# Strategic Airport Master Plan Study

## For Miami-Dade County System of Airports

## EXECUTIVE SUMMARY

April 2017

MIAMI-DADE COUNTY MAYOR

**Carlos A. Giménez**

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MIAMI-DADE AVIATION DEPARTMENT EXECUTIVE LEADERSHIP

AVIATION DIRECTOR
**Emilio T. González**

DEPUTY DIRECTOR
**Ken Pyatt**

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## ACRONYMS

| | |
|---|---|
| **FBO** | Fixed Base Operator |
| **GA** | General Aviation |
| **MDAD** | Miami-Dade Aviation Department |
| **MIA** | Miami International Airport |
| **OPF** | Miami Opa-Locka Executive Airport |
| **PAL** | Planning Activity Level |
| **SMP** | Strategic Master Plan |
| **TMB** | Miami Executive Airport |
| **TNT** | Dade-Collier Training and Transition Airport |
| **X51** | Miami Homestead General Aviation Airport |

# A LETTER FROM THE DIRECTOR

The Strategic Airport Master Plan Study (SMP) addresses the 20-year capacity and operational needs for Miami International Airport (MIA) and the County's four general aviation airports. The SMP encompasses a planning horizon ending in fiscal year (FY) 2035, while also recognizing capital investments needed to address aging facilities and infrastructure which, in some cases, date back to the 1950s.

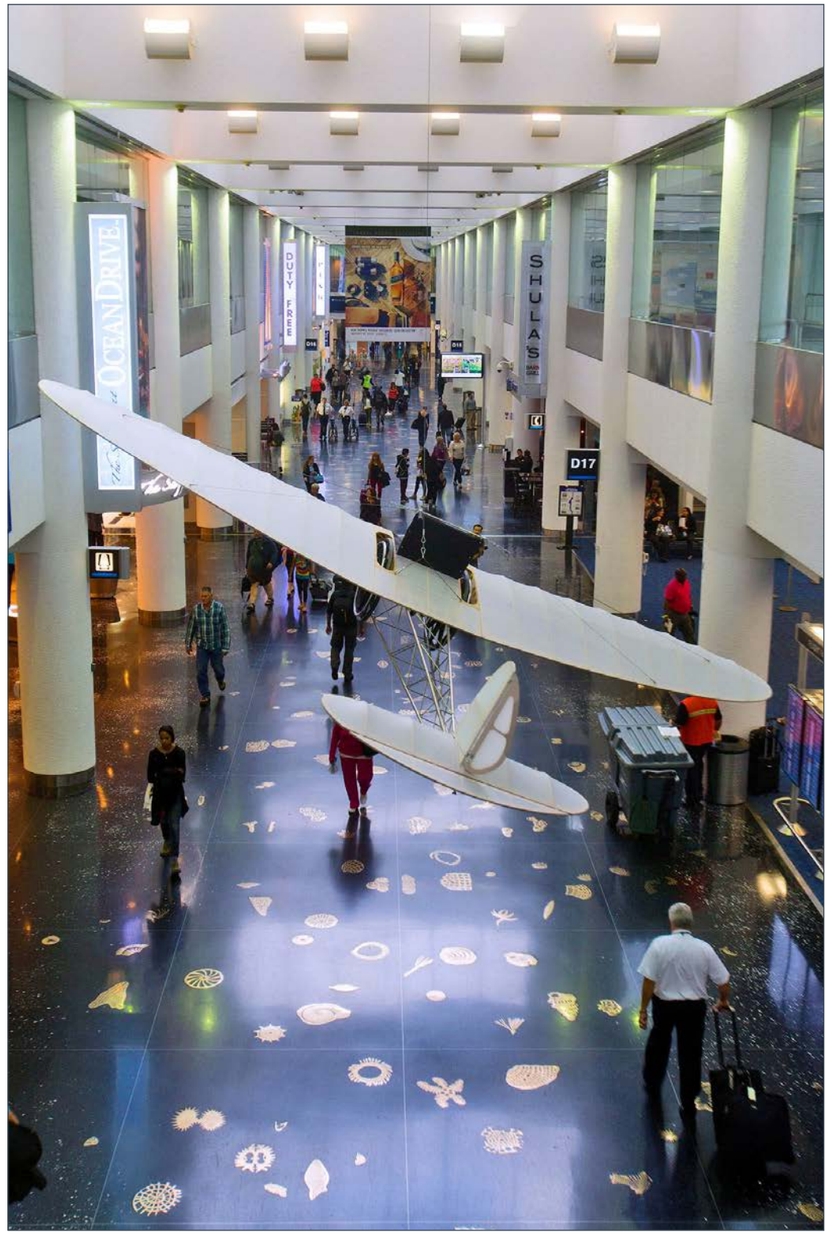
The premise of the SMP's recommendations is to protect for unconstrained airport activity growth, while delivering new capacity as demand materializes and warrants. The SMP also recognizes the need to replace some of the older and less efficient facilities at MIA. This is evidenced by the redevelopment of the Central Terminal and portions of the Western Cargo Area. MIA's demand levels considered in the SMP for FY2035 represent 60 million annual passengers, 546,000 annual aircraft operations (of which, 440,000 comprise air carrier/airline operations), and 4.8 million annual tons of cargo total.

To serve these demand levels, MIA would need:

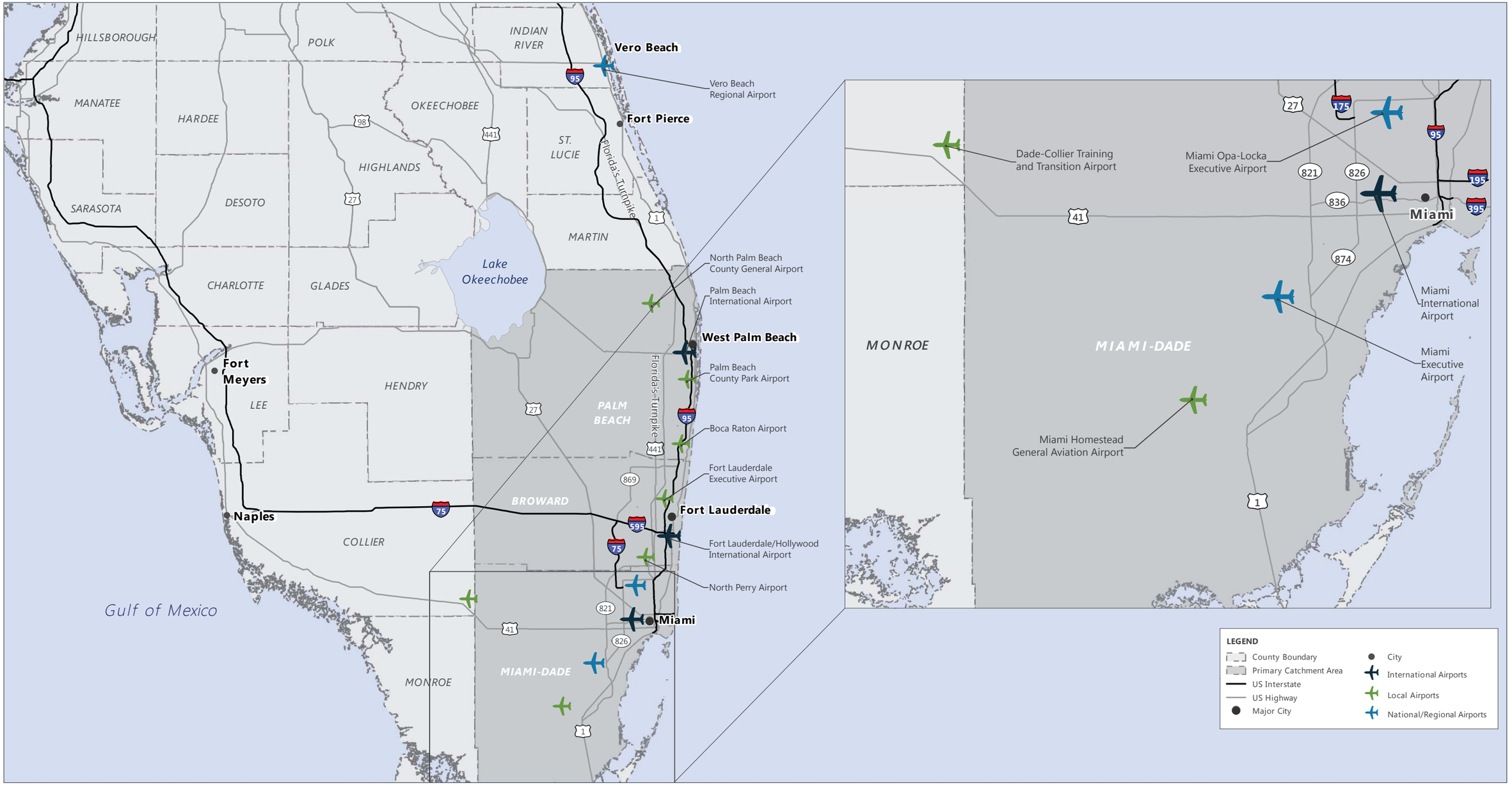
- Up to 144 aircraft gates in the terminal area plus additional hardstand/remote aircraft parking positions
- 12,000 public parking spaces
- Expanded landside facilities (e.g., additional ingress/egress roadway lanes and expanded ground transportation vehicle and cell phone waiting lots)
- 4.2-4.3 million square feet of cargo warehouse facilities
- 65-70 percent of additional space for airline/airport support services
- Consideration of additional property acquisition as adjacent properties become available to the east and west of MIA

Miami-Dade County's system of general aviation airports play an integral role in serving the County's robust corporate and recreational general aviation markets. They also alleviate demand pressures on MIA, thereby allowing it to better serve the air carrier and cargo industries. By establishing a unique development program for each airport, the SMP ensures that Miami-Dade County is well positioned to serve both its current and future aviation needs.

EMILIO T. GONZÁLEZ
Director



# AIRPORT SYSTEM






SOURCE: United States Census Bureau, TIGER/Line Files, Accessed August 2016; ESRI 2010 Data / USA / Transportation, City, Waterbody, 2010.

# MIAMI INTERNATIONAL AIRPORT VICINITY MAP


SOURCE: United States Census Bureau, TIGER/Line Files; ESRI 2010 Data / USA / Transportation, City, 2010; ESRI Online Database, ESRI, DeLorme, HERE, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, Street Basemap, August 2016.

# MIA MIAMI INTERNATIONAL AIRPORT: FACTS AND FIGURES

## MIA RANKS IN THE **TOP AIRPORTS** IN THE NATION FOR THE FOLLOWING: [1/]

- **1st** in International Freight
- **2nd** in International Passengers
- **3rd** in Total Cargo
- **10th** in Total Passengers
- **13th** in Total Aircraft Operations

## **WORLDWIDE**, MIA RANKS AMONG THE BUSIEST AIRPORTS FOR THE FOLLOWING: [1/]

- **10th** in International Freight
- **11th** in Total Cargo
- **24th** in Total Aircraft Operations
- **28th** in Total Passengers
- **29th** in International Passengers

## 2016 AIRPORT TRAFFIC STATISTICS [2/]

| | |
|---|---|
| International Freight: | **1.89 million tons** |
| International Passengers: | **21.3 million** |
| Total Cargo: | **1.91 million tons** |
| Total Passengers: | **44.5 million** |
| Total Aircraft Operations: | **414,234** |



SOURCES: 1/ *Miami International Airport, U.S. and Worldwide Airport Rankings: Passengers & Freight*, 2015, September 2016
2/ *2016 Traffic Report*, Miami-Dade Aviation Department, December 31, 2016.

# MIA SERVES 160 MARKETS: [1/]
## DOMESTIC: 54 INTERNATIONAL: 106


**As of 2016 these markets were served by 58 domestic and foreign airlines** [1/]

## THE ECONOMIC IMPACT FROM MIA AND GENERAL AVIATION AIRPORTS:

**$33.7 billion**

**282,724**

**direct and indirect jobs** [2/]

SOURCES: 1/ Annual Report, Miami Dade Aviation Department, December 2016.
2/ *2016 Traffic Report*, Miami-Dade Aviation Department, December 31, 2016.

# MIA MIAMI INTERNATIONAL AIRPORT

**Miami International Airport (MIA) is one of the largest airline hubs in the United States due to its proximity to tourist attractions and strategic location to accommodate connecting traffic between North America, Central and South America, Caribbean Islands, Eastern Asia, and Europe.**


SOURCE: Miami International Airport, *2015 Annual Traffic Report*, December 31, 2015.

# MDAD GENERAL AVIATION AIRPORTS: KEY CHARACTERISTICS

## OPF

### Miami-Opa Locka Executive Airport

- Primary general aviation reliever airport for MIA
- Three runways (2 parallel, 1 crosswind)
- Tenants include several fixed-base operators, a flight training center, and private/corporate hangars
- 625 acres committed to long term leases with three private developers and two other key tenants
- Home to US Coast Guard Air Station Miami
- County ordinance precludes scheduled air service
- Encompasses 1,810 acres
- Located 11 miles northwest of Miami

## TMB

### Miami Executive Airport

- Primary general aviation reliever airport for MIA
- Three runways (2 parallel, 1 crosswind)
- Accommodates diverse range of general aviation activity including: business, recreational/sport, flight training, and governmental (police/fire rescue)
- Encompasses 1,380 acres
- Located 13 miles southwest of Miami

## X51

### Miami Homestead General Aviation Airport

- Nonreliever airport
- Three runways 2 paved 1 turf (2 parallel, 1 crosswind)
- Primary activity includes: recreational use, flight training, sport aviation use (parachute operations), and business-related aviation activities
- Encompasses 960 acres
- Located 4 miles northwest of Homestead

## TNT

### Dade-Collier Training and Transition Airport

- Nonreliever airport
- One paved runway (full instrument approach)
- Originally designated as the "Everglades Jetport" and planned to grow to six runways and be one of the largest commercial air carrier airports to serve southeast Florida
- Environmental concerns halted development in the early 1980s
- Encompasses 24,960 acres with 900 acres developed and operational
- Located within Collier County, 36 miles west of Miami

# MIA STRATEGIC MASTER PLAN STUDY APPROACH

The SMP analysis for MIA was approached by first deriving the long-term forecasts for passenger enplanements, operations, and cargo traffic. The forecasts were then used to determine the 2050 land requirements through a demand capacity analysis.

