Navigating USA Airspace

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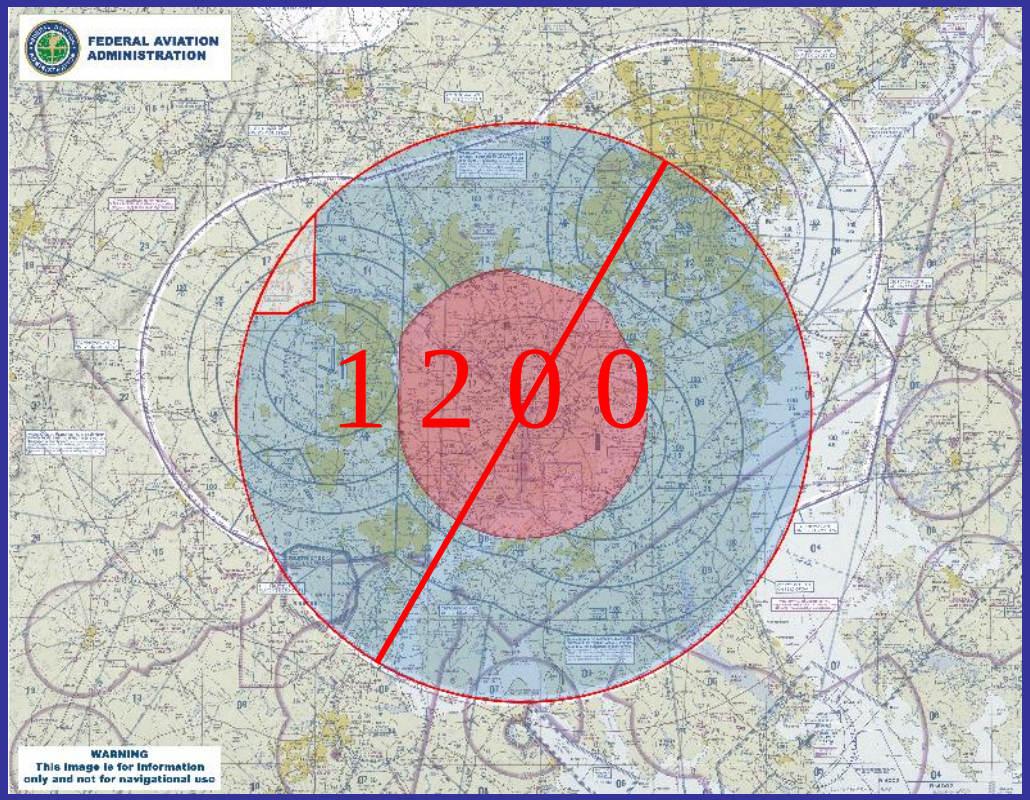
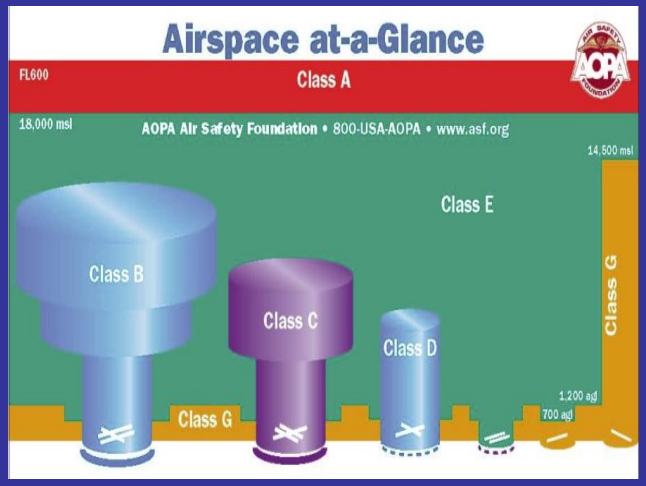


Agenda



1. Uncontrolled Airspace
   a) Class G
2. Controlled Airspace
   a) Class E, Class E Transition and Surface Areas, Victor Airways
   b) Class D, TRSA
   c) Class C
   c) Class B, Mode C Veil, VFR Transition Routes and Flyways, IFR routes
   d) Class A, FL180 – FL600
3. Special Use Airspace and Temporary Flight Restrictions
   a) Special Conservation Area
   b) Prohibited Area, including P-40 (Camp David)
   c) Restricted Area (R-xx)
   d) Alert & Warning Areas (A-xx, W-xx)
   e) Military Training Routes (MTR)
   f) Military Operational Areas (MOA)
   g) National Security Areas (NSA)
   h) (Contiguous) Air Defense Identification Zone (ADIZ)
   i) Temporary Flight Rules (TFRs)
   j) Special Flight Rules Area, including DC SFRA/FRZ
4. Selected Portions of New York Sectional
   a) NYC/EWR/Long Island Portion
   b) North PHL / West Central NJ Portion

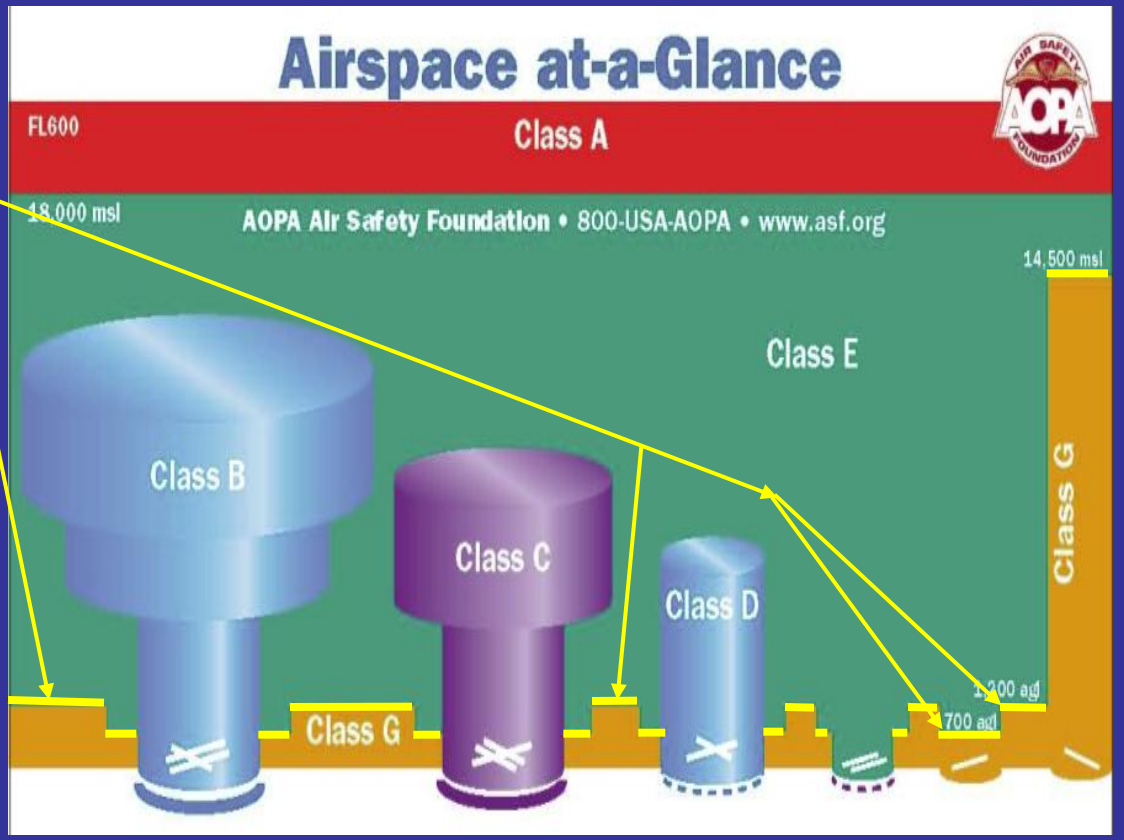
Uncontrolled Airspace (Class G)

