MacDill Air Force Base
6th Air Mobility Wing

Mid-Air Collision Avoidance (M.A.C.A.)

October 2003

Purpose

This handbook is intended to provide general information only and is not a definitive manual or chart. Always consult current FAA regulations, available charts, and consider existing meteorological conditions. The United States Air Force accepts no liability for any claim arising under or as a result of reliance upon this handbook, and reserves protection from liability as afforded under the Federal Tort Claims Act, 28 USC, Section 2680.

Table of Contents

Message from the 6 AMW Commander	Pg 1
Message from MacDill's Safety Office	Pg 2
Recent Incidents	Pg 3
Tips on Mid-Air Collision Avoidance	Pg 4
IFR/VFR Procedures	Pg 5
Radio Frequencies	Pg 6
Local Traffic Patterns & Airspace	Pg 6
Parachutist Drop Zones	Pg 10
Local Aircraft	
- 6th Air Mobility Wing	Pg 11
- NOAA	Pg 13
Transient Aircraft	Pg 18
C-135 Closure Rate Chart	Pg 20
Geometry of a Collision Course	Pg 21
MacDill AFB Phone Numbers	Pg 22

A message from the 6 AMW Commander, MacDill Air Force Base

Thank you for your interest in MacDill Air Force Base's Mid-Air Collision Avoidance (MACA) program. This pamphlet, prepared by the 6th Air Mobility Wing's Flight Safety office, provides invaluable information about our air operations and surrounding airspace for the Tampa, St. Petersburg, and Clearwater area local aviators.

Our airfield is home to myriad aircraft, notably the KC-135R and the C-37A. Included in this pamphlet is information to increase your familiarization with these and other aircraft, as well as our local flight patterns, potential areas of conflict, and recent events that highlight the need for vigilance. It is this vigilance that makes operations in a collective airspace the safest they can possibly be.

This region contains some of the busiest and most complex airspace in the United States, and the corresponding congestion means a necessary increase in attentiveness by both military and civilian pilots. Communication with air traffic control agencies, aggressive clearing by aviators, and procedural knowledge will help us safely operate together.

Please read this pamphlet and pass it along to your fellow aviators. Only as a community can we ensure the continued and safe operation of aircraft in the MacDill area.

If you have any questions about or ways to improve our MACA program, please contact my Wing Flight Safety Office at (813) 828-2380. I thank you once again for your time and concern for aviation safety. Fly Safe!

David M. Snyder

DAVID M. SNYDER, Colonel, USAF
Commander, 6th Air Mobility Wing

A message from MacDill's Flight Safety Office

***Fellow Aviators*:**

We are providing this brochure to you in the hope that the information contained will be useful to you while flying in the Tampa/MacDill AFB area. The Tampa area has numerous airfields including, but not limited to, Tampa International, St. Petersburg-Clearwater International, Vandenberg, Peter O. Knight, Albert Whitted Municipal, and MacDill Air Force Base. Always use current Flight Information Publications (FLIP) and check the Notices to Airmen (NOTAMs) when operating in the Tampa area.

The military flying activity in the area is very busy, and MacDill hosts aircraft varying greatly in size and performance—small fighters such as the F-16 to the very large C-5 are common on our ramp. MacDill AFB is home to Air Force and NOAA aircraft, while a wide variety of Air Force, Navy, and Marine Corps aircraft periodically deploy in for training. There are frequently times when the MacDill traffic pattern gets saturated with different types of aircraft. All flyers, whether military or civilian, must remain aware of the potential for mid-air collisions.

Through education, awareness, and application of the "See and Avoid" concept, we can all share the skies more safely. While this brochure may be used as an aid for Tampa area fliers, it can't compare to a good pair of eyes and proper mission planning. We hope that this may be of use to you. If you have any questions about this brochure, or if you need additional copies, please feel free to call or write us.

For information, please contact:

6th Air Mobility Wing Flight Safety
8208 Hangar Loop Drive, Suite 9
MacDill AFB FL 33621-5502

Phone: (813) 828-2380
Fax: (813) 828-6794

Recent Incidents

December 2002 – A civilian pilot made an unauthorized landing on runway 04 at MacDill AFB. The pilot stated he thought he was landing at Peter O'Knight Airport. Having stopped on the runway, the pilot was instructed to exit the runway, shut down, and comply with Security Forces guidance. The incident was reported to the FAA.

June 2003 – A civilian pilot made an unauthorized landing on runway 22 at MacDill AFB. The pilot stated he thought he was landing at Peter O'Knight Airport. Upon landing rollout, he realized his error and contacted MacDill Tower. He was instructed to exit the runway, shut down, and comply with Security Forces guidance. The incident was reported to the FAA.

