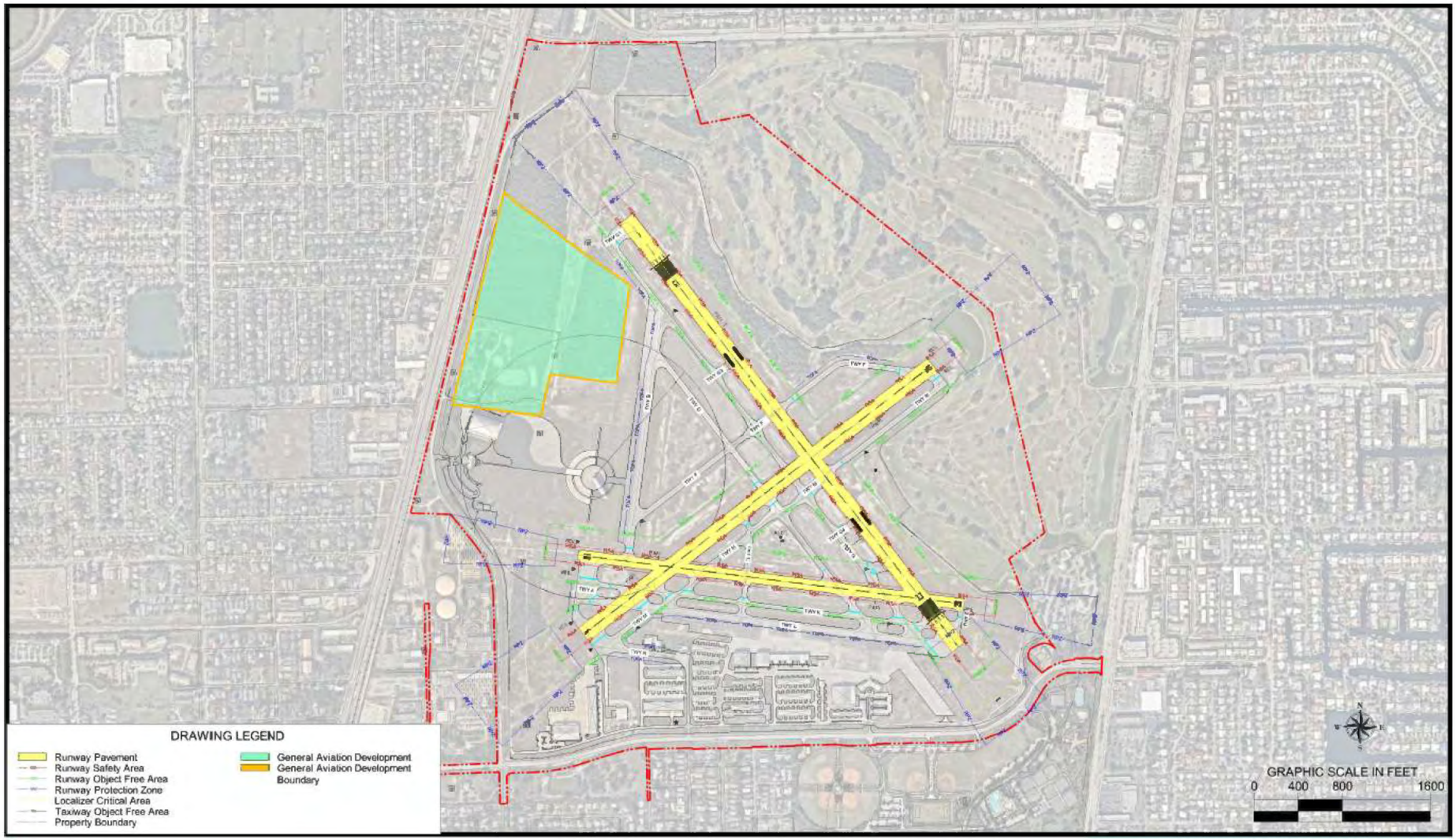
Alternative 2 – Benefits

- Entire property is owned by the Airpark or the City
- Access to Taxiway B and all runways
- 42 acres provides more than adequate land for anticipated demand within 20-year horizon
- Road access provided by NE 5th Avenue

Alternative 2 – Constraints

- Environmental impacts associated with LAPCs
- Portions of the property would require rezoning
- Development not in proximity to existing infrastructure and services
- Existing tenants may require relocation

Figure 4-13. Landside Development Alternative 2



Source:
Kimley-Horn.

4.5.1.3 Recommended Alternative

Alternative 1 presents a general aviation development option that provides a contiguous configuration in proximity to existing facilities and services at the cost of removing a portion or all of Runway 6-24. Although this runway is the least used of the three at the Airpark and adequate crosswind coverage is provided by Runways 10-28 and 15-33, pilots and members of the PRC have identified it as an important asset. Alternative 2 proposes development on the Airpark's west side where there are fewer existing facilities and services for aircraft, though development of a fuel station, wash rack, or other amenities could be constructed in this location as demand merits.

An evaluation matrix comparing each of the general aviation development alternatives is presented in **Table 4-6**. Based on the results of this analysis and feedback provided by Airpark Management and the PRC, Alternative 2 is the recommended option for landside development at the Airpark. As noted previously, it is also recommended that the Airpark work with the City to reclaim parcels on Airpark property that are zoned for recreational purposes within the Airpark's property line. Rezoning these areas would provide the Airpark greater flexibility to determine optimal locations for development and redevelopment that could have fewer impacts than those associated with Alternatives 1 and 2 presented in this Master Plan Update.

Table 4-6. Landside Development Alternatives Evaluation Matrix

Evaluation Criteria	Alternative 1	Alternative 2
Ability to satisfy forecast demand	1	3
Minimizes environmental impacts	1	1
Safety enhancement	2	2
Ability to enhance revenue/future development	2	3
Minimizes off-Airpark impacts	2	2
Impacts to existing facilities	1	1
Project Cost	1	1
Total	**10**	**13**

Source:
Kimley-Horn.

Notes:
0 = Does not satisfy evaluation criteria
1 = Satisfies evaluation criteria, with minor challenges
2 = Satisfies evaluation criteria
3 = Exceeds evaluation criteria

4.5.2 - Recommended On-Airport Land Use

To promote logical future on-Airpark development, it is important to identify a land use plan that provides a framework for development that is compatible with existing and proposed facilities. The initial step in the identification of future land uses is to establish land use planning goals. Recommended land uses should:

- Enhance revenue/future development
- Maximize compatibility with existing facilities
- Minimize impacts to the surrounding community
- Satisfy long-term development needs
- Provide optimal use of land and existing/future access points

The next step in the land use planning process is identification of recommended land uses. In total, eight land uses were identified that include permitted activities and general requirements for potential development within each category as shown **Table 4-7**.