Description

- Begins at surface and usually extends to 700' or 1200' AGL
- In daytime, below 10,000' VFR minimus are 1 SM and clear of clouds
- No IFR Clearance or flight plan required to fly IFR in uncontrolled airspace

Requirements/ Limitations

- N/A



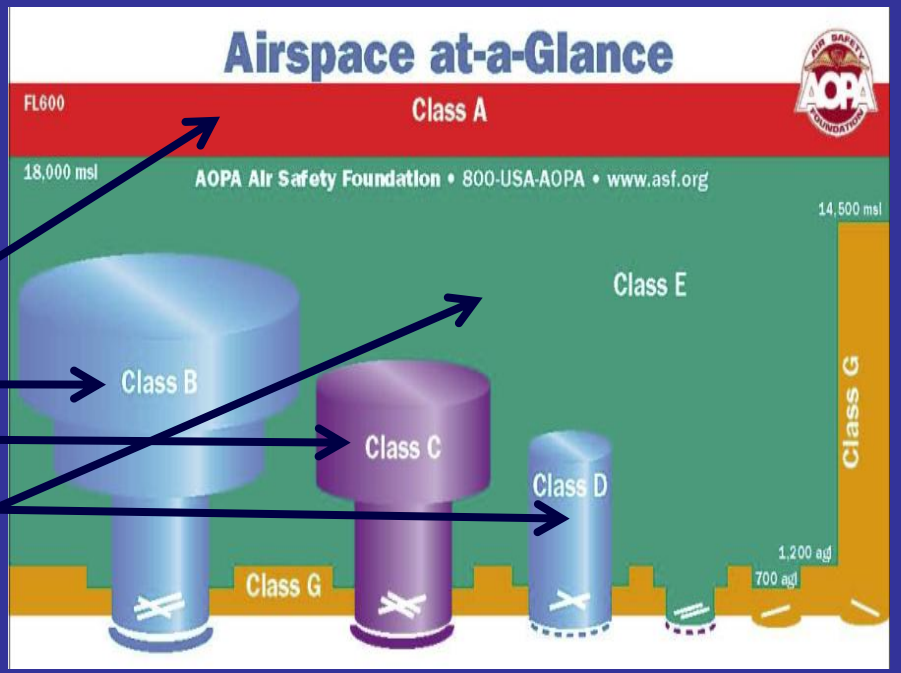
Controlled Airspace

Controlled vs Uncontrolled Airspace

• In **Controlled Airspace**, ATC provides air traffic control services. ATC still provides different types of services in **Uncontrolled Airspace**, if not control services, though.

Types of Controlled Airspace in the US:

1) **Class A (most restrictive)**
2) **Class B**
3) **Class C**
4) **Class D**
5) **Class E (least restrictive)**



Class E Airspace, Transition Area (700 AGL)

Description

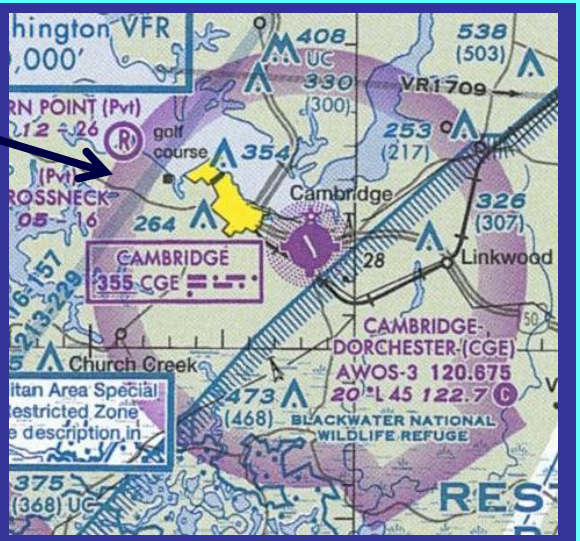
- Surrounds many nontowered airports
- Extends class E airspace downward to accommodate IFR arrivals

Requirements/Limitations

- Visibility: 3 Statute Miles
- Cloud clearance:
  - 500 feet below
  - 1,000 feet above
  - 2,000 feet horizontal

***AIM ≡ Aeronautical Information Manual**

Ref. AIM* 3-2-6(e)(3)



Cambridge, MD Airport

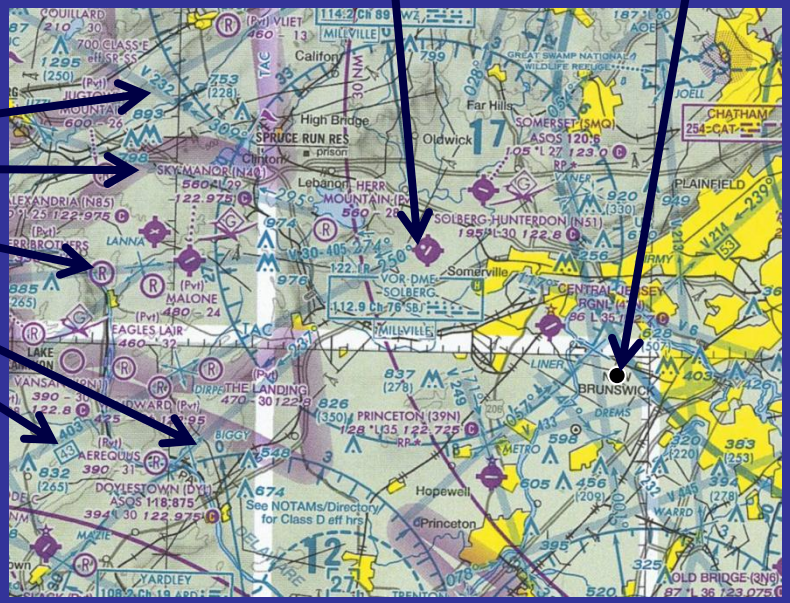
Class E Airspace – Victor Airways

Description

- A special kind of Class E airspace
- The Victor Airways routes connect VOR (**V**HF **O**mni-Range **R**adio) stations
- North-South Victor Airways Odd Numbers
- East-West Victor Airways Even Numbers
- Victor Airways used by both IFR And VFR aircraft
- Airspace set aside for a Victor Airway is 8 miles wide with a floor at 1200' AGL and extend to FL 180 (18,000' MSL).