Next, the county's system of airports was evaluated to determine the opportunities and constraints for each airport to determine the best use of land how best to leverage capacity across the system. Three strategic options were considered at MIA, including two that considered the property acquisition potential at the Airport.

Strategic Option 1 maintains the current Airport property and would require maintenance and cargo development to move to another airport, potentially either Miami Executive Airport or Miami Opa-Locka Executive Airport. Strategic Option 2 would expand the Airport property to NW 72nd Avenue and included moving a portion of the maintenance off-site. Strategic Option 3 and would include an unconstrained expansion of MIA's property to the Palmetto Expressway and would be able to accommodate all projected development on the Airport.

From the three alternatives, Strategic Option 2 was selected at the best, and it was included in further planning.

# MDAD GENERAL AVIATION AIRPORTS STUDY APPROACH

While serving a diverse general aviation market, Miami-Dade County's general aviation airports play an essential role in allowing MIA to become one of the leading commercial service airports in the world. By providing additional infrastructure to serve the corporate and recreational aviation needs, the County's four general aviation airports allow MIA to primarily focus on serving the needs of the commercial aviation market (airlines and cargo). While MIA does have a single fixed base operator (FBO) that serves select general aviation users, this FBO facility has limited capacity and cannot be expanded without derogating the service offerings to commercial aviation at MIA.

The SMP utilizes a systems approach to defining a long-term vision for Miami-Dade County's general aviation airports. Specific roles for each airport were defined that would position them to successfully serve the County's diverse air transportation needs in a financial, environmental, and community sensitive manner through FY2035:

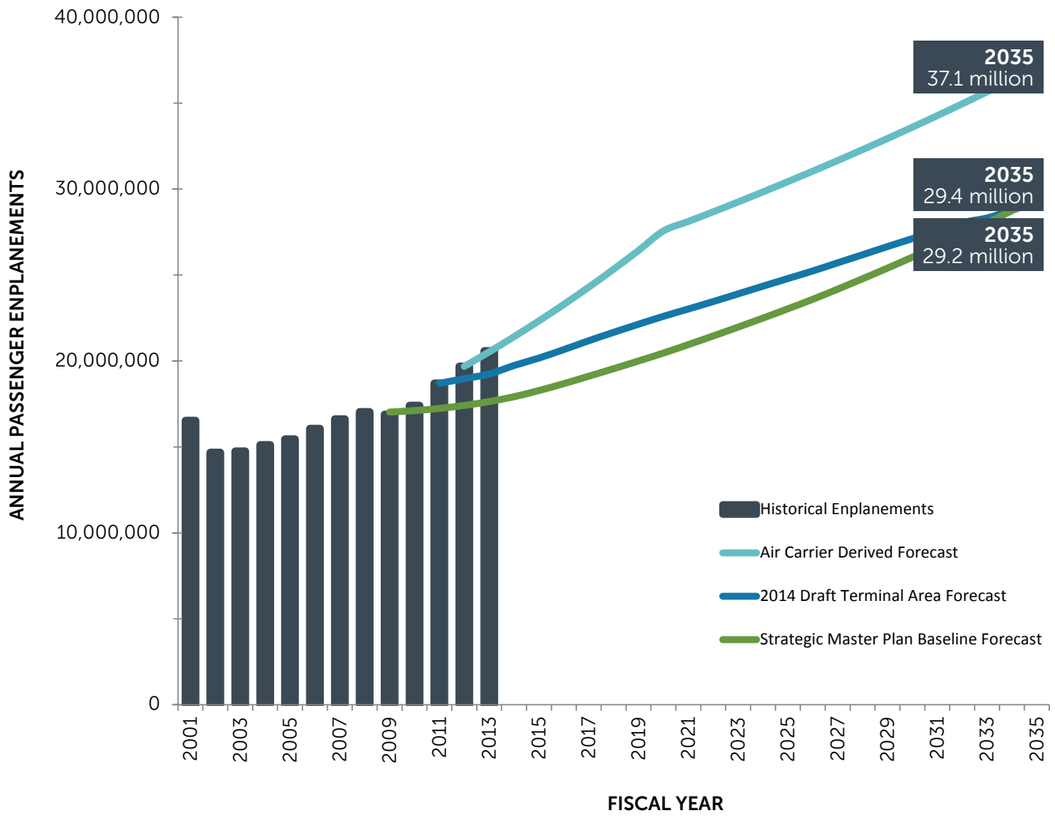
- **Miami-Opa Locka Executive Airport** will continue to serve the corporate and recreational market as a dedicated reliever to MIA, while also providing the opportunity to develop other markets including air cargo or aircraft maintenance, repair and overhaul facilities. Per County Ordinance, commercial airline service is prohibited at this airport.
- **Miami Executive Airport** will continue to serve the corporate and recreational market as a dedicated reliever to MIA; however the development of cargo and/or heavy aircraft maintenance, repair and overhaul facilities could require significant investment in airfield infrastructure.
- **Miami Homestead General Aviation Airport** primarily serves the recreational and sport aviation market in southern Miami-Dade County, but could be expanded to serve corporate aviation activity as well.
- **Dade-Collier Training and Transition Airport** will remain dedicated to flight training activities only.

A general aviation activity forecast for the entire county was derived, and then demand was distributed among the various airports in accordance with their intended roles. Future facility and infrastructure needs to serve these projections in accordance with these roles have been identified and are reflected in the SMP's recommendations for each airport.

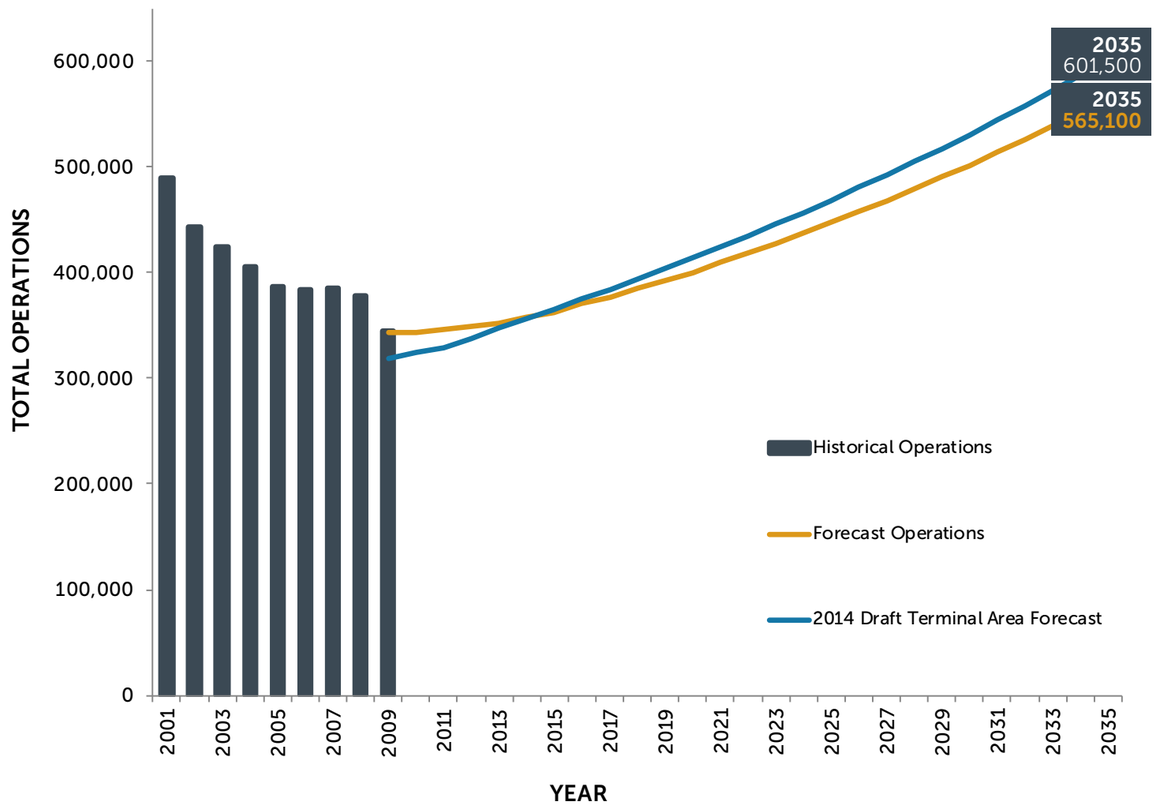
# MIA AIR CARRIER HISTORICAL AND PROJECTED STATISTICS

The MIA forecasts included in the SMP included growth to both cargo and passenger enplanements and operations. Over the course of the planning horizon, it is expected that MIA will experience an increase in passenger enplanements from 20.5 million enplanements in 2013 to reach 29.2 million enplanements in 2035, and it is expected to experience an increase from 330,000 operations in 2013 to 490,000 total aircraft operations by 2035. The forecasts shows an average annual growth rate in air carrier enplanements of 1.6 percent and 2.3 percent for air carrier operations.

## MIA PASSENGER ENPLANEMENTS




## TOTAL AIRCRAFT OPERATIONS




NOTES: Forecasts approved by the FAA on July 21, 2011.



SOURCE: MIA Airside Operations Division, Baseline Schedule; SMP Forecasts (approved by FAA on July 21, 2011); Central Terminal PDD Forecasts, May 2013; MIA Carriers Input, July 2013.

# TERMINAL AREA FACILITY REQUIREMENTS

## PLANNING ACTIVITY LEVELS

| METRICS | CURRENT | PAL 1* (2025) | PAL 2** (2035) | PAL 3*** (2050) |
|---|---|---|---|---|
| Passenger Enplanements (millions) | 19.9 | 23.0 | 30.0 | 43.0 |
| Total Aircraft Operations | 393,300 | 447,000 | 565,000 | 827,500 |
| Air Carrier Operations | 321,900 | 352,000 | 440,000 | 621,000 |
| Cargo Operations | 53,400 | 68,000 | 86,100 | 137,000 |
| General Aviation Operations | 18,000 | 27,000 | 38,900 | 69,500 |

NOTES: PAL 1* - Generally corresponds to the activity levels projected under the SMP Forecast at or near 2025
PAL 2** - Generally corresponds to the activity levels projected under the SMP Forecast at or near 2035
PAL 3*** - PAL 3 (2050) demand levels extrapolated from the SMP Baseline forecast

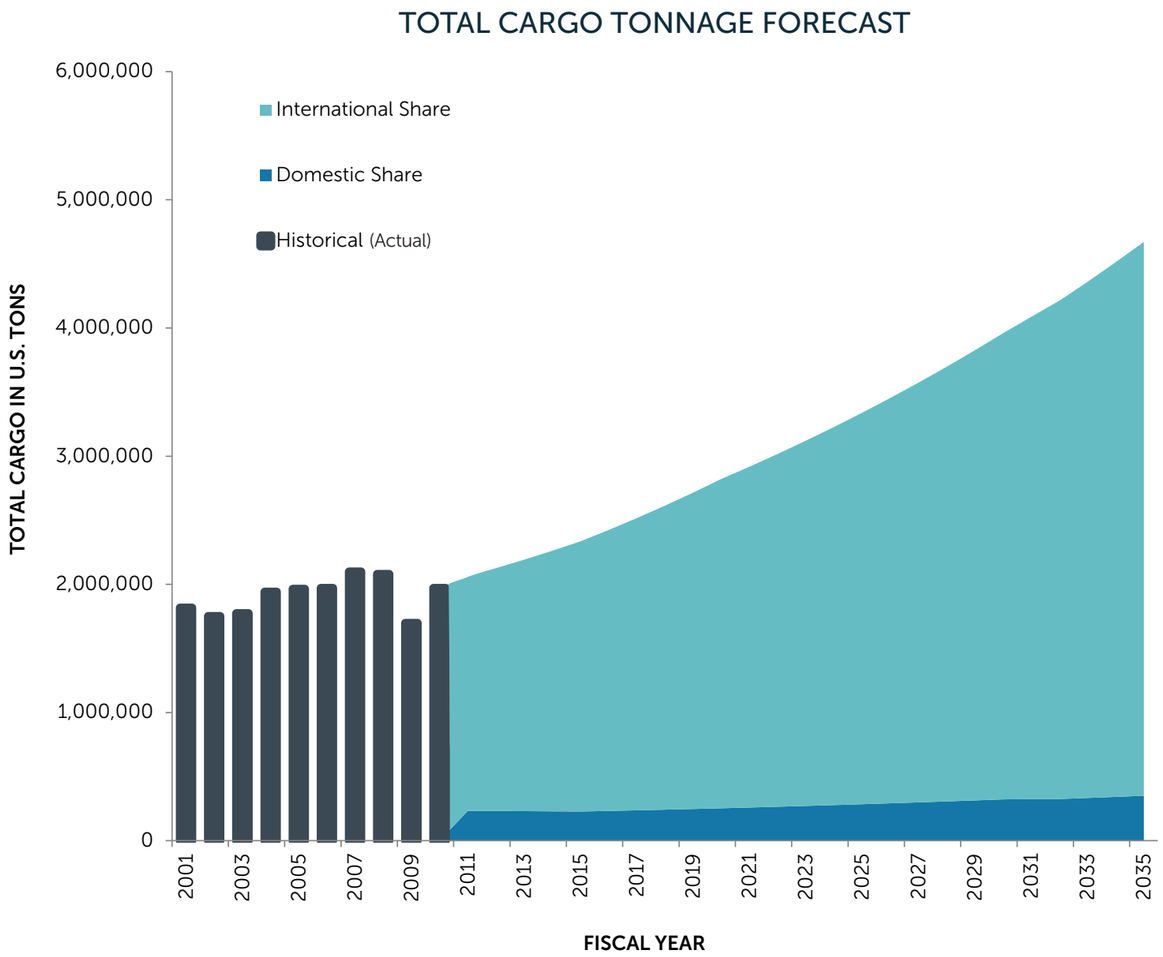
## FACILITY REQUIREMENTS SUMMARY

| | | REQUIREMENTS | | |
|---|---|---|---|---|
| FACILITY COMPONENT | EXISTING | PAL 1 | PAL 2 | PAL 3 |
| TERMINAL | | | | |
| Terminal Gates | 135 | 105 | 124 | 180 |
| Remote Aircraft Parking Positions | 16 | 27 | 36 | 53 |
| Remote Aircraft Parking Area (Ac) | 37 | 51 | 63 | 83 |
| MDAD Facilities (sq ft) | 251,900 | 354,700 | 433,700 | 622,000 |
| Terminal GSE (sq ft) | 420,000 | 579,400 | 702,000 | 987,400 |
| LANDSIDE | | | | |
| Public Parking (Stalls) | 7,648 | 9,400 | 11,900 | 17,100 |
| Public Parking (sq ft) | 2,676,800 | 3,290,000 | 4,165,000 | 5,985,000 |
| Employee Parking (Stalls) | 5,922 | 7,970 | 10,080 | 15,000 |
| Employee Parking (sq ft) | 2,072,700 | 2,896,000 | 3,528,000 | 5,250,000 |

SOURCES: MIA Airside Operations Division, Baseline Schedule; SMP Forecasts (approved by FAA on July 21, 2011); MDAD GA Forecasts (Approved by FAA on August 6, 2012) Central Terminal PDD Forecasts, May 2013; MIA Carriers Input, July 2013.

