

# 2022-2042 MASTER PLAN UPDATE

**Chapter 5: Alternatives Analysis** 



SOURCES: Hillsborough County Aviation Authority, PL-E4\_PROPOSED\_AIRPORT\_PLAN.DWG, April 2016; Martinez Geospatial, Tampa International Airport Planimetrics, December 2022; Ricondo & Associates, Inc., November 2022.



Drawing: P:\\_PROJECTS\HCAA (TPA)\19041140 - 2019 GC\21-05 TPA Master Plan Update\Task 6A- Formulate and Refine Airport Improvement Plans\Drawings&Models\AutoCADIEx 6.2-1 Runway Alternatives.dwgLayout: Ex 6.2-1 Plotted: May 15, 2024, 05:11PM

EXHIBIT 5.2-1

RUNWAY ALTERNATIVES





Drawing: P:\\_PROJECTSHCAA (TPA))19041140 - 2019 GCl21-05 TPA Master Plan Update\Task 6A- Formulate and Refine Airport Improvement PlansiDrawings&ModelsAutoCADiEx 6.2-2 2016 ALP and Runway 17-35.dwgLayout: Layout2 Plotted: May 15, 2024, 05-13PM

#### JUNE 2024

2016 AIRPORT LAYOUT PLAN AND RUNWAY 17 - 35 ALIGNMENT



SOURCES: Martinez Geospatial, Inc., December 2022 (base mapping); Ricondo & Associates, Inc., October 2022.

#### **EXHIBIT 5.3-11**

300 ft. NORTH 0

# AIRSIDE C EXPANSION

Drawing: PL, PROJECTSHCAA (TPA)(19041140-2019 GCI21-65 TPA Master Plan Update/Task 6A- Formulate and Refine Airport Improvement Plans/Drawings&Modelk/AutoCADEx 6.3 Airside A Sortation Apron Options. dwgLayout: Airside C Plottet: May 15, 2024, 05:35PM



NORTH 300 ft. 0

Drawing: PL, PROJECTSHCAA (TPA)(19041140-2019 GCI21-65 TPA Master Plan Update)Task 6A-Formulate and Refine Airport Improvement PlansDrawings&Modelk/AutoCADEx 6.3 Airside A Sotation Apron Options. dwgLayout: Airside A Plotter: May 15, 2024, 05:35PM



SOURCES: Martinez Geospatial, Inc., December 2022 (base mapping); Ricondo & Associates, Inc., October 2022.

EXHIBIT 5.3-13



# AIRSIDE BAG SORTATION BUILDING APRON OPTIONS AIRSIDE C

Drawing: PL, PROJECTSHCAA (TPA)(19041140 - 2019 GC)21-05 TPA Master Plan UlpdateiTask 6A- Formulate and Refine Airport Improvement Plans/Drawings&Models/AutoCADEx 6 3. Airside A Sortation Apron Options.dwgLayout: BAG SORTATION AIRSIDE C Platest: May 15, 2024, 05.35PM



# **EXHIBIT 5.3-14**

400 ft. NORTH 0

# AIRSIDE BAG SORTATION BUILDING APRON OPTIONS AIRSIDES C AND A

Drawing: PL\_PROJECTSHCA4 (TPA)(19041140 - 2019 GC2145 TPA Master Plan LlpdatelTask 6A- Formulate and Refine Airport Improvement Planei/Drawings&Models/AutoCAD/Ex.6.3 Airside A Sortation Apron Options.dwgLayout: BAG SORTATION AIRSIDE C & A Piothed: May 15, 2024, 05:35PM





Drawing: P\\_PROJECTS\HCAA (TPA)\19041140 - 2019 GCl21-05 TPA Master Plan Update\Task 20- MPU Optimized Implementation StrategyDrawings&Models\AutoCADIConcepts\For Cost Est Concept B Lv02\_03.dwgLayout: LV3 Plotted: May 15, 2024, 05:39PM

Master Plan Update

LEVEL 2 CONCOURSE FLOOR PLAN

The Transfer Level expansion to the Main Terminal that houses the landside functions would be connected to the airside functions by a pedestrian bridge that spans over George Bean Parkway as shown in plan view on Exhibit 5.3-15 and on **Exhibit 5.3-16** in cross section view. **Exhibit 5.3-17** conceptually shows reuse of the structural plinths that support the original Airside B train shuttle guideway to support a truss bridge that would support the passenger walkway, moving walkways and baggage conveyors that connect the new Airside B landside and airside facilities.

**Exhibit 5.3-18** shows the facilities that would be located on the ramp level of the New Airside B. The building addition north of the A-Sortation Building would house the inbound bag loading system for arriving domestic baggage, mechanical equipment and ramp personnel support spaces; the building addition south of the A-Sortation Building would house additional outbound bag makeup devices that are required to support the six new Airside B gates and PAL 2 and 3 outbound bag makeup requirements for Airside A and Airside C. Exhibit 5.3-18 also shows expansion of the A-Sortation centralized bag inspection facility (CBIS) that will be needed to support the additional outbound bag demand from the new aircraft gates. **Exhibit 5.3-19** shows a cross-section view of the building additions constructed north and south of the A-Sortation Building.

The New Airside B independently provides the PAL 3 gate requirements and all passenger processing facilities -other than departing passenger bag drop, required to support additional gates. As such, the New Airside B would eliminate the PAL 3 expansion of the Main Terminal domestic bag claims and eliminates PAL 3 requirements that are associated with gate additions to Airside A and Airside C.

## Airside D Satellite Concourse and Apron

This concept proposes a new six aircraft gate satellite concourse and apron that would be constructed immediately north of the North Overnight Parking Apron that is shown on **Exhibit 5.3-20**. The satellite concourse would have two floor levels. Floor level 2 as shown on **Exhibit 5.3-21** would house holdrooms, restrooms and concession spaces. The new apron would be designed to support six Airbus 321 aircraft parking positions –each served by passenger boarding bridges. Overnight aircraft parking capacity at the North Hardstand would decrease from nine to seven aircraft. In addition to the new aircraft gate positions. Exhibit 5.3-21 shows the VSR which currently connects the airside (AOA) segment of North Hoover Boulevard to the tunnel under Runway 1R/19L remaining in its current alignment and identified on the new apron pavement. This VSR would serve as the tail-of-stand VSR for the new aircraft gate positions. New VSRs are proposed to support airside bus shuttles between the satellite concourse and Airside D. As shown on Exhibit 5.3-21, the VSR used by airside shuttle buses would be elevated adjacent to the north face of the satellite concourse to allow passenger boarding/unloading at floor level 2 of the satellite concourse. Alternatively, escalators and elevators could be installed within the new building to maintain an at-grade VSR for passenger boarding/unloading.

The ramp level of the two-level satellite concourse would house mechanical equipment and ramp personnel support spaces as shown on **Exhibit 5.3-22**. No baggage handling system equipment is proposed at the ramp level. Departing passengers would be screened at the Airside D TSA security checkpoint prior to boarding bus shuttles. Passenger checked baggage would be screened in the same manner as passengers departing from Airside D. Outbound baggage makeup would occur at Airside D before being tugged to aircraft departing from the satellite concourse. Consequently, the capacity of the Airside D checkpoint and outbound bag makeup will need to increase to accommodate passenger and baggage demand generated by the satellite concourse. Checked baggage from arriving flights would be tugged from arriving aircraft directly to the Main Terminal in the same manner as passengers arriving at other airsides.



50 ft

Drawing: P\\_PROJECTS\HCAA (TPA)19041140 - 2019 GC\21-05 TPA Master Plan Update\Task 20- MPU Optimized Implementation Strategy\Drawings&Models\AutoCAD\Concepts\For Cost Est Concept 8 sections.dwgLayout: Sec\_cross Plotted: May 15, 2024, 05:41PM

#### JUNE 2024

Alternative Development Concepts and Evaluation



Drawing: P1\_PROJECTS/HCAA (TPA)/19041140 - 2019 GCi21-05 TPA Master Plan Update(Task 20- MPU Optimized Implementation Strategy/Drawings&Models/AutoCADI:Concepts/For Cost Est Concept B sections.dwgLayout: AGT section(3) Plotted: May 15, 2024, 05:42PM

#### TAMPA INTERNATIONAL AIRPORT





Drawing: P1\_PROJECTS/HCAA (TPA)/19041140 - 2019 GCI21-05 TPA Master Plan UpdatelTask 20- MPU Optimized Implementation Strategy/Drawings&Models/AutoCADI:Concepts/For Cost Est Concept B Lv01\_02.dwgLayout: LV2 Plotted: May 15, 2024, 05:43PM

Master Plan Update



Drawing: P:\\_PROJECTS\HCAA (TPA)\19041140 - 2019 GCi21-05 TPA Master Plan Update\Task 20- MPU Optimized Implementation Strategy\Drawings&Models\AutoCAD\Concepts\For Cost Est Concept B sections.dwgLayout: Sec\_long Plotted: May 15, 2024, 05:40PM



SOURCES: North RON Parking Apron, Conformed Documents, HCAA, May 16 2023; Ricondo & Associates, Inc., February 2024.



Drawing: P:\\_PROJECTS\HCAA (TPA)(19041140 - 2019 GC\21-05 TPA Master Plan Update\Task 20- MPU Optimized Implementation StrategyDrawings&Models\AutoCAD\Concepts\For Cost Est D-N S h02\_02192024.dwgLayout: North Existing Plotted: May 15, 2024, 05:44PM

Master Plan Update

**EXHIBIT 5.3-20** 

## NORTH OVERNIGHT PARKING APRON

#### TAMPA INTERNATIONAL AIRPORT





Drawing: P:\\_PRQJECTS\HCAA (TPA)(19041140 - 2019 GC\21-05 TPA Master Plan Update\Task 20- MPU Optimized Implementation Strategy\Drawings&Models\AutoCAD\Concepts\For Cost Est D-N S Iv02\_02192024.dwgLayout: North RM Plotted: May 15, 2024, 05:45PM

AIRSIDE D SATELLITE CONCOURSE PLAN LEVEL 2 - CONCOURSE





Drawing: P\\_PROJECTSHCAA (TPA))19041140 - 2019 GCl21-05 TPA Master Plan Update\Task 20- MPU Optimized Implementation StrategyIDrawings&Models/AutoCADIConcepts\For Cost Est D-North Satellite 6-gatelv01.dwgLayout: North RM Plotted: May 15, 2024, 05:45PM

Master Plan Update

RAMP LEVEL

# 5.3.4 PREFERRED PASSENGER TERMINAL FACILITIES DEVELOPMENT

The preferred concepts to accommodate the future capacity requirements for aircraft parking positions and passenger terminal facilities were evaluated using criteria that considered passenger convenience and experience, operator efficiency, constructability, and benefit value. The following concepts were identified as the preferred improvements to passenger terminal facilities:

- PAL 1 Improvements
- Expand the A-Sort Building to accommodate four additional outbound bag makeup carousels (Image 2-Exhibit 5.3-3)
- Construct the additional outbound bag makeup carousels for Airside F (Exhibit 5.3-4)
- PAL 2 Improvements
- Replace existing TSA screening lanes at Airside C with TSA certified CPSS
- Construct Main Terminal Ticket Lobby Improvements Phases 1 and 2 (Exhibit 5.3-6 and Exhibit 5.3-7)
- Construct additional bag claim carousels at Red and Blue Bag Claim (Exhibit 5.3-9)
- PAL 3 Improvements
- Replace existing TSA screening lanes at Airside F with TSA certified CPSS equipment
- Implement TSA remote resolution CPSS screening protocols at Airsides A, C and D
- Construct a six gate New Airside B

# 5.3.5 ULTIMATE TERMINAL EXPANSION AND DEVELOPMENT

This section describes potential ultimate terminal development concepts associated with additional gates and related passenger terminal facilities, apron, and landside facilities on the site recommended by the previous two MPUs for long-term terminal and gate expansion. **Exhibit 5.3-23** shows the site, which is referred to as the North Terminal Complex (NTC). **Exhibit 5.3-24** depicts six long-term concepts for developing the NTC. The concepts in common provide the following capacities and capabilities:

- 45-gate buildout to support approximately 55 to 60 MAP and related hardstand positions
- dual taxilane system to facilitate aircraft movement in and around gates
- compatibility with airfield capacity, including a third parallel runway
- compatibility with landside supporting infrastructure, including roadways, curbs, parking garage, and extension of SkyConnect

The following subsections briefly describe alternative ultimate terminal expansion and development concepts for the NTC.