SOLBERG VOR
(On Solberg Airport)
We Are Here

Victor Airways To/From SOLBERG VOR



Requirements/Limitations

- Visibility: 3 Statute Miles
- Cloud clearance:
  - 500 feet below
  - 1,000 feet above
  - 2,000 feet horizontal

Class E Airspace, Surface Area

Description

- Around some nontowered airports, Class E airspace begins at surface rather than normal 700 or 1200 AGL
- Class D airports with part-time Towers usually become Class E surface areas

Ref. AIM 3-2-6(e)(1) & FAR* 91.127

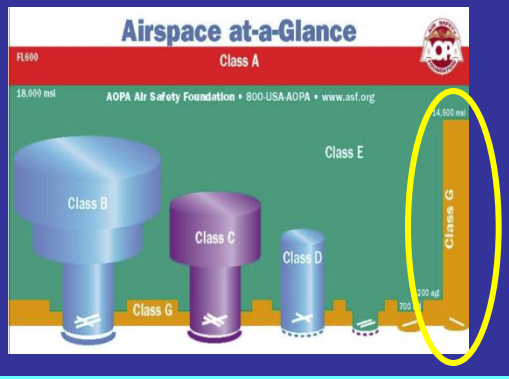
Millville, NJ Airport

Requirements/Limitations

- Visibility: 3 Statute Miles
- Cloud clearance:
  - 500 feet below
  - 1,000 feet above
  - 2,000 feet horizontal

***FAR ≡ FAA Aviation Regulation**

Class E Airspace – Differentiation of Floors



Description

- Differentiates floors of airspace greater than 700' AGL
- When the ceiling is less than 18,000', the altitude prefixed by the word "ceiling" will be shown along the the airspace boundary limits

Requirements/Limitations

- N/A

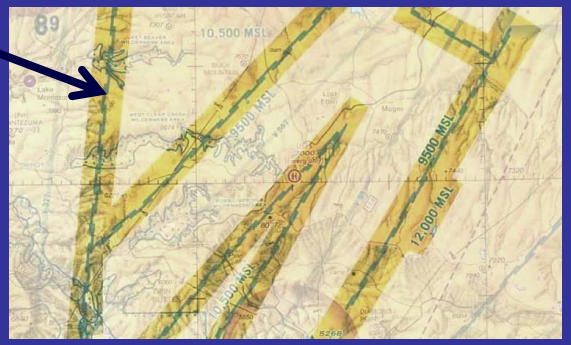
Comments

Typically found in areas of high terrain like the Grand Canyon, for example, and off the east and west coasts of the United States

Ref. NACO* Chart User's Guide

***NACO ≡ FAA National Aeronautical Charting Office**

US East Coast Class E



Grand Canyon Class E

**Caution: ILG subject to frequent closure to GA for Arrival/Departure of VPOTUS

Class D Airspace

Description

- Surrounds smaller towered airports
- Typically 8-10 nm in diameter but individually tailored configuration
- Ceiling generally 2,500 agl
- Reverts to Class E airspace when tower closed
- May contain Class E extensions

Requirements/Limitations

- Establish two-way communication prior to entering
- Visibility: 3 Statute Miles
- Cloud clearance:
  - 500 feet below
  - 1,000 feet above
  - 2,000 feet horizontal

Ref. AIM 3-2-5 and FAR 91.129

New Castle, DE Airport

Terminal Radar Service Area (TRSA)

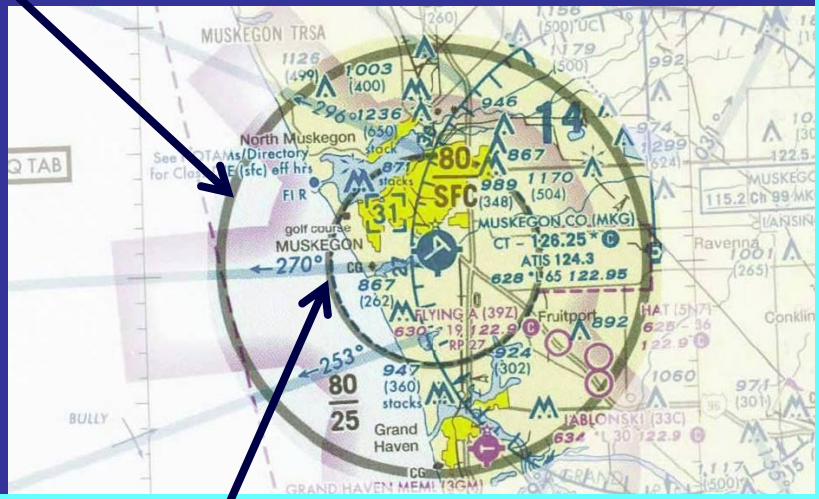
Description

- Surrounds Class D airports with expanded ATC radar services
- Generally, exist at airports where enhanced radar service required but Class C airspace not justified

Requirements/Limitations

- Transponder & 2-way communication for participating aircraft
- Pilots not required to participate
- Rules for Class D airspace apply regardless of pilot participating with TRSA radar services

Ref. AIM 3-5-6 & 4.1.17



Surrounds (SFC to 3100') Class D

Muskegon County Airport

Class C Airspace

Description

- Surrounds certain medium-sized towered airports
- Typically 20 nm in diameter
- Generally includes two segments with different floor/ceiling altitudes
- Usually extends to 4,000 agl

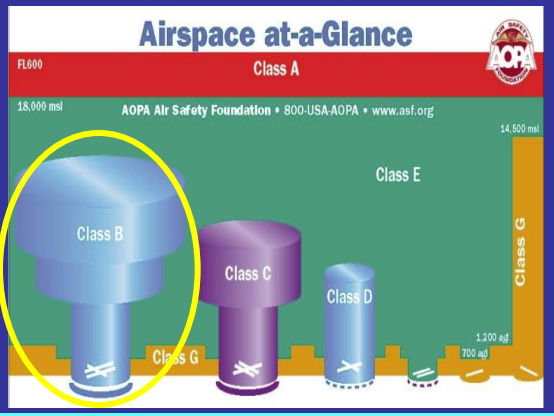
Requirements/Limitations

- Establish and maintain two-way communication prior to entering
- Mode C transponder
- Visibility: Three statute miles
  - Cloud clearance:
    - 500 feet below
    - 1,000 feet above
    - 2,000 feet horizontal

Ref. AIM 3-2-4 & FAR 91.130

Atlantic City Class C

Class B Airspace



Description

- Surrounds certain large airports
- Within each Class B airspace area, there are multiple segments with different ceiling/floor altitudes
- Example: 70/40 = ceiling 7,000' msl, floor 4,000' msl

Requirements/Limitations

- ATC clearance
- Establish and maintain two-way communication prior to entering
- Mode C transponder (including the Mode C veil)
- Visibility: Three statute miles
- Cloud clearance: Clear of clouds
- Student pilot operations restricted

