APPENDIX C Airspace and Procedures

1.1 Airspace

The Federal Aviation Administration (FAA) has six classifications of airspace under the National Airspace System (NAS). These classifications, which are designated Class A, B, C, D, E, and G and shown on **Figure C-1**, are critical to the safety of all flights and to the efficient operation of all air traffic control facilities and the NAS.



SOURCE: FAA Course ALC-42, Airspace, Special Use Airspace and TFRs, 2016.

The following paragraphs describe each airspace classification in the vicinity of the Tampa International Airport (TPA). **Figure C-2** depicts the airspace in the vicinity of the Airport.

Class A Airspace

Class A airspace is designated for positive control of aircraft and ranges from 18,000 feet above mean sea level (MSL) to 60,000 feet MSL. Within Class A airspace, only aircraft operating under instrument flight rules (IFR) that are on instrument flight plans are authorized. The aircraft must have specific equipment and Air Traffic Control (ATC) clearance before entering the airspace. This airspace is controlled by the FAA's Air Route Traffic Control Center (ARTCC).

Class B Airspace

The airspace immediately surrounding TPA is classified as Class B airspace. Class B airspace is generally defined as the airspace from the ground surface up to 10,000 feet MSL. Class B airspace

can sometimes be described as an "upside down wedding cake" designed to contain all published instrument procedures once an aircraft enters the airspace. ATC clearance is required for all aircraft to operate in Class B airspace. All aircraft that are so cleared also receive separation services from other aircraft within the airspace.

Aircraft operating under Visual Flight Rules (VFR) or IFR are permitted into Class B airspace; however, the aircraft must be equipped with a two-way radio capable of communicating with ATC on appropriate frequencies and an operable radar beacon transponder with automatic altitude reporting equipment. For IFR operations, the aircraft must have an operable VOR or TACAN receiver. The pilot must hold at least a private pilots certificate.

Further surrounding the Class B airport is a 30-nautical mile (nm) Mode C veil that is designated by a thin, solid magenta line that circles the Class B airspace and extends from the surface upward to 7,000 feet MSL. Unless otherwise authorized, an aircraft operating within the Mode C veil must be equipped with automatic pressure altitude reporting equipment having Mode C radar capability. This allows Tampa TRACON to see all aircraft operating close to the Class B airspace and provide adequate aircraft separation minimums.

Class C Airspace

The Class C airspace is designated by solid magenta lines on the navigation charts provided in **Figure C-2**. Class C airspace is the airspace from the surface up to 4,000 feet above the airport elevation charted in MSL surrounding those airports that have an operational control tower, are serviced by a radar approach control, and that have a certain number of IFR operations or passenger enplanements. Class C airspace is represented by solid magenta lines. Like Class B airspace, Class C airspace is individually tailored to meet the needs of the respective airport. As shown on **Figure C-2**, the layers are identified with magenta numbers representing the base and ceiling altitudes of the airspace. The airspace usually consists of a surface area with a 5-nm radius from the surface up to 4,000 feet above airport elevation, and a 10-nm radius that extends from 1,200 feet to 4,000 above the airport. Pilots must establish two-way radio communications with the ATC facility providing air traffic control services prior to entering the airspace. VFR aircraft are separated from IFR aircraft in Class C airspace.

Class D Airspace

Class D airspace is generally that airspace from the surface to 2,500 feet AGL. The configuration of Class D airspace is individually tailored and shown as a dashed blue line with an altitude representing the extent of the airspace from the surface. When instrument procedures are published, the airspace will normally be designed to contain the procedures with either Class D or E airspace. Class D airspace only surrounds airports that have an operational control tower; pilots are required to establish and maintain two-way radio communication with the ATC facility. Examples of Class D airspace located entirely within the Class B airspace in the Tampa area include MacDill Air Force Base (MCF), St. Petersburg-Clearwater Airport (PIE), Lakeland Linder International Airport (LAL), and Albert Whitted Airport (SPG). For example, PIE's airspace is shown as a dashed blue circle and extends from the surface up to 1,600 feet AGL.

Class E Airspace

Class E airspace is generally controlled airspace that is not Class A, B, C, or D. Class E airspace extends upward from either the surface or designated altitude to the overlying or adjacent controlled airspace. Also in this class are Victor airways (airspace beginning at either 700 feet or 1,200 feet AGL used to transition to/from the terminal or en route environments) and offshore airspace areas designated below 18,000 feet MSL. Unless designated at a lower altitude, Class E airspace begins at 14,500 feet MSL over the United States, including that airspace overlying the water within 12 nm off the coast of the 48 contiguous states and Alaska. It does not include airspace at or above 18,000 feet MSL. Class E airspace ensures that IFR aircraft remain in controlled airspace when approaching airports without Class D airspace or when flying on Victor airways that are below 18,000 feet MSL.