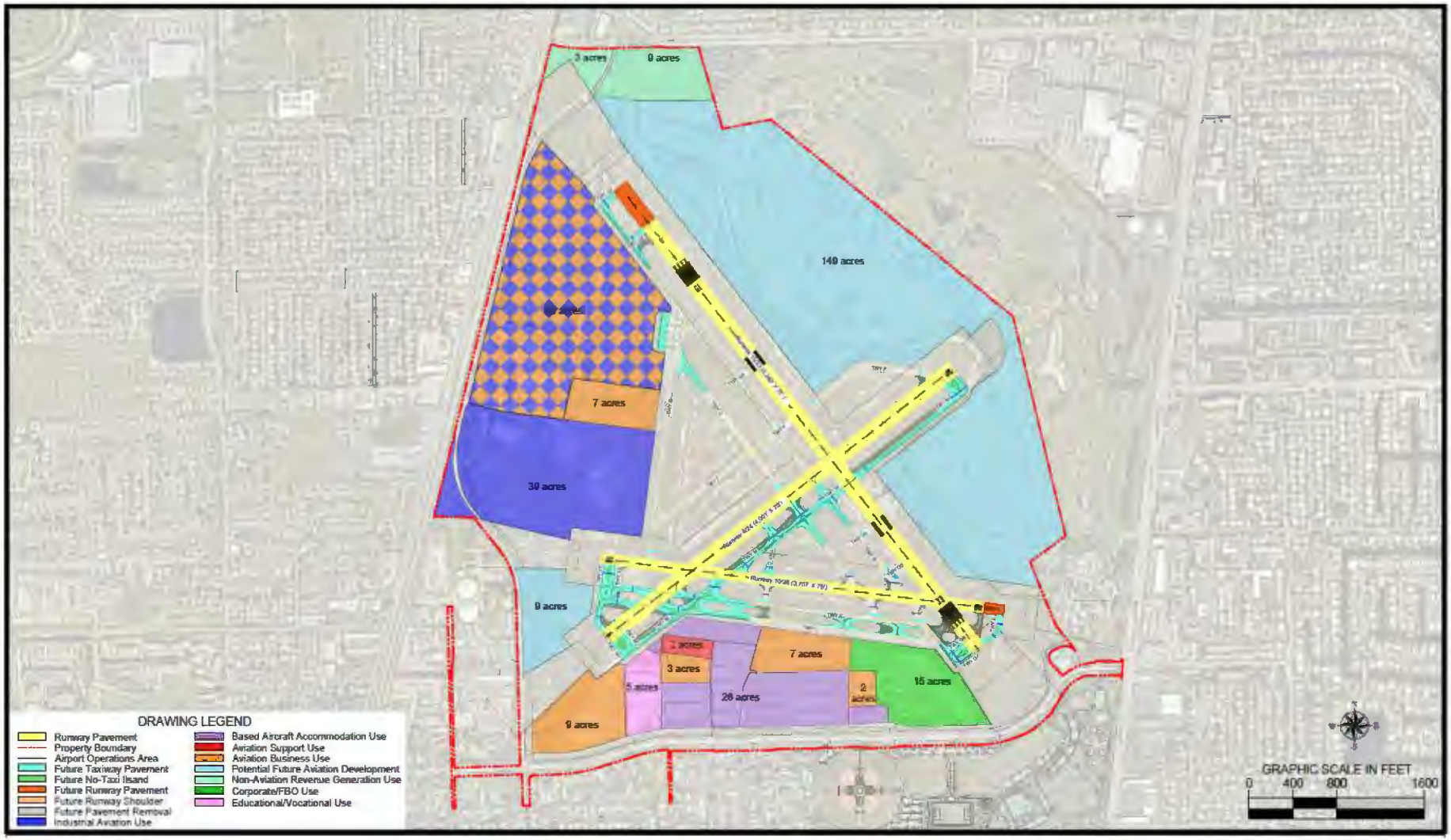
Table 4-7. Land Use Categories

Land Use	Recommended Activities	General Requirements
Educational/ Vocational	Flight schools, flight training, airframe and powerplant mechanic training, satellite campus	Apron access, hangars and storage, office/ administrative space, student housing
Industrial/ Aviation	Specialized aviation services, parts storage, commercial aircraft storage	Apron access, large aircraft hangars, office/ administrative space
Corporate/ FBO	FBO, itinerant aircraft parking apron, auto parking, conventional aircraft hangars, fuel truck parking	Parallel taxiway access, apron access, corporate hangar space, auto parking, building/ administrative space
Based Aircraft Accommodation	Aircraft apron, taxilanes, T-shades, conventional hangars, T-hangars, auto parking	Aircraft taxiing and maneuvering areas, aircraft parking apron (light apron), small hangars, auto parking
Aviation Support	General equipment storage, maintenance facilities, terminal building, ATCT	Apron access, taxiway access, vehicle service road access
Aviation Business	Aviation-related businesses not associated with FBO or aircraft repair/ maintenance, retail, office, auto parking	Aircraft hangars, office/ administrative space, auto parking
Potential Future Aviation Development	To be determined	None
Non-Aviation Revenue Generation	Commercial or light industrial uses not specific to aviation demand	Vehicle access, parking, utilities

Source: Kimley-Horn.

It should be noted that land uses reflect categories pertaining to both aviation and non-aviation uses. The Recommended On-Airpark Land Use map presented in **Figure 4-14** was developed based on input from Airpark Management and considers the ultimate conditions of the airfield and proposed developments that are in the initial planning and design phase.

Figure 4-14. Recommended On-Airpark Land Use



Source:
Kimley-Horn.

As shown, the Recommended On-Airpark Land Use map identifies approximately 158 acres for future potential aviation development use, 26 acres for based aircraft accommodation, 28 acres for aviation business use, 39 acres for industrial aviation, 15 acres for corporate/FBO, 5 acres for educational/vocational, 2 acres for aviation support, and 60 acres for mixed use industrial aviation/aviation business. The land use map is also included as a sheet in the ALP.

4.6 - Support Facility Improvements

Support facilities are generally ancillary items that aid in the operational functionality of an airport. As it pertains to this Master Plan Update, the roadway network was analyzed for adequate tenant access and emergency vehicle access, which are summarized in the following section.

4.6.1 - Airpark Access

A specific recommendation outlined in Chapter 3 of this Master Plan Update is that the Airpark should install secure gate areas to enhance airfield security, allow emergency vehicle access, and provide additional roadway access to tenant areas. These improvements were vetted with Airpark Management and the PRC to identify optimal locations. The recommended locations of these access improvements are presented in **Figure 4-15**.

Figure 4-15. Airpark Access Improvements

Source:
Kimley-Horn.