# MIA CARGO FACILITY REQUIREMENTS SUMMARY

Cargo tonnage is also expected to grow over the course of the planning horizon. It is expected that the total cargo tonnage will grow to 4.3 million tons by 2035.




## PLANNING ACTIVITY LEVELS

| METRICS | CURRENT | PAL 1 (2025)* | PAL 2 (2035)* | PAL 3 (2050)** |
|---|---|---|---|---|
| Total Cargo Enplanements (million annual tons) | 2.1 | 3.0 | 4.3 | 7.4 |
| Cargo Enplanements: Freight (million annual tons) | 1.8 | 2.6 | 3.7 | 6.3 |
| Cargo Enplanements: Belly (million annual tons) | 0.3 | 0.4 | 0.6 | 1.1 |

NOTES:
* Per the SMP Baseline Forecast.
** PAL 3 (2050) demand levels extrapolated from the SMP Baseline forecast.

## CARGO FACILITY REQUIREMENTS SUMMARY (MILLION SQ FT)

| FACILITY COMPONENT | EXISTING | PAL 1 | PAL 2 | PAL 3 |
|---|---|---|---|---|
| Warehouse - total | 2.69 | 3.20 | 4.31 | 5.85 |
| Ramp | 4.29 | 5.04 | 5.67 | 6.61 |
| Vehicular Parking | 2.21 | 3.06 | 3.77 | 4.83 |
| Truck Dock Areas | 1.75 | 2.85 | 3.77 | 5.14 |
| Support Facility Requirements | 0.76 | 1.61 | 2.33 | 3.40 |
| Landscaping and Drainage | 2.75 | 3.41 | 3.97 | 4.80 |
| **GRAND TOTAL** | **14.45** | **19.17** | **23.82** | **30.63** |

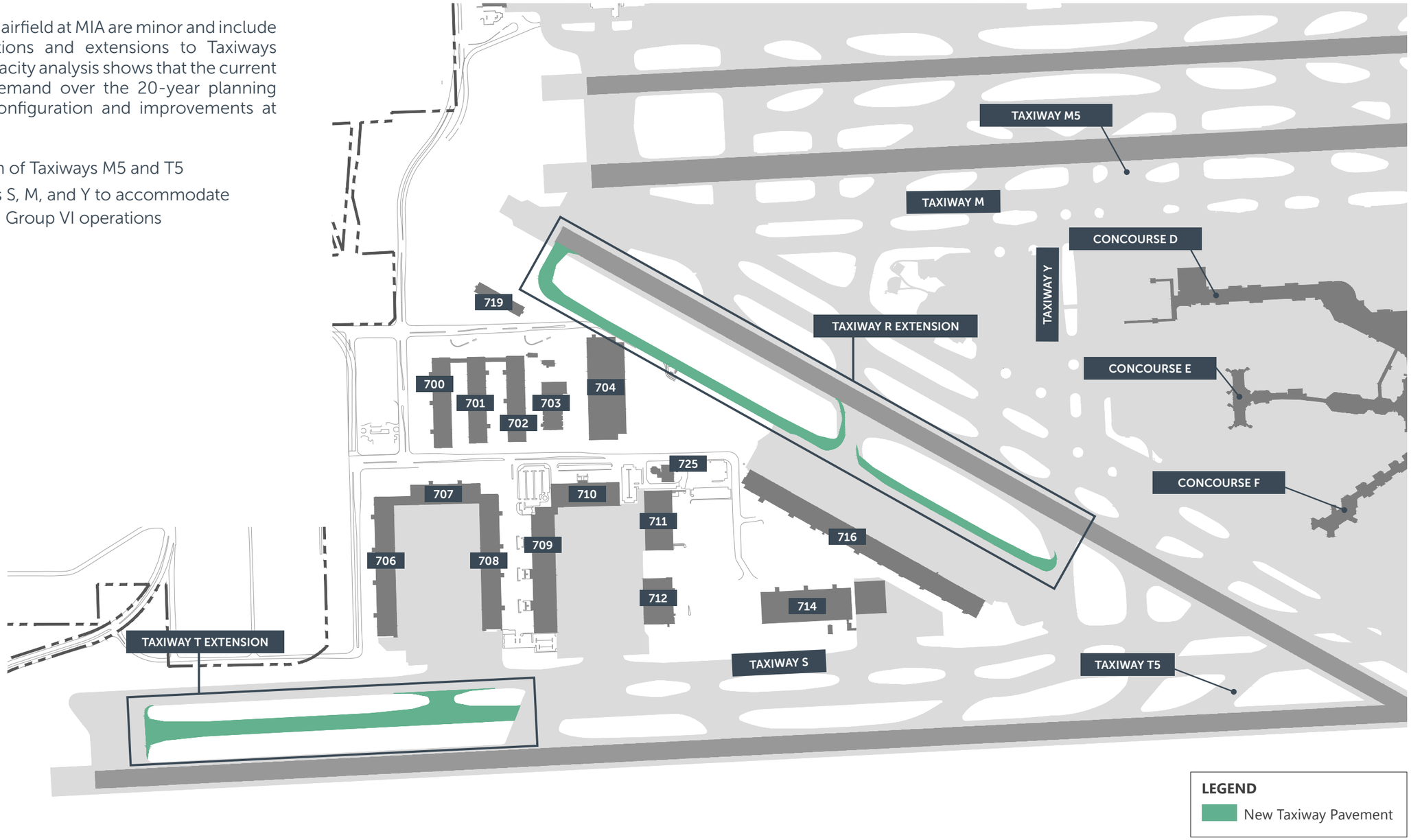


SOURCE: MIA Airside Operations Division, Baseline Schedule; SMP Forecasts (approved by FAA on July 21, 2011); Central Terminal PDD Forecasts, May 2013; MIA Carriers Input, July 2013.

# MIA FUTURE FACILITIES: AIRFIELD

Improvements to the airfield at MIA are minor and include taxiway reconfigurations and extensions to Taxiways T and R. The SMP capacity analysis shows that the current airfield meets the demand over the 20-year planning horizon. Airfield reconfiguration and improvements at MIA include:

- Reconfiguration of Taxiways M5 and T5
- Widen Taxiways S, M, and Y to accommodate Airplane Design Group VI operations

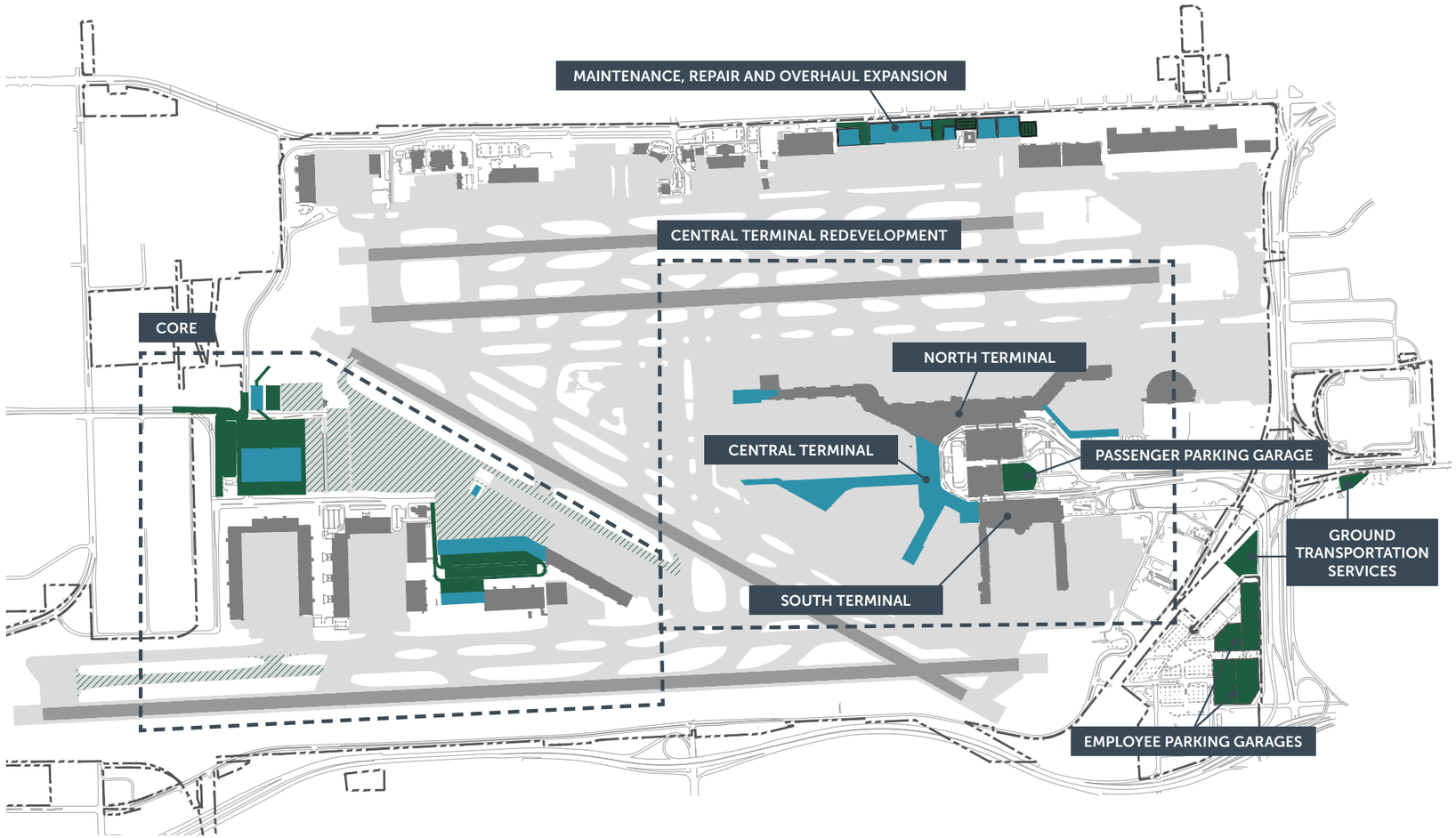



SOURCE: Drawing by Ricondo & Associates, Inc., April 2017.

# MIA FUTURE FACILITIES

Future facilities at MIA include all terminal, cargo, and aviation support facilities. The two biggest development projects planned at MIA include the Cargo Optimization, Redevelopment and Expansion (CORE) and the Central Terminal Redevelopment. Both initiatives will help the Airport meet the forecast demand and allow for further growth. To accommodate the forecast growth, the following are expected: additional Maintenance, Repair and Overhaul facilities located north of Runway 8L-26R, Ground Support Equipment storage located near the expanded terminal and cargo areas, and an expansion to the fuel farm.

For landside access, development projects planned include the construction of two new passenger parking structures. Four new parking structures are planned to serve employee parking needs. Finally, both the cell phone and taxi staging lots are expected to be relocated to more centralized and accessible locations for access along the Airport Expressway.