Ref. AIM 3-2-3 & FAR 91.131

Boston Class B Airspace

Class B Airspace

Ref. AIM 3-2-3 & FAR 91.131

Washington Tri-Area Class B

Description

- **Surrounds certain large airports**
- **Within each Class B airspace area, there are multiple segments with different ceiling/floor altitudes**
- **Example: 100/30 = ceiling 10,000' msl, floor 3000' msl**

Requirements/Limitations

- **ATC clearance**
- **Establish and maintain two-way communication prior to entering**
- **Mode C transponder (including the Mode C veil)**
- **Visibility: Three statute miles**
- **Cloud clearance: Clear of clouds**
- **Student pilot operations restricted**

Class B Mode C Veil

Ref. AIM 3-2-3

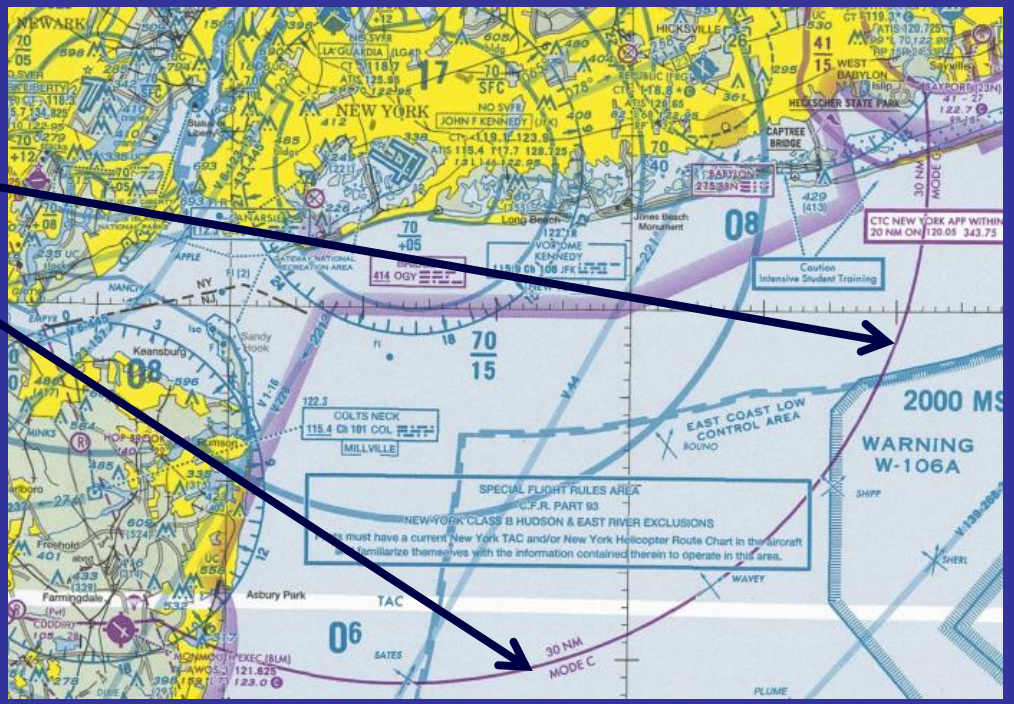
New York Class B Mode C Veil

Description

- Mode C veils exist within 30 nm of most Class B airports.

Requirements/ Limitations

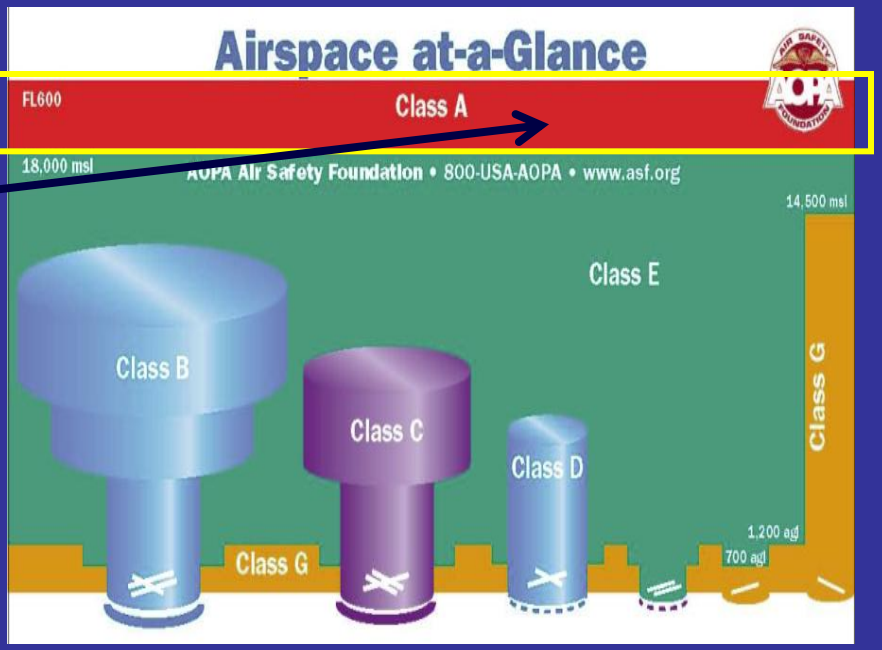
- Mode C transponder
- Certain exemptions apply
  Refer to FAR 91.215
  [includes balloons]



Class A Airspace

Description

- Begins at FL180 (~18,000' MSL) and goes to FL600 (~60,000' MSL)
- No VFR minimums, since all aircraft fly on IFR clearance



Requirements/ Limitations

- Mode C Transponder
- 2-Way Radio & ATC Clearance

Ref. FAR 91.135

Special Conservation Area

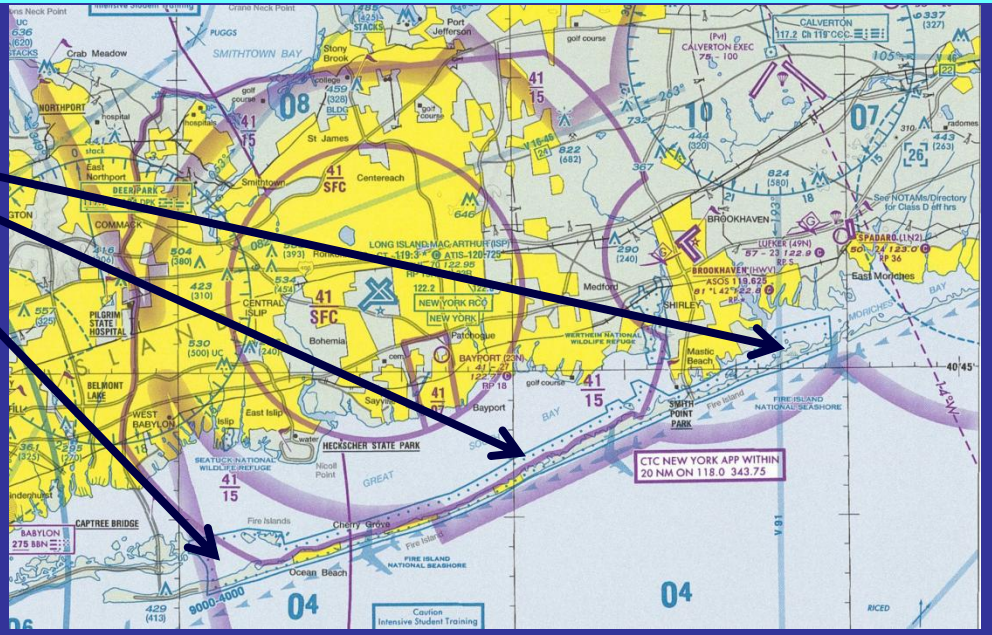
Ref. AIM 7-4**
Example: NY Fire Island National Seashore Conservation Area

Description

- Surrounds many national parks, wildlife refuges, etc.