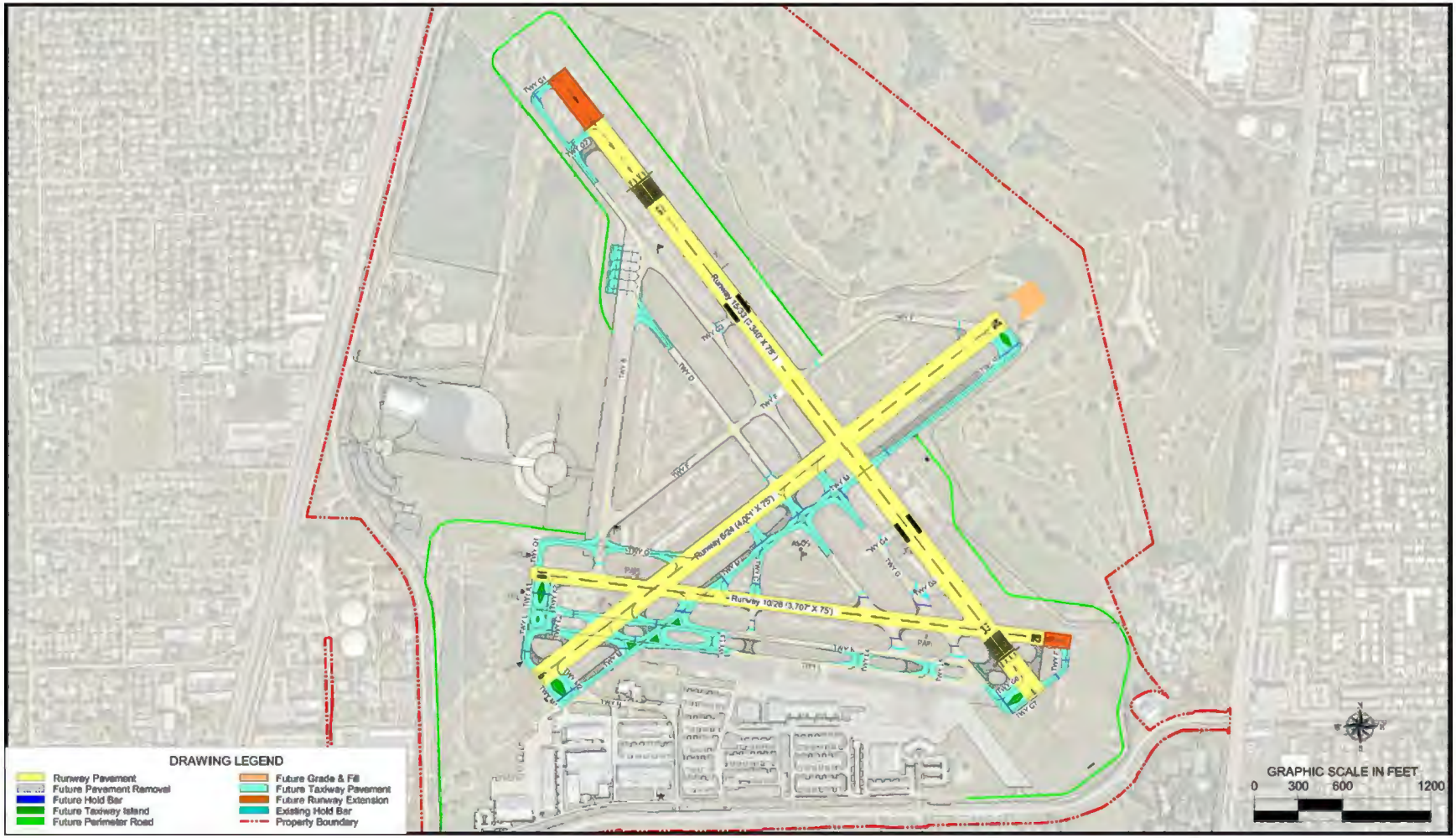
4.7 - Development Alternatives – Preferred Alternative

A summary of the recommended developments described in this chapter is presented in **Figure 4-16**. This consolidated Preferred Alternative represents all physical improvements (excluding maintenance projects) that are anticipated over the planning horizon. A phased implementation plan for these improvements as well as cost estimates and funding sources are presented in the following chapter.

It should be noted that based on the significant level of proposed airfield reconfiguration, the Airpark's taxiway nomenclature will require updating. Recommended nomenclature is described in *FAA Engineering Brief No. 89 Taxiway Nomenclature Convention*. Preliminary future taxiway designations are presented in **Figure 4-16**. Airpark Management and ATCT staff were consulted to assist with establishing preferred future taxiway designations as depicted in the ALP.

Additionally, all previous exhibits presented in this chapter depict the Airpark's runway widths in their existing condition. All runways at PMP exceed the FAA's recommended B-II design standard (Runway 15-33) and B-II small design standard (Runway 10-28, Runway 6-24) for width. Airpark Management has identified that it would be desirable to maintain the existing runway widths that exceed FAA standard and seek local and State funding assistance for future maintenance of any non-FAA grant eligible pavements and associated facilities if needed. As such, **Figure 4-16** presents Preferred Alternative projects with existing runway widths.

Figure 4-16. Consolidated Preferred Alternative



Source:
Kimley-Horn.

Chapter 5:
Implementation and Financial Plan

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5 - Implementation and Financial Plan

Previous chapters of this Master Plan Update documented analysis of the Airpark's facility needs based on existing infrastructure and forecasts of aviation demand. Various development alternatives to address these facility needs were presented and preferred alternatives were selected. The combined Preferred Alternative identified all improvements recommended to be implemented within the 20-year planning horizon.

In addition to the improvements in the Preferred Alternative, Airpark staff identified other previously planned or recommended projects in the City of Pompano Beach Adopted Capital Improvement Plan (CIP) for fiscal year (FY) 2021-2025 and the Airport Pavement Management Plan (APMP) that are incorporated into the overall program. The combination of projects identified in the Master Plan Update, the City's CIP, and the APMP represent the Recommended Development Plan (RDP).

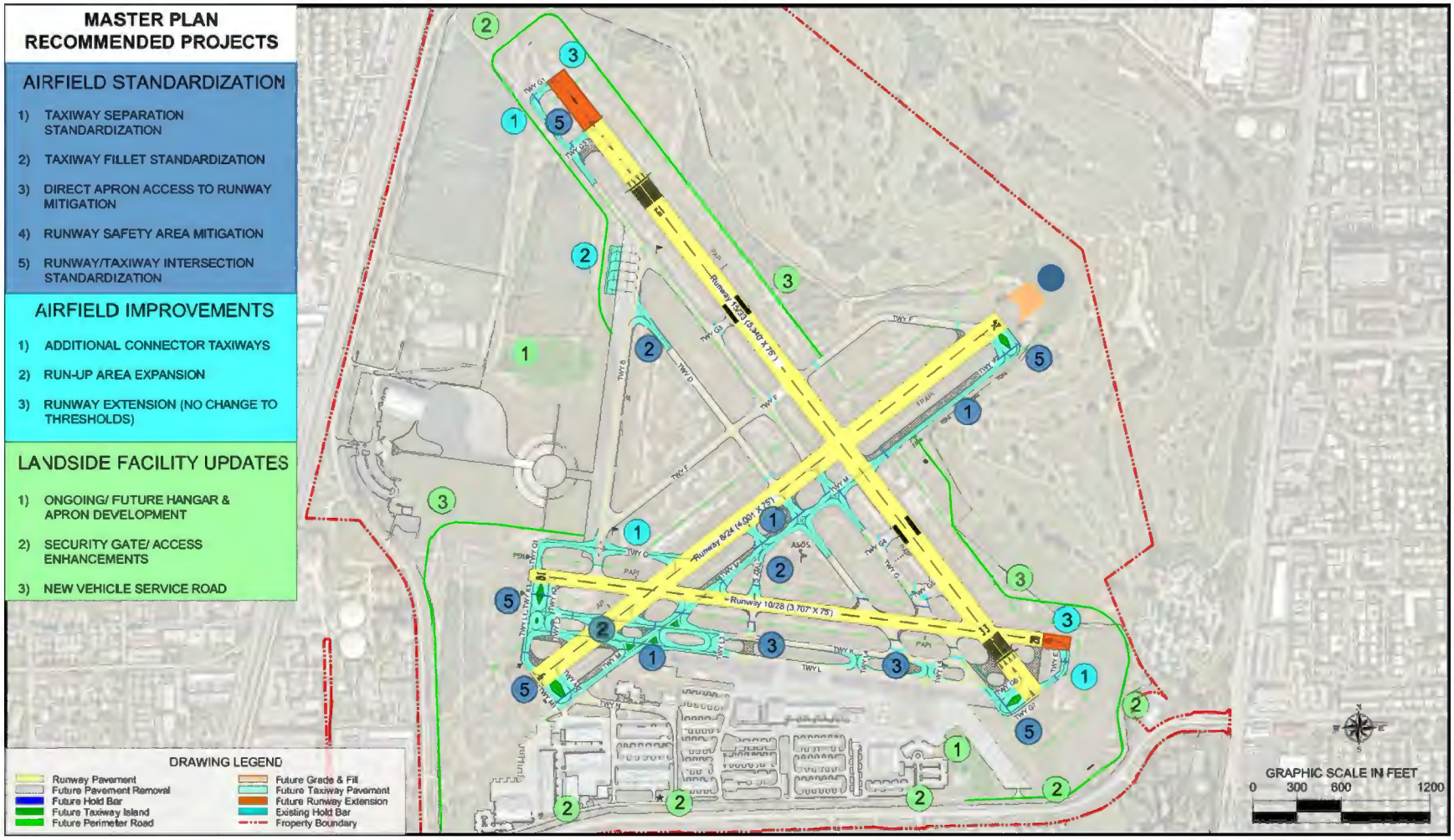
This chapter summarizes the RDP and presents the Airpark's anticipated phasing plan, environmental documentation requirements, an updated 5-year and 20-year Airport Capital Improvement Plan (ACIP), likely funding sources, and a cash flow analysis.