Most of the U.S. has a Class E airspace limit of 1,200 feet AGL. Where it decreases to 700 feet AGL is depicted on **Figure C-2** by a shaded, gradient magenta line. The floor of the vast majority of Class E airspace is 700 feet around the West Central Florida area. The more defined side of the magenta line indicates areas where the floor of Class E airspace rises to 1,200 feet AGL. When Class E airspace extends down to the surface, it is depicted by a dashed magenta line. Class E airspace extending down to the surface usually abuts Class D airspace surrounding an airport.

Class G Airspace

Where the lower level of Class E airspace is not depicted, the airspace beneath is considered uncontrolled or Class G airspace. Class G airspace begins at ground level and, in very remote areas, it has an upper limit of up to but not including 14,500 feet MSL. The top of Class G airspace is usually where Class E airspace begins, usually either 700 foot AGL depicted by magenta shading or 1,200 foot AGL areas depicted by blue shading. Class G airspace begins at the surface throughout much of the area surrounding the Class B, C, D, and E airspaces throughout the West Central Florida area. Uncontrolled airports located in Class G airspace are depicted in magenta since they do not have a control tower.

Special Use Airspace

Special use airspace consists of that airspace wherein activities must be confined because of their nature, or wherein limitations are imposed on aircraft operations that are not a part of those activities, or both.

1.2 TPA Terminal Procedures Publications

U.S. Terminal Procedures Publications (TPP) are published on a regular, periodic basis by the FAA. Collectively, the instrument approach procedures (IAPs), standard terminal arrival routes (STARs), and departure procedures (DPs) published within provide a system of procedures to move aircraft through the airspace into and out of an airport.

1.2.1 Instrument Approach Procedures

Instrument approach procedures are flight procedures developed and published by the FAA that pilots use to navigate their aircraft to the runway. The IAPs currently published for TPA are provided in **Attachment C-1**.

1.2.2 Standard Terminal Arrival Routes and Departure Procedures

When flying a standard terminal arrival route or departure procedure, the pilot will follow waypoints or fixes that are either ground-based or RNAV-based depending on aircraft capability. In conventional procedures, fixes are defined by the location of a navigational aid (e.g., VOR) or determined by reference to these navigational aids such as DME intersections. The advantage of the RNAV STARs and DPs are that waypoints are defined by longitude and latitude, and allow aircraft to fly a more direct course from point to point instead of from navigational aid to navigational aid. STARs and DPs may serve more than one airport in an area, and an airport such as TPA may have multiple STARS and DPs. Each of the published procedures is noted in the following sections. Navigational aids and airspace fixes used by aircraft arriving and departing TPA are shown on **Figure C-3**. The STARs and DPs currently published for TPA are provided in **Attachment C-1**.



SOURCE: Federal Aviation Administration, 2021; Adapted by Environmental Science Associates, 2021.

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Tampa International Airport Final Noise Exposure Map Update Report

Figure C-2 Airport Airspace Tampa International Airport



SOURCE: Federal Aviation Administration, 2021; Adapted by Environmental Science Associates, 2021.

ESA

Tampa International Airport Final Noise Exposure Map Update Report

Figure C-3 Navigational Aids Tampa International Airport

Attachment C-1

Published Instrument Approach and Departure Procedures

(BAYPO9.BAYPO) 21112 AL-416 (FAA) **BAYPO NINE DEPARTURE (RNAV)**

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DEPARTURE ROUTE DESCRIPTION

TAKEOFF RUNWAYS 1L/R: Climb on heading 007° to 540, then on heading 003° or as assigned by ATC, for vectors to FINKI, thence . . .

TAKEOFF RUNWAY 10: Climb on heading 097° to 540, then on heading 093° or as assigned by ATC, for vectors to FINKI, thence

TAKEOFF RUNWAY 19L: Climb on heading 187° to 540, then on heading 213° or as assigned by ATC, for vectors to FINKI, thence

TAKEOFF RUNWAY 19R: Climb on heading 187° to 540, then on heading 203° or as assigned by ATC, for vectors to FINKI, thence

TAKEOFF RUNWAY 28: Climb on heading 277° to 540, then on heading 273° or as assigned by ATC, for vectors to FINKI, thence

. . . . on track 004° to BAYPO. Maintain 6000. Expect clearance to filed altitude within ten minutes after departure.