SOURCES: Martinez Geospatial, Inc., December 2022 (aerial photography); Ricondo & Associates, Inc., July 2023.

#### **EXHIBIT 5.3-23**



#### NORTH TERMINAL COMPLEX SITE

Drawing: P:\\_PROJECTSIHCAA (TPA)\19041140 - 2019 GCi21-05 TPA Master Plan Update/Task 6A- Formulate and Refine Airport Improvement Plans/Drawings&Models/AutoCADIEx. 6.3 North Terminal Complex.dwgLayout: North Terminal Complex Plotted: Sep 24, 2024, 02:03PM



SOURCES: Martinez Geospatial, Inc., December 2022 (base mapping); Ricondo & Associates, Inc., October 2022.

#### **EXHIBIT 5.3-24**

NORTH 0 2,000 ft

#### NORTH TERMINAL COMPLEX CONCEPTS

Drawing: P-L\_PROLECTSHC4A (TPA)(15041140 - 2019 GC/21-05 TPA Master Plan Update/Task 6A- Formulate and Refine Airport Improvement Plans/Drawings&ModelsAutoCADEx 6.3 North Terminal Concepts.dwgLayout. 8.5x11P Plotted: May 15, 2024, 05:51PM

# 5.3.5.1 OPTION 1 - SATELLITE AIRSIDE FACILITIES

Option 1 replicates the existing terminal complex configuration that has a landside terminal and separate airside buildings. APMs would be used to transport passengers between the landside terminal and airside facilities. The terminal is envisioned to have at least three floor levels with multilevel curbs along the long sides (north and south sides) of the terminal. The George J. Bean Parkway and SkyConnect APM would be extended through the tunnel sections below the Taxiways A and B structure. Functions contained within the landside terminal would include check-in, domestic bag claim, landside concessions and amenities, SSCPs, and the CBIS. Functions contained within each airside facility would include holdrooms, concessions, and OBMU.

## 5.3.5.2 OPTION 2 - UNIFIED MAIN TERMINAL AND AIRSIDE FACILITY

Option 2 proposes a landside terminal connected to four contiguous gate concourses. Unlike the satellite airside facilities concept, the terminal only requires a single roadway and curbfront; passengers can access gates located on any of the concourses without needing an APM. Contiguous gates provide greater flexibility to respond to airline gate needs and connections between gates compared to the satellite airside facilities concept.

# 5.3.5.3 OPTION 3 - UNIT TERMINALS

Option 3 proposes two separate terminals with their own contiguous gate concourse. Each unit terminal would be supported by dedicated roadways and curbfronts, while sharing a centralized public garage. Within a unit terminal, passenger connections between the landside terminal and gates would not require an APM.

# 5.3.5.4 OPTION 4A - UNIFIED MAIN TERMINAL AND SATELLITE AIRSIDE FACILITIES

Option 4A proposes a single landside terminal and landside system of roads, curbfront, and parking garage. Gates would be distributed among a concourse that is contiguous with the landside terminal and two airside facilities that would require an APM to transport passengers between the airside facilities and the landside terminal.

## 5.3.5.5 OPTION 4B - UNIFIED MAIN TERMINAL AND SATELLITE AIRSIDE FACILITY

Option 4B proposes a single landside terminal and landside system of roads, curbfront, and parking garage. Gates would be distributed between a concourse that is contiguous with the landside terminal and a single satellite airside facility. The satellite airside facility represents an efficient layout of aircraft parked on both sides of the airside facility, which reduces walking distances between gates. The APM system that connects the satellite airside facility to the landside terminal would be elevated to a height that would allow narrowbody aircraft to pass underneath, which provides efficient aircraft movement within the apron.

## 5.3.5.6 OPTION 4C - UNIFIED MAIN TERMINAL AND SATELLITE AIRSIDE FACILITIES

Option C proposes a single landside terminal and landside system of roads, curbfront, and parking garage. Gates would be distributed among a concourse that is contiguous with the landside terminal and two airside facilities that would require an APM to transport passengers between the airside facilities and the landside terminal. Option 4C is similar to Option 4A, except for the location of the public parking garage. The location shown for the garage in Option 4C would enable passengers without checked baggage to bypass the landside terminal upon arrival.

# 5.4 LANDSIDE FACILITIES

# 5.4.1 PLANNED ROADWAY IMPROVEMENTS

Two major projects are assumed to be complete for the purposes of the roadway alternatives: the Red Express Curb expansion prior to PAL 1 and the Westshore Interchange prior to PAL 3.

# 5.4.1.1 RED EXPRESS CURB EXPANSION – ON-AIRPORT

The Red Express Curb is currently under construction for expansion, which is anticipated to be completed in 2025. With the expanded curb, travelers without checked baggage can be dropped off and picked up at express lanes in the same manner as the existing Blue Express Curb. **Exhibit 5.4-1** illustrates the planned Red Express Curb expansion.

# 5.4.1.2 WESTSHORE INTERCHANGE IMRPOVEMENTS CONNECTING TO THE AIRPORT

Tampa Bay Next is an infrastructure modernization program from the Florida Department of Transportation. One component of the program that intersects with and impacts access to the Airport is the Westshore Interchange. At the entrance to the Airport, the Westshore Interchange project is anticipated to relocate the ramp the from W Spruce St to George J. Bean Parkway and connect the new Interstate 275 Express Lane into the prior W Spruce St ramp location. **Exhibit 5.4-2** illustrates the planned Westshore Interchange improvements connecting to the Airport.

# 5.4.2 ROADWAY AND CURB ALTERNATIVES

# 5.4.2.1 GEORGE J. BEAN PARKWAY

For future conditions, the ramp from SR 60 / Veterans Expressway and the I-275 express lane join and form a road that is parallel to George J. Bean Parkway inbound and transition to Bessie Coleman Boulevard. Traffic from SR 60 / Veterans Expressway and the I-275 express lane will cross each other and travel to either Economy Parking Road or the Airport, thereby forming a weaving section. According to the Vissim simulation for PAL 3 traffic conditions, the weaving section needs to be widened to three lanes, otherwise traffic is anticipated to queue up onto both the I-275 express lane and the SR 60 / Veterans Expressway ramp, which will cause undue congestion. Exhibit 5.4-2 illustrates the required widening of George J. Bean Parkway to accommodate traffic demand for PAL 3. Planned roadway improvements and the required widening of the weaving section are assumed to be in place for future traffic analyses.

**Table 5.4-1** summarizes the Vissim simulation results for PALs 1, 2, and 3 for the George J. Bean Parkway roadway segments. The segmentation along George J. Bean Parkway was implemented in the same manner as the existing conditions. The expansion of curbside roadways in conjunction with the widening of George Bean Parkway is anticipated to serve future traffic demand satisfactorily.



SOURCES: Hillsborough County Aviation Authority, October 2022; Martinez Geospatial, Inc., December 2022 (aerial photography).

#### **EXHIBIT 5.4-1**



#### RED EXPRESS CURB EXPANSION

Drawing: P-\\_PROJECTSIHCAA (TPA)19041140 - 2019 GC121-05 TPA Master Plan UpdatelTask 8A- Formulate and Refine Airport Improvement Plans/Drawings&Models/AutoCAD/Ex 6.4-1 Red Express.dwgLayout: 8.5x11P Piotted: May 15, 2024, 05.51PM



NORTH 0 300 ft

## WESTSHORE INTERCHANGE IMPROVEMENTS CONNECTING TO THE AIRPORT

Drawing: P.\\_PROJECTSIHCAA (TPA)19041140 - 2019 GC121-05 TPA Master Plan Update/Task 6A- Formulate and Refine Airport Improvement PlansiDrawings&Models/AutoCADIEx 6.4 Roadway Improvement.dwgLayout Ex 6.4-2 Plotted: May 15, 2024, 05:55PM

Master Plan Update

SEC	ROADWAY	PAL 1 (2032)		PAL 2	(2037)	PAL 3 (2042)		
ID		VOLUME (VPH)	LEVEL OF SERVICE	VOLUME (VPH)	LEVEL OF SERVICE	VOLUME (VPH)	LEVEL OF SERVICE	
1		2,100	С	2,380	D	2,760	В	
2	- pur	1,370	А	1,560	А	1,850	В	
3	nbou	2,600	В	2,970	С	3,515	В	
4	- J	3,170	А	3,620	В	4,260	С	
5	arkwa	2,540	В	2,900	В	3,450	D	
6	an Pa	3,230	В	3,690	С	4,360	D	
7	J. Be	1,640	В	1,910	1,910 C		D	
8	Juge	1,840	В	2,140	С	2,490	D	
9	- Oe Oe	2,240	А	2,600	В	3,010	С	
10	-	3,040	В	3,550	С	3,960	С	
11		2,960	А	3,480	В	3,890	С	
12	-	2,160	В	2,530	С	2,940	D	
13	- 	1,760	А	2,070	А	2,420	В	
14	unoq	2,090	В	2,450	С	2,850	D	
15	-Outl	3,180	В	3,660	С	4,330	D	
16	vay -	3,350	А	3,850	В	4,550	С	
17	Park	2,460	А	2,830	А	3,380	В	
18	ean	3,090	А	3,550	А	4,190	A	
19	- <u> </u>	2,780	В	3,200	С	3,790	D	
20	eorg	3,505	В	3,990	С	4,745	D	
21	Ū	4,430	В	5,010	С	5,840	D	
22	-	2,900	А	3,310	А	3,940	С	
23	-	1,240	А	1,425	А	1,760	В	

#### TABLE 5.4-1 GEORGE J. BEAN PARKWAY SIMULATION RESULTS

NOTE: PAL – Planning Activity Level, VPH – Vehicles Per Hour

SOURCE: AECOM, July 2023.