5.1 - Recommended Development Plan

The recommended facility improvements developed for the Preferred Alternative were presented in Chapter 4. These improvements included airfield and landside components that considered on-Airpark land uses, Airpark access, and other aviation and support facilities. As noted, the RDP includes recommended facilities from the Preferred Alternative and Airpark Sponsor planned and programmed projects. Projects from the RDP that came from this Master Plan Update are depicted in **Figure 5-1**. Non-infrastructure projects such as planning studies, construction design, and equipment upgrades are not shown in the figure, but these costs are included in the estimates and financial analysis presented in subsequent sections of this chapter.

The RDP considers the phasing and timing for the implementation of individual projects and the dependence of projects on one another. Implementation of the RDP is planned to occur in three phases, as described below.

Figure 5-1. Recommended Master Plan Improvements



Source:
Kimley-Horn.

5.1.1 - Phase I Improvements (2021-2025)

The following sections describe the phasing of Master Plan-recommended projects as well as projects identified in the City's current CIP and projects presented in the Airpark's APMP. The following projects from the RDP, with project descriptions as necessary, are recommended to be implemented in Phase I (0- to 5-year timeframe, FY 2021-2025):

- **Airpark Security Gate Enhancements and Upgrades:** Construct four additional security gates; two for airfield access, two for emergency access.
- **New Air Traffic Control Tower Design:** Design for potential improvements or relocation of the ATCT (ATCT Study to identify potential improvements to be conducted in 2020).
- **5th Avenue Landside Access Parcel Y, Access Road:** Design and construct access from North-East 5th Avenue to airfield Parcel Y.
- **Design and Construction of Taxiway B Run-up Apron:** Design and construct an additional 25,500 SF of asphalt, painting and striping, and edge lighting for the Taxiway B run-up apron.
- **Design and Construction of Runway 10-28 Extension:** Design and construct 185-foot extension of Runway 28 (18,500 SF). Extension will be asphalt, grooved, 26,000 lbs., single-wheel strength. Also includes relocation of runway end identifier lights (REILs), painting and striping, and additional MIRLs.
- **Apron N Segment 4205 Restoration:** Rehabilitate Apron N at north end of Taxiway B (~63,000 SF).
- **Runway 33 Segment 5110 Restoration:** Rehabilitate apron area leading to Runway 33 (~20,500 SF).
- **Air Traffic Control Tower Construction:** Pending results of ATCT Study, construct new ATCT on the Airpark or improvements to existing structure.
- **Restoration of Apron S Segments 4105, 4110 and 4125:** Rehabilitate apron area south of Taxiway L (~348,000 SF).
- **Design and Construction of Standard Grade RSA on Runway 6-24:** Design and construct 35,100 SF of surface area with compacted fill to meet FAA grading standard.
- **Design and Construction of Taxiway G6/G7 Improvements:** Design and construct 3,800 SF of new asphalt, including restriping, relocation of taxiway lights, painted island. Includes 24,300 SF of pavement removal.

5.1.2 - Phase II Improvements (2026-2030)

The following projects, with project descriptions as necessary, are recommended to be implemented in Phase II (6- to 10-year timeframe, FY 2026-2030):

- **Design and Construction of Direct Apron-Runway Access on Taxiways L3, L4, and L5:** Design and construct three new connectors (51,700 SF) including new taxiway edge lighting, and painting and striping. Also includes removal of 13,300 SF of existing asphalt.
- **Design and Construction of Realigned Taxiways K and L (Phase I):** Phase I of realignment of Taxiways K and L east of Runway 6-24. Includes design and construction of 34,300 SF of new asphalt, removal of 7,700 SF of pavement, and painting and striping. Phase I also includes relocation of taxiway lighting on Taxiway L and removed fillets, and new taxiway lighting around three painted islands.
- **Restoration of Runway 10-28 Segment 6105:** Rehabilitate Runway 10-28 (~271,000 SF).

- **Design and Construction of Paved Vehicle Service Road (Phase I):** Phase I of design and construction of the paved vehicle service road, including construction of 37,200 SF of 12-foot wide roadway.
- **Restoration of Runway 6-24 Segments 6205 and 6210:** Narrow Runway 6-24 to 75 feet, rehabilitate pavement (~250,000 SF), and relocate lighting.
- **Restoration/Reconstruction of Taxilane Segments 4305, 4310, 4315, and 4320:** Reconstruct taxilane areas (~180,000 SF).

5.1.3 - Phase III Improvements (2031-2040)

Recommended Phase III (11- to 20-year timeframe, FY 2031-2040) projects, with project descriptions as necessary, include the following:

- **Design and Construction of New Taxiway Q and End Connector Q1 (Phase I):** Phase I of design and construction of the new taxiway Q and end connector Q1 to Taxiway B. Phase I includes design and construction of 27,300 SF of taxiway plus painting and striping and taxiway lighting.
- **Design and Construction of Taxiway M Relocation (Phase I):** Phase I of the relocation of Taxiway M is north of Runway 10-28 and includes design and construction of 30,700 SF of new asphalt to Taxiway M and connector fillets, removal of 29,900 SF of asphalt, and repainting and restriping. Phase I also includes relocation of taxiway lighting on the northwest side of Taxiway M, the west side of Taxiway C, and the northeast side of Taxiway D.
- **Design and Construction of Realigned Taxiways K and L (Phase II):** Phase II of the realignment of Taxiways K and L west of Runway 6-24. Includes design and construction of 6,600 SF of new asphalt, removal of 14,700 SF of pavement, and painting and striping. In addition, Phase II includes relocation of taxiway lighting on Taxiway L and removed fillets and new taxiway lighting around two painted islands.
- **Design and Construction of Paved Vehicle Service Road (Phase II):** Phase II of design and construction of the paved vehicle service road, including construction of 49,800 SF of 12-foot wide roadway.
- **Restoration of Taxiway F Segment 610:** Rehabilitate Segment 610 of Taxiway F (~118,000 SF).
- **Design and Construction of Taxiway M Relocation (Phase II):** Phase II of the relocation of Taxiway M is north of Runway 10-28 and includes design and construction of 15,500 SF of new asphalt to the taxiway and end connectors, removal of 13,700 SF of asphalt, and repainting and restriping, as well as relocation of taxiway lighting on the northwest side of the taxiway, new taxiway edge lighting around the island, and painting the island.
- **Design and Construction of New Taxiway Q and End Connector Q1 (Phase II):** Phase II of design and construction of the new taxiway Q and end connector Q1 to Runway 6-24. Phase II includes design and construction of 34,800 SF of taxiway plus painting and striping and taxiway lighting.
- **Restoration of Taxiway B Segment 210:** Rehabilitate Taxiway B (~118,000 SF).
- **Restoration of Taxiway L Segment 1210:** Rehabilitate Taxiway L (~153,000 SF).
- **Restoration of Taxiway D Segment 420:** Rehabilitate Segment 420 of Taxiway D (~23,100 SF).
- **Design and Construction of Taxiway M Relocation (Phase III):** Phase III of the relocation of Taxiway M is north of Runway 15-33 and includes design and construction of 44,400 SF of new asphalt for the taxiway plus 4,900 SF for the connector, removal of 77,100 SF of asphalt plus an additional 2,500 SF for the Taxiway F fillet, and painting and striping. It also includes relocating taxiway lighting and island painting.

- **Design and Construction of Runway 15-33 Extension:** Design and construct 422-foot extension of Runway 15-33, including 31,650 SF of grooved, 30,000lbs. single-wheel strength asphalt, relocation of MALS, installation of additional MED Edge Lights, relocation of REILs, and painting and striping.
- **Design and Construction of Paved Vehicle Service Road (Phase III):** Phase III of design and construction of the paved vehicle service road, including construction of 67,800 SF of 12-foot wide roadway.

5.2 - Environmental Documentation Requirements

Several of the projects included in the RDP require environmental documentation under the National Environmental Policy Act (NEPA) prior to design and construction. Therefore, it is important to have a strategy for obtaining required environmental approvals for these projects. It is anticipated that for certain projects, FAA approval of the ALP will be conditional upon environmental review. In addition, other NEPA-related environmental considerations at the Airpark may include drainage and impacts to sensitive habitat or hazardous waste sites on Airpark property.

There are the three primary types of environmental documentation requirements associated with airport improvement projects:

- **Environmental Assessment (EA):** a public document prepared by an airport Sponsor providing sufficient evidence to determine whether a proposed action would require preparation of an Environmental Impact Statement (EIS) or a finding of no significant impact (FONSI). The average completion timeframe for an EA is six months to two years.
- **Environmental Impact Statement (EIS):** a public document required for airport development actions that may "significantly affect the quality of the human environment." An EIS describes the impacts on the environment as a result of a proposed action, the impacts of alternatives, and plans to mitigate impacts. The average completion timeframe for an EIS is two to three years.
- **Categorical Exclusion (CatEx):** some actions do not individually or cumulatively have a significant effect on the human environment and therefore do not require either an EA or an EIS. If an action falls within one of the categorical exclusion groups and the FAA approves a CatEx, then the action can proceed without an EA and EIS. The typical timeframe to document a CatEx and receive FAA approval is two to six months.

The projects included in the RDP that are anticipated to require environmental review are presented in **Table 5-1**. It should be noted that the cost estimates developed for the ACIP and presented in Section 5.3 include contingency costs for anticipated environmental documentation needs. It was assumed that environmental documentation would be included in federal and state grants for specific projects.

Table 5-1. ACIP Environmental Documentation Requirements	
Project	**Anticipated Documentation**
RDP Phase I	
Design and Construction of Taxiway B Run-up Apron	CatEx
Design and Construction of Runway 10-28 Extension	CatEx
Design and Construction of Standard Grade RSA on Runway 6-24	CatEx
Design and Construction of Taxiway G6/G7 Improvements	CatEx
Design and Construction of Taxiway B Run-up Apron	CatEx
RDP Phase II	
Design and Construction of Direct Apron-Runway Access on Taxiways L3, L4, and L5	CatEx
Design and Construction of Realigned Taxiways K and L (Phase I)	CatEx
Design and Construction of Paved Vehicle Service Road (Phase I)	CatEx
Restoration of Runway 6-24 Segments 6205 and 6210	CatEx
RDP Phase III	
Design and Construction of New Taxiway Q and End Connector Q1 (Phase I)	CatEx
Design and Construction of Taxiway M Relocation (Phase I)	CatEx
Design and Construction of Realigned Taxiways K and L (Phase II)	CatEx
Design and Construction of Paved Vehicle Service Road (Phase II)	CatEx
Design and Construction of Taxiway M Relocation (Phase II)	CatEx
Design and Construction of New Taxiway Q and End Connector Q1 (Phase II)	CatEx
Design and Construction of Taxiway M Relocation (Phase III)	CatEx
Design and Construction of Runway 15-33 Extension	EA
Design and Construction of Paved Vehicle Service Road (Phase III)	CatEx

Source:
Kimley-Horn.

Notes:
CatEx = categorical exclusion
EA = environmental assessment

5.3 - Project Cost and Schedule

The funding plan identifies likely funding sources for projects included in the RDP. In support of the development of the funding plan, an ACIP was developed coincident with the RDP; the ACIP presents funding sources expected to be available through the planning period for projects in the RDP. The ACIP describes the Airpark's capital improvement plan developed for this Master Plan Update and is separate from the City's CIP, although there may be some overlap in projects.

5.3.1 - Funding Assumptions

The funding plan was developed according to information and assumptions that provide a reasonable basis for analysis at a level appropriate for an airport master plan. The actual results will vary, and the differences could be material. These variations may be the result of unanticipated events and circumstances that may occur, or some of the assumptions used to project funding sources may not be realized and therefor impact the actual outcomes.

The funding plan is preliminary in nature and is not intended to be used to support the sale of bonds or to obtain any other forms of financing. More detailed cost estimates and financial analyses are required to implement individual projects. It is also important to note that some projects in the RDP could be postponed if changes occur, including if forecast aviation activity is not realized, construction costs rise significantly, or projected funding is not available.

Cost estimates for projects in the RDP were prepared based on criteria specific to the region and assumed the following:

- Cost estimates identified in the City of Pompano Beach Adopted CIP 2021-2025 were not adjusted.
- Projects identified in the APMP were adjusted to calculate estimated costs in year of expenditure dollars and updated to reflect construction cost changes since the APMP was published.
- Initial cost estimates were calculated in year 2020 dollars. Projects identified in Phase II (6-10 year) and Phase III (11-20 year) included a two percent annual escalator to adjust for potential inflation.
- Unless indicated otherwise, all cost estimates included a 10 percent contingency for design costs and environmental documentation (reference **Table 5-1** for environmental documentation requirements).

Conservative assumptions were used to avoid overestimating the financial capacity of the Airpark Sponsor during the planning period. It was assumed that FAA Airport Improvement Program (AIP) discretionary grants, Florida Department of Transportation (FDOT) grants, and other State capital outlay funds will be available for specific eligible projects at or below the average annual historical levels for projects with similar eligibility.