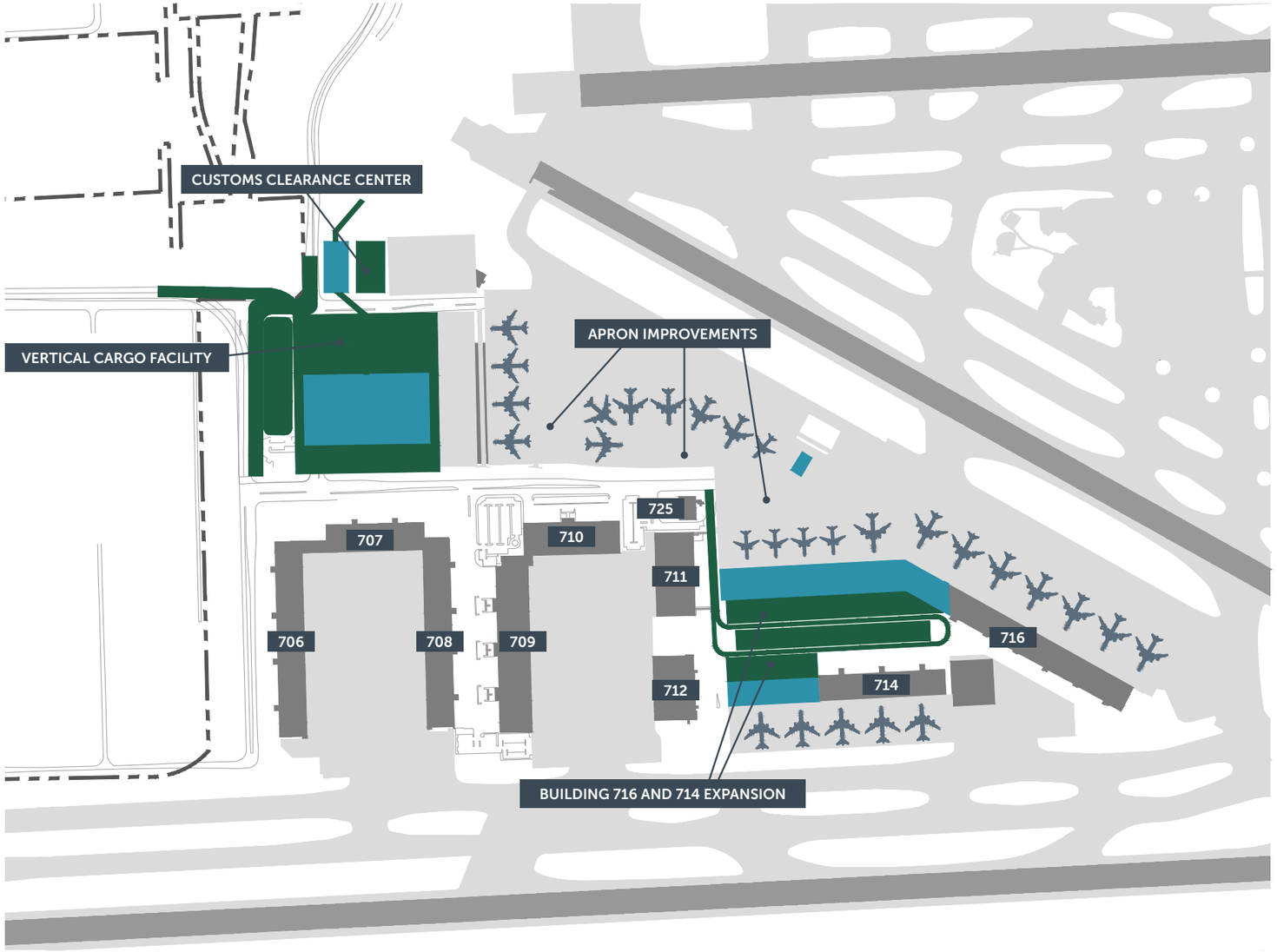



**LEGEND**

- Future Building Facilities
- Landside Pavement/Development
- New Airfield Pavement

SOURCE: Drawing by Ricondo & Associates, Inc., April 2017.

# MIA FUTURE FACILITIES: CARGO



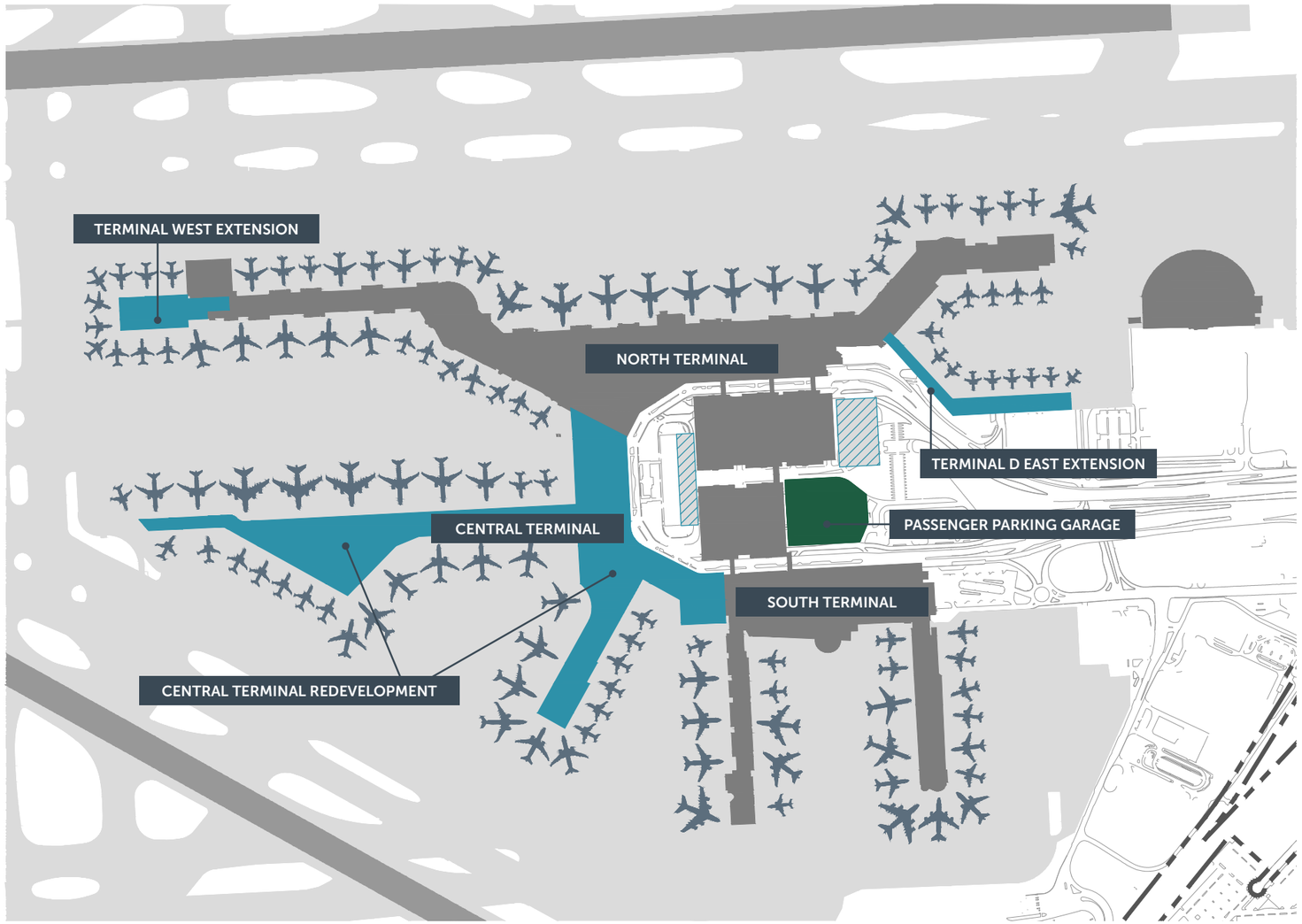

**LEGEND**

- Future Building Facilities
- Landside Pavement/Development




SOURCE: Drawing by Ricondo & Associates, Inc., April 2017.

# MIA FUTURE FACILITIES: TERMINAL

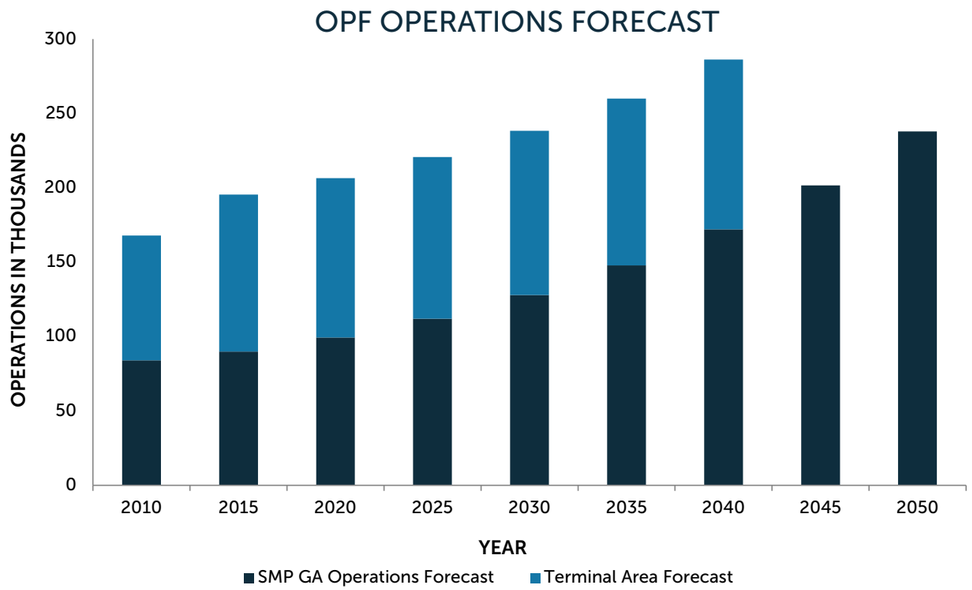


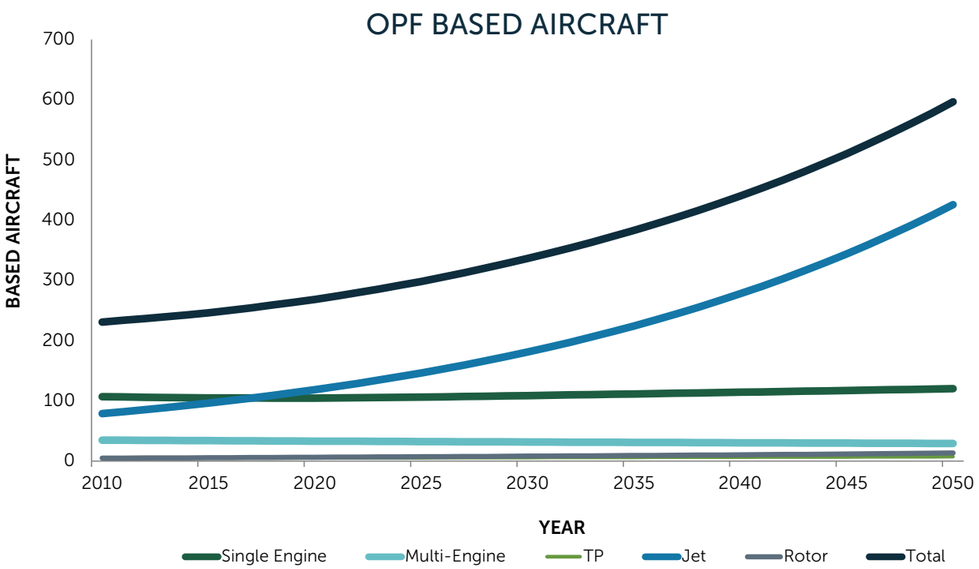

**LEGEND**

- New Terminal Facilities
- Landside Pavement/Development
- Future Potential Hotel Locations

SOURCE: Drawing by Ricondo & Associates, Inc., April 2017.

# OPF FORECAST AND FACILITY REQUIREMENTS




| | FACILITIES | EXISTING | 2015 | 2020 | 2025 | 2030 | 2035 | ADEQUATE TO SUPPORT OPERATIONS THROUGH THE PLANNING HORIZON |
|---|---|---|---|---|---|---|---|---|
| Aircraft Parking / Storage 1/ | T-Hangars (sq ft) | 10,000 | 0 | 0 | 0 | 0 | 0 | ✓ |
| | Conventional Hangars (sq ft) | 503,100 | 833,100 | 1,069,000 | 1,307,000 | 1,774,000 | 2,170,600 | |
| | Apron/Ramp 2/ (sq ft) | 2,327,100 | 2,083,400 | 2,086,300 | 2,089,200 | 2,092,200 | 2,095,100 | ✓ |
| | Automobile Parking (sq ft) | 215,800 | 53,600 | 91,900 | 130,650 | 206,600 | 270,950 | |
| Aviation Fuel | 100LL/Avgas (gallons) | 6,000 | 6,000 | 6,000 | 6,000 | 6,000 | 6,000 | ✓ |
| | Jet A (gallons) | 12,100 | 13,000 | 14,500 | 16,250 | 18,200 | 20,350 | |
| Airport Support | MDAD – Maintenance Yard (sq ft) | 36,725 | 36,725 | | | | | ✓ |
| | MDAD – Admin/Maint Bld (sq ft) | 9,450 | 9,450 | | | | | ✓ |
| | MDAD – Maint Covered Parking (sq ft) | 2,250 | 2,250 | | | | | ✓ |
| | ARFF (sq ft) | 11,250 | 11,250 | | | | | ✓ |

NOTES:
1/ Aircraft parking and storage space estimates do not include aircraft circulation, drainage, or landscaping
2/ Existing apron/ramp sq ft includes aircraft maneuvering areas
3/ Red text denotes where demand exceeds capacity