March 2001 – A foreign military C-130 transport aircraft, while being vectored for the TACAN Runway 22 approach at MacDill, made an unplanned touch and go on Runway 21 at Peter O. Knight Airport. Seeing what they thought was MacDill AFB in front of them, the crew descended and realized (too late) that they were at a civilian airport. The crew executed a touch and go and proceeded to MacDill AFB, informing MacDill tower of the inadvertent drop-in at Peter O. Knight.

Tips on Mid-Air Collision Avoidance

Studies on mid-air collisions show that most occur below 8000 ft MSL and near airports, navaids, and other high-density traffic areas. Here are some ideas to help reduce your mid-air collision potential:

1. Know where high-density traffic areas are.
2. Obtain an IFR clearance or participate in radar flight following whenever possible, and continue to practice "see and avoid" at all times.
3. Use aircraft exterior lighting whenever possible.
4. Announce your intentions on UNICOM and use standard traffic pattern procedures at uncontrolled airfields.
5 Always use your Mode C transponder, and cross-check its accuracy with ATC whenever possible.
6. Use hemispheric altitudes. Practice altimeter discipline!
7. Constantly clear for other aircraft, both visually and on the radio.
8. Execute appropriate clearing procedures before and during all climbs, descents, turns, abnormal maneuvers, or aerobatics.
9. Keep your windshield clean and clear.
10. Don't get complacent during instruction! Instructors make mistakes too. Many mid-air collisions occur during periods of instruction.
11. When flying at night, avoid use of white interior lights if possible. Full dark adaptation of the human eye takes between 15 and 30 minutes after exposure to white light.
12. Understand the limitations of your eyes and use proper visual scanning techniques. Remember, if another aircraft appears to have no relative motion, but is increasing in size, it is on a direct collision course with you.
13. Above all, **AVOID COMPLACENCY!** Remember, there is no guarantee that everyone else is flying by the rules, or that other aircraft are where they are supposed to be.

IFR/VFR Procedures

IFR Procedures:

General: Authorization for civil aircraft to enter MacDill AFB Class D airspace will be coordinated with 6 OSS/OSA, (813) 828-1759/2967, well in advance. Current policy, as dictated by national security concerns, will not be compromised for convenience; aircraft with a valid need to transit the airspace will be approved on a case by case basis. The MacDill AFB tower does not have radar control, but controllers do their best to visually acquire and warn-off approaching civilian aircraft. Additionally, Tampa Terminal Radar Approach Control (TRACON) helps divert unwanted civilian aircraft when conditions permit. Tampa TRACON controls all aircraft transiting Tampa's Class B airspace. This includes aircraft in or around MacDill AFB's Class D airspace.

Departures: Aircraft depart MacDill AFB talking on Tower frequency, then switch to Tampa Departure. Normally MacDill AFB departures climb on runway heading to 400 ft AGL before turning. Runway 04 departures then turn right to heading 080, while runway 22 departures turn left to heading 190. All departures climbs are restricted 1,600 ft MSL initially, until cleared higher by Tampa RAPCON.

Radar traffic pattern: MacDill AFB's radar traffic pattern altitude is 1,600 ft MSL and operates close to Peter O. Knight Airport and Albert Whitted Municipal. Civilian aircraft operators should exercise extreme vigilance and caution in the vicinity of these two airports due to heavy military traffic around MacDill AFB.

VFR procedures:

Traffic pattern: MacDill AFB's rectangular VFR pattern altitude is 1,100 ft MSL. Remember, MacDill AFB's traffic should normally work east of the runway, but can arrive from any number of directions.

Radio Frequencies

If unauthorized entry into MacDill AFB Class D airspace is unavoidable, please contact **MacDill AFB Air Traffic Control Tower** immediately and, if possible, *prior* to entering the class "D" airspace on the following frequencies:

VHF – 123.700 UHF – 294.7

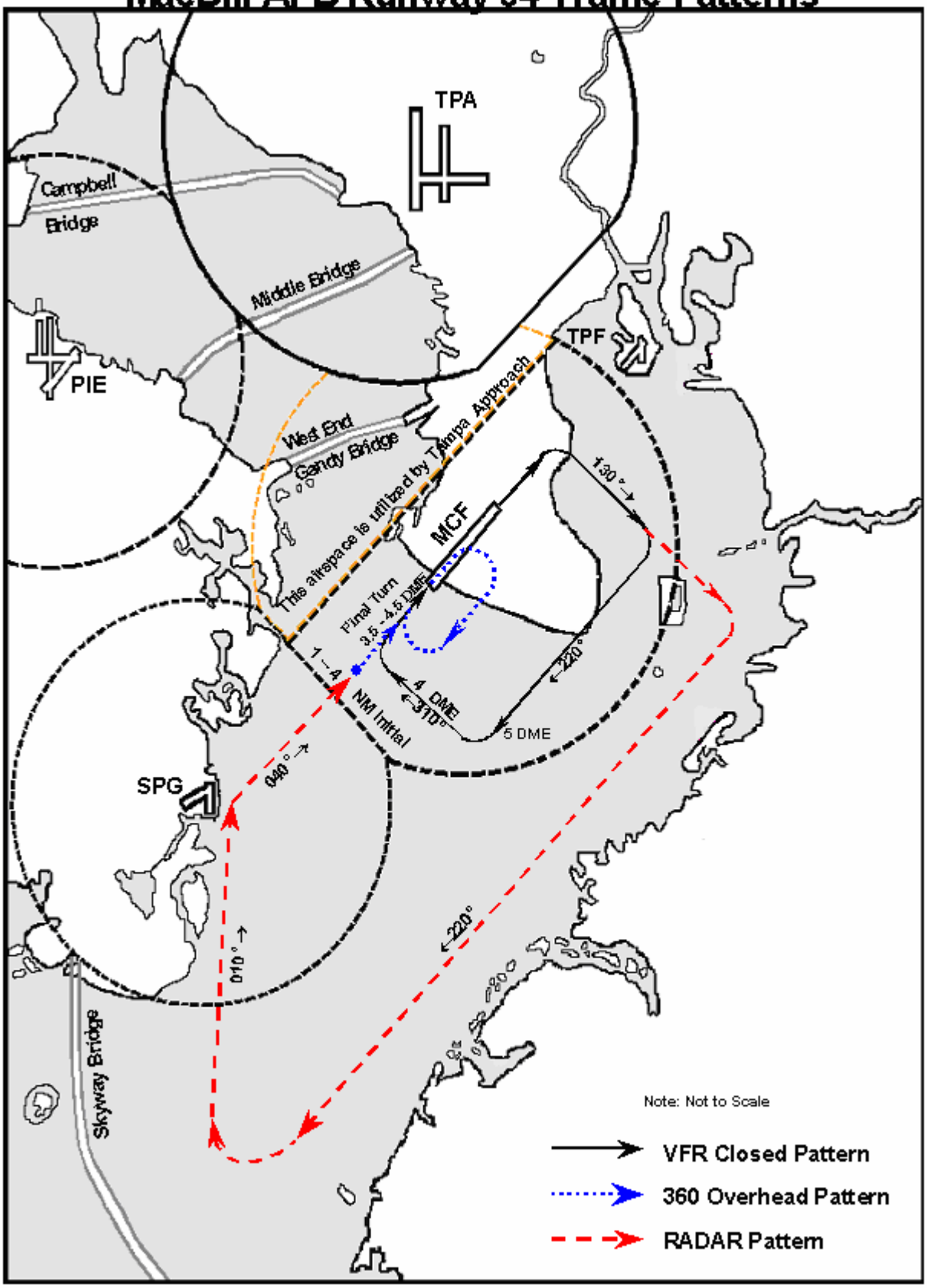
MacDill AFB also provides an **Automatic Terminal Information Service (ATIS)**, which can inform you of current wind speed and direction, temperature, altimeter, and pressure altitude. You can access this information by tuning in the following frequencies:

VHF – 133.825 UHF – 270.1

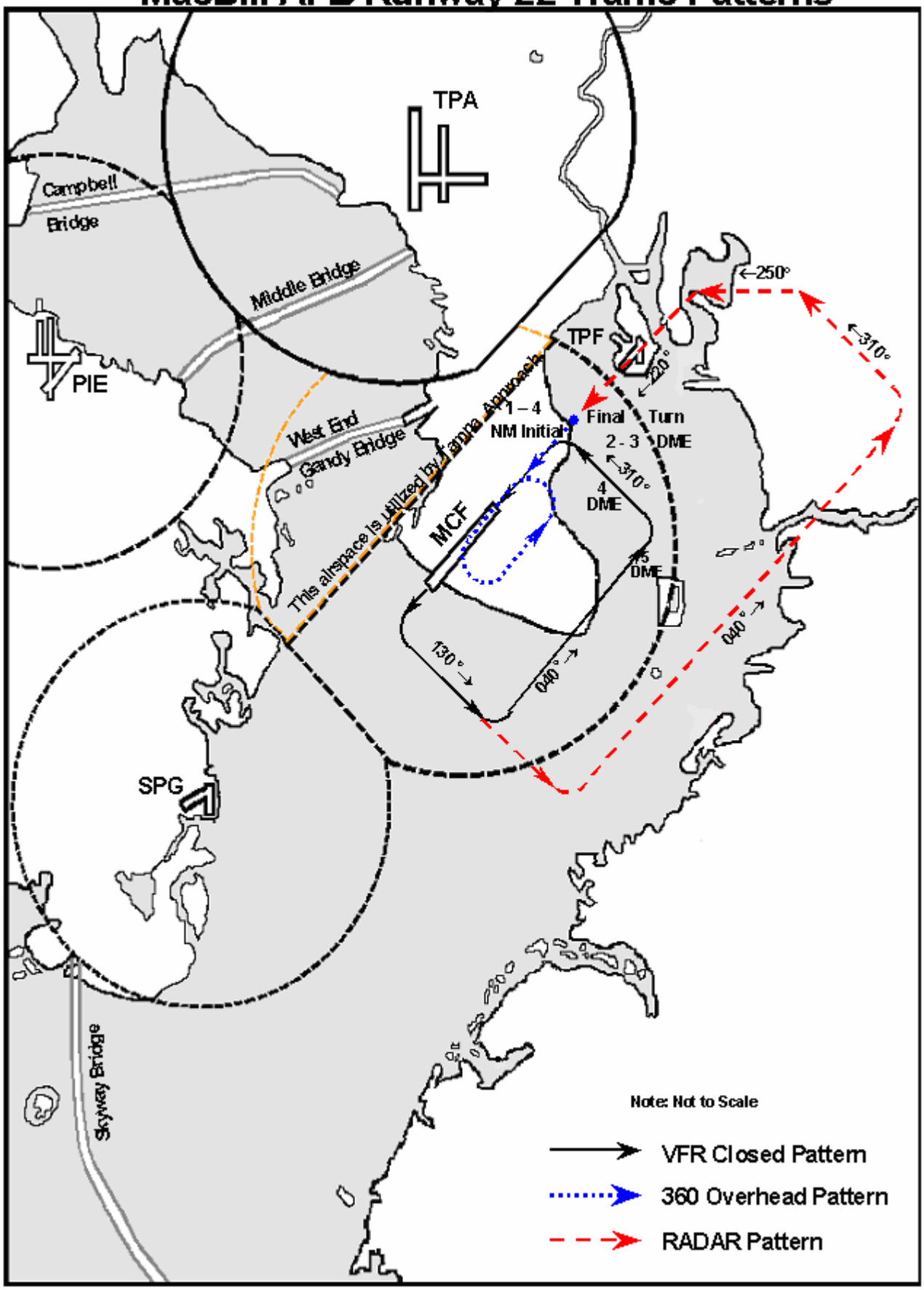
More on MacDill AFB Airspace

Due to reasons of national security, civilian aircraft operators are ordinarily NOT allowed to enter MacDill AFB airspace. Civilian aircraft operators that enter MacDill AFB airspace without permission may be subject to significant adverse action. What defines MacDill AFB airspace you ask? Well, to paraphrase FAA Order 7400.9H, our Class D Airspace is defined as that airspace extending upward from the surface to (and including) 2,600 feet MSL within a 4.5-mile radius of MacDill AFB, excluding the portion within the Tampa International Airport Class B airspace. To the southwest, our airspace extends somewhat less than 4.5 miles where it abuts Albert Whitted Airport's 4-mile radius airspace. The following two pages graphically illustrate the extent of MacDill's Class D airspace, as well as the normal traffic pattern flow used by MacDill aircraft. Civilian operators must carry and use current flight charts to avoid straying into unauthorized airspace. Additionally (per applicable FARs), unless otherwise authorized, each person must establish two-way communications with the ATC facility providing service *prior to* entering the Class D airspace and maintain those communications while in the airspace. Consistent adherence to these FARs is the key to preventing confusion, fines, violations, and tragedy. **Due to the close proximity of local airports, EXTREME CAUTION should be exercised due to the possibility of mistaking one airport for another.**