5.3.2 - Funding Sources

Assumed funding sources are described in detail below. Each of the funding sources available to the Airpark has unique availability, eligibility, and timing constraints. While funding availability is discussed, it should not be assumed that all funds projected to be available would be allocated to projects in the RDP.

5.3.2.1 - Airport Improvement Program (AIP) Grants

The AIP is the FAA's grant program to fund planning and development of public-use airports. Airports must be listed in the NPIAS to be eligible for AIP grants. These grants can be used for projects related to enhancing airport safety, capacity, security, and environmental concerns. Most airfield capital improvements or rehabilitation projects are eligible for AIP funding, and in some cases terminals, hangars and nonaviation development may be eligible. While most grants are focused on construction, some professional services to support projects are eligible, for example planning and design.

AIP grants fall into two categories: entitlement grants and discretionary grants. Further information on the two types of grants and the funds available to the Airpark under each is provided below.

Entitlement Grants

AIP funds are first distributed to major entitlement categories such as primary, cargo and general aviation. Primary commercial service airports receive a guaranteed minimum level of annual federal funds based on enplaned passengers. The Airpark receives entitlement funds as a nonprimary airport. Since the Airpark does not have scheduled or unscheduled air service from a large certificated air carrier or more than 10,000 annual enplanements, the Airpark receives a fixed $150,000 of entitlement funds annually. In 2020, the Airpark had a balance of $585,703 in unused entitlement grant monies.

Discretionary Grants

After funding entitlement grants, remaining AIP funds are distributed as discretionary grants. After set-aside projects including airport noise mitigation and the Military Airport Program, discretionary funds are distributed according to a national prioritization formula. As a general aviation airport, the Airpark can finance 90 percent of eligible project costs using discretionary funds, though this percentage may differ based on the amount of available discretionary funds that are administered. Projects anticipated to be eligible for AIP discretionary grants are presented in the subsequent section. It is anticipated that a total of approximately $5.8M of discretionary funding will be needed through the 20-year planning horizon.

5.3.2.2 - Florida Department of Transportation

The FDOT Aviation Office developed the Aviation Grant Program to provide for a safe, cost-effective, and efficient statewide aviation transportation system. The Aviation Grant Program can fund projects related to planning, designing, constructing, or maintaining public-use aviation facilities. The Program is intended to provide financial assistance in the areas of safety, security, preservation, capacity improvement, land acquisition, planning, and economic development.

For general aviation airports such as the Airpark, FDOT may provide up to 80 percent of the local share of project costs when federal funding is available. For example, FDOT provides up to eight percent of project costs when the FAA provides 90 percent funding. When no federal funding is available, FDOT provides up to 80 percent of total project costs. FDOT may also provide up to 50 percent of the costs to build on-airport revenue-producing capital improvements. It is anticipated that a total of approximately $18.9M of state grants will be needed through the 20-year planning horizon.

5.3.2.3 - Local Funding

Local funding is provided by the Airpark Sponsor, which is the City of Pompano Beach. Local funding is needed to support projects that are not eligible for federal or state grant funding, or to match a portion of projects that are eligible for other funding. Based on anticipated availability of federal and state grants, approximately $4.0M of local funding will be needed over the course of the 20-year planning horizon.

5.3.2.4 - Third Party / Private Funding

Projects identified in the RDP that provide direct benefit to a tenant or that are anticipated to occur on private leaseholds may not be eligible for AIP or state grants. As such, the Airpark Sponsor has indicated that it will seek third-party financing where appropriate as a funding source for specific projects in the RDP. Approximately $726,000 in private funding is anticipated throughout the 20-year planning horizon.

5.3.3 - Capital Improvement Program

The Airpark's updated 20-year ACIP is summarized in **Table 5-2**, including near-term (FY 2021–2025), mid-term (FY 2026–2030), and long-term (FY 2031–2040) projects. Estimated capital expenditures total approximately $33.0M (in escalated dollars) for all projects in the RDP.

Table 5-2. 20-year Airport Capital Improvement Program (ACIP)						
Project	**Grant / Funding Type**	**Project Cost[1]**	**Federal Share**	**State Share**	**Local Share**	**Private Share**
Near-Term (FY 2021–2025)						
Airpark Security Gate Enhancements and Upgrades	SL	$500,000	$0	$400,000	$100,000	$0
New Air Traffic Control Tower Design	SL	$450,000	$0	$360,000	$90,000	$0
5th Avenue Landside Access Parcel Y, Access Road	SLP	$950,000	$0	$760,000	$95,000	$95,000
Design and Construction of Taxiway B Run-up Apron	SL	$357,280	$0	$285,824	$71,456	$0
Design and Construction of Runway 10-28 Extension	FSL Entitlement	$819,280	$737,352	$65,542	$16,386	$0
Apron N Segment 4205 Restoration	SL	$654,885	$0	$523,908	$130,977	$0
Runway 33 Segment 5110 Restoration	SL	$213,840	$0	$171,072	$42,768	$0
Air Traffic Control Tower Construction	SL	TBD	-	-	-	-
Restoration of Apron S Segments 4105, 4110 and 4125	SLP	$3,721,410	$0	$2,977,128	$372,141	$372,141
Design and Construction of Standard Grade RSA on Runway 6-24	FSL Entitlement	$239,580	$215,622	$19,166	$4,792	$0
Design and Construction of Taxiway G6/G7 Improvements	FSL Entitlement	$656,497	$590,847	$52,520	$13,130	$0
Subtotal		*$8,562,772*	*$1,543,821*	*$5,615,161*	*$936,649*	*$467,141*
Mid-Term (FY 2026–2030)						
Design and Construction of Direct Apron-Runway Access on Taxiways L3, L4, and L5	FSL Discretionary	$1,247,400	$1,122,660	$99,792	$24,948	$0
Design and Construction of Realigned Taxiways K and L (Phase I)	FSL Discretionary	$1,150,779	$1,035,701	$92,062	$23,016	$0
Restoration of Runway 10-28 Segment 6105	FSL Discretionary	$2,876,415	$2,588,774	$230,113	$57,528	$0
Design and Construction of Paved Vehicle Service Road (Phase I)	SL	$339,693	$0	$271,754	$67,939	$0
Restoration of Runway 6-24 Segments 6205 and 6210	SL	$957,513	$0	$766,010	$191,503	$0
Restoration/Reconstruction of Taxilane Segments 4305, 4310, 4315, and 4320	SLP	$2,590,076	$0	$2,072,061	$259,008	$259,008
Subtotal		*$9,161,877*	*$4,747,135*	*$3,531,793*	*$623,941*	*$259,008*