JUNE 2024 DRAFT

# 5.4.2.2 SKYCENTER AREA

Offices and hotels located within the SkyCenter area are scheduled to be completed by PAL 1. Two options were evaluated for the future PALs. For Option 1, the post office was assumed to remain in its current location, whereas for Option 2, the post office was assumed to be relocated out of the SkyCenter area and the cell phone lot would be moved to the current post office location. Option 2 is preferred in the roadway analysis to remove post office traffic and allow for potential airport support development (such as parking as described in Section 5.4.3). The list below includes the commercial development in SkyCenter supported by the roadway alternatives in PAL 3 and other traffic provisions, such as protecting roadway capacity in the SkyCenter area for 10% of PAL 3 Terminal curb traffic to be able to divert to the SkyCenter curb:

- PAL 3 public parking and rental car demand
- Removal of the post office
- 10% of PAL 3 Terminal curb demand using SkyCenter curb
- SkyCenter Two office building
- Luxury/Full-Service hotel
- Select Service hotel

**Exhibit 5.4-3** and **Exhibit 5.4-4** present the forecast turning movement volumes during the peak hour for Options 1 and 2. The following subsections describe the required lane geometry improvements, which are based on the Vissim simulation for future conditions.

## At the Intersection of Economy Parking Road and SkyCenter Drive

For PAL 1, the intersection needs to be signalized to facilitate exiting traffic onto Economy Parking Road. As illustrated on **Exhibit 5.4-5**, additional lane geometry improvements are required to serve traffic by PAL 1. SkyCenter Drive between Economy Parking Road and the cell phone lot entry needs to be widened from a single lane to three lanes. In addition, the westbound left-turn traffic into the SkyCenter area needs to be prohibited, and an exclusive eastbound right-turn lane needs to be provided.

## At the Intersection of O'Brien Street and West Spruce Street

According to the City of Tampa's O'Brien Street Improvements project, a third exclusive northbound left-turn lane and a second southbound through lane will be provided at the south leg of the intersection. Based on the Vissim simulation results, a second southbound left-turn lane will be required at the north leg, as shown on **Exhibit 5.4-6**, and one additional through lane in each direction on West Spruce Street will be required to accommodate growing traffic demand after PAL 1.

## At the Intersection of O'Brien Street and Airport Service Road

The intersection needs to be signalized and interconnected with the intersection of West Spruce Street after PAL 1. An exclusive eastbound right-turn lane will be required from Airport Service Road to O'Brien Street. As illustrated on **Exhibit 5.4-7**, the intersection also needs to be realigned to provide the truck entry to the Rental Car Center (RCC).

#### At SkyCenter Drive and Airport Service Road

As shown on **Exhibit 5.4-8**, the following will be needed to accommodate traffic demand after PAL 1: a second lane on SkyCenter Drive leading into the roundabout, an additional lane on the east side of the roundabout, and an additional lane on Airport Service Road northbound between the roundabout and the entrance to the RCC curb.

#### Bessie Coleman Boulevard and Economy Parking Road

A second right-turn lane from Bessie Coleman Boulevard to Economy Parking Road will be required to accommodate incoming traffic to the SkyCenter area after PAL 1, as shown on **Exhibit 5.4-9**.

**Table 5.4-2** summarizes the Vissim simulation results for major intersections located within the SkyCenter area for PALs 1, 2, and 3 with and without the post office in place, Option 1 and Option 2, respectively.



**SKYCENTER AREA OPTION 1** 

Drawing: P-\\_PROJECTSIHCAA (TPA)/190/1140 - 2019 GCi21-05 TPA Master Plan Update/Task &A- Formulate and Refine Airport Improvement Plans/Drawings&Models/AutoCAD/Ex 6.4 PAL 3 Peak-Hour Traffic Volumes.dwgLayout: option 1 Piottect May 15, 2024, 05:57PM

Master Plan Update

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Not To Scale

NORTH



Drawing: P-\\_PROJECTSIHCAA (TPA)/19041140 - 2019 GCi21-05 TPA Master Plan Update/Task &A- Formulate and Refine Airport Improvement Plans/Drawings&Models/AutoCAD/Ex 6.4 PAL 3 Peak-Hour Traffic Volumes.dwgLayout: option 2 Piotect May 15, 2024, 05:56PM

Not To Scale

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NORTH

#### TAMPA INTERNATIONAL AIRPORT



SOURCES: Martinez Geospatial, Inc., December 2022 (aerial photography); AECOM, July 2023 (analysis); Ricondo & Associates, Inc., 2023 (concept drawing).

**EXHIBIT 5.4-5** 



#### ECONOMY PARKING ROAD AND SKYCENTER DRIVE

Drawing: P:\\_PROJECTSHCAA (TPA)(19011140 - 2019 GC)21-05 TPA Master Plan Update/Task 6A- Formulate and Refine Airport Improvement PlansiDrawings&Models/AutoCADIex 6.4 Roadway Improvement.dwgLayout: Ex 6.4-5 Plotted: May 15, 2024, 05:55PM

#### TAMPA INTERNATIONAL AIRPORT



50 ft

#### O'BRIEN STREET AND W SPRUCE STREET

Drawing: P\\_PROJECTS)HCAA (TPA)(19041140 - 2019 GC/21-05 TPA Master Plan Update)Task 6A - Formulate and Refine Airport Improvement Plans/Drawings&Models/AutoCAD/Ex 6.4 Roadway Improvement.dwgLayout: Ex 6.4-6 Protect: May 15, 2024, 05:55PM

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NORTH



SOURCES: Martinez Geospatial, Inc., December 2022 (aerial photography); AECOM, July 2023 (analysis); Ricondo & Associates, Inc., 2023 (concept drawing).

**EXHIBIT 5.4-7** 



#### O'BRIEN STREET AND AIRPORT SERVICE ROAD

Drawing: P-\\_PROJECTSIHCAA (TPA)19011140 - 2019 GCI21-05 TPA Master Plan Update/Task 6A- Formulate and Refine Airport Improvement Plane)Drawings&Models/AutoCAD/Ex 6.4 Roadway Improvement.dwgLayout: Ex 6.4-7 Pilotect: May 15, 2024, 05:55PM



SOURCES: Martinez Geospatial, Inc., December 2022 (aerial photography); AECOM, July 2023 (analysis); Ricondo & Associates, Inc., 2023 (concept drawing).

**EXHIBIT 5.4-8** 



#### SKYCENTER DRIVE AND AIRPORT SERVICE ROAD

Drawing: P:\\_PROJECTSHCAA (TPA)(19011140 - 2019 GC)21-05 TPA Master Plan Update/Task 6A- Formulate and Refine Airport Improvement PlansiDrawings&Models/AutoCADIEx 6.4 Roadway Improvement.dwgLayout: Ex 6.4.8 Plotted: May 15, 2024, 05:56PM



#### BESSIE COLEMAN BOULEVARD AND ECONOMY PARKING ROAD

Drawing: P:L\_PROJECTSHC4A (TPA)(19041140 - 2019 GC121-35 TPA Master Plan Update/Task 6A- Formulate and Refine Airport Improvement Plans/Drawings&Models/AutoCAD/Ex 6.4 Roadway Improvement.dwgLayout: Ex 6.4-Plotted: May 15, 2024, 05:56PM

50 ft

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NORTH

#### TABLE 5.4-2 SKYCENTER INTERSECTION ANALYSIS RESULTS

		PAL 1	(2032)		PAL 2 (2037)				PAL 3 (2042)			
	ΟΡΤ	ION 1	OPT	ION 2	OPT	ION 1	ΟΡΤ	ION 2	ΟΡΤ	ION 1	OPT	ION 2
INTERSECTION	DELAY (SEC)	LEVEL OF SERVICE										
Economy Parking Road at Bessie Colemand Boulevard	22	С	17	В	28	С	18	В	29	С	26	С
Economy Parking Road at SkyCenter Drive	19	В	25	С	20	В	26	С	45	D	27	С
Economy Parking Road at Airport Service Road	33	С	29	С	34	С	30	С	38	D	32	С
Consolidated Rental Car Facility at Airport Service Road	25	С	18	В	27	С	18	В	30	С	19	В
Post Office Dock at Airport Service Road	13	В	4	А	13	В	6	А	12	В	3	А
Bessie Coleman Boulevard at Airport Service Road	20	С	19	В	20	В	21	С	25	С	23	С
George J. Bean Parkway Southbound Off-Ramp at Airport Service Road	19	В	19	В	20	В	21	С	22	С	31	С
O'Brien Street at Spruce Street	85	F	85	F	105	F	108	F	107	F	109	F
Bessie Coleman Boulevard at Cell Phone Lot	N/A	N/A	12	В	N/A	N/A	35	D	N/A	N/A	36	D
Roundabout	17	С	6	А	23	С	7	А	45	E	9	А

NOTES:

N/A –Not Applicable

PAL – Planning Activity Level

Option 1 – the post office was assumed to remain in its current location

Option 2 – the post office was assumed to be relocated out of the SkyCenter area and the cell phone lot would be moved to the current post office location SOURCE: AECOM, July 2023.

DRAFT

# 5.4.2.3 MAIN TERMINAL CURBS

As shown by the facility requirements in Section 4.6.1.3, no additional curb length is required to support PAL 3. However, without the delivery of the NTC at PAL 3, it is critical to achieve a balanced split of curb demand between the Full-Service (52%) and Express (48%) Curbs as described in that analysis. The SkyCenter curb may also be used to accommodate curb demand beyond PAL 2 in peak conditions, with roadway capacity in the SkyCenter area protected for that possibility as described in Section 5.4.2.2.

# 5.4.2.4 NORTH TERMINAL COMPLEX

The current capacity with the planned Red Express Curb expansion is anticipated to accommodate travel demand until PAL 3 (38.8 MAP). A new NTC, located north of the current Main Terminal, must be considered to accommodate travel demand beyond PAL 3.

The Vissim model was expanded to incorporate the NTC and focus on the merging/diverging/weaving areas where the NTC ingress/egress roads connect to George J. Bean Parkway. The combination of the current Main Terminal and the NTC aims to serve the passenger demand to approximately 55 to 60 MAP. In the Vissim model, vehicular traffic volumes were grown to be in line with forecast passenger activity of 50 and 60 MAP. The vehicular demand for PAL 2 was assumed to remain at the Main Terminal, and the incremental growth between PAL 2 and the long-term future conditions of 50 or 60 MAP was relocated to the NTC.

Exhibit 5.4-10 and Exhibit 5.4-11 display the peak-hour volumes anticipated for 50 and 60 MAP.

According to the Vissim simulation, additional capacity improvements are required to serve vehicular traffic demand for 50 and 60 MAP on George J. Bean Parkway and the ramps to/from TPA.

For purposes of focusing on the merging/diverging/weaving areas where the NTC access roads connect to George J. Bean Parkway, the Vissim model was truncated to analyze the NTC and the current Main Terminal in isolation. Capacity constraints located on ramps leading to TPA and George J. Bean Parkway were removed to adequately test the NTC and the current Main Terminal, but further improvements at the Airport interchange might be needed beyond PAL 3.

Along the George J. Bean Parkway inbound road, NTC traffic needs to split off from George J. Bean Parkway prior to the Blue Side traffic, as illustrated on **Exhibit 5.4-12**. Otherwise, the two-lane segment of George J. Bean Parkway would fail to accommodate the traffic demand destined for the current Main Terminal and the proposed NTC combined.

**Exhibit 5.4-13** illustrates two potential locations where NTC traffic may merge with George J. Bean Parkway outbound.

The two options were tested in the Vissim model. For Option 1, NTC traffic merges after the Blue Side, whereas for Option 2, it merges prior to the Blue Side. Option 1 simplifies the merge onto George J. Bean Parkway, and it will not impact the Red Side traffic, but the egress road from the NTC follow the service road corridor from Airside D to Airside F. Option 2 minimizes the impact to the service road, but it brings additional traffic from the NTC and aggravates traffic congestion between the Red and Blue Sides. In addition, for Option 2, lanes need to be added and dropped along George J. Bean Parkway outbound within the short segment between the Red and Blue Sides.