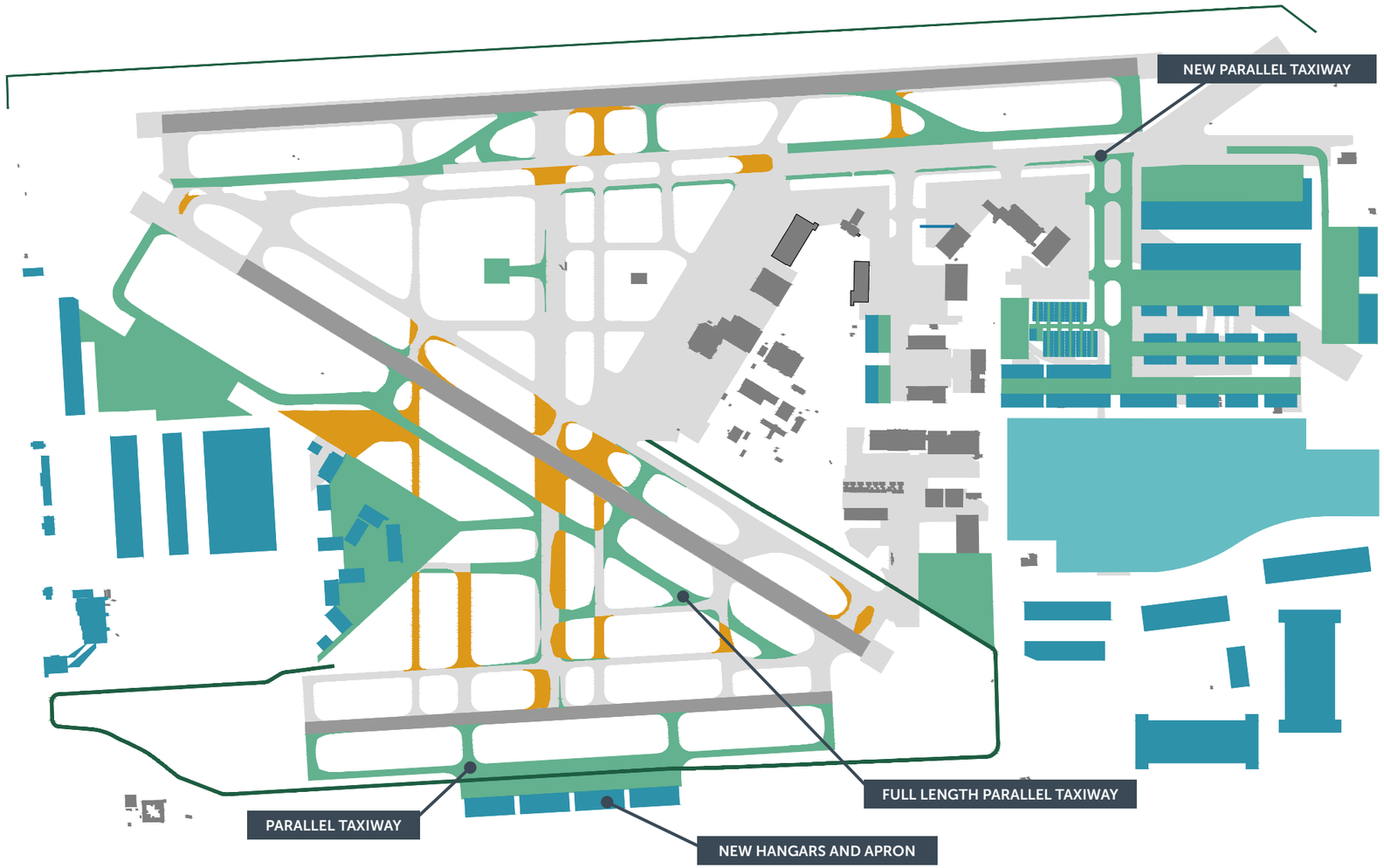
SOURCE: Aviation Policy and Plan Office, Terminal Area Forecast Detail Report, issued January 2012.

# OPF GENERAL AVIATION FUTURE DEVELOPMENT

OPF has long-term leasehold agreements with three private developers: AA Acquisitions, CPF Investment Group, and Carrie Meek Foundation. In addition, two other tenants, Landmark Aviation and Fontainebleau, lease facilities from Miami-Dade Aviation Department (MDAD). The five major leaseholders fund and perform most of the tenant facility development at the Airport. MDAD will perform airfield modification to expand airfield access to the lease areas, but it typically does not fund the apron and building development.

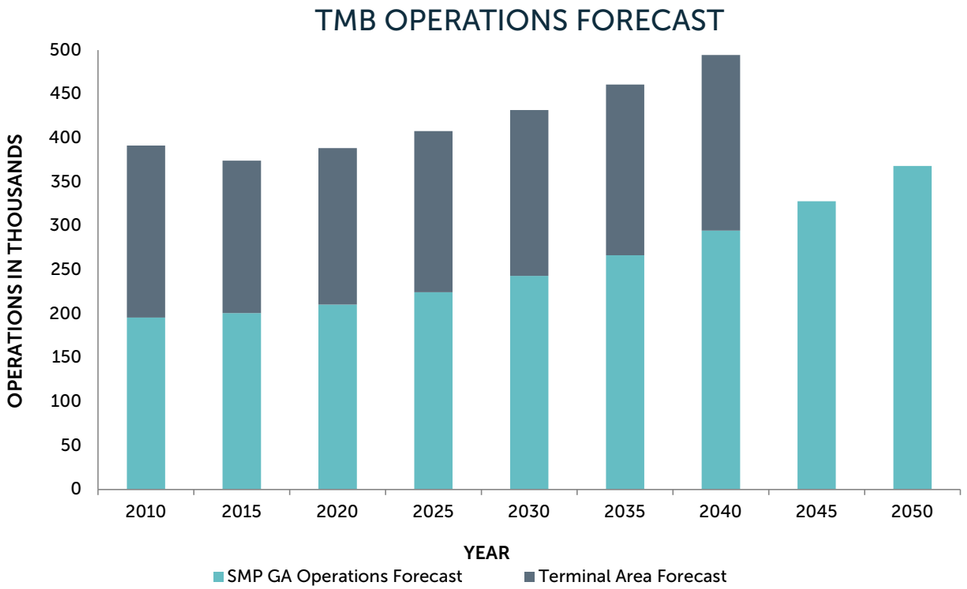
Development initiatives at OPF include:

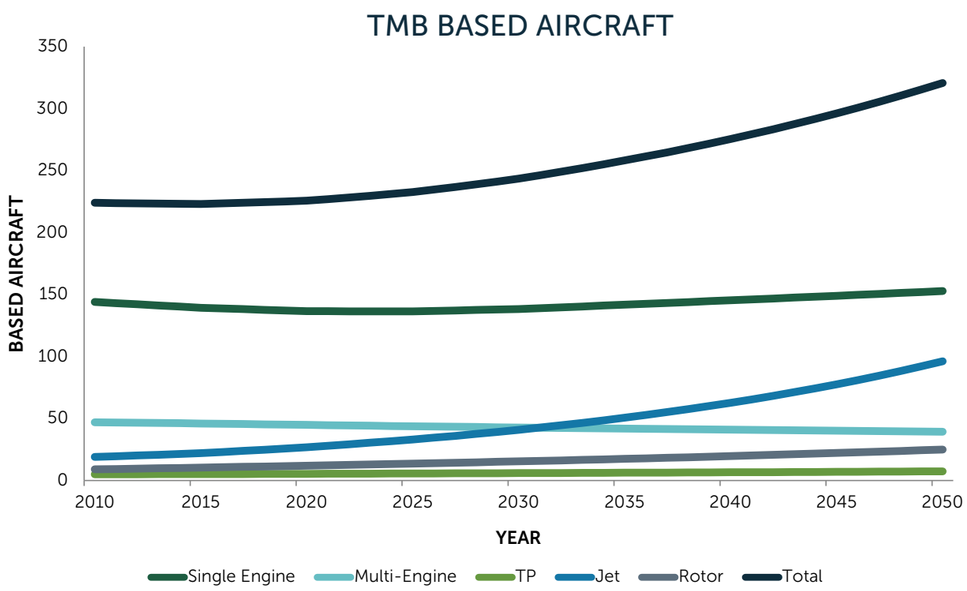
- New full-length parallel taxiway for Runway 12-30
- New full-length parallel taxiway south of Runway 9R-27L to serve future tenant facilities
- Taxiway modification to H, T, G, and D to improve safety
- New engine run-up area in the midfield area
- Exit taxiway modifications along Runway 9L-27R to conform with FAA airfield design standards
- Other miscellaneous taxiway pavement geometry modifications to eliminate excessive pavements and/or conform with FAA design standards




SOURCE: Drawing by Ricondo & Associates, Inc., April 2017.

# TMB FORECAST AND FACILITY REQUIREMENTS




| | FACILITIES | EXISTING | 2015 | 2020 | 2025 | 2030 | 2035 | ADEQUATE TO SUPPORT OPERATIONS THROUGH THE PLANNING HORIZON |
|---|---|---|---|---|---|---|---|---|
| Aircraft Parkin /Storage 1/ | T-Hangars/Box Hangars (sq ft) | 342,500 | 274,300 | 272,300 | 270,200 | 268,200 | 266,200 | ✓ |
| | Conventional Hangars (sq ft) | 278,300 | 233,200 | 267,800 | 285,000 | 390,100 | 415,100 | |
| | Apron/Ramp2/ (sq ft) | 1,132,600 | 898,200 | 891,500 | 884,900 | 878,300 | 871,800 | ✓ |
| | Automobile Parking (sq ft) | 126,750 | 141,700 | 150,800 | 160,600 | 170,700 | 181,700 | |
| Aviation Fuel | 100LL/Avgas (gallons) | 4,700 | 4,200 | 4,200 | 4,200 | 4,200 | 4,200 | ✓ |
| | Jet A (gallons) | 5,000 | 4,600 | 4,900 | 5,200 | 5,600 | 5,900 | |
| Airport Support | MDAD: Maintenance Yard (sq ft) | 36,725 | 36,725 | | | | | ✓ |
| | MDAD: Admin/Maint Bld (sq ft) | 9,450 | 9,450 | | | | | ✓ |
| | MDAD: Maint Covered Parking (sq ft) | 2,250 | 2,250 | | | | | ✓ |
| | ARFF (sq ft) | 11,250 | 11,250 | | | | | ✓ |

NOTES:
1/ Aircraft parking and storage space estimates do not include aircraft circulation, drainage, or landscaping
2/ Museum hangar is not included in existing capacity



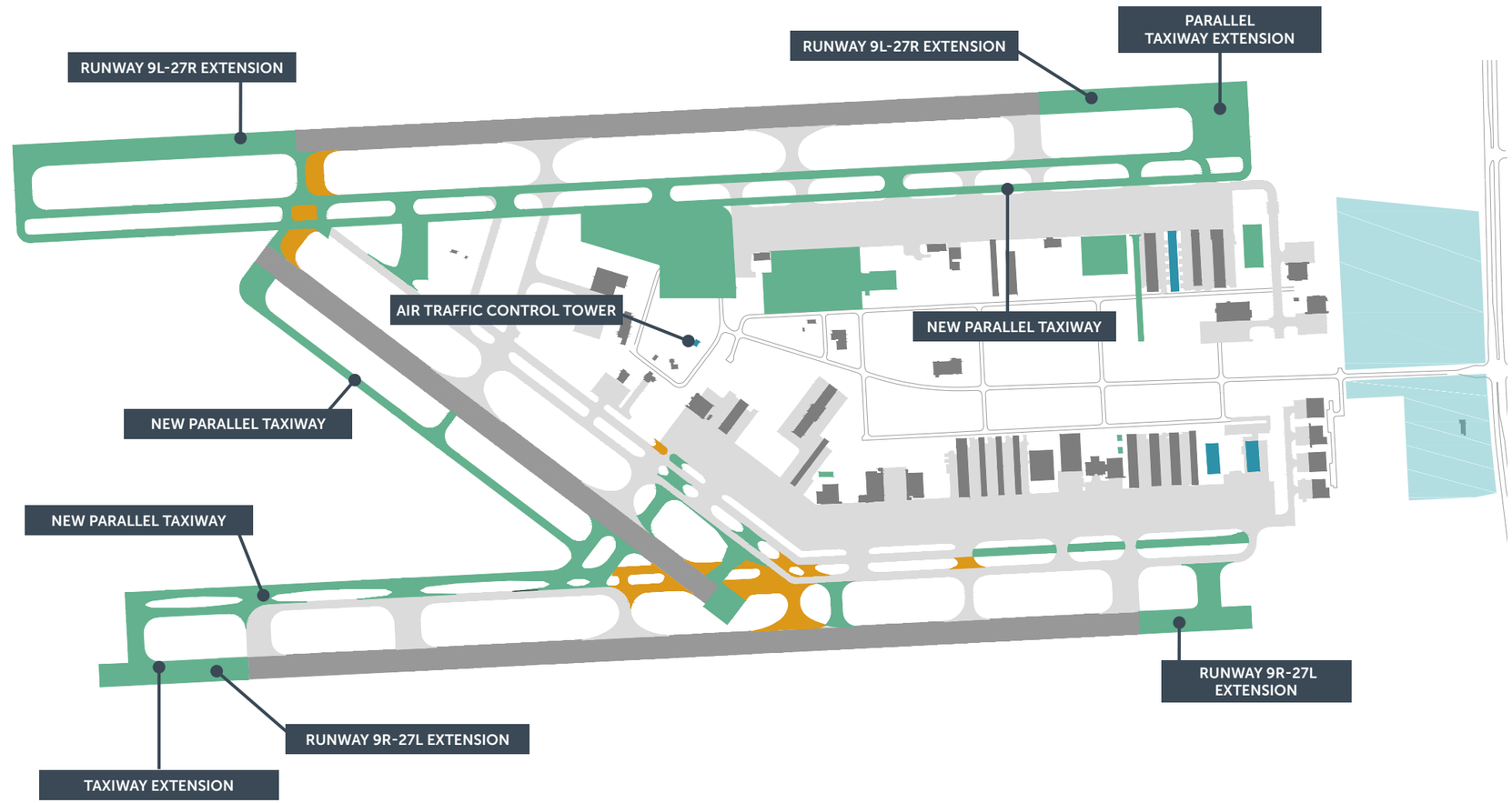
SOURCE: Aviation Policy and Plan Office, Terminal Area Forecast Detail Report, issued January 2012.

# TMB GENERAL AVIATION FUTURE DEVELOPMENT

Development initiatives at TMB include tenant expansion with airfield access and safety improvements. Apron and building expansion at TMB is generally tenant-driven and funded through the leaseholders. Airfield modifications are often performed to enable the tenants to develop the leasehold.