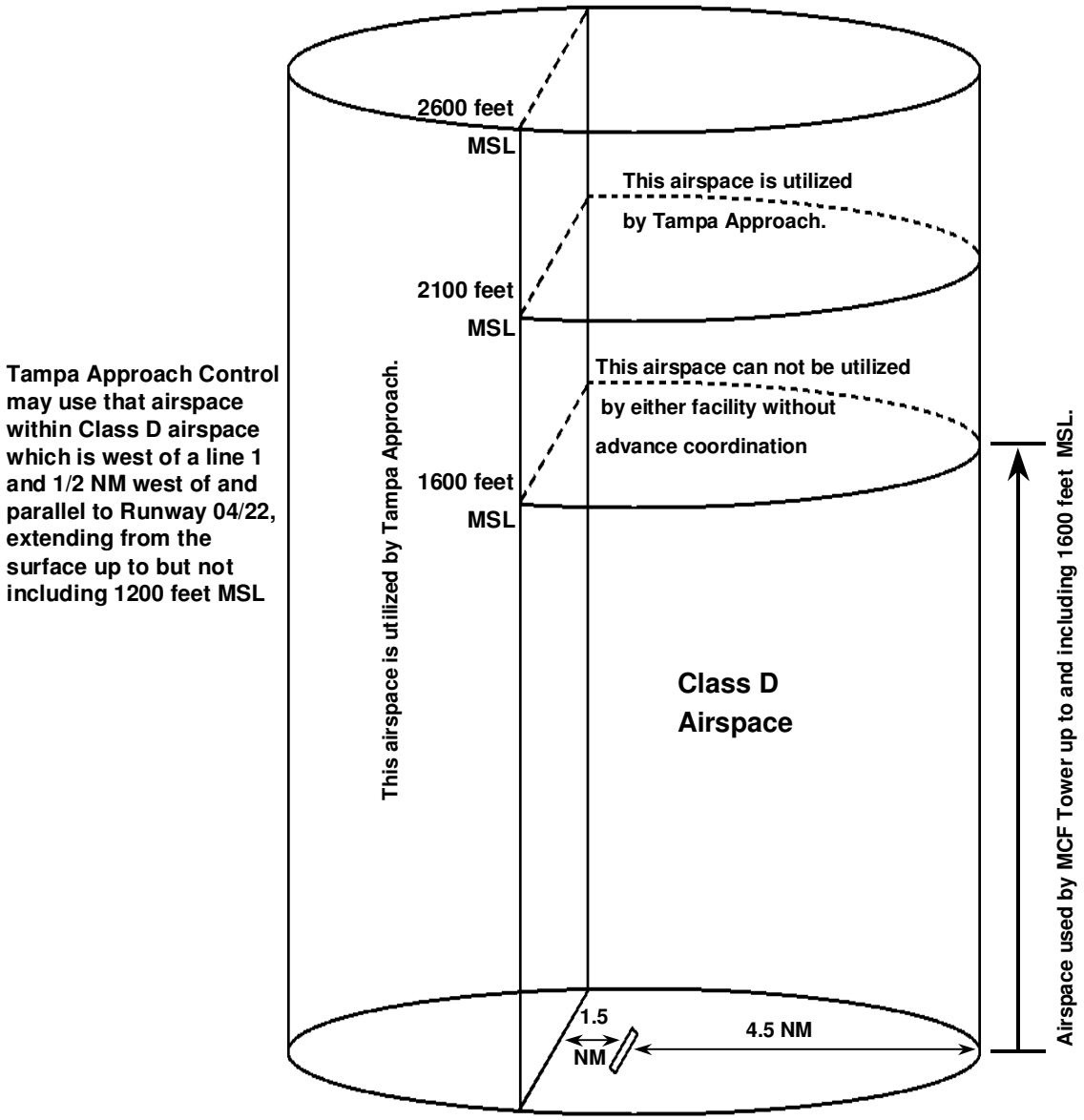
MacDill AFB Runway 04 Traffic Patterns



MacDill AFB Runway 22 Traffic Patterns



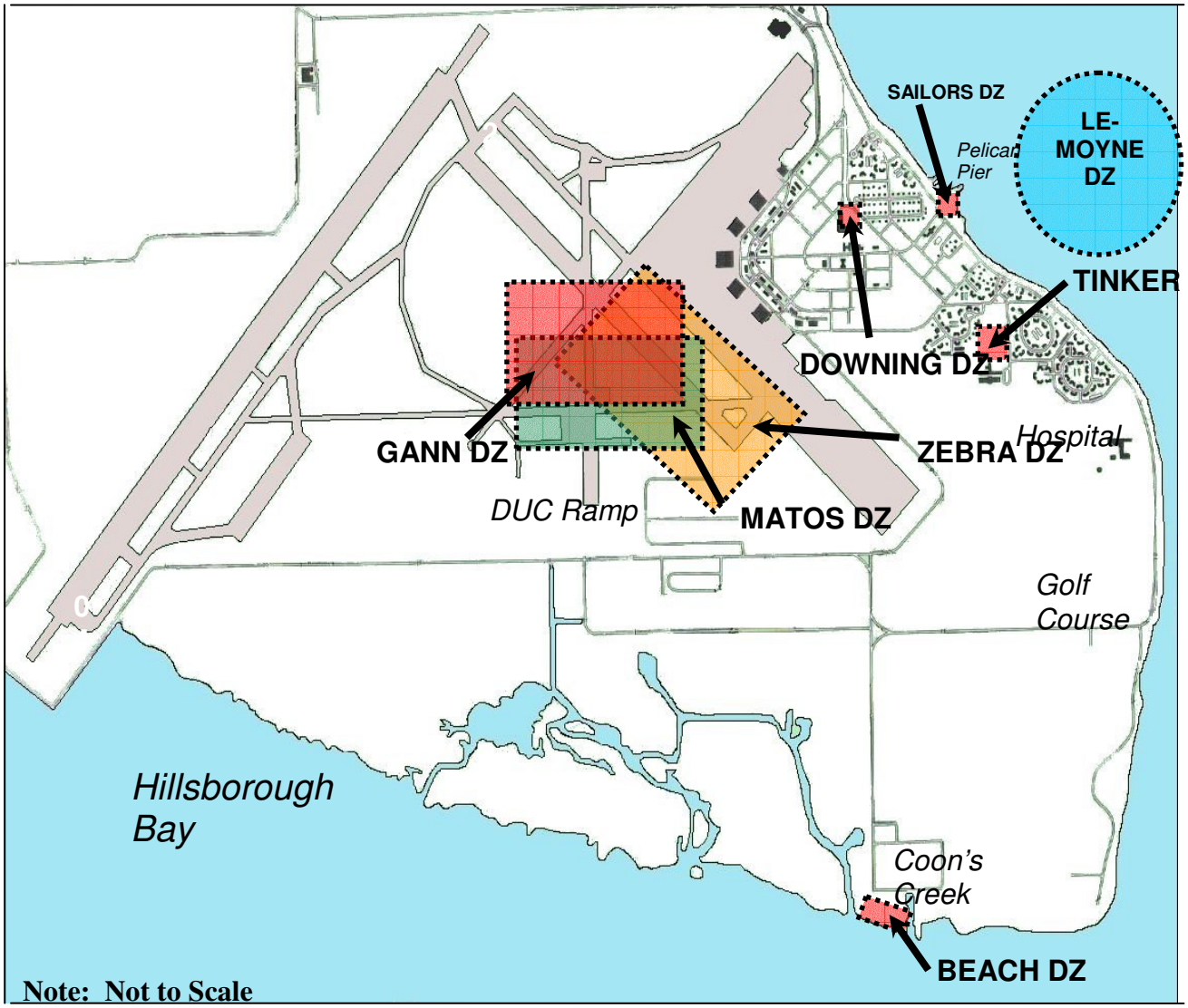
MacDill AFB Class D Airspace



Note: Not to Scale

MacDill AFB Field Elevation: 14 Feet MSL

Parachutist Drop Zones



Often, parachuting activity takes place over MacDill AFB's airfield. However, High Altitude Low Opening (HALO) activity can take place as high as 10,000 ft. MSL.

<u>Normally, parachuting operations take place:</u>

- In the Gann Drop Zone (DZ), but locations may vary.
- Between 1250' & 1500 ft. AGL.
- Between 7:30 AM & 4:00 PM (although they can occur at any time)

Note: HALO operations are normally completed before 10:00 AM.

Specific parachuting information is always listed in the Local NOTAMs.

Boeing KC-135R

(Operated by the 6 AMW)

Aircraft Specifics

- Wingspan: 131 feet
- Height: 42 feet
- Length: 136 feet
- Four CFM International F108-CF-100 engines

Performance Specifics

- Class D or E aircraft for IFR approaches depending on gross weight
- Takeoff gross weights up to 320,000 lb.
- Landing weights 200,000 to 140,000 lb.
- Pattern speeds 200 KIAS downwind down to 135 KIAS on final

Mission Specifics