**Table 5.4-3** and **Table 5.4-4** present the analysis results for the NTC access related to George J. Bean Parkway for Option 1 and Option 2, respectively. According to the Vissim simulation, the Option 2 merge location is anticipated



From	То	Volume (vph)	Speed (mph)
Entrance from Airport Service Road	Exit to North Terminal Access Road	5,190	31
Exit to North Terminal	Entrances from Blue Recirculation Road	2,810	31
Entrance from Blue Circulation Road	Exit to Blue Curbside Roads	3,720	27
Exit to Blue Curbside Roads	Entrances from Red Recirculation Road	1,940	30
Entrance from Red Circulation Road	Entrance from Red Departures	2,200	25
Entrance from Red Departures	Entrance from Red Arrivals	2,660	25
Entrance from Red Arrivals	Exit to Hoover Blvd.	3,610	24
Entrance from Hoover Blvd.	Exit to Red Arrivals	3,540	21
Exit to Red Arrivals	Exit to Red Departures	2,590	19
Exit to Red Departures	Entrances from North Terminal	2,130	19
Entrances from North Terminal	Entrance from Blue Departure Full Services	3,700	18
Entrance from Blue Departure Full Services	Entrance from Blue Arrivals	4,050	20
Entrance from Blue Arrivals	Entrance from Blue Departure Express Lanes	5,260	20
Entrances from Blue Departures Express Lanes	Exit to Re-Circulation Lanes	5,480	18
Exit to Re-Circulation Lanes	Entrance from Parking	4,310	14
Entrance from Parking	Exit to Airport Service Road	5,120	16
	From   Entrance from Airport Service Road   Entrance from Airport Service Road   Exit to North Terminal   Entrance from Blue Circulation Road   Entrance from Red Circulation Road   Entrance from Red Departures   Entrance from Red Departures   Entrance from Hoover Blvd.   Entrance from Hoover Blvd.   Exit to Red Arrivals   Entrance from North Terminal   Entrance from Blue Departures   Entrance from Blue Departures Full Services   Entrance from Blue Departures Express Lanes   Entrances from Blue Departures Express Lanes   Exit to Re-Circulation Lanes   Entrance from Parking	FromToEntrance from Airport Service RoadExit to North Terminal Access RoadExit to North TerminalEntrances from Blue Recirculation RoadExit to North TerminalEntrances from Blue Recirculation RoadEntrance from Blue Circulation RoadExit to Blue Curbside RoadsExit to Blue Curbside RoadsEntrances from Red Recirculation RoadEntrance from Red Circulation RoadEntrance from Red DeparturesEntrance from Red DeparturesEntrance from Red ArrivalsEntrance from Red ArrivalsExit to Hoover Blvd.Entrance from Hoover Blvd.Exit to Red ArrivalsExit to Red ArrivalsExit to Red ArrivalsExit to Red DeparturesEntrances from North TerminalEntrance from Blue DeparturesEntrance from Blue DeparturesEntrance from Blue Departure Full ServicesEntrance from Blue ArrivalsEntrance from Blue Departure Full ServicesEntrance from Blue ArrivalsEntrance from Blue Departures Express LanesExit to Re-Circulation LanesExit to Re-Circulation LanesEntrance from ParkingEntrance from ParkingExit to Arroy Service Road	FromToVolume (vph)Entrance from Airport Service RoadExit to North Terminal Access Road5,190Exit to North TerminalEntrances from Blue Recirculation Road2,810Entrance from Blue Circulation RoadExit to Blue Curbside Roads3,720Exit to Blue Curbside RoadsEntrances from Red Recirculation Road1,940Entrance from Red Circulation RoadEntrances from Red Departures2,200Entrance from Red Circulation RoadEntrance from Red Departures2,200Entrance from Red DeparturesEntrance from Red Arrivals3,610Entrance from Red ArrivalsExit to Hoover Blvd.3,610Entrance from Hoover Blvd.Exit to Red Arrivals3,540Entrance from Hoover Blvd.Entrance from North Terminal2,590Exit to Red DeparturesEntrance from North Terminal3,700Entrance from Blue DeparturesEntrance from Blue Departure Full Services3,700Entrance from Blue Departure Full ServicesEntrance from Blue Arrivals4,050Entrance from Blue Departure Full ServicesEntrance from Blue Departure Express Lanes5,260Entrance from Blue Departures Express LanesExit to Re-Circulation Lanes5,480Exit to Re-Circulation LanesEntrance from Parking4,310Entrance from ParkingExit to Airport Service Road5,120

NOTES: GB : George Bean Parkway





Drawing: P1\_PROJECTS/HCAA (TPA)/19041140 - 2019 GCi21-05 TPA Master Plan Update/Task 6A- Formulate and Refine Airport Improvement Plans/Drawings&Models/AutoCADIEx 5 North Terminal MAPs.dwgLayout: 5.4-10 Plotted: May 15, 2024, 05:59PM

#### **EXHIBIT 5.4-10**

#### NORTH TERMINAL COMPLEX 50 MAP VOLUMES


	From	То	Volume (vph)	Speed (mph)
	Entrance from Airport Service Road Exit to North Terminal Access Road		6,340	31
	Exit to North Terminal	Entrances from Blue Recirculation Road	2,810	32
ри	Entrance from Blue Circulation Road Exit to Blue Curbside Roads		3,720	27
noqu	Exit to Blue Curbside Roads	Entrances from Red Recirculation Road	1,940	31
GB	Entrance from Red Circulation Road	Entrance from Red Departures	2,200	26
	Entrance from Red Departures	Entrance from Red Arrivals	2,660	25
	Entrance from Red Arrivals	Entrance from Red Arrivals Exit to Hoover Blvd.		25
GB Outbound	Entrance from Hoover Blvd. Exit to Red Arrivals		3,540	22
	Exit to Red Arrivals	Exit to Red Departures	2,590	22
	Exit to Red Departures Entrance from Blue Departure Full Services		2,130	24
	Entrance from Blue Departure Full Services	e from Blue Departure Full Services Entrance from Blue Arrivals		24
	Entrance from Blue Arrivals	Entrance from Blue Departure Express Lanes	3,690	25
	Entrances from Blue Departures Express Lanes	Exit to Re-Circulation Lanes	3,910	25
	Exit to Re-Circulation Lanes	Entrance from Parking	2,740	26
	Entrance from Parking Exit to Airport Service Road		6,270	40

NOTES: GB : George Bean Parkway

SOURCE: AECOM, Tampa International Airport (TPA) Master Plan Update Ground Transportation Study, June 2022.



Drawing: P\\_PROJECTS\HCAA (TPA)\19041140 - 2019 GC\21-05 TPA Master Plan Update\Task 6A- Formulate and Refine Airport Improvement Plans\Drawings&Models\AutoCAD\Ex 5 North Terminal MAPs.dwgLayout: 5.4-11 Plotted: May 15, 2024, 05:58PM

### **EXHIBIT 5.4-11**

### NORTH TERMINAL COMPLEX 60 MAP VOLUMES



SOURCES: Martinez Geospatial, Inc., December 2022 (aerial photography); Ricondo & Associates, Inc., July 2023.

### **EXHIBIT 5.4-12**



### NORTH TERMINAL COMPLEX ACCESS - INBOUND

Drawing: P:\\_PROJECTSIHCAA (TPA)/19041140 - 2019 GCi21-05 TPA Master Plan Update\Task 6A- Formulate and Refine Airport Improvement Plans\Drawings&Models/AutoCAD\Ex. 6.3 North Terminal Complex.dwgLayout: North Terminal Complex - Inbound Plotted: May 15, 2024, 05.50PM



SOURCES: Martinez Geospatial, Inc., December 2022 (aerial photography); Ricondo & Associates, Inc., July 2023.

#### **EXHIBIT 5.4-13**



### NORTH TERMINAL COMPLEX ACCESS - OUTBOUND

Drawing: P\\_PROJECTSIHCAA (TPA)\19041140 - 2019 GCl21-05 TPA Master Plan Update/Task 6A- Formulate and Refine Airport Improvement Plans/Drawings&Models/AutoCAD/Ex. 6.3 North Terminal Complex.dwgLayout: North Terminal Complex - Outbound Plotted: May 15, 2024, 05:50PM

to perform acceptably at 50 MAP but will fail prior to 60 MAP. Option 1 would provide more capacity and resiliency at 60 MAP.

### TABLE 5.4-3 NORTH TERMINAL COMPLEX ACCESS - OUTBOUND OPTION 1

	FROM	то	VOLUME (VPH)	SPEED (MPH)
vay – Inbound	Entrance from Airport Service Road	Exit to North Terminal Complex	6,340	31
	Exit to North Terminal Complex	Entrance from Blue Recirculation Road		32
	Entrance from Blue Recirculation Road	ad Exit to Blue Curbside Roads		27
Park	Exit to Blue Curbside Roads	Entrance from Red Recirculation Road	1,940	31
Bean	Entrance from Red Recirculation Road	Entrance from Red Departures	2,200	26
rge J.	Entrance from Red Departures	Entrance from Red Arrivals	2,660	25
Geol	Entrance from Red Arrivals	Exit to Hoover Boulevard	3,610	25
George J. Bean Parkway – Outbound	Entrance from Hoover Boulevard	ance from Hoover Boulevard Exit to Red Arrivals		22
	Exit to Red Arrivals	Exit to Red Departures		22
	Exit to Red Departures	Entrance from Blue Departures Full-Service Lanes		24
	Entrance from Blue Departures Full-Service Lanes	Entrance from Blue Arrivals	2,480	24
	Entrance from Blue Arrivals	Entrance from Blue Departures Express Lanes	3,690	25
	Entrance from Blue Departures Express Lanes	Exit to Recirculation Lanes	3,910	25
	Exit to Recirculation Lanes	Entrance from Parking	2,740	26
	Entrance from Parking	Entrance from North Terminal Complex	6,270	40

NOTES:

MPH – Miles per Hour

VPH – Vehicles per Hour

Option 1 - the post office was assumed to remain in its current location

Option 2 – the post office was assumed to be relocated out of the SkyCenter area and the cell phone lot would be moved to the current post office location SOURCE: AECOM, July 2023.

	FROM	то	VOLUME (VPH)	SPEED (MPH)
Inbound	Entrance from Airport Service Road	Exit to North Terminal Complex Access Road	5,190	31
	Exit to North Terminal Complex	Entrance from Blue Recirculation Road	2,810	31
way –	Entrance from Blue Recirculation Road	bad Exit to Blue Curbside Roads		27
Park	Exit to Blue Curbside Roads	Entrance from Red Recirculation Road	1,940	30
Bean	Entrance from Red Recirculation Road	Entrance from Red Departures	2,200	25
rge J.	Entrance from Red Departures	Entrance from Red Arrivals	2,660	25
Geo	Entrance from Red Arrivals	Exit to Hoover Boulevard	3,610	24
orge J. Bean Parkway – Outbound	Entrance from Hoover Boulevard	ance from Hoover Boulevard Exit to Red Arrivals		21
	Exit to Red Arrivals	Exit to Red Departures	2,590	19
	Exit to Red Departures	Entrance from North Terminal Complex	2,130	19
	Entrance from North Terminal Complex	Entrance from Blue Departures Full-Service Lanes	3,700	18
	Entrance from Blue Departures Full-Service Lanes	Entrance from Blue Arrivals	4,050	20
	Entrance from Blue Arrivals	Entrance from Blue Departures Express Lanes	5,260	20
	Entrance from Blue Departures Express Lanes	Exit to Recirculation Lanes	5,480	18
Gec	Exit to Recirculation Lanes	Entrance from Parking	4,310	14
	Entrance from Parking	Exit to Airport Service Road	5,120	16

### TABLE 5.4-4 NORTH TERMINAL COMPLEX ACCESS - OUTBOUND OPTION 2

NOTES:

MPH – Miles per Hour

VPH – Vehicles per Hour

Option 1 – the post office was assumed to remain in its current location

Option 2 – the post office was assumed to be relocated out of the SkyCenter area and the cell phone lot would be moved to the current post office location SOURCE: AECOM, July 2023.