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(DADES.DADES7) 21112 AL-416 (FAA) DADES SEVEN ARRIVAL (RNAV) Arrival Route

TAMPA, FLORIDA



ARRIVAL ROUTE DESCRIPTION

LANDING KTPA RUNWAYS 1L/R: From DADES on track 225° to LZARD, then on track 225° to USAF, then on track 186° to GUZDA, then on track 186° to cross BORST at 5000 and at 210K, then on track 186° to JSTRM, then on heading 186° or as assigned by ATC. Expect RADAR vectors to final approach course.

LANDING KTPA RUNWAYS 19L/R: From DADES on track 225° to LZARD, then on track 268° to JKBAL, then on heading 277° or as assigned by ATC. Expect RADAR vectors to final approach course.

LANDING KPIE/KMCF/KVDF: From DADES on track 184° to GSPAR, then on track 184°. Expect RADAR vectors to final approach course.

LOST COMMUNICATIONS

<u>KTPA LANDING NORTH</u>: Continue track to JSTRM, turn right to intercept Rwy 1L final approach course, conduct approach.

<u>KTPA LANDING SOUTH</u>: Continue track to JKBAL, turn left to intercept Rwy 19L final approach course, conduct approach.



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DEPARTURE ROUTE DESCRIPTION

TAKEOFF RUNWAYS 1L/R: Climb on heading 007° to 540, then on heading 003° or as assigned by ATC, for vectors to ENDED thence

TAKEOFF RUNWAY 10: Climb on heading 097° to 540, then on heading 093° or as assigned by ATC, for vectors to ENDED thence

TAKEOFF RUNWAY 19L: Climb on heading 187° to 540, then on heading 213° or as assigned by ATC, for vectors to ENDED thence

TAKEOFF RUNWAY 19R: Climb on heading 187° to 540, then on heading 203° or as assigned by ATC, for vectors to ENDED thence

TAKEOFF RUNWAY 28: Climb on heading 277° to 540, then on heading 273° or as assigned by ATC, for vectors to ENDED thence

.... on track 357° to LACEN. Maintain 6000. Expect clearance to filed altitude within ten minutes after departure.







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ARRIVAL ROUTE DESCRIPTION

<u>KTPA:</u> From MAATY on track 156° to ROOKR.

LANDING KTPA RUNWAYS 1L/R, 10: From ROOKR on track 141° to BLOUT, then on track 139° to CBASS, then on track 187° to cross TOOTH at 5000 and at 210K, then on track 186° to BUGGO, then on track 186° to FELOM, then on track 186°. Expect RADAR vectors to final approach course.

LANDING KTPA RUNWAYS 19L/R, 28: From ROOKR on track 093° to SCLOP, then on heading 097° or as assigned by ATC. Expect RADAR vectors to final approach course.

LANDING KMCF/KVDF/KLAL: From MAATY on track 156° to cross GOOFS at 13000, then on heading 155° or as assigned by ATC. Expect RADAR vectors to final approach course.

LOST COMMUNICATIONS

<u>KTPA LANDING NORTH</u>: Continue track to FELOM, proceed direct LAGOO, intercept Rwy 1L final approach course, conduct approach.

<u>KTPA LANDING SOUTH</u>: Continue track to SCLOP, proceed direct FADDI, intercept Rwy 19R final approach course, conduct approach.

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TAMPA, FLORIDA

ARRIVAL ROUTE DESCRIPTION

<u>KTPA:</u>

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17 JUN 2021

From RAYZZ on track 068° to HIDOS.

LANDING KTPA RUNWAYS 1L/R: From HIDOS on track 111° to CBASS, then on track 187° to cross TOOTH at 5000 and at 210K, then on track 186° to BUGGO, then on track 186° to FELOM, then on track 186°. Expect RADAR vectors to final approach course.

LANDING KTPA RUNWAYS 10, 28: From HIDOS on track 093° to BAYAD, then on heading 095° or as assigned by ATC. Expect RADAR vectors to final approach course.

LANDING KTPA RUNWAYS 19L/R: From HIDOS on track 093° to ENTAH, then on track 005° to VENNU, then on track 005°. Expect RADAR vectors to final approach course.

LANDING KPIE/KMCF/KLAL:

From RAYZZ on track 090° to SHKRA, then on track 090°. Expect RADAR vectors to final approach course.

LANDING KVNC/KSRQ:

From RAYZZ on track 137° to cross ALROE at 10000, then on track 138° to MAHAR, then on heading 138° or as assigned by ATC. Expect RADAR vectors to final approach course.

LOST COMMUNICATIONS

<u>KTPA LANDING NORTH:</u> Continue track to FELOM, proceed direct LAGOO, intercept Rwy 1L final approach course, conduct approach.

<u>KTPA LANDING SOUTH</u>: Continue track to VENNU, proceed direct FADDI, intercept Rwy 19R final approach course, conduct approach.



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