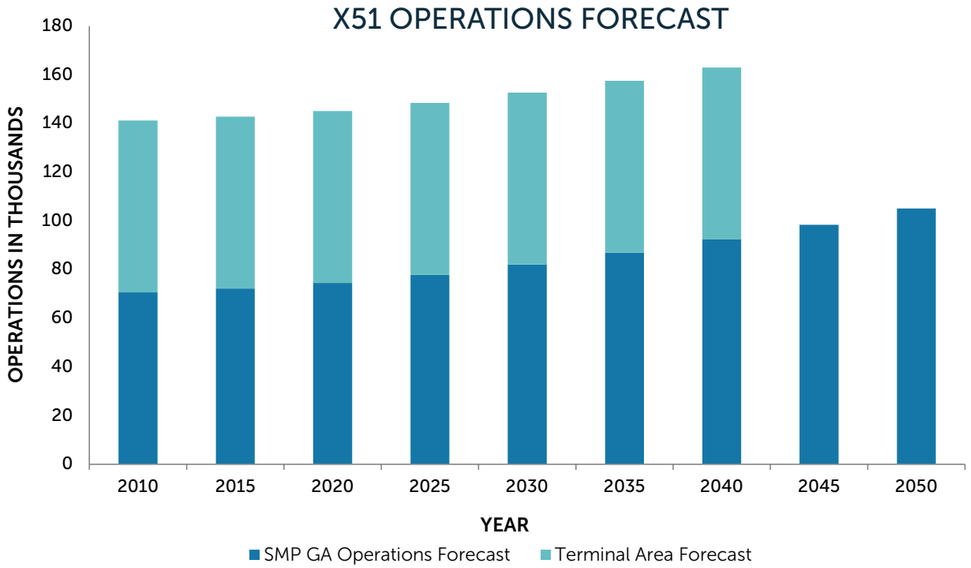
Development initiatives at TMB include:

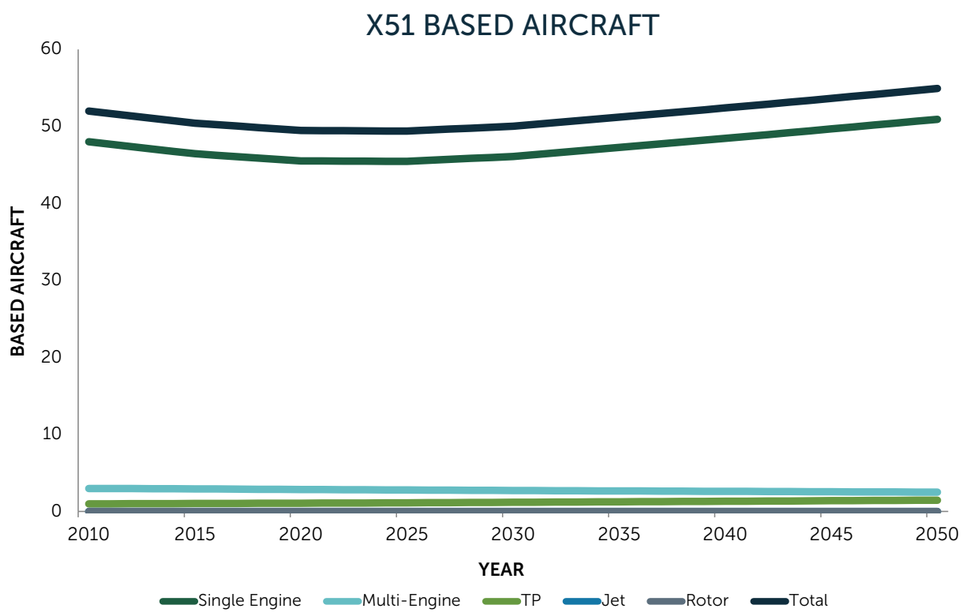
- Modifications to Taxiways H, E, and E3
- Modifications to Taxiways A and D, including the construction of a dedicated run-up pad
- Potential extension to Runways 9L-27R and 9R-27L to maximize runway length while keeping safety areas within airport property
- New full-length parallel taxiways for all runways
- Construction of new Air Traffic Control Tower
- Expansion of aircraft storage facilities
- Non-aeronautical development along SW 137th Avenue
- Acquisition of property west of SW 157th Avenue for land use compatibility




SOURCE: Drawing by Ricondo & Associates, Inc., April 2017.

# X51 FORECAST AND FACILITY REQUIREMENTS




| | FACILITIES | EXISTING | 2015 | 2020 | 2025 | 2030 | 2035 | ADEQUATE TO SUPPORT OPERATIONS THROUGH THE PLANNING HORIZON |
|---|---|---|---|---|---|---|---|---|
| Aircraft Parking / Storage 1/ | T-Hangars (sq ft) | 23,550 | 36,000 | 35,850 | 35,750 | 35,650 | 35,550 | |
| | Conventional Hangars (sq ft) | 12,750 | 28,400 | 29,600 | 30,900 | 32,200 | 33,600 | |
| | Apron/Ramp 2/ (sq ft) | 353,000 | 360,000 | 375,400 | 391,400 | 408,100 | 425,600 | |
| | Automobile Parking (sq ft) | 27,600 | 22,650 | 23,600 | 24,600 | 25,700 | 26,800 | ✓ |
| Aviation Fuel | 100LL/Avgas (gallons) | 1,550 | 1,550 | 1,550 | 1,550 | 1,550 | 1,550 | ✓ |
| | Jet A (gallons) | 1,550 | 1,250 | 1,300 | 1,350 | 1,400 | 1,500 | ✓ |
| Airport Support | MDAD Maintenance Yard (sq ft) | 1,500 | 1,500 | | | | | ✓ |
| | MDAD Admin/Maint Bld (sq ft) | 1,700 | 1,700 | | | | | ✓ |
| | MDAD Maint Covered Parking (sq ft) | 990 | 990 | | | | | ✓ |
| | ARFF (sq ft) | N/A | N/A | | | | | ✓ |

NOTES:
1/ Aircraft parking and storage space estimates do not include aircraft circulation, drainage, or landscaping
2/ Existing apron/ramp sq ft includes aircraft maneuvering areas
3/ Red text denotes where demand exceeds capacity



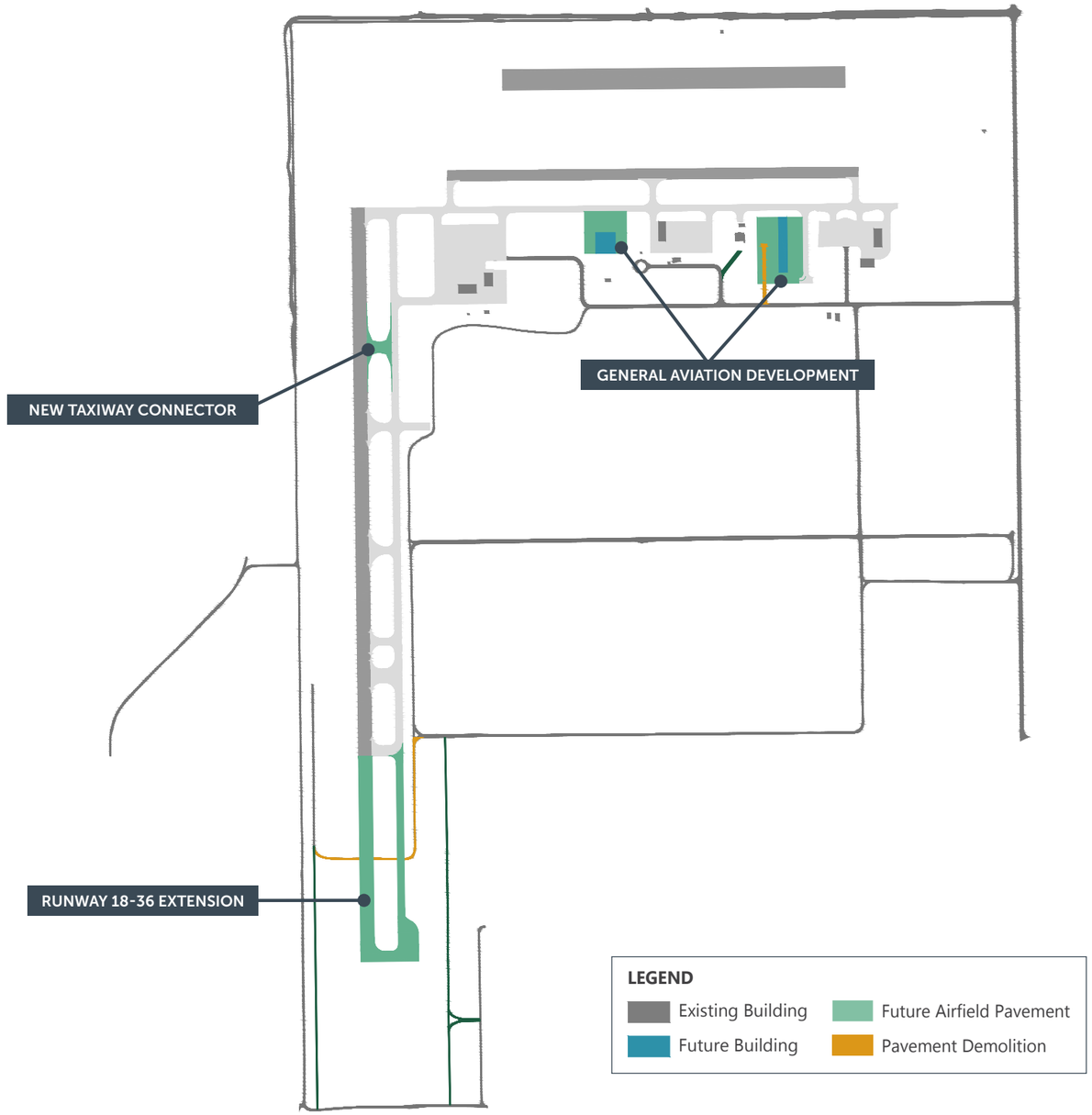
SOURCE: Aviation Policy and Plan Office, Terminal Area Forecast Detail Report, issued January 2012.

# X51 GENERAL AVIATION FUTURE DEVELOPMENT

X51 is used mostly for recreational traffic with primary leaseholders that include skydiving and flight training.

Development initiatives at X51 include:

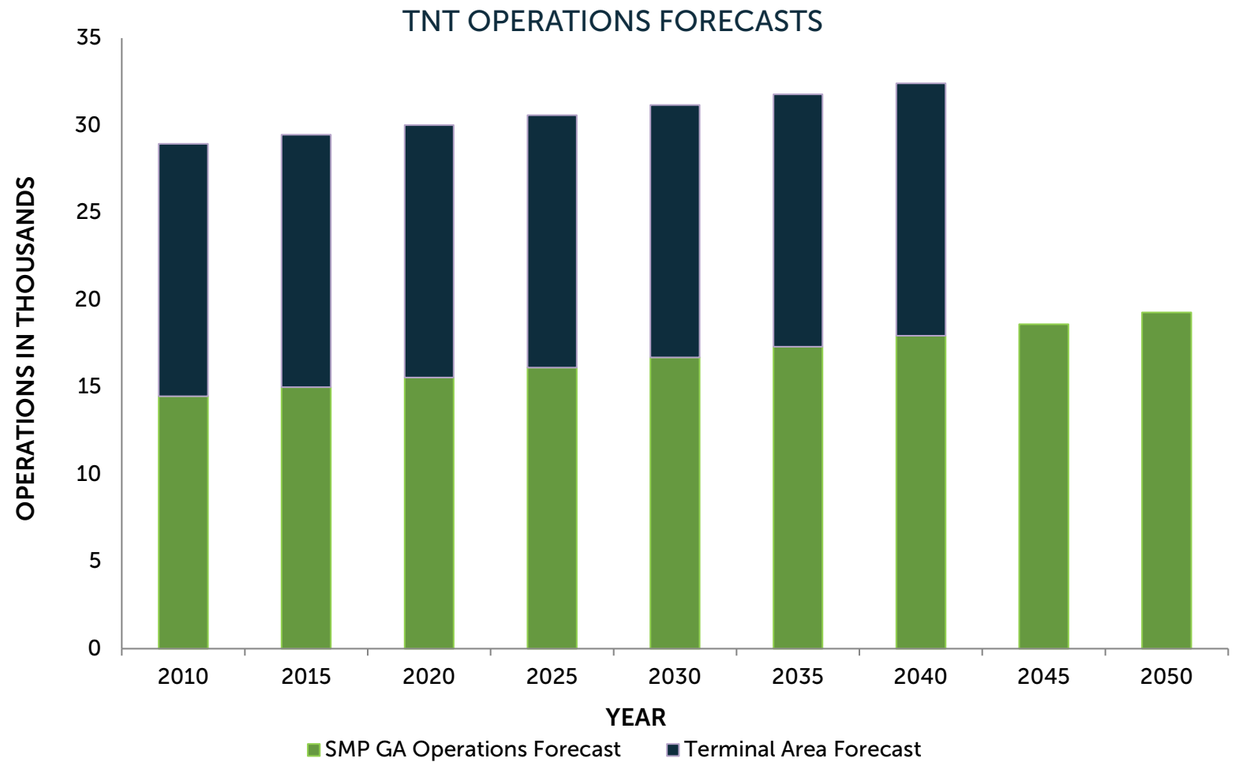
- Runway 18-36 Extension to accommodate corporate jet traffic
- New taxiway connector
- T/Box- hangars (GA Development)
- Conventional Hangars (GA Development)




SOURCE: Drawing by Ricondo & Associates, Inc., April 2017.

# TNT FORECAST AND FACILITY REQUIREMENTS

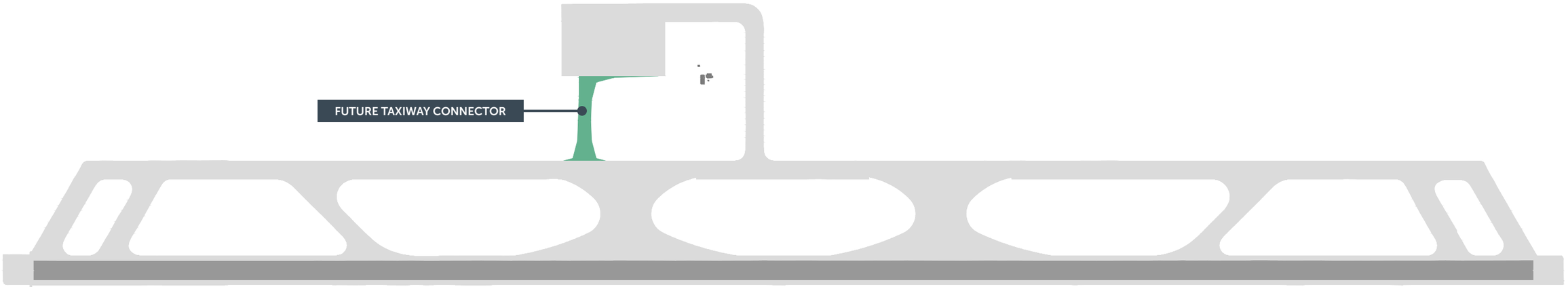
TNT is located in Collier County west of Miami, was originally designated as Everglades Jetport acting as a replacement for MIA. When development began in 1968 TNT was planned to have six runways over 24,960 acres. The completed project would be the largest airport in the world. After much opposition, the project was abandoned after the initial runway construction was completed in 1970. The one runway constructed at TNT is still maintained to this day and can accommodate up to Group V aircraft (wingspan up to 214 feet) with a full instrument landing system. Development at TNT is based around maintaining the current airfield with one additional taxiway connector to increase access to tenant facilities.