- Aerial refueling tanker, IFR flights standard
  - Up to 3 hours of local pattern work flying instrument approaches and VFR patterns

C-37A (Gulfstream V)

(Operated by the 6 AMW)

Aircraft Specifics

- Wingspan: 94 feet
- Height: 26 feet
- Length: 96 feet
- Two BMW Rolls-Royce BR710-48 turbofan engines

Performance Specifics

- Class C aircraft for IFR approaches
- Takeoff gross weights up to 90,500 lb.
- Landing weights up to 75,300 lb.
- Pattern speeds 170 KIAS downwind down to 120 KIAS on final

Mission Specifics

- Unified Combatant Commander support, IFR flights standard
- Up to 3 hours of local pattern work flying instrument approaches and VFR patterns

WP-3D

(Operated by NOAA)

Aircraft Specifics

- Wingspan: 99 feet 7 inches
- Height: 33 feet 8 inches
- Length: 111 feet 2 inches
- Four T-56-A14 turboprop engines

Performance Specifics

- Class C for IFR approaches
- Takeoff gross weight 135,000 lb.
- Pattern speeds 190 KIAS on downwind, 135 KIAS on final approach

Mission Specifics

- Research platform for hurricane and reconnaissance missions

Gulfstream IV-SP

(Operated by NOAA)

Aircraft Specifics

- Wingspan: 77 feet 10 inches
- Height: 24 feet 5 inches
- Length: 88 feet 4 inches
- Two Rolls-Royce Tay Mk 611-8 engines