From the perspective of traffic operations, Option 1, which places the NTC merge point south of the Blue curbside roads and separates NTC traffic from the current Main Terminal, is preferred for roadway capacity. In the analysis for the NTC, no changes in mode share for access to the Airport were assumed in estimating vehicular demand. Although, a portion of passengers can be encouraged to shift their mode choice to public transit or other high-occupancy vehicle (HOV) modes to relieve some level of congestion.

# 5.4.3 PARKING ALTERNATIVES

The automobile parking and vehicular staging alternatives include development scenarios to accommodate public parking and employee parking through PAL 3. These alternatives include the following:

- Expanding the Economy Parking Garage to the east, on top of the existing surface parking,
- Constructing a new garage on the site of the US post office facility (USPS Garage), across Airport Service Road from the Economy Parking Garage
- Provision for an additional employee parking lot west of the existing employee parking lot and North Hoover Boulevard.

### Alternative Parking Demand Scenarios

The baseline public parking requirements assume parking demand will track future enplaned passengers. However, other factors may influence public parking demand over the MPU planning horizon. Trends in public parking demand are affected by and influence the performance of other ground transportation modes. Access to the Airport is zero-sum on a per-passenger basis, meaning all passengers must arrive at the Airport via another mode of transportation, but they have many choices, and those choices are influenced by a variety of factors that change over time.

The following summarizes the analysis of other ground transportation modes in conjunction with parking and the recovery from the COVID-19 pandemic. At the time of this analysis, parking and ground transportation transactions had yet to return to pre–COVID-19 levels on a per-passenger basis.

- There was an average of 546 parking / ground transportation transactions per 1,000 enplaned passengers in the 12 months prior to COVID-19.
- The low point during the COVID-19 pandemic was a 12-month average of 473 transactions per 1,000 enplaned passengers (13 percent below the pre–COVID-19 level).
- The 12-month period ending June 30, 2022, was 9 percent lower for transactions compared to the pre– COVID-19 level (497 transactions per 1,000 enplaned passengers).

This suggests that family/friend drop-offs (which are not tracked on a transaction basis like parking and commercial ground transportation) increased during the COVID-19 pandemic and have not yet receded to pre–COVID-19 levels. In addition, two parking / ground transportation modes reached or surpassed their pre–COVID-19 12-month average transactions per passenger (as of June 2022):

- Economy parking (approximately 21 percent higher than the pre–COVID-19 level)
- Long-Term parking (approximately 2 percent higher than the pre–COVID-19 level)

Three alternative parking demand scenarios were developed to consider the following parameters: recent parking trends, TNC/rideshare trends, autonomous vehicle adoption, AAM, passenger rail / public transit, and regional growth/catchment. **Table 5.4-5** summarizes the alternative parking demand scenarios' impacts to parking.

### TABLE 5.4-5 ALTERNATIVE PARKING DEMAND SCENARIOS

SCENARIO	RECENT PARKING TRENDS	REGIONAL GROWTH / CATCHMENT	TNC/ RIDESHARE	RAIL/BUS/ PUBLIC TRANSIT	AUTONOMOUS VEHICLE	ADVANCED AIR MOBILITY
Baseline	The 2022 txns/1k enpl. remains constant ST: 46.0 enpl./1k enpl. LT: 46.0 enpl./1k enpl. Econ 48 enpl./1k enpl.	No impact	Year-ending June 2022 averaged 100 txns/1k enpl. and is held constant	No impact	No Impact	No impact
Scenario 1	The txns/1k enpl. return to pre-COVID levels by 2024 ST: 52.4 txns/1k enpl. LT: 45.6 txns/1k enpl. Econ: 43.8 txns/1k enpl.	No impact	Year-ending June 2022 averaged 100 txns/1k enpl. and is held constant	No impact	No impact	No impact
Scenario 2	The 2022 txns/1k enpl. trajectory levels off by 2024 ST: 45.5 txns/1k enpl. LT: 48.2 txns/1k enpl. Econ: 53.0 txns/1k enpl.	Parking space design day demand is increased by 2.5 for every 1,000 due to regional growth impacts, compounded annually from PAL 1	The 100 txns/1k enpl. increases to 109 txns/1k enpl. (equivalent to pre- COVID level) by 2024	Parking space design day demand in Econ is reduced by 1 for every 1,000 due to public transit impacts, compounded annually from PAL 1 No impact in ST or LT	No impact	No impact
Scenario 3	The 2022 txns/1k enpl. trajectory levels off by 2024 ST: 45.5 txns/1k enpl. LT: 48.2 txns/1k enpl. Econ: 53.0 txns/1k enpl.	Parking space design day demand is increased by 2.5 for every 1,000 due to regional growth impacts, compounded annually from PAL 1	The 100 txns/1k enpl. increases to 109 txns/1k enpl. (equivalent to pre- COVID level) by 2024, and: Parking space design day demand is reduced by 1 for every 1,000 due to TNC impacts, compounded annually from 2025	Parking space design day demand in Econ is reduced by 1 for every 1,000 due to public transit impacts, compounded annually from PAL 1 No impact in ST or LT	Parking space design day demand is reduced by 0.5 for every 1,000 due to AV impacts, compounded annually from PAL 2	For every 1,000 parking spaces demanded on the design day, the demand is reduced by: 1 in ST parking, 0.5 in LT parking, and 0.5 in Econ parking, due to AAM impacts, compounded annually from PAL 2

NOTES:

PAL – Planning Activity Level

TNC – Transportation Network Company

TXNS / 1K ENPL. – Transactions per 1,000 Enplanements

ST – Short Term Parking

LT – Long Term Parking

ECON – Economy Parking

SOURCES: Hillsborough County Aviation Authority, June 2022 (data); Ricondo & Associates, Inc., September 2022 (analysis).

**Exhibit 5.4-14** shows the resulting impacts to parking demand. Scenarios 1 and 2 result in minor decreases in parking demand, while Scenario 3 parking demand levels off toward the end of the MPU planning horizon, despite continued forecast growth due to larger impacts from autonomous vehicles and AAM. Given the minor differences between the MPU baseline and Scenarios 1 and 2, and to ensure the MPU protects the appropriate amount of space for future parking demand should demand track closest to one of those scenarios, the baseline scenario was carried forward for capacity alternatives planning purposes. **Table 5.4-6** contains the total public parking requirements for each PAL in each Scenario.



#### EXHIBIT 5.4-14 ALTERNATIVE PARKING DEMAND SCENARIO FORECAST

SOURCES: Hillsborough County Aviation Authority, June 2022 (data); Ricondo & Associates, Inc., September 2022 (analysis).

### TABLE 5.4-6 ALTERNATIVE PARKING SCENARIO PARKING SPACE REQUIREMENTS

	90% EFFECTIVE CAPACITY	BASELINE	SCENARIO 1	SCENARIO 2	SCENARIO 3
2022	21,010	17,280	17,280	17,280	17,280
PAL 1 (2032, 30.5 MAP)	22,580	24,980	24,260	24,290	23,410
PAL 2 (2037, (34.6 MAP)	22,580	28,280	27,470	27,630	24,950
PAL 3 (2042, 38.8 MAP)	22,580	31,790	30,860	31,110	25,050

SOURCES: Hillsborough County Aviation Authority, June 2022 (data); Ricondo & Associates, Inc., September 2022 (analysis).

### **Public Parking Pricing Strategy**

Concurrent with the MPU, the Authority conducted a public parking pricing strategy study. The recommendations of that study were incorporated into the MPU parking analysis, which results in a 2-to-4-year shift when demand is anticipated to reach capacity, from FY 2027 to between FY 2029 and FY 2031. **Exhibit 5.4-15** shows the baseline and three alternative demand scenarios adjusted based on the pricing study. Public parking alternatives were developed to meet the baseline public parking requirements described in Chapter 4 after accounting for the shift in demand due to the price adjustment. **Table 5.4-7** contains the total public parking requirements for each PAL in each Scenario after accounting for the pricing adjustment.



### EXHIBIT 5.4-15 PUBLIC PARKING REQUIREMENTS WITH PRICING ADJUSTMENT

SOURCES: Hillsborough County Aviation Authority, June 2022 (data); Ricondo & Associates, Inc., December 2022 (analysis).

# TABLE 5.4-7 PUBLIC PARKING REQUIREMENTS WITH PRICING ADJUSTMENT

	90% EFFECTIVE CAPACITY	BASELINE	SCENARIO 1	SCENARIO 2	SCENARIO 3
2022	21,010	17,280	17,280	17,280	17,280
PAL 1 (2032, 30.5 MAP)	22,580	21,820	21,230	21,200	20,430
PAL 2 (2037, (34.6 MAP)	22,580	24,710	24,040	24,120	21,790
PAL 3 (2042, 38.8 MAP)	22,580	27,770	27,000	27,170	21,900

SOURCES: Hillsborough County Aviation Authority, June 2022 (data); Ricondo & Associates, Inc., September 2022 (analysis).

### Alternatives

The primary goal of the alternatives is to provide sufficient parking capacity between when existing facilities reach capacity (anticipated to be FY 2029 to FY 2031) and PAL 3 (FY 2042) without developing NTC parking prior to PAL 3. Two primary alternatives were considered for the first development phase: expanding the Economy Parking Garage to the east, on top of the existing surface parking, or constructing a new garage on the site of the US post office facility (USPS Garage), across Airport Service Road from the Economy Parking Garage, as shown on **Exhibit 5.4-16** and **Exhibit 5.4-17**. The size and shape of the Economy Parking Garage is constrained by the sightlines of the future ATCT and extended Taxiway A. While the post office site would not displace public parking during construction as the Economy surface parking site would, it would require the closure and/or relocation of the US post office facility and the potential lost revenue to the Authority resulting from that relocation. It would also likely require a new product with new access control facilities and associated signage and wayfinding.

The Economy surface lot expansion is the preferred alternative for the first development phase to maintain a consolidated Economy product and maintain the flexibility to keep the US post office facility in its current location. **Exhibit 5.4-18** shows the changes in capacity during construction of the Economy Parking Garage expansion and identifies the window of time when additional parking capacity is needed (between PAL 2 and PAL 3). To meet PAL 3 demand, there are two alternatives: the USPS Garage or a surface parking lot delivering an equivalent number of spaces on Air Cargo Road, as shown on **Exhibit 5.4-19**. The decision of which to provide can be made by the Authority as the need draws nearer based on considerations including, but not limited to capital cost, operating cost, passenger convenience, and desired price point.