SOURCE: Aviation Policy and Plan Office, *Terminal Area Forecast Detail Report*, issued January 2012.

# GENERAL AVIATION FUTURE DEVELOPMENT



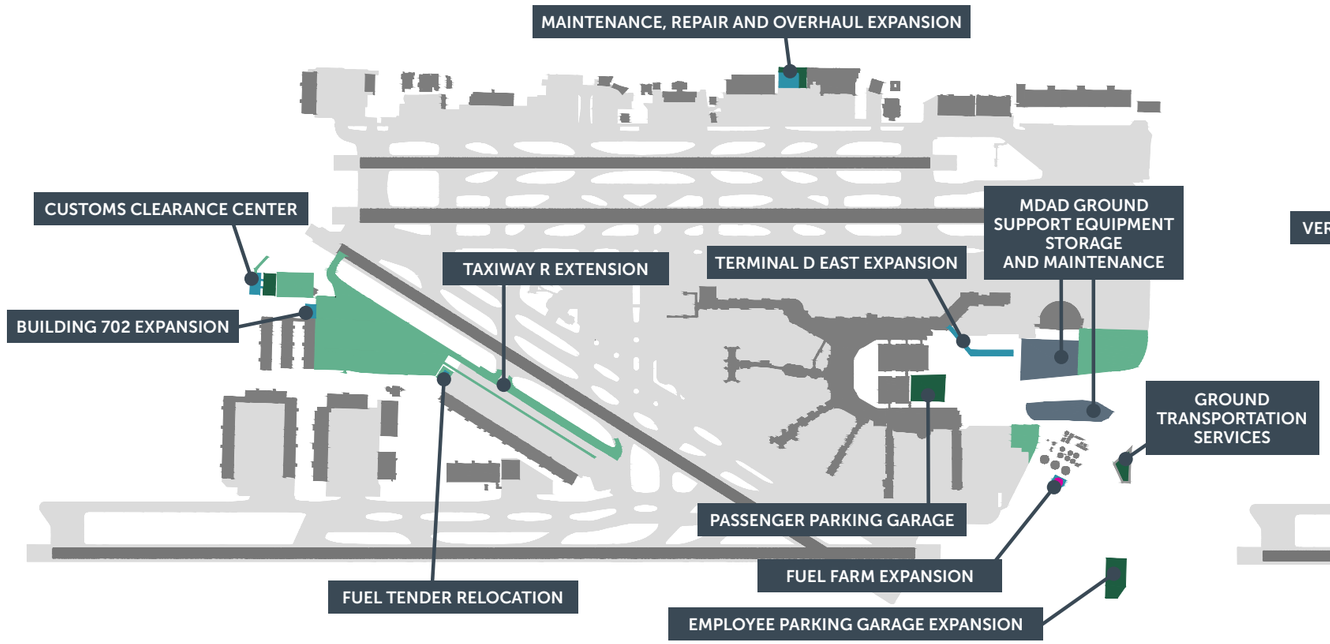

**LEGEND**

Future Airfield Pavement

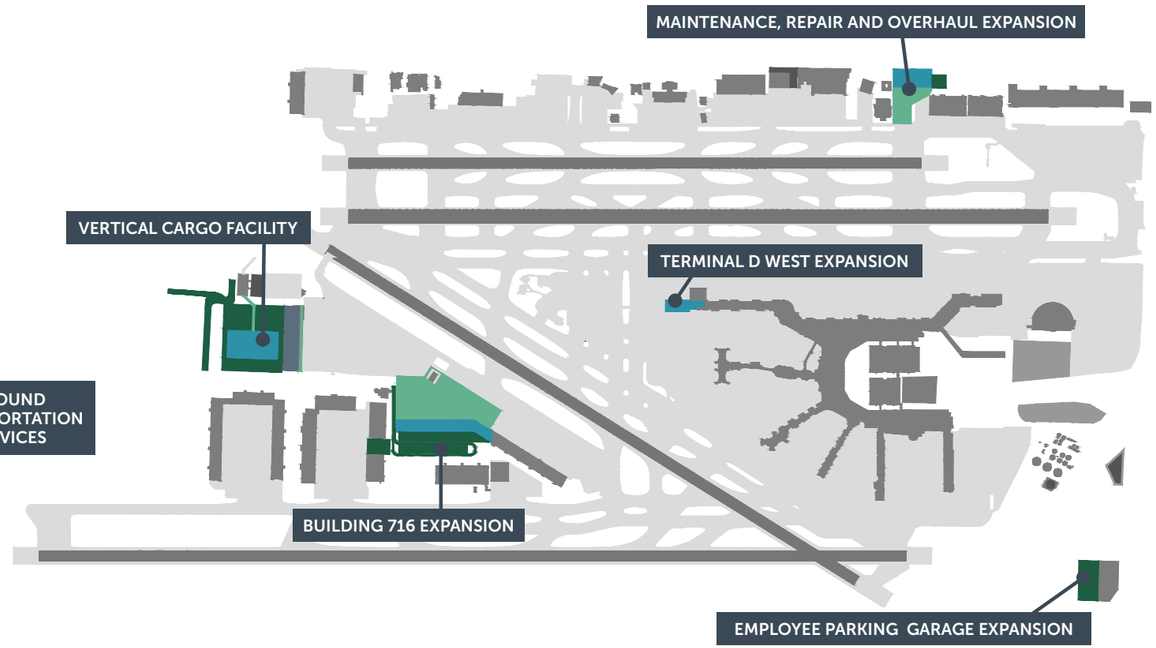
SOURCE: Drawing by Ricondo & Associates, Inc., April 2017.

# MIA IMPLEMENTATION STRATEGY

## PHASE 1




## PHASE 2

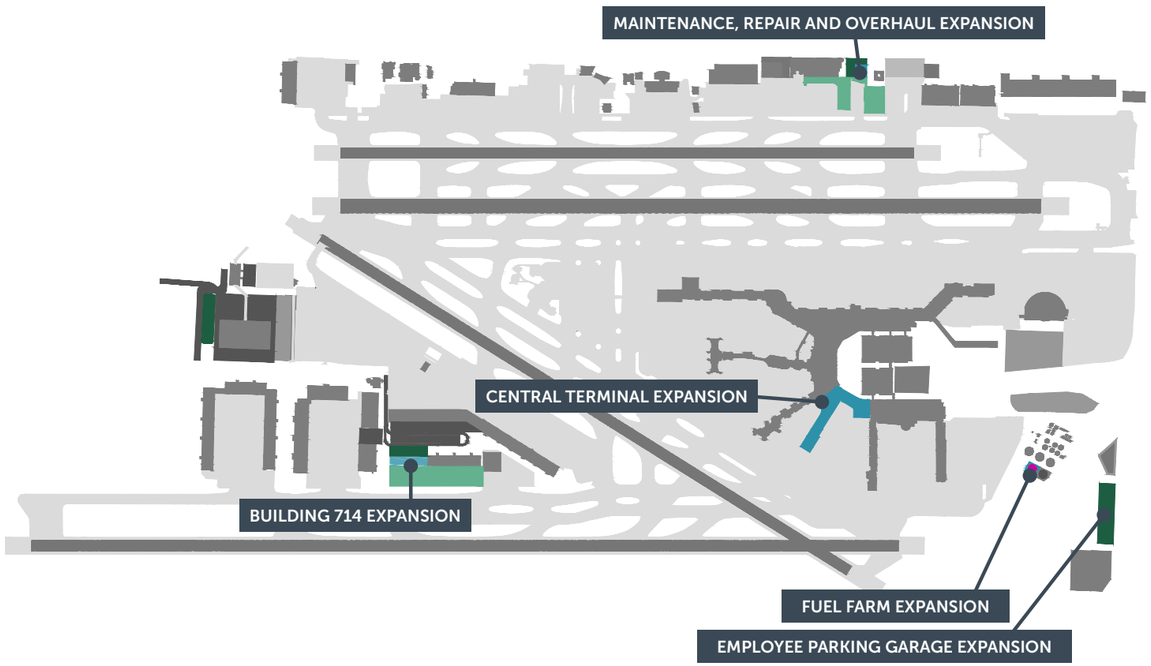



**LEGEND**

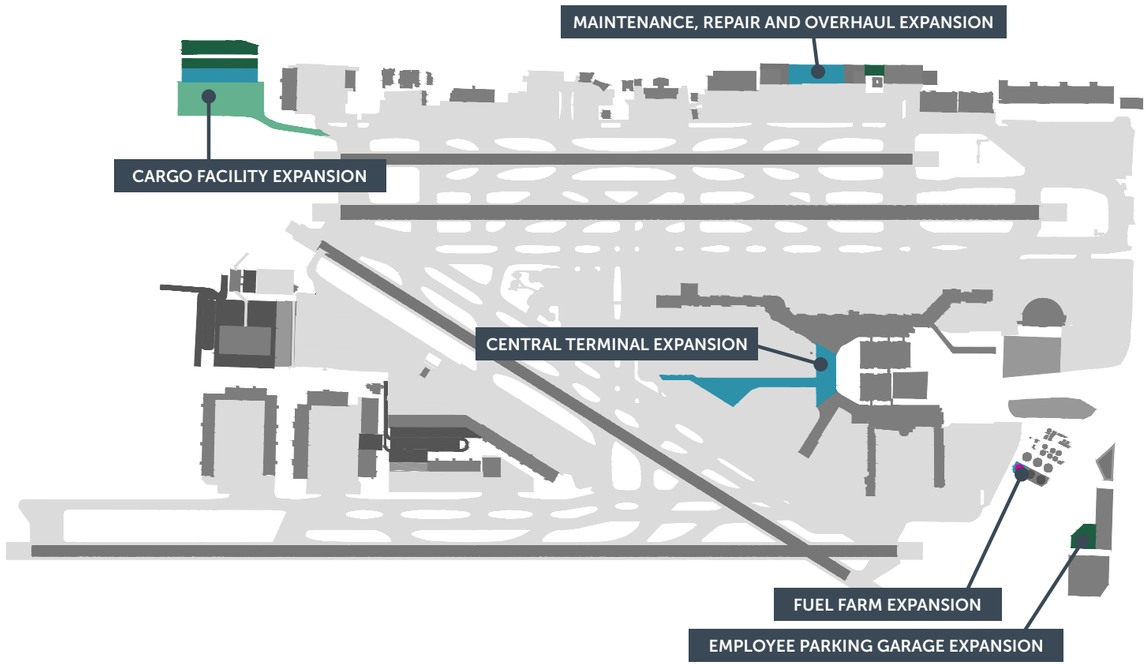
- Future Landside Development
- Future Airside Pavement
- Future Ground Service Equipment Storage
- Future Building Development
- Completed Landside Development
- Completed Ground Service Equipment Storage
- Completed Building Development
- Completed Airside Pavement

SOURCE: Drawing by Ricondo & Associates, Inc., April 2017.