Requirements/Limitations

- Pilots requested to avoid flight Below 2,000 feet AGL



Section 7-4, AIM = Bird Hazards and Flight Over National Refuges, Parks, and Forests

Prohibited Airspace Area

Description

- Established for security reasons:

  Examples:

  a) Naval Observatory (P-56)

  b) White House & Capitol Building (P-56)

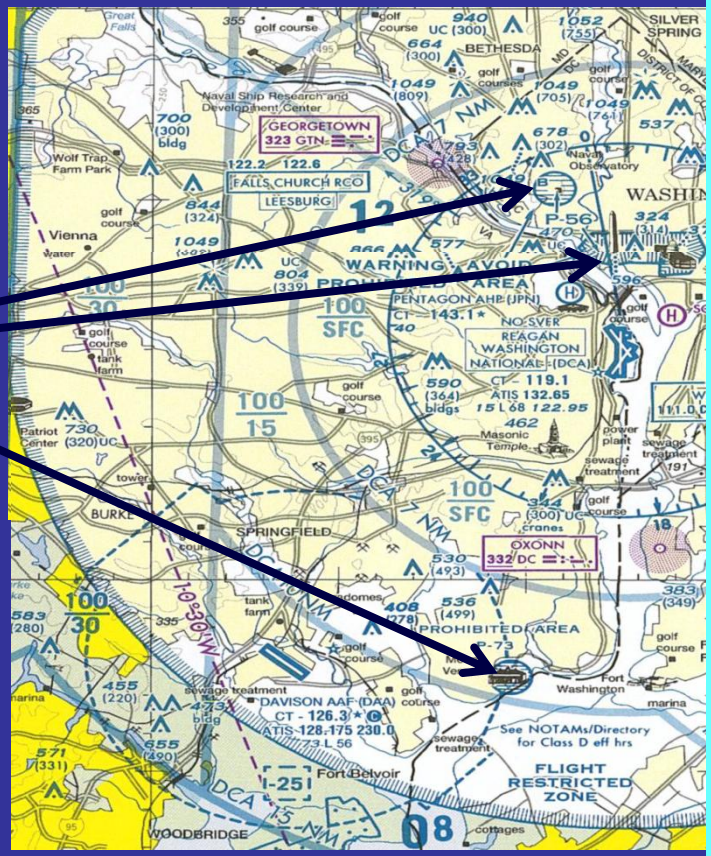
  c) Mount Vernon (P-73)

Requirements/Limitations

- Flight within a Prohibited Area is not permitted

Section 3-4-2, AIM = Prohibited areas ... within which the flight of aircraft is prohibited... These areas are published in the Federal Register and are depicted on aeronautical charts.

Ref. AIM 3-4-2**



Restricted Airspace Area

Description

- Separates civilian traffic from potentially hazardous military traffic

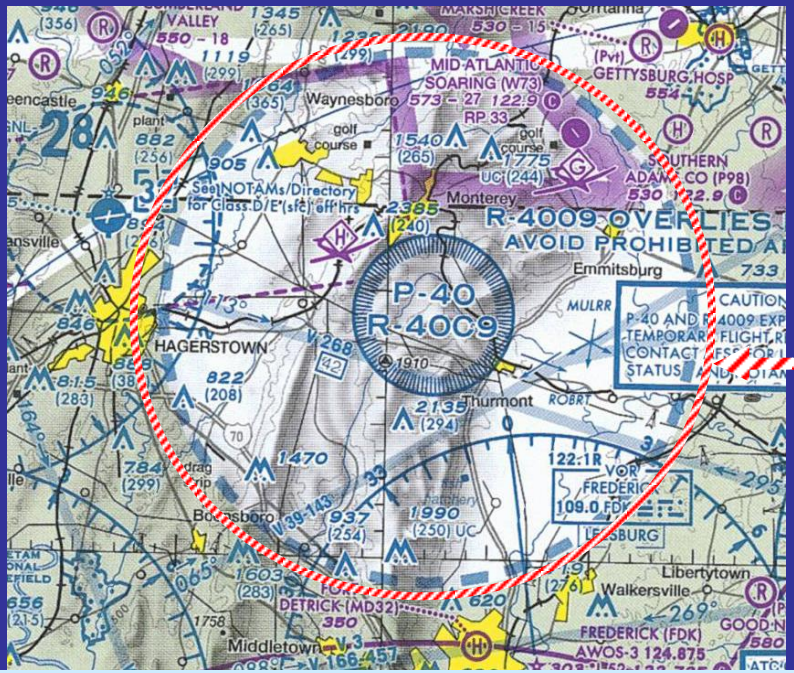
Requirements/Limitations

- Flight through an active Restricted Area is not permitted
- Check with the controlling ATC (on sectional chart) prior to entering (i.e., is R-5001 “Hot” or “Cold”)

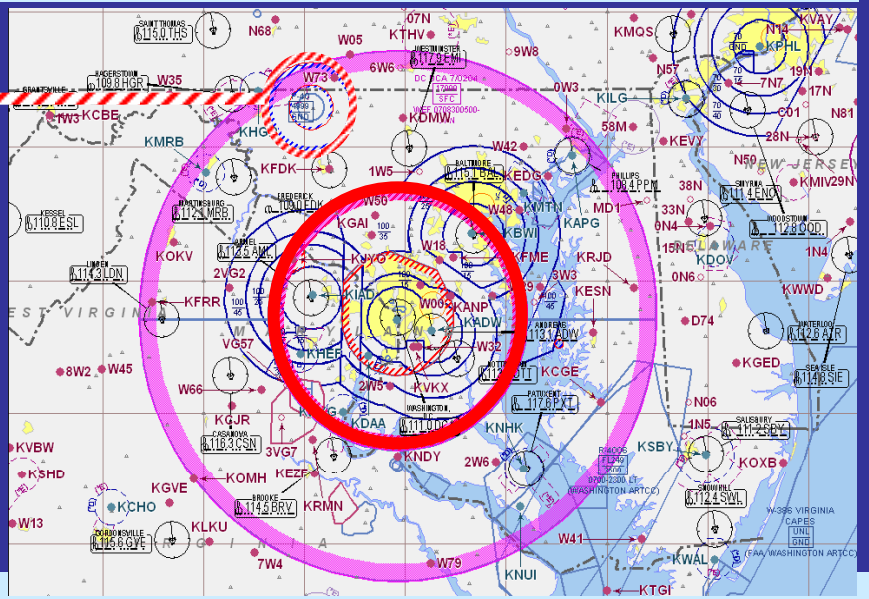
Ref. AIM 3-4-3

Fort Dix R-5001 A&B

P-40, Thurmont, MD
(Camp David – Prohibited Area)



P-40 Centered on FDK351014.8
Normal Size is 3 NM Radius to 5000 ft MSL



P-40 Expands When VIPs Present !!
Flight Thru P-40 Prohibited !!