SOURCES: Walker Parking Consultants, 2016; Martinez Geospatial, Inc., December 2022 (aerial photography); Ricondo & Associates, Inc., December 2022.

# **EXHIBIT 5.4-16**

North 0 300 ft.

PUBLIC PARKING EXPANSION ALTERNATIVE 1

Drawing: P:\\_PROJECTS\HCAA (TPA)\19041140 - 2019 GCi21-05 TPA Master Plan Update\Task 6A- Formulate and Refine Airport Improvement Plans\Drawings&Models\AutoCADIEx 6.4-24 Public Parking Expansion.dwgLayout: OPTION 1 Plotted: May 15, 2024, 06:01PM



SOURCES: Tampa International Airport, FUTURE POST OFFICE BRIDGE CONNECTION STUDY.pptx, February 2016; Martinez Geospatial, Inc., December 2022 (aerial photography); Ricondo & Associates, Inc., December 2022.

**EXHIBIT 5.4-17** 

PUBLIC PARKING EXPANSION ALTERNATIVE 2

North 0 300 ft.

Drawing: P:\\_PROJECTS\HCAA (TPA)\19041140 - 2019 GC\21-05 TPA Master Plan Update\Task 6A- Formulate and Refine Airport Improvement Plans\Drawings&Models\AutoCAD\Ex 6.4-24 Public Parking Expansion.dwgLayout: OPTION 2 Plotted: May 15, 2024, 06:01PM



### EXHIBIT 5.4-18 PUBLIC PARKING CAPACITY THROUGH ALTERNATIVE CONSTRUCTION

SOURCES: Google Earth Pro, 2022; Ricondo & Associates, Inc., December 2022.



SOURCES: Martinez Geospatial, Inc., December 2022 (aerial photography); Ricondo & Associates, Inc., December 2023.



# EXHIBIT 5.4-19 PUBLIC PARKING EXPANSION ALTERNATIVE 3

Drawing: \/EgnyteDriveProjects\\_projects

Master Plan Update

### 5.4.3.2 EMPLOYEE PARKING

The employee parking alternative was influenced by the following factors:

- The planned expansion of the North Employee Lot, discussed in Chapter 4, is anticipated to meet employee parking requirements until PAL 1.
- The North Employee Lot location will become part of the NTC development beyond PAL 3. Prior to construction of the final build of the NTC, employee parking will be required to relocate.

Therefore, the MPU alternative for employee parking must satisfy PAL 3 requirements and be placed in a location unimpacted by at least the first phase of the NTC. **Exhibit 5.4-20** shows the alternative that satisfies these requirements (west of the existing employee parking lot and North Hoover Boulevard). This location enables growth with minimal site work and the ability to expand beyond PAL 3 requirements (if subsequent phases of the NTC allow employee parking to remain in this location).

#### TAMPA INTERNATIONAL AIRPORT



SOURCES: Martinez Geospatial, Inc., December 2022 (aerial photography); Ricondo & Associates, Inc., December 2022.

**EXHIBIT 5.4-20** 



EMPLOYEE PARKING ALTERNATIVE

Drawing: P:\\_PROJECTS/HCAA (TPA)/19041140 - 2019 GCi21-05 TPA Master Plan Update/Task 6A- Formulate and Refine Airport Improvement Plans/Drawings&Models/AutoCADIEx 6.4-24 Public Parking Expansion.dwgLayout: 5.4-20 Plotted: May 15, 2024, 06:02PM

# 5.5 AIR CARGO FACILITIES

Existing air cargo facilities at TPA are distributed in three primary facilities: East Air Cargo Building, North Air Cargo Building, and FedEx Cargo Building. UPS will relocate from the North Cargo Building to their new air cargo facility in the middle of 2024. The construction of Airside D, which is anticipated to be completed in late 2027 or early 2028 will require the relocation of the cargo hardstands located north of Airside E by 2032.

To meet future demand over the 20-year planning horizon in terms of cargo tonnage and operations, the belly cargo facilities will need to be expanded by an additional 11,500 square feet to accommodate the projected E-commerce and belly cargo demand, and integrator facilities will require an additional 41,500 square feet of warehouse capacity.

The development of cargo facility alternatives focused on site redevelopment and contingency plans for a greater cargo activity than forecast. **Exhibit 5.5-1** illustrates the locations that may be utilized to support future cargo operations and provide adequate airside and landside access.

# 5.5.1 AIR CARGO FACILITY ALTERNATIVES

Three alternatives were developed to meet future cargo requirements:

- Alternative 1 considers an expansion of the East Air Cargo Building toward the south to accommodate additional belly cargo and the construction of new all-cargo or e-commerce facilities east of the ground run-up enclosure (GRE). The new belly cargo building expansion includes 25,000 square feet and the new cargo building provides 130,000 square feet of space. In this alternative, the taxilane south of the GRE would need to be widened to accommodate ADG V aircraft. Landside access would be provided through W M.L.K. Jr Boulevard.
- Alternative 2 is similar to Alternative 1 but the new facilities are arranged in a north-south alignment. In this alternative, the new all-cargo or e-commerce facilities would share the airside ramp with a new 25,000 square-feet belly cargo facility. This concept fully utilizes the parcel that is bordered by W M.L.K. Jr Boulevard to the north, Air Cargo Road to the east, W. Ohio Avenue to the south, and the GRE to the west. Landside access would be provided through W M.L.K. Jr Boulevard and W. Ohio Avenue.
- Similar to Alternative 1, Alternative 3 includes the expansion of the existing belly cargo building by 25,000 square feet. It also includes a new 92,250 square feet all-cargo or e-commerce facility just south of the CRDC. This alternative does allow for the staging and parking of cargo aircraft next to the facilities.

Exhibits 5.5-2 through 5.5-4 depict the three alternatives.

# 5.5.2 PREFERRED CARGO FACILITY ALTERNATIVE

Alternative 1 is the preferred alternative as it allows the Airport to meet future cargo warehouse demand, while maximizing the number of aircraft parking areas and truck station areas. Alternative 1 also maintains the belly cargo operations in one location. Alternative 3 was discarded because aircraft would not be able to park in front of and directly access the new all-cargo or e-commerce facilities. Alternative 2 was discarded because it would split the handling of belly cargo in two different locations.



### CARGO DEVELOPMENT OPPORTUNITY LOCATIONS

Drawing: IEgryteDnieProjectsl\_projectsinea (tps)19041140-2019 gcl24-85 TPA Master Plan Update/Task 64-Formulate and Refine Airport Improvement Plans/Drawings&Models/AutoCADEx 5 Cargo Development Opportunity.dwgLayout: 85x11P Plotted: May 22, 2024, 11 34AM

1,200 ft

0

NORTH



SOURCES: Martinez Geospatial, Inc., December 2022 (aerial photography); Ricondo & Associates, Inc., September 2023.

350 ft

# **EXHIBIT 5.5-2** AIR CARGO DEVELOPMENT **ALTERNATIVE 1**

Drawing: EgryteDnieiProjects], projects/scas (tps)11904-1140 - 2019 gr/21-05 TPA Master Plan Updatel/Task & Formulate and Refine Arport Improvement Plant/Drawing&Models/AutoCADEx 5 Cargo Development Attemative.dwgLayout: EX 1 Platter: May 22, 2024, 11 SEAM

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NORTH

#### TAMPA INTERNATIONAL AIRPORT



350 ft

# AIR CARGO DEVELOPMENT **ALTERNATIVE 2**

Drawing: "EgryteDriveProjects], projects/scas (tps)11904-1140 - 2019 grd21-05 TPA Master Plan Updatel/Task 6A- Formulate and Refine Arport Improvement Plant/Drawings&Models/AutoCADEx 5 Cargo Development Attemative.dwgLayout: EX 2 Platter: May 22, 2024, 11 97AM

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NORTH



SOURCES: Martinez Geospatial, Inc., December 2022 (aerial photography); Ricondo & Associates, Inc., September 2023.

**EXHIBIT 5.5-4** AIR CARGO DEVELOPMENT

**ALTERNATIVE 3** 



Drawing: P1\_PROJECTSHCAA (TPA)(19041140 - 2019 GC21-05 TPA Master Pian Update/Task 6A- Formulate and Refine Airport Improvement PlaneiDrawings&Models/AutoCADEx 5 Cargo Development Attemative dwgLayout: EX 3 Plotted: May 15, 2024, 06:06PM

# 5.6 AIRPORT SUPPORT FACILITIES

This section summarizes the proposed expansion plans regarding the Airport support facilities, often referred to as ancillary facilities, which typically include those Airport buildings, parking areas, and infrastructure systems that support non-commercial (i.e., non-airline) aviation activities. These include Airport maintenance facilities, the fuel farm, ARFF facilities, Airport security, Airport police and range and canine training facility, the ATCT, and airline maintenance hangars.

# 5.6.1 GROUND SERVICE EQUIPMENT MAINTENANCE FACILITY

Based on conversations with HCAA staff, it is recommended that the area west of the existing building be protected to allow for the expansion of the GSE maintenance facility. The existing building is 36,000 square feet and could be expanded to the west by approximately 22,000 square feet to accommodate long-term demand. The airside area (located on the south side of the building) would be extended to the west concurrent with the building extension, which would require the realignment of the airside vehicle access road.

# 5.6.2 AIRPORT MAINTENANCE AND EQUIPMENT STORAGE

Solicitation to refurbish the airport maintenance building was released in 2022 and the building is anticipated to meet future needs. However, HCAA staff indicated the maintenance area site has flexibility to accommodate additional covered storage to the south or south/southeast of the current covered storage units if needed.

# 5.6.3 AIRCRAFT RESCUE AND FIREFIGHTING FACILITY

The ARFF facility, which is located adjacent to the southwest corner of the aircraft ramp serving Airside A, has airfield access for ARFF vehicles and landside access via the Airport entrance roadway for access by private and nonsecure vehicles. The location of the ARFF station meets the response time requirements outlined in 14 CFR Part 139 to be at the midpoint of the farthest runway within 3 minutes. Additionally, direct access is also available to the NTC and all the airside concourses without having to cross an active runway.

To allow for the possible acquisition of a ladder truck, fire engine, or other equipment in the future and dormitory space necessary to accommodate additional personnel staffing future ARFF vehicles, it is recommended the area north of the existing ARFF facility be preserved for future expansion. This area could provide two additional bays to the north and up to seven additional dorms.

# 5.6.4 AIRCRAFT RESCUE AND FIREFIGHTING TRAINING FACILITY

The existing ARFF training facility, although weathered, is reported as being adequate for continued use within the planning period. However, as noted in Chapter 4, Airport management has identified a near-term need to initiate improvements to the current ARFF training facility.

Ultimately, once the development of the NTC is required, the ARFF training facility would need to be relocated and/or closed. Based on discussions with HCAA staff, it was determined that future live burn activities would be conducted at other off-Airport training facilities (e.g., MacDill Air Force Base). As such, a replacement site for the existing ARFF training facility and associated burn areas was not identified as part of this MPU.

To accommodate other ARFF training activities, a 2-acre site located south of the existing Centralized Receiving and Distribution Center (CRDC) was identified. This site would accommodate a piercing prop, an extrication area, a small propane/water fire pit for extinguisher training, a small training tower, a concrete pad for a possible donated aircraft, storage containers for donated aircraft seats, aircraft skins, piercing panel replacements, and a small facility to accommodate a 20-person classroom, as illustrated on **Exhibit 5.6-1**.