Performance Specifics

- Class C for IFR approaches
- Takeoff gross weights 74,000 lbs.
- Pattern speeds 190 KIAS on downwind, 135 KIAS on final approach

Mission Specifics

- IFR missions standard
- High altitude atmospheric research and hurricane surveillance

DHC-6 Twin Otter

(Operated by NOAA)

Aircraft Specifics

- Wingspan: 65 feet
- Height: 19 feet 6 inches
- Length: 52 feet
- Two UACL OT6A-27 turboprop engines

Performance Specifics

- Class B for IFR approaches
- Takeoff gross weight 12,500 lbs.
- Pattern speeds approximately 90 KIAS

Mission Specifics

- Environmental and atmospheric impact surveys
- Low-level, slow-speed VFR missions

AC690A Turbo Commander

(Operated by NOAA)

Aircraft Specifics

- Wingspan: 46 feet 7 inches
- Height: 14 feet 11 inches
- Length: 44 feet 4 inches
- Two Garrett TPE-331-5 turboprop engines

Performance Specifics

- Class C for IFR approaches
- Takeoff gross weight 10,250 lbs.
- Pattern speeds approximately 120 KIAS

Mission Specifics

- Aerial photography for coastal or nautical charting and airport obstruction charting
- Maps coastal wetlands and measures snow water and soil moisture content

C-12 (Military)/BE-20

(Operated by the US Army)

Aircraft Specifics

- Wingspan: 54 feet
- Height: 15 feet
- Length: 43 feet
- Two Pratt & Whitney PT6A-38 turboprop engines

Performance Specifics

- Class B for IFR approaches
- Takeoff gross weight 12,500 lbs.
- Pattern speeds 170 KIAS on downwind to 110 KIAS on final approach

Mission Specifics

- Primarily used as a transport but can be modified for both medical evacuation and cargo

MacDill AFB Transient Aircraft

C-5 Galaxy

C-17 Globemaster

C-130 Hercules

A-10 Thunderbolt

F-16 Falcon

F-15 Eagle

VC-9 (VIP Airlift)

T-6A Texan

MacDill AFB Transient Aircraft
(Continued)