Table 5-2. 20-year Airport Capital Improvement Program (ACIP)						
Project	**Grant / Funding Type**	**Project Cost[1]**	**Federal Share**	**State Share**	**Local Share**	**Private Share**
Long-Term (FY 2031–2040)						
Design and Construction of New Taxiway Q and End Connector Q1 (Phase I)	SL	$737,923	$0	$590,339	$147,585	$0
Design and Construction of Taxiway M Relocation (Phase I)	SL	$1,465,971	$0	$1,172,777	$293,194	$0
Design and Construction of Realigned Taxiways K and L (Phase II)	FSL Discretionary	$1,146,614	$1,031,952	$91,729	$22,932	$0
Design and Construction of Paved Vehicle Service Road (Phase II)	SL	$472,443	$0	$377,954	$94,489	$0
Restoration of Taxiway F Segment 610	SL	$1,408,989	$0	$1,127,191	$281,798	$0
Design and Construction of Taxiway M Relocation (Phase II)	SL	$1,151,437	$0	$921,149	$230,287	$0
Design and Construction of New Taxiway Q and End Connector Q1 (Phase II)	SL	$883,675	$0	$706,940	$176,735	$0
Restoration of Taxiway B Segment 210	SL	$1,334,261	$0	$1,067,409	$266,852	$0
Restoration of Taxiway L Segment 1210	SL	$1,938,731	$0	$1,550,985	$387,746	$0
Restoration of Taxiway D Segment 420	FSL Entitlement	$293,253	$263,928	$23,460	$5,865	$0
Design and Construction of Taxiway M Relocation (Phase III)	SL	$1,667,718	$0	$1,334,174	$333,544	$0
Design and Construction of Runway 15-33 Extension	FSL Entitlement	$1,942,727	$1,748,455	$155,418	$38,855	$0
Design and Construction of Paved Vehicle Service Road (Phase III)	SL	$808,032	$0	$646,426	$161,606	$0
Subtotal	--	*$15,251,775*	*$3,044,335*	*$9,765,952*	*$2,441,488*	*$0*
Grand Total	--	*$32,976,424*	*$9,335,291*	*$18,912,906*	*$4,002,078*	*$726,149*

Source:
Kimley-Horn.

Notes:
1. Projects in 6-20-year timeframe include 10% escalator to account for anticipated inflation.
F = Federal
L = Local
P = Private
S = State

Table 5-3 summarizes costs for projects in the ACIP grouped by RDP phase and funding source. Approximately 11 percent of total project costs could be funded by FAA entitlement grants, 18 percent by FAA discretionary grants, 57 percent by state grants, two percent by private sources, and 12 percent by local funds.

Table 5-3. Funding Sources

RDP Phase	Project Cost	Federal AIP Grants		State Grants	Local Funds	Private Funds
		Entitlement	Discretionary			
Phase I	$8,562,772	$1,543,821	$0	$5,615,161	$936,649	$467,141
Phase II	$9,161,877	$0	$4,747,135	$3,531,793	$623,941	$259,008
Phase III	$15,251,775	$2,012,383	$1,031,952	$9,765,952	$2,441,488	$0
Total	**$32,976,424**	**$3,556,204**	**$5,779,087**	**$18,912,906**	**$4,002,078**	**$726,149**

Source:
Kimley-Horn.

Note:
Projects in 6-20-year timeframe include 10% escalator to account for anticipated inflation.

The Airpark's 5-year ACIP details funding sources and the anticipated starting year for each project in Phase I of the RDP and is presented in **Table 5-4**. While a 20-year ACIP identifies anticipated needs throughout the planning horizon, projects identified within a 5-year timeframe typically reflect more immediate needs or facilities where potential funding is being requested or has already been secured. Additionally, the 5-year ACIP can be used to inform the FAA and FDOT of proposed near-term improvements and grant funding implications.

Table 5-4. 5-Year ACIP

Project	Grant / Funding Type	Start Year	Project Cost	Federal AIP Grants		State Grants	Local Funds	Private Funds
				Entitlement	Discretionary			
5-Year ACIP Project								
Airpark Security Gate Enhancements and Upgrades	SL	2021	$500,000	$0	$0	$400,000	$100,000	$0
New Air Traffic Control Tower Design	SL	2021	$450,000	$0	$0	$360,000	$90,000	$0
5th Avenue Landside Access Parcel Y, Access Road	SLP	2022	$950,000	$0	$0	$760,000	$95,000	$95,000
Design and Construction of Taxiway B Run-up Apron	SL	2022	$357,280	$0	$0	$285,824	$71,456	$0
Design and Construction of Runway 10-28 Extension	FSL	2023	$819,280	$737,352	$0	$65,542	$16,386	$0
Apron N Segment 4205 Restoration	SL	2023	$654,885	$0	$0	$523,908	$130,977	$0
Runway 33 Segment 5110 Restoration	SL	2023	$213,840	$0	$0	$171,072	$42,768	$0
Air Traffic Control Tower Construction	SL	2023	TBD	-	-	-	-	-
Restoration of Apron S Segments 4105, 4110 and 4125	SLP	2024	$3,721,410	$0	$0	$2,977,128	$372,141	$372,141
Design and Construction of Standard Grade RSA on Runway 6-24	FSL	2025	$239,580	$215,622	$0	$19,166	$4,792	$0
Design and Construction of Taxiway G6/G7 Improvements	FSL	2025	$656,497	$590,847	$0	$52,520	$13,130	$0
Subtotal			*$8,562,772*	*$1,543,821*	*$0*	*$5,615,161*	*$936,649*	*$467,141*
Total by Fiscal Year								
2021			$950,000	$0	$0	$760,000	$190,000	$0
2022			$1,307,280	$0	$0	$1,045,824	$166,456	$95,000
2023			$1,688,005	$737,352	$0	$760,522	$190,131	$0
2024			$3,721,410	$0	$0	$2,977,128	$372,141	$372,141
2025			$896,077	$806,469	$0	$71,686	$17,922	$0
Subtotal			*$8,562,772*	*$1,543,821*	*$0*	*$5,615,161*	*$936,649*	*$467,141*

Source:
Kimley-Horn.

Notes:
F = Federal
L = Local
P = Private
S = State

5.4 - Financial Plan

This section presents the anticipated funding plan for implementation of projects identified in the ACIP and assesses the City's ability to fund these projects. While an implementation schedule is identified, the actual execution of specific projects and the resulting financial requirements may change based on local economic conditions, actual aviation-related activity, or other factors.

The City of Pompano Beach is the Airpark Sponsor and is therefore responsible for management and budgeting of all Airpark-generated revenues and expenditures. This includes providing local match for federal and state grants.

The following sections provide a summary of the Airpark's revenues and expenditures, as well as a comparison of anticipated cash flow and local grant matching requirements as previously identified in Section 5.3.