SOURCES: Martinez Geospatial, Inc., December 2022 (aerial photography); Ricondo & Associates, Inc., September 2023.

**EXHIBIT 5.6-1** 



### PROPOSED AIRCRAFT RESCUE AND FIREFIGHTING TRAINING FACILITY

Drawing: P1\_PROJECTSIHCAA (TPA)(19041140 - 2019 GC)21-05 TPA Master Plan Update/Task 6A- Formulate and Refine Airport Improvement Plans/Drawings&Models/AutoCADIEx 6.6 Proposed Facilities.dwgLayout: ARFF Plotted: May 15, 2024, 06:07PM

# 5.6.5 FUEL FARM

The Tampa Fuel Committee operates the fuel farm located approximately 1,000 feet east of the threshold of Runway 19L, south of the Airport maintenance facilities and along the west side of West Shore Boulevard. The facility consists of a total of six fuel storage tanks totaling approximately 3.5 million gallons of Jet A storage capacity on a 2.68-acre (117,000-square-foot) parcel. During meetings with the Fuel Committee and HCAA staff, it was determined that an increase in fuel storage capacity and upgrades to outdated equipment were needed.

Based on forecast aircraft operations, fuel storage totaling 11.4 million gallons is required to meet future demand and accommodate a fuel reserve of 7 days. To meet these requirements, the Airport needs 3 additional fuel storage tanks (for a total of 9 fuel tanks) with a capacity of 2.0 million gallons each. Two alternatives were considered to provide additional fuel storage capacity at the existing fuel farm. **Exhibit 5.6-2** illustrates the two alternatives that were evaluated. Based on discussions with HCAA staff, it is recommended that the existing fuel farm be expanded to the east to allow further aviation development north of the existing fuel farm.

# 5.6.6 AIRPORT SURVEILLANCE RADAR

The existing ASR will adequately serve the Airport over the entire planning horizon. No improvements are recommended as part of this MPU.

# 5.6.7 AIRPORT SECURITY, AIRPORT POLICE AND RANGE, AND CANINE TRAINING FACILITY

The existing facilities are aging and would need to be rehabilitated through the 20-year planning horizon. The facilities would also need to be expanded to provide additional storage and administrative spaces, additional firing lanes, and, possibly, a 1,500-square foot simulation facility. The required small-scale expansion, however, can be accommodated adjacent to the existing facilities. While the Implementation Plan discussed in Chapter 7 focuses on recommended capital projects to accommodate future passenger and aircraft operations, provision to improve and expand the airport security, airport police and range, and canine training facility should be included the Airport CIP.

# 5.6.8 GROUND RUN-UP ENCLOSURE

As noted in Chapter 4, the GRE is reported as being in excellent condition. No specific facility improvements or requirements were identified for the facility. The taxilane which provides access to the GRE may ultimately serve as the airfield access point to future air cargo facilities west of the GRE. As such, this taxilane and the associated object free area should be protected to accommodate ADG V aircraft.

# 5.6.9 AIR TRAFFIC CONTROL TOWER / TERMINAL RADAR APPROACH CONTROL FACILITY

As documented in the ATCT siting report prepared by the FAA and released in October 2018<sup>2</sup>, and illustrated on **Exhibit 5.6-3**, the proposed site for a new ATCT / terminal radar approach control (TRACON) facility is located north/northwest airside of the existing terminal building, south of future Airside D. ATCT siting was completed in accordance with FAA Order 6480.4B, *Airport Traffic Control Tower Siting Process*, effective April 10, 2006. The proposed base building with the TRACON facility is anticipated to be 21,000 square feet, and the proposed tower cab floor elevation is 222 feet above mean sea level (AMSL), with an overall structure height of 257 feet AMSL to

<sup>&</sup>lt;sup>2</sup> US Department of Transportation, Federal Aviation Administration, Order 6480.4B, *Airport Traffic Control Tower Siting Process*, August 13, 2018.

the top of lightning protection. This provides an ATC personnel eye height at 209 feet above ground level, or 227 feet AMSL.

The siting report and associated studies compared 18 candidate sites and short-listed 3 sites for additional evaluation. The potential sites were evaluated to determine the requisite eye-level elevation of each site to meet the visual requirements contained in FAA Order 6480.4B and possible obstructions, as defined in Part 77. In addition, modeling and simulation were completed at the FAA Airport Facilities Terminal Integration Laboratory (AFTIL) to visually verify the results of the preliminary analyses for the 3 short-listed sites.

# 5.7 GENERAL AVIATION FACILITIES

The existing GA areas support a variety of aircraft activity and storage needs, including FBO facilities, corporate aviation storage, and maintenance hangars. This section discusses future demand requirements and the proposed alternatives for GA/FBO development. GA demand is forecast to be 41,300 operations in PAL 3, with a projected 94 based aircraft. The space requirement for additional GA/FBO development is projected to be 11 acres by PAL 3 and is anticipated to require the following facilities:

- approximately 200,000 square feet for hangar development<sup>3</sup>
- approximately 120,000 square yards for additional apron area
- 6,600 square feet of passenger/terminal facilities
- 175 additional parking spaces

<sup>&</sup>lt;sup>3</sup> As of April 2024, HCAA has approved the construction of 168,300 SF of hangar development, reducing the PAL 3 hangar requirements to approximately 44,000 SF (reference Page 4-107).



SOURCES: Martinez Geospatial, Inc., December 2022 (aerial photography); Ricondo & Associates, Inc., September 2023.



Drawing: P:\\_PROJECTSHCAA (TPA))19041140 - 2019 GC\21-05 TPA Master Plan Update\Task 6A- Formulate and Refine Airport Improvement PlansiDrawings&ModelsAutoCADIEx 6.6 Proposed Facilities.dwgLayout: FUEL Plotted: May 15, 2024, 06:08PM

### EXHIBIT 5.6-2

### PROPOSED FUEL FARM EXPANSION

Five parcels, totaling 40.7 acres, were identified as suitable sites for GA/FBO development, as illustrated on **Exhibit 5.7-1**. The proposed locations were identified due to their adjacency to the airfield and their available landside access. **Exhibit 5.7-2** through **5.7-6** conceptualizes GA/FBO development north and south of Runway 10-28. The exhibits depict the realignment/relocation and reconstruction of Taxiway T to meet ADG III standards. A brief description of the alternates is provided below.

- Alternative 1 depicts the addition of four corporate hangars on the north side of Runway 10-28, including associated automobile parking lots and aircraft apron area. As depicted, the new hangars would add 170,000 square feet of additional capacity for the storage of aircraft. The apron area in front of the hangars encompasses 38,520 square yards.
- Alternative 2 depicts the addition of three corporate hangars to the east of the existing Sheltair facilities and three corporate hangars along N. Dale Mabry Highway east of the Runway 28 RPZ. In this alternative, the height of the hangars along N. Dale Mabry Highway will be limited by the approach and departure surfaces associated with Runway 10-28. The proposed hangars would be connected to the existing airfield by expanding Taxilane Q to the east. The added aircraft storage and apron capacity is 121,000 square feet and 43,800 square yards, respectively.
- Alternative 3 depicts all future general aviation facilities along the south side of the Runway 28 extended centerline and RPZ. As depicted, these hangars would add 189,500 square feet of additional capacity for the storage of aircraft. The apron area in front of the hangars encompasses 39,000 square yards.
- Alternative 4 is derivative of Alternative 3 providing additional ramp area in front of the four hangars at the eastern end of the proposed development area. In this alternative, the apron area is 88,200 square yards.
- Alternative 5 is a combination of Alternatives 1 and 2. It depicts the addition of three corporate hangars on the north side of Runway 10-28 and one corporate hangar on the south side. Additional expansion areas for general aviation facilities would exist east of the new facilities on the north side of Runway 10-28.

# 5.7.1 PREFERRED GENERAL AVIATION FACILITY ALTERNATIVE

Alternative 5 is the preferred alternative as it allows for incremental expansion of the general aviation facilities on both the north and south sides of Runway 10-28 without encroaching into the parcels that are best suited for non-aviation uses. If development on the south side of Runway 10-28 is not feasible due to the need for future vehicular circulation, a 9.6-acre potential expansion area is depicted on the north side of Runway 10-28. Proposed development in this area is depicted on Alternative 1.



SOURCES: Martinez Geospatial, Inc., December 2022 (aerial photography); Ricondo & Associates, Inc., September 2023.

EXHIBIT 5.6-3



### PROPOSED AIRPORT TRAFFIC CONTROL TOWER / TRACON FACILITY

Drawing: Ph\_PR0JECTSHCAA (TPA)(19041140 - 2019 GC21-26 TPA Master Plan Update(Task 6A- Formulate and Refine Airport Improvement Plans)Drawings&Models/AutoCADEx 6.6 Proposed Facilities.dwgLayout.ATCT Plotted: May 15, 2024, 06.08PM



SOURCES: Martinez Geospatial, Inc., October 2022 (aerial photography); Ricondo & Associates, Inc., September 2023.

#### **EXHIBIT 5.7-1**



# GENERAL AVIATION / FIXED-BASE OPERATOR DEVELOPMENT OPPORTUNITIES

Drawing: P\\_PROJECTS\HCAA (TPA)\19041140 - 2019 GCl21-05 TPA Master Plan UpdatelTask 6A- Formulate and Refine Airport Improvement Plans\Drawings&Models\AutoCADIex 5.7-1 GA FBO.dwgLayout: 8.5x11L Plotted: May 15, 2024, 06.09PM



SOURCES: Martinez Geospatial, Inc., December 2022 (aerial photography and base mapping); Federal Aviation Administration, Advisory Circular 150/5300-13B Airport Design, March 2022; Ricondo & Associates, Inc., September 2023.

#### **EXHIBIT 5.7-2**

NORTH 0 600 ft

### GENERAL AVIATION / FIXED BASE OPERATION EXPANSION ALTERNATIVE 1

Drawing: P:\\_PROJECTS\HCAA (TPA)\19041140 - 2019 GCi21-05 TPA Master Plan Update\Task 6A- Formulate and Refine Airport Improvement Plans\Drawings&Models\AutoCADIEx 6 GA FBO Expansion.dwgLayout: EX 1 Plotted: May 15, 2024, 06:10PM

# 5.8 ADVANCED AIR MOBILITY FACILITIES

AAM is the overarching term that combines urban air mobility (UAM) with regional air mobility (RAM). The FAA defines UAM as an aviation transportation system that will use highly automated aircraft that will operate and transport passengers or cargo at lower altitudes within urban and suburban areas. RAM is a system that builds on UAM and that will operate between urban areas or suburban areas. The AAM concept has captured the aviation industry's attention as eVTOL aircraft have quickly advanced in the last 5 years and are expected to be certified as early as 2024. eVTOL aircraft include a variety of designs and propulsion systems using energy sources such as electric, hydrogen, and hybrid.

# 5.8.1 OVERVIEW

The development of AAM considers a variety of use cases with a particular emphasis on the transport of passengers and cargo at airports. Transport of passengers could occur as a scheduled or an on-demand service between an on-Airport vertiport and the vertiports distributed within Florida. The Airport shuttle and the cargo transport use cases were selected as the first usages to be implemented due to the opportunity to leverage infrastructures already in place and regulated.