T-45 Goshawk

T-38 Talon

T-37A Tweet

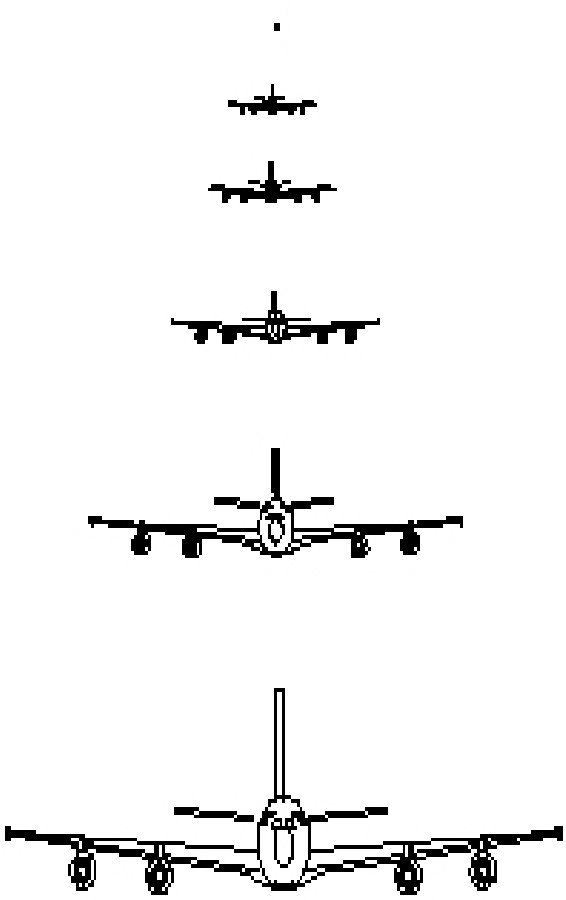
T-1 Jaybird

C-135 CLOSURE RATE CHART

This is based on combined speeds of two aircraft

DISTANCE SECONDS

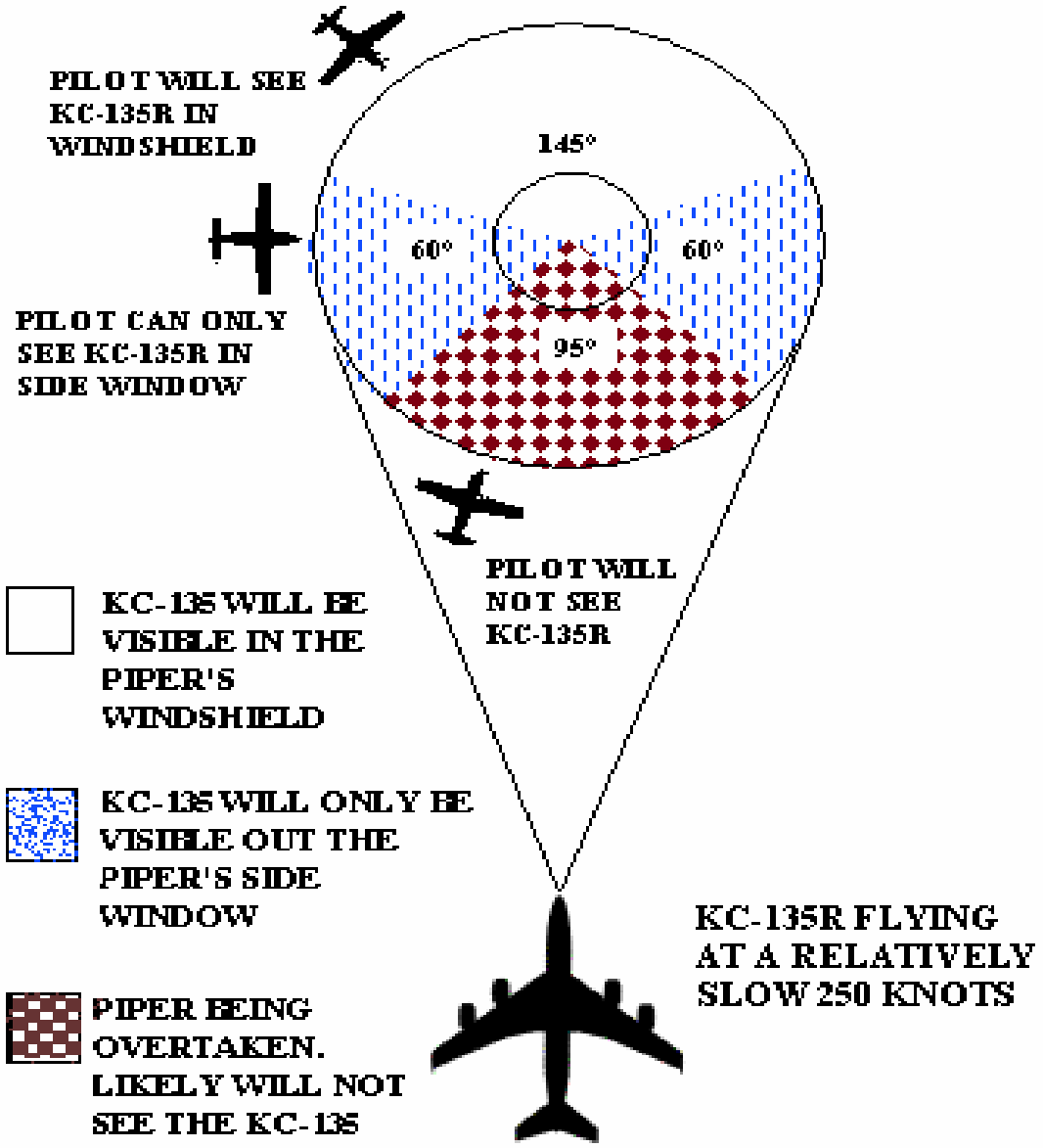
	AT 600 MPH	AT 210 MPH
10 MILES	60	170
5 MILES	30	85
3 MILES	18	56
2 MILES	12	38
1 MILE	6	18
0.5 MILE	3	9



The areas in the gray box are the danger areas.
This is based on recognition and reaction times.

GEOMETRY OF A COLLISION COURSE

CIRCLE REPRESENTS 360 DEGREES OF POSSIBLE COLLISION COURSE BETWEEN A PIPER FLYING AT 80 KNOTS AND A KC-135R RLYING AT 250 KNOTS



MacDill AFB Phone Numbers

Airfield Management Operations (AMOps): (813) 828-2321

Contact AMOps with questions regarding current notices to airmen (NOTAMs), flight plans, scheduled events, or issues regarding flight operations at MacDill AFB.

Control Tower: (813) 828-2120

Contact the tower for any concerns regarding MacDill airspace entry, current traffic pattern activity, and air traffic sequencing.

Airfield Management: (813) 828-2030

Use this number with concerns about MacDill AFB airfield access.

Flight Safety: (813) 828-2380

Contact Flight Safety with concerns about any hazardous flight activities, airspace concerns, flight procedures, safety meetings and speaking engagements, or any other flight safety related matters.

Public Affairs: (813) 828-2215

Call Public Affairs with questions about any upcoming aviation events (including airshows, press releases, or noise/air traffic complaints).

Command Post (813) 828-4361

Contact Command Post to reach agencies listed here after hours. The CP has a 24 hour on-call duty personnel contact roster.