5.4.1 - Airpark Revenues

The Airpark receives operating revenues from tenant leases and rental agreements and from concessions such as fuel flowage fees. Revenues are deposited into the Airport Enterprise Fund, which operates on a balanced budget for revenues and expenses for operations and maintenance. Below are descriptions of 2020 Airpark revenues and assumptions for calculations of any future escalators:

- **Project Balance Fund: 2020 revenue = $50,000**. *Annual fund to be used for pavement maintenance and local matching grants if necessary. Cash flow analysis assumed $50,000 annually throughout the 20-year planning horizon.*
- **Interest Earnings: 2020 revenue = $8,000**. *Interest earned on the Airpark's general operating and capital improvement funds. Cash flow analysis assumed $8,000 annually throughout the 20-year planning horizon.*
- **Concessions and Royalties: 2020 revenue = $32,957.** *Airpark receives $0.05 per gallon of fuel sold. Cash flow analysis assumed $0.05 per gallon constant throughout 20-year planning horizon, volume commensurate with growth in forecast operations.*
- **Land Rent Utility Fund: 2020 revenue = $273,954.** *Airpark's revenues associated with City well heads and other utilities on property. Cash flow analysis assumed 3.0% annual increase throughout the 20-year planning horizon.*
- **Land Rent: 2020 revenue = $788,820.** *Airpark's revenues from tenant land leases. Cash flow analysis assumed 3.0% annual increase throughout the 20-year planning horizon.*
- **Land Rent City Facilities: 2020 revenue = $432,036.** *Airpark's revenues associated with City facilities on property (golf course, equestrian tenant). Cash flow analysis assumed 3.0% annual increase throughout the 20-year planning horizon.*

5.4.2 - Airpark Expenditures

Descriptions of 2020 Airpark expenditures and assumptions for calculations of future escalators are presented below:

- **Personal Services: 2020 expenditure = $522,822**. *Includes employee payroll, benefits, and pensions. Cash flow analysis assumed 3.0% annual increase throughout the 20-year planning horizon.*

- **Operating Expenses: 2020 expenditure = $647,793**. *Includes insurance, administrative fees, utilities, supplies, maintenance fees, and other operating expenses. Cash flow analysis assumed 3.0% annual increase throughout the 20-year planning horizon.*
- **Other Expenses: 2020 expenditure = $41,834.** *Includes all expenses not categorized as Personal Services or Operating Expenses. Cash flow analysis assumed 3.0% annual increase throughout the 20-year planning horizon.*

5.4.3 - Cash Flow Analysis

The cash flow analysis compares forecast Airpark revenues and expenditures with local matching grant requirements for recommended improvements identified in the 20-year ACIP. Results of the 20-year Airpark cash flow analysis are presented in **Table 5-5**. As shown, it is anticipated that the Airpark will have adequate resources to satisfy local matching requirements and is projected to accumulate a surplus of approximately $9.1M by the end of the 20-year planning horizon.

Table 5-5. Airpark Cash Flow Analysis											
Revenues	**2021**	**2022**	**2023**	**2024**	**2025**	**2025**	**2027**	**2028**	**2029**	**2030**	**2031**
FAA Primary Entitlements	$585,703	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000
Project Fund Balance	$50,000	$350,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000
Interest Earnings	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000
Land Rent Utility Fund	$273,954	$282,173	$290,638	$299,357	$308,338	$317,588	$327,116	$336,929	$347,037	$357,448	$368,172
Fuel Sales (Concessions and Royalties)	$32,957	$33,485	$34,020	$34,565	$35,118	$35,680	$36,251	$36,831	$37,420	$38,019	$38,627
Land Rent	$788,820	$806,893	$831,100	$856,033	$881,714	$908,165	$935,410	$963,472	$992,377	$1,022,148	$1,052,812
Land Rent City Facilities	$432,036	$444,997	$458,347	$472,097	$486,260	$500,848	$515,873	$531,349	$547,290	$563,708	$580,620
Total Revenues	$2,171,470	$2,075,547	$1,822,105	$1,870,052	$1,919,429	$1,970,281	$2,022,650	$2,076,582	$2,132,123	$2,189,323	$2,248,231
Expenditures	**2021**	**2022**	**2023**	**2024**	**2025**	**2025**	**2027**	**2028**	**2029**	**2030**	**2031**
ACIP Local Match	$190,000	$166,456	$190,131	$372,141	$17,922	$24,948	$23,016	$57,528	$259,441	$259,008	$147,585
Personal Services (est.)	$522,822	$538,507	$554,662	$571,302	$588,441	$606,094	$624,277	$643,005	$662,295	$682,164	$702,629
Operating Expenses	$647,793	$667,227	$687,244	$707,861	$729,097	$750,970	$773,499	$796,704	$820,605	$845,223	$870,580
Other Expenses and Reserves	$41,834	$43,089	$44,382	$45,713	$47,085	$48,497	$49,952	$51,451	$52,994	$54,584	$56,221
Total Expenditures	$1,402,449	$1,415,278	$1,476,418	$1,697,017	$1,382,544	$1,430,509	$1,470,743	$1,548,688	$1,795,335	$1,840,979	$1,777,015
Surplus/Deficit	**$769,021**	**$660,269**	**$345,687**	**$173,035**	**$536,886**	**$539,772**	**$551,906**	**$527,894**	**$336,788**	**$348,345**	**$471,216**

Table 5-5. Airpark Cash Flow Analysis

Revenues	2032	2033	2034	2035	2036	2037	2038	2039	2040	Total
FAA Primary Entitlements	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$150,000	$3,435,703
Project Fund Balance	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$50,000	$1,300,000
Interest Earnings	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000	$8,000	$160,000
Land Rent Utility Fund	$379,217	$390,593	$402,311	$414,380	$426,812	$439,616	$452,805	$466,389	$480,381	$7,361,254
Fuel Sales (Concessions and Royalties)	$39,245	$39,873	$40,511	$41,159	$41,818	$42,487	$43,166	$43,857	$44,559	$769,646
Land Rent	$1,084,397	$1,116,929	$1,150,436	$1,184,950	$1,220,498	$1,257,113	$1,294,826	$1,333,671	$1,373,681	$21,055,446
Land Rent City Facilities	$598,038	$615,979	$634,459	$653,493	$673,097	$693,290	$714,089	$735,512	$757,577	$11,608,957
Total Revenues	$2,308,897	$2,371,374	$2,435,717	$2,501,982	$2,570,225	$2,640,506	$2,712,887	$2,787,429	$2,864,198	$45,691,006
Expenditures	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**Total**
ACIP Local Match	$316,126	$376,286	$230,287	$443,587	$393,611	$0	$0	$333,544	$200,461	$4,002,078
Personal Services (est.)	$723,708	$745,419	$767,782	$790,815	$814,540	$838,976	$864,145	$890,069	$916,772	$14,048,423
Operating Expenses	$896,697	$923,598	$951,306	$979,845	$1,009,240	$1,039,518	$1,070,703	$1,102,824	$1,135,909	$17,406,441
Other Expenses and Reserves	$57,908	$59,645	$61,435	$63,278	$65,176	$67,131	$69,145	$71,220	$73,356	$1,124,095
Total Expenditures	$1,994,439	$2,104,949	$2,010,810	$2,277,525	$2,282,567	$1,945,625	$2,003,993	$2,397,657	$2,326,498	$36,581,037
Surplus/Deficit	**$314,457**	**$266,425**	**$424,908**	**$224,456**	**$287,657**	**$694,881**	**$708,893**	**$389,772**	**$537,700**	**$9,109,970**

Sources:
City of Pompano Beach.
Kimley-Horn.

Note:
Other revenues include state grants, net fair value, interest realized, building rent, sale of fixed assets, other revenues, and budgetary retained earnings.

5.4.4 - Summary and Recommendations

According to the cash flow analysis, the Airpark's anticipated revenues are expected to cover the local match requirements for recommended improvements over the 20-year planning horizon. However, this analysis assumed that all projects would be eligible for state funding, federal funding, private funding, or a combination thereof. Additionally, Airpark revenues may fluctuate over time, which could result in occasional funding shortfalls and increase the amount of reserves that the City would need to allocate in the Enterprise Fund. If these shortfalls become more frequent, the City may desire to conduct a rates and charges analysis to assess the adequacy of its collections from tenants and other sources of revenue.

Appendix A:
Airport Layout Plan