R-4009 Overlies P-40
Can be Overflown with ZDC Permission

Alert Area

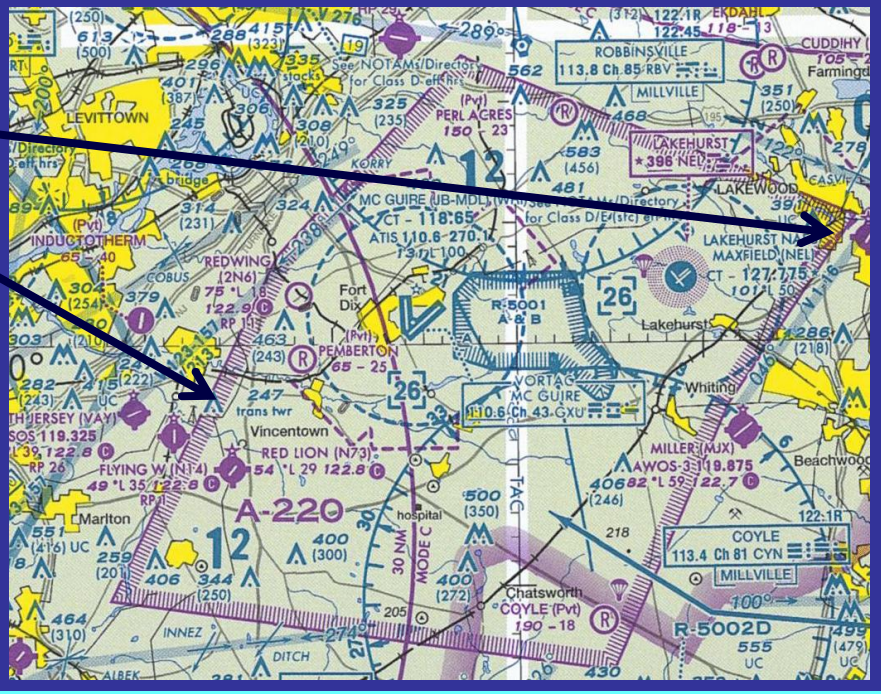
Description

- Established in areas with a high volume of pilot training or unusual type of aerial activity

Requirements/Limitations

- Pilots are advised to be particularly vigilant in scanning for traffic
- Although not required it is advised that you contact ATC prior to entering an Alert Area

Ref. AIM 3-4-6



McGuire Alert Area (A-220)

Warning Area

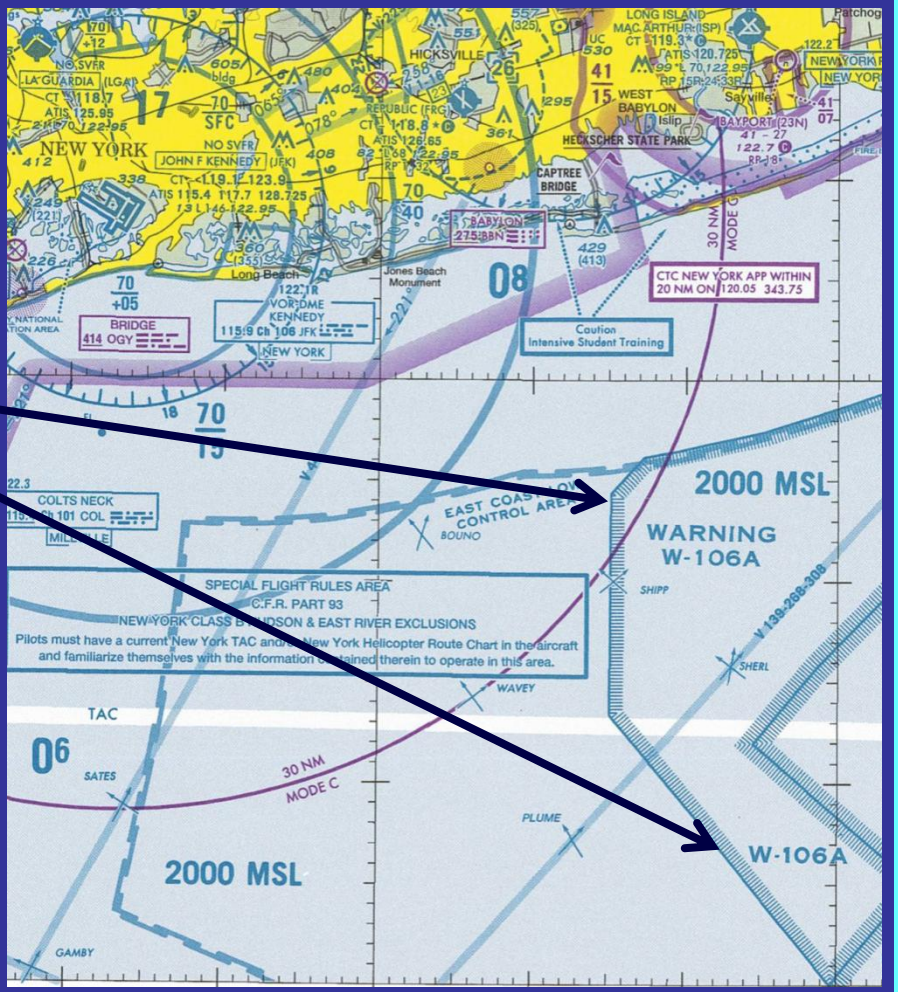
Ref. AIM 3-4-4

Description

- Extends outward from 3 NM off the coast of United States
- Warns pilots of potentially hazardous activity in Airspace

Requirements/Limitations

- VFR flight through WA permitted, but not advisable
- Although not required it is advised that you contact ATC prior to entering an WA



Warning Area W-106A Off Long Island Coast

Military Training Routes (MTRs)