## PHASE 3




## PHASE 4

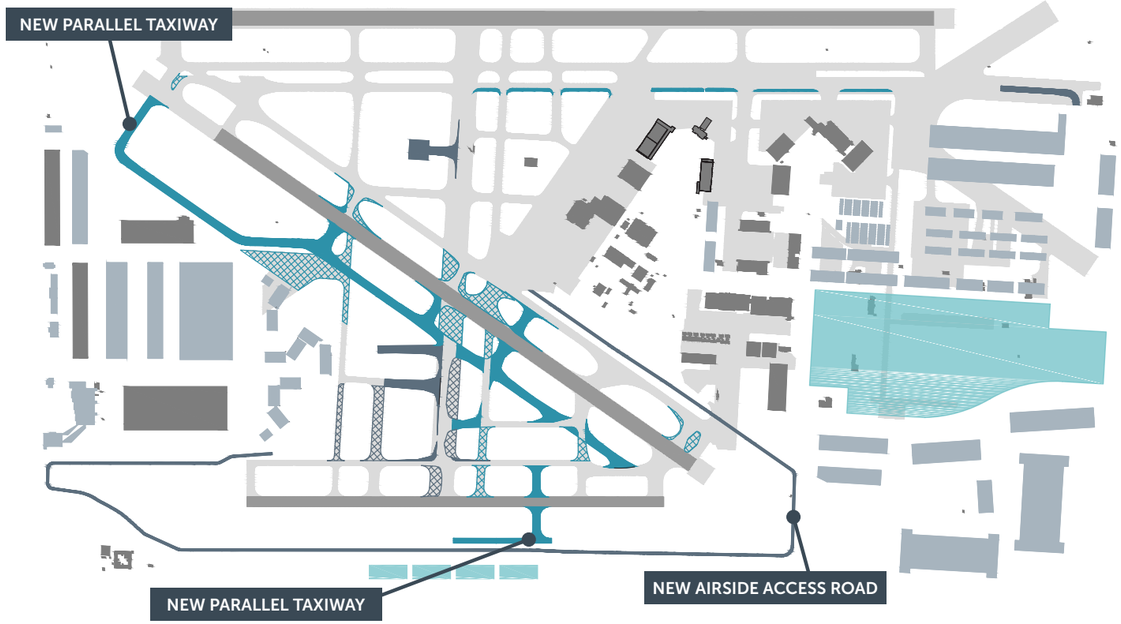



**LEGEND**

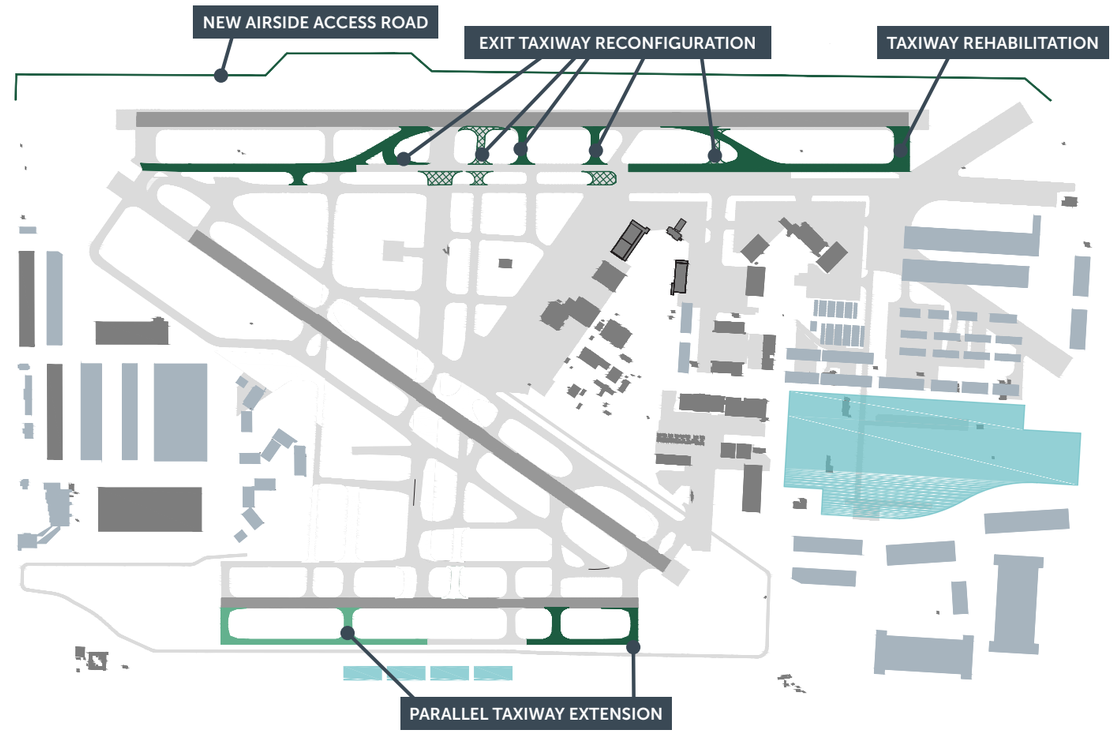
- Future Landside Development
- Future Airside Pavement
- Future Ground Service Equipment Storage
- Future Building Development
- Completed Landside Development
- Completed Ground Service Equipment Storage
- Completed Building Development
- Completed Airside Pavement

SOURCE: Drawing by Ricondo & Associates, Inc., April 2017.

## NEAR-TERM




## LONG-TERM



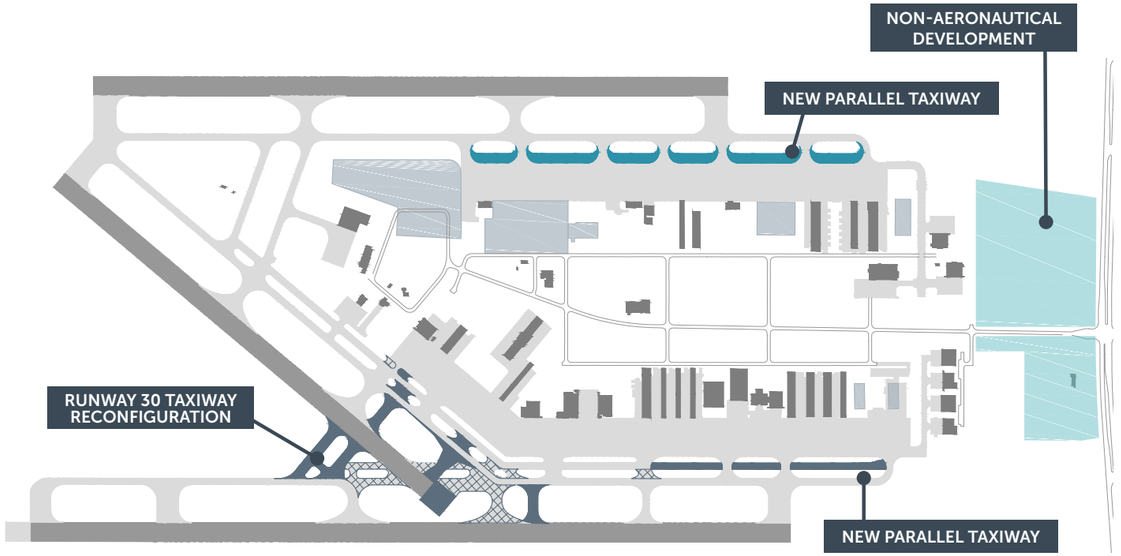

**LEGEND**

- Non-Aeronautical Development
- Future Facilities (By others)
- Phase 1 (2015-2020) Development
- Phase 1 Pavement Demolition
- Phase 2 (2021-2025) Development
- Phase 2 Pavement Demolition
- Phase 3 (2026-2030) Development
- Phase 4 (2031-2035) Development
- Phase 4 Pavement Demolition

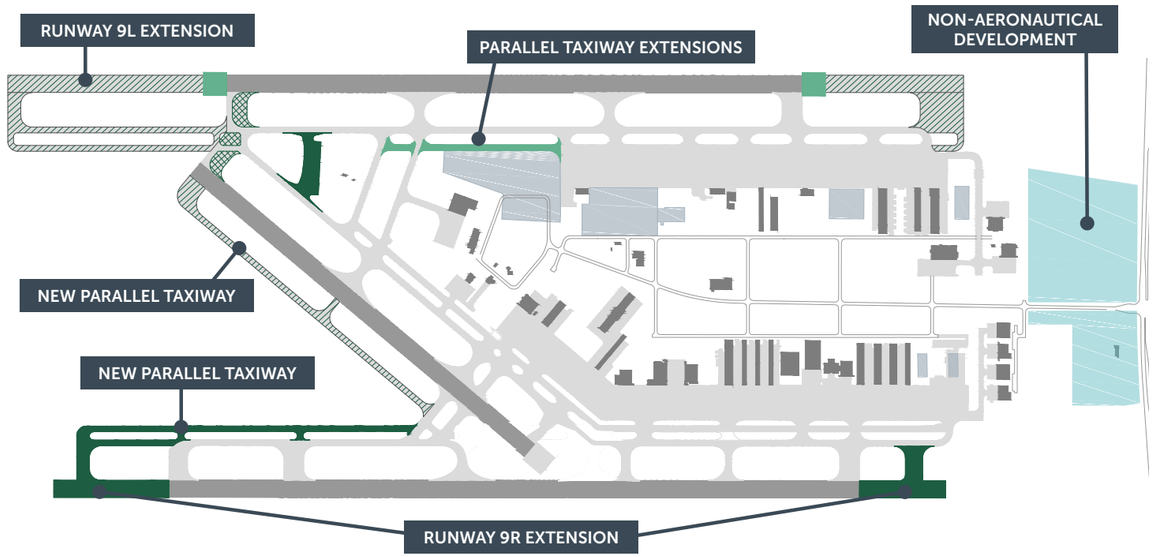


SOURCE: Drawing by Ricondo & Associates, Inc., April 2017.

## NEAR-TERM




## LONG-TERM




**LEGEND**

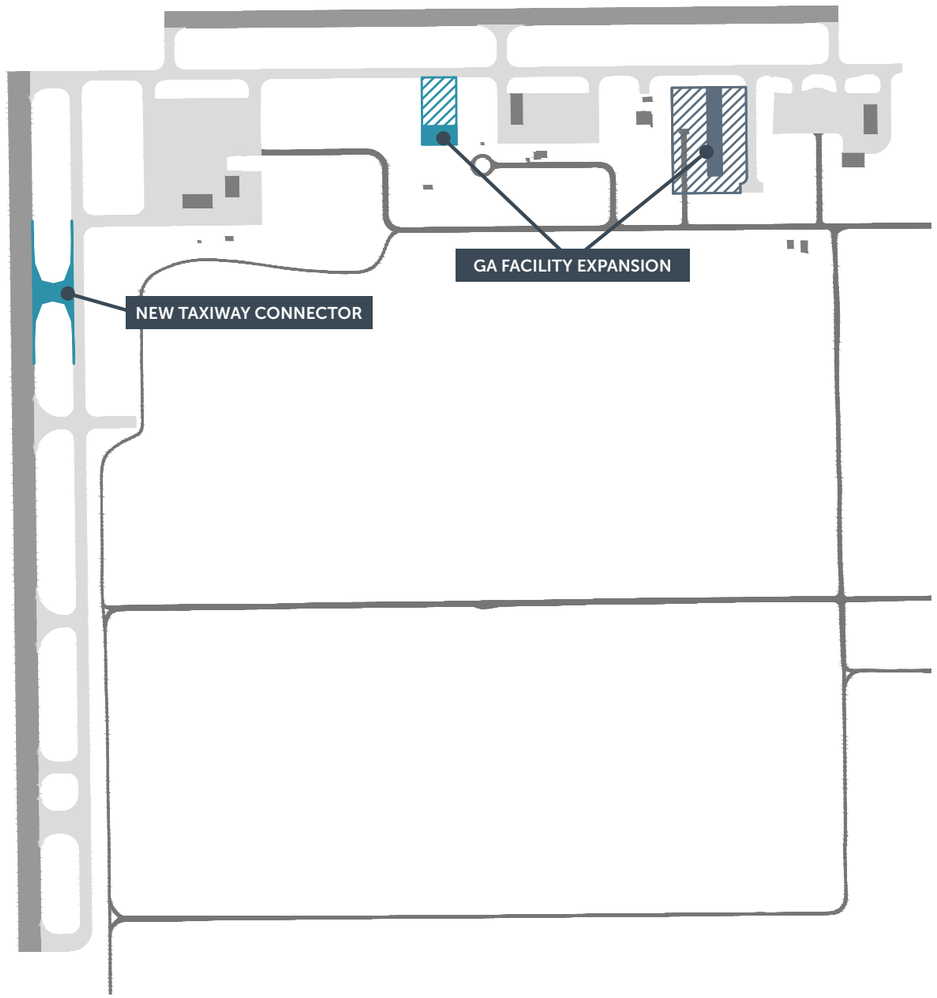
- Non-Aeronautical Development
- Future Facilities (By others)
- Phase 1 (2015-2020) Development
- Phase 1 Pavement Demolition
- Phase 2 (2021-2025) Development
- Phase 3 (2026-2030) Development
- Phase 4 (2031-2035) Development
- Phase 4 Pavement Demolition
- Additional Long Term Development

**NOTE: Demolition of existing airfield pavement to occur at the end of its useful life.**

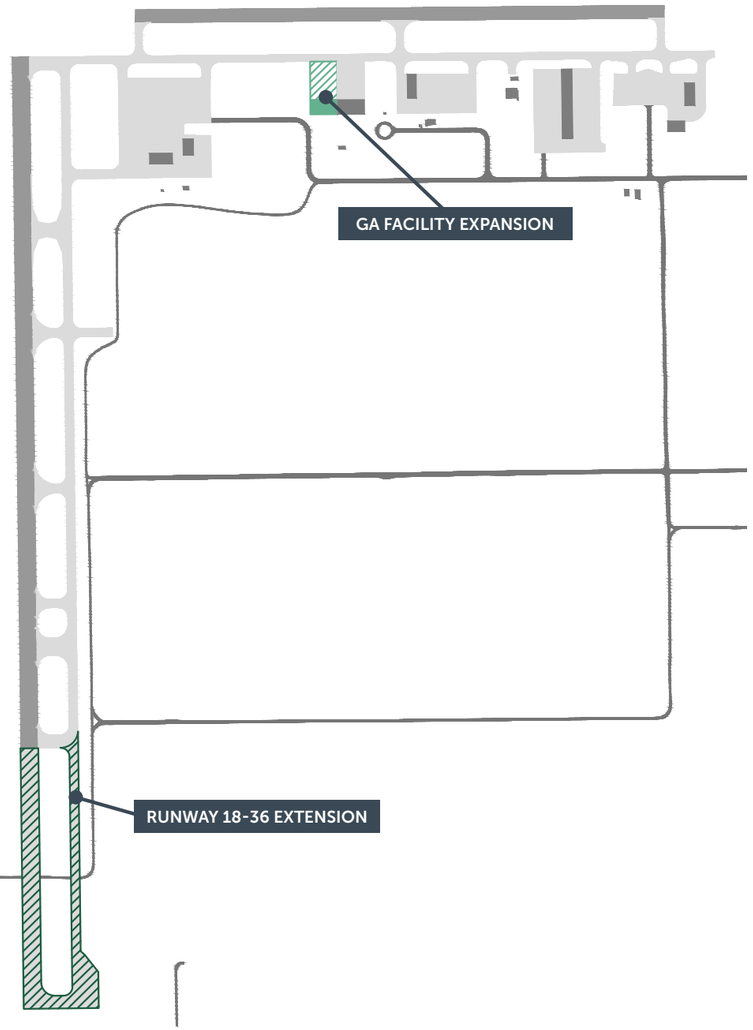
SOURCE: Drawing by Ricondo & Associates, Inc., April 2017.

# X51 IMPLEMENTATION STRATEGY

## NEAR-TERM




## LONG-TERM




**LEGEND**

- Phase 1 (2015-2020) Development
- Phase 2 (2021-2025) Development
- Phase 3 (2026-2030) Development
- Phase 4 (2031-2035) or Long Term Future Development
- Phase 1 Apron Pavement
- Phase 2 Apron Pavement
- Phase 3 Apron Pavement



SOURCE: Drawing by Ricondo & Associates, Inc., April 2017.

MIAMI INTERNATIONAL AIRPORT

MIAMI-DADE COUNTY