# 5.8.2 VERTIPORT

In September 2022, the FAA published the final draft of Engineering Brief 105, *Vertiport Design*, which provides guidance to design vertiports specifically constructed to serve eVTOL aircraft operating with a pilot under VFR. Conceptual site plans for a passenger vertiport and a cargo vertiport were developed based on the following assumptions:

- The proposed vertiport would include one final approach and takeoff area (FATO). The FATO is centered on a touchdown and lift off (TLOF) area with a 50-foot controlling dimension, which establishes a 100-foot-wide FATO and 150-foot-wide safety area as specified in FAA Engineering Brief No. 105. The depicted apron is assumed to accommodate eVTOL aircraft with 50-foot controlling dimensions. The FATO located within would include approach and departure surfaces extending from the edges of the FATO at slopes of 1 vertical foot to 8 horizontal feet. These airspace surfaces are assumed to parallel to the primary runways flows, extending directly to the north and south from the FATO.
- A hold pad is provided for aircraft to wait before entering the FATO. This hold pad would be used to manage the flow of eVTOL traffic, particularly during peak times.
- The proposed vertiport would include between 3 to 6 eVTOL aircraft parking positions
- Based on the following assumptions, the size of the proposed terminal area was assumed to be between 6,000 to 12,000 square feet:
- The vertiport passenger demand was estimated assuming 10 percent of origin and destination (O&D) passengers that fly first class would use the vertiport.
- The average number of passengers per departure was assumed to be 3 passengers (based on a 5-seater eVTOL with a 75% load factor).
- The terminal area was calculated assuming 100 square feet per passenger.

Exhibit 5.8-1 illustrates both site plans.

# 5.8.3 POTENTIAL DEVELOPMENT SITES

Exhibit 5.8-2 depicts potential sites to develop passenger and cargo vertiports, which are described as follows:

- Site 1: South of West Dr. Martin Luther King Jr. Boulevard: This site, which is located in the east airfield, provides 9.2 acres for development in proximity of the GA and air cargo facilities.
- Site 2: North of Ohio Avenue: Site 2 is located just south of Site 1, north of Ohio Avenue and the UPS and FedEx facilities. This site provides 9.7 acres.
- Site 3: Intersection of West Tampa Bay Boulevard and Airport Service Road: This 9.2-acre site, located south and west of the intersection between West Tampa Bay Boulevard and Airport Service Road and east of the existing GA facilities located north of Runway 10-28, provides easy landside access and proximity to the GA facilities.
- Site 4: Between Sheltair and the Moffitt Cancer Center: For this site, the proposed vertiport would be constructed between the existing Sheltair facilities south of Runway 10-28 and the Moffitt Cancer Center. Similar to Site 3, this site provides easy landside access and proximity to the GA facilities.
- Site 5: Moffitt Cancer Center: Site 5 provides for the construction of a vertiport east of the Moffitt Cancer Center, north of Columbus Drive and west of North Dale Mabry Highway.
- Site 6: NTC Parking Garage: This site assumes the construction of a vertiport on top of the future NTC parking garage.
- Site 7: Long-Term Parking Garage: This site assumes the construction of a vertiport on top of the Long-Term Parking Garage. This site provides 11.7 acres for development and easy access to the existing terminal areas.
- Site 8: Economy Parking Garage: This site provides for the construction of a vertiport on top of the Economy Parking Garage. This 7.9-acre site provides easy access to the existing terminal via the SkyConnect train.
- Site 9: RCC: This site provides for the construction of a vertiport on top of the RCC. Similar to Site 8, this 7.9-acre site provides easy access to the existing terminal via the SkyConnect train.

Sites 1 through 5 were considered for passenger or cargo transport due to their proximity to the Airport's cargo and GA facilities, and Sites 6 through 9 were considered for passenger transport only due to their proximity to the Airport's terminal facilities.

# 5.8.4 SITE EVALUATION

Based on current FAA airspace standards, a runway-vertiport pad distance of less than 2,500 feet would impact current runway throughput and airfield capacity. As shown on Exhibit 5.8-2, Site 1 and Sites 6 through 9 were eliminated as they are within 2,500 feet of an active runway. The remaining sites, Sites 2 through 5, were evaluated based on the following criteria:

- Meets Facility Requirements: The proposed site meets the facility requirements established in Chapter 4.
- Impacts to Runway Throughput / Airfield Capacity: The proposed site would result in dependent operations and the timing of the aircraft arrivals and/or departures and eVTOL would need to be coordinated, which, in turn would affect the capacity of the existing runways.

- Potential Wake Turbulence Impacts: The effects of the turbulence generated by an aircraft's wingtip vortices would impact eVTOL operations. These effects could pose safety risks and operational challenges, particularly during takeoff and landing.
- Potential Obstructions: Obstacles within the vicinity of the vertiport could impact the vertiport operations.
- Accessibility: A passenger vertiport would need to have convenient access to the passenger terminal facilities and a cargo vertiport would need to have easy access to the cargo facilities.
- Impacts to Existing and/or Future Land Uses: The proposed vertiport should have limited impacts to existing and future land uses.

**Table 5.8-1** presents the evaluation matrix for Sites 2 through 5. Based on discussions with the Authority staff, for planning purposes, it is recommended that both Sites 3 and 5 be preserved for the accommodation of a future vertiport at the Airport. Site 2 was eliminated because it is better suited for the accommodation of future cargo and other support facilities. This site could also impact aircraft operations under IMC. Finally, this site would also impact an existing retention pond located northwest of the West Ohio Avenue and Air Cargo Road intersection.

QUALITATIVE DESCRIPTION	SITE 2 (GA OR CARGO VERTIPORT) EAST OF RUNWAY 1R- 19L	SITE 3 (GA VERTIPORT) NORTH OF RUNWAY 10-28	SITE 4 (GA VERTIPORT) SOUTH OF RUNWAY 10-28	SITE 5 (GA VERTIPORT) SOUTH OF RUNWAY 10-28
Does the site meet facility requirements?	Meets vertiport requirements	Meets vertiport requirements	Limited eVTOL aircraft parking positions available	Meets vertiport requirements
Will eVTOL aircraft arrivals and departures impact runway throughput?	VTOL aircraft arrivals and tures impact runway and the second sec		No impacts on primary runways	No impacts on primary runways
Is there wake turbulence separation required? No wake turbulence impact due to primary runways		No wake turbulence impact due to primary runways	No wake turbulence impact due to primary runways	No wake turbulence impact due to primary runways
Are there obstacles in line with surfaces that may affect operations?	No anticipated obstacles	No anticipated obstacles	No anticipated obstacles	No anticipated obstacles
Is the site easily accessible to the general aviation and/or cargo areas for cargo operations?	Site is adjacent to cargo/GA operations	Site is adjacent to GA operations	Site is adjacent to GA operations	Site is adjacent to GA operations
Is the site easily accessible to the passenger terminal areas via the existing landside roadway system?	Longer transit time to terminal areas	Longer transit time to terminal areas	Site is closest to the terminal area	Site is closest to the terminal area
Does it comply with applicable land use?	Could affect some cargo operations, i.e., jet and vehicle parking, pallet storage	Does not impact any existing operations	Does not impact any existing operations	Would impact the Moffitt Cancer Center leasehold
LEATIN.				
TEORIGE:	NO Anticipated impacts			
	Moderate Impacts			

### TABLE 5.8-1 VERTIPORT SITES EVALUATION MATRIX

NOTES:

eVTOL – Electric Vertical Takeoff and Landing; GA – General Aviation; IMC – Instrument Meteorological Conditions

**Significant Impacts** 



SOURCE: Federal Aviation Administration (FAA), Engineering Brief 105 Vertiport Design, September 2022.



EXHIBIT 5.8-1

### PASSENGER AND CARGO VERTIPORTS CONCEPTUAL SITE PLANS

Drawing: P:\\_PROJECTSIHCAA (TPA)/19041140 - 2019 GCi21-05 TPA Master Plan Update/Task 6A- Formulate and Refine Airport Improvement PlansIbrawings&Models\AutoCADIEx 5.8-1 Passenger Cargo Vertiports Conceptual.dwgLayout: 8.5x11L Plotted: May 15, 2024, 06:11PM

#### TAMPA INTERNATIONAL AIRPORT



### SOURCES: Martinez Geospatial, Inc., December 2022 (aerial photography); Ricondo & Associates, Inc., September 2023.

### **EXHIBIT 5.8-2**

ADVANCED AIR MOBILITY



Drawing: P-\\_PROJECTS/HCAA (TPA)/19041140 - 2019 GC/21-05 TPA Master Plan Update/Task 6A- Formulate and Refine Airport Improvement Plans/Drawings&Models/AutoCAD/Ex 5.8 EVTOL-dwgLayout: 1 Plotted: May 15, 2024, 06:12PM

POTENTIAL DEVELOPMENT SITES



# 2022-2042 MASTER PLAN UPDATE

**Chapter 6: Environmental Overview**


EXISTING ENVIRONMENTAL CONDITIONS

NORTH 0 2,000 ft

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Master Plan Update

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### 2022-2042 MASTER PLAN UPDATE

### Chapter 7: Implementation Plan and Recommended Capital Improvement Projects



SOURCE: Martinez Geospatial, Inc., October 2023 (aerial photography); Martinez Geospatial, Inc., December 2023 (base mapping); Ricondo & Associates, Inc., February 2024.

#### **EXHIBIT 7.2-1**



#### APPROVED CAPITAL PROJECTS VALIDATED BY 2022 MASTER PLAN UPDATE

Drawing: \EgryteDrivelProjects\\_proj



SOURCE: Martinez Geospatial, Inc., October 2023 (aerial photography); Martinez Geospatial, Inc., December 2023 (base mapping); Ricondo & Associates, Inc., February 2024.

#### **EXHIBIT 7.2-2**

NORTH 0 1,600 ft

REFINED AIRPORT NEEDS TO SERVE PAL 1 (30.5 MAP; FY 2032)

Drawing: \LEgnyteDrive\Projects\\_pro



SOURCE: Martinez Geospatial, Inc., October 2023 (aerial photography); Martinez Geospatial, Inc., December 2023 (base mapping); Ricondo & Associates, Inc., February 2024.

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NORTH

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1,600 ft

#### EXHIBIT 7.2-3



Drawing: \\EgnyteDrive\Projects\\_pro



SOURCE: Martinez Geospatial, Inc., October 2023 (aerial photography); Martinez Geospatial, Inc., December 2023 (base mapping); Ricondo & Associates, Inc., February 2024.

#### **EXHIBIT 7.2-4**



#### REFINED AIRPORT NEEDS TO SERVE PAL 3 (39 MAP; FY 2042)

Drawing: \LEgnyteDrive\Projects\\_pro



SOURCE: Martinez Geospatial, Inc., October 2023 (aerial photography); Martinez Geospatial, Inc., December 2023 (base mapping); Ricondo & Associates, Inc., February 2024.

### **EXHIBIT 7.2-5**



#### OPPORTUNITIES FOR OTHER AIRPORT ENHANCEMENTS

Drawing: \LEgnyteDrive\Projects\\_pro



## 2022-2042 MASTER PLAN UPDATE

**Chapter 8: Airport Layout Plan Narrative Report** 



# 2022-2042 MASTER PLAN UPDATE

**Chapter 9: Sustainability and Resiliency Initiatives** 



Prepared by: AECOM Aguirre Project Resources American Infrastructure Development Environmental Science Associates GSS Creative Martinez Geospatial Newhouse and Associates Quest Corporation of America

**Ricondo and Associates** 

Vic Thompson Company