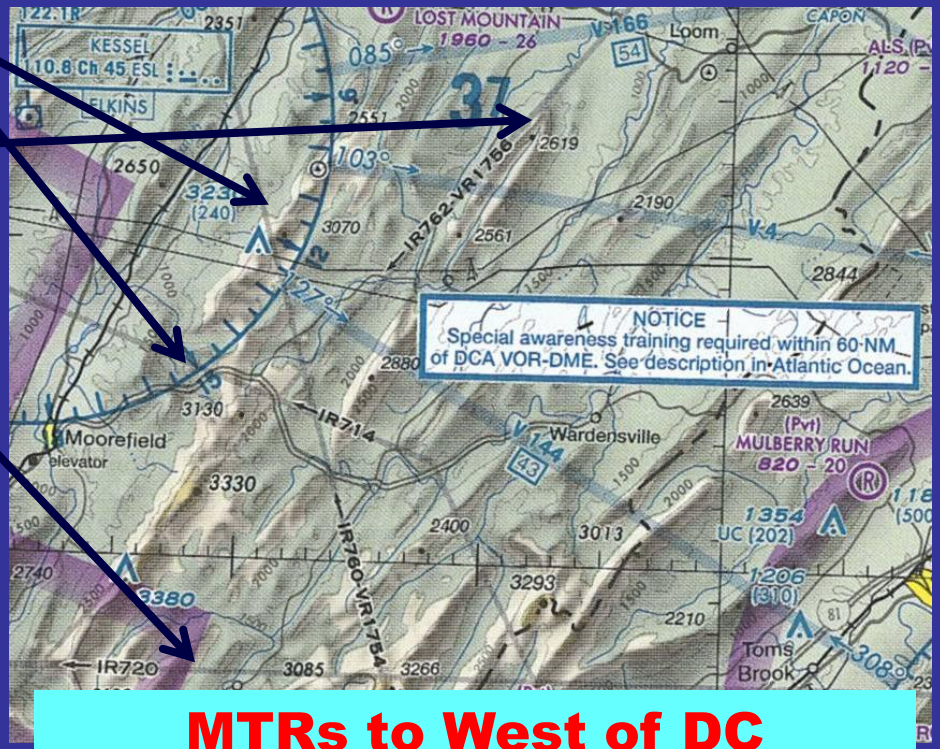
Description

- MTRs prefixed with ‘IR’ are IFR
- MTRs prefixed with ‘VR’ are VFR
- MTRs with 4 numbers flown at ≤1500 feet AGL
- MTRs with 3 numbers flown at >1500 feet AGL

Ref. AIM 3-5-2

Requirements/Limitations

- Pilots are advised to be particularly vigilant in scanning for traffic when flying in vicinity of MTR
- No requirements to fly across or in vicinity of MTR



MTRs to West of DC

Military Operations Area (MOA)

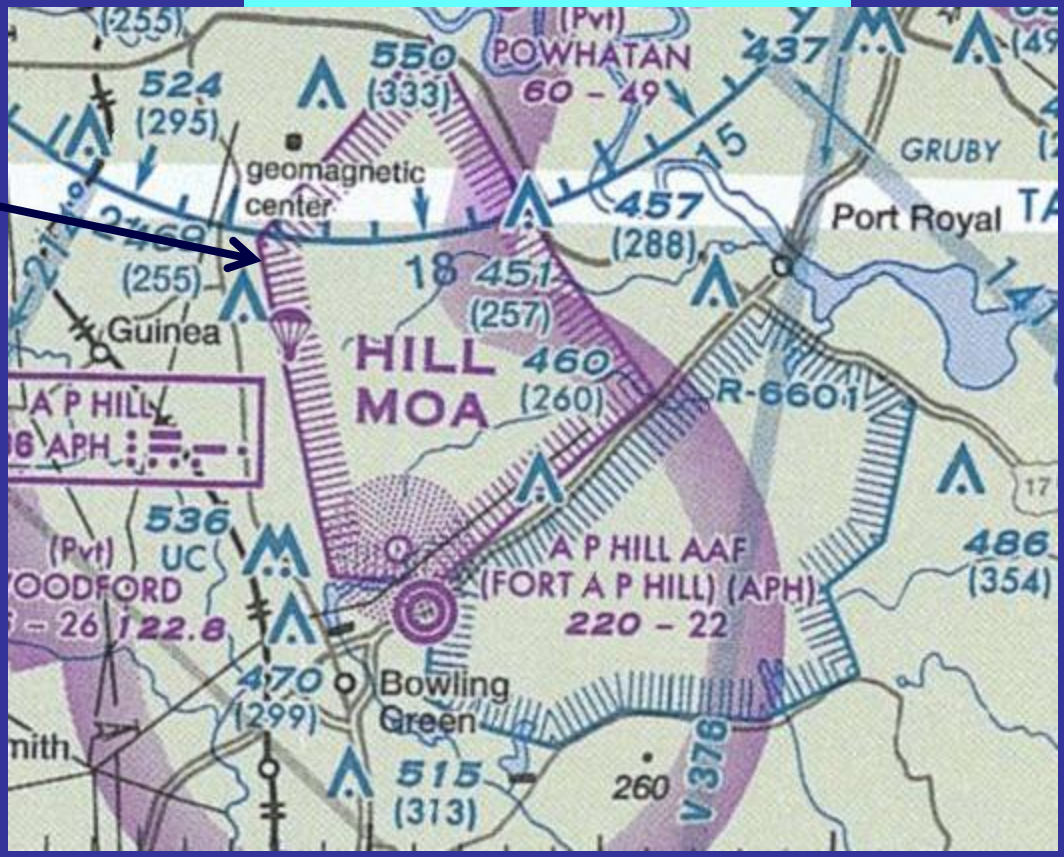
Ref. AIM 3-4-4

Description

- Established to allow military training activities

Requirements/Limitations

- VFR flight through MOAs permitted, but use extreme caution
- Although not required it is advised that you contact ATC prior to entering an MOA



National Security Area (NSA)

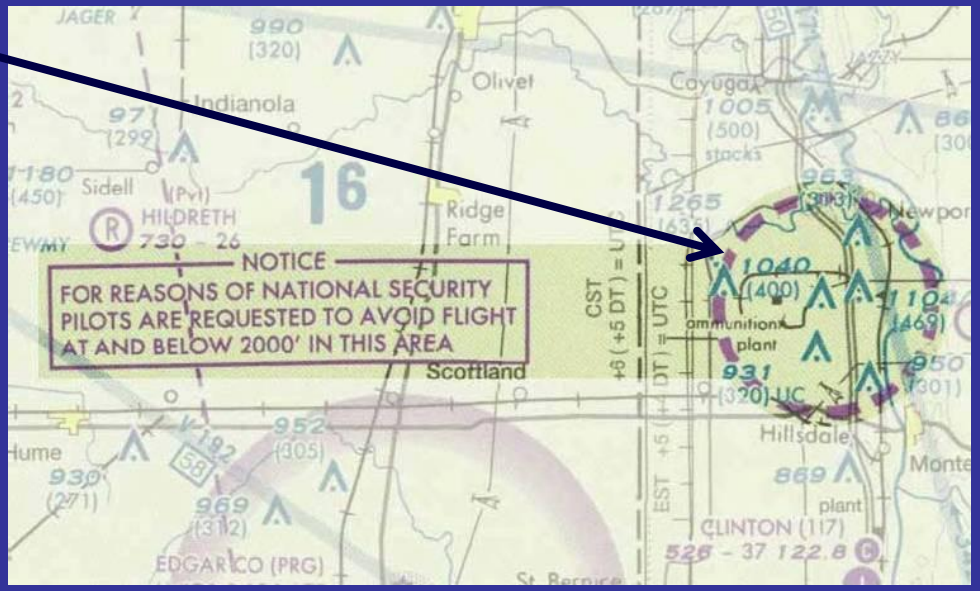
Description

- Established around areas requiring special security precautions

Requirements/Limitations

- Pilots are requested to avoid flight below a specified altitude within NSA
- Flights may be temporarily restricted within NSA

Ref. AIM 3-5-7



Ammunition Plant NSA

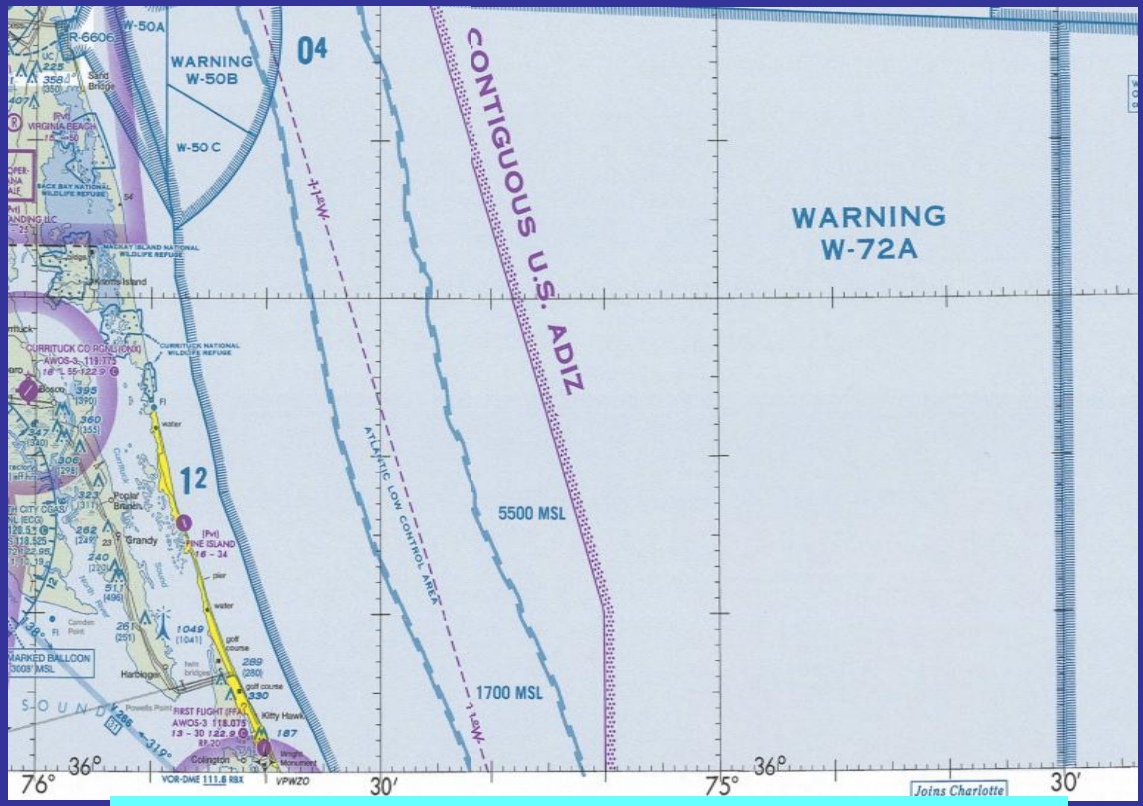
AIR DEFENSE IDENTIFICATION ZONE (ADIZ)

Description

- Surrounds US Border
- All arrival traffic traversing the ADIZ must be on a DVFR or IFR flight plan and talking with ATC prior to penetration of the ADIZ

Requirements/ Limitations

- DVFR or IFR flight plan
- 2-Way communication With ATC prior to penetration

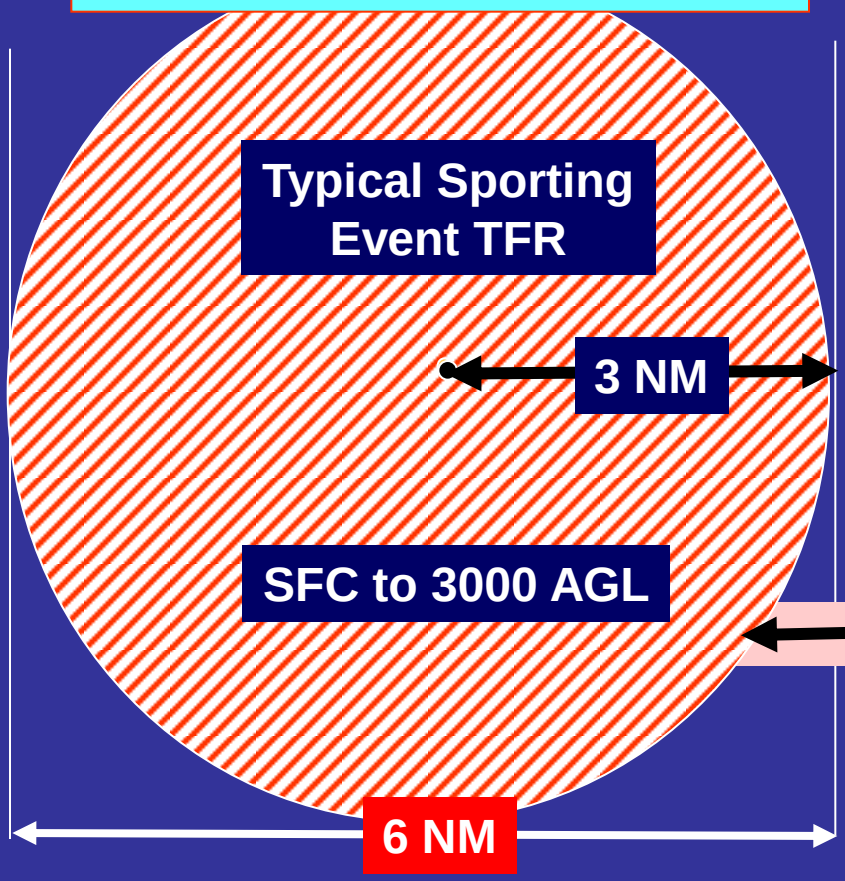


ADIZ off Kitty Hawk, NC Coast

Temporary Flight Restrictions (TFRs)

See NOTAM 9/5151 (Sport Event TFR)

STADIUM with SEATING CAPACITY 30,000+
MLB, NFL, NCAA DIVISION ONE FOOTBALL,
NASCAR SPRINT CUP, INDY CAR.



1. TFRs are created for HAZMAT/Firefighting/ Catastrophe Operations, Volcanic Eruptions, Sporting Events, VIP Activity, etc.
2. Get a FSS Standard Briefing Before Flying !
3. Graphical TFR Information Usually Available at tfr.faa.gov/tfr2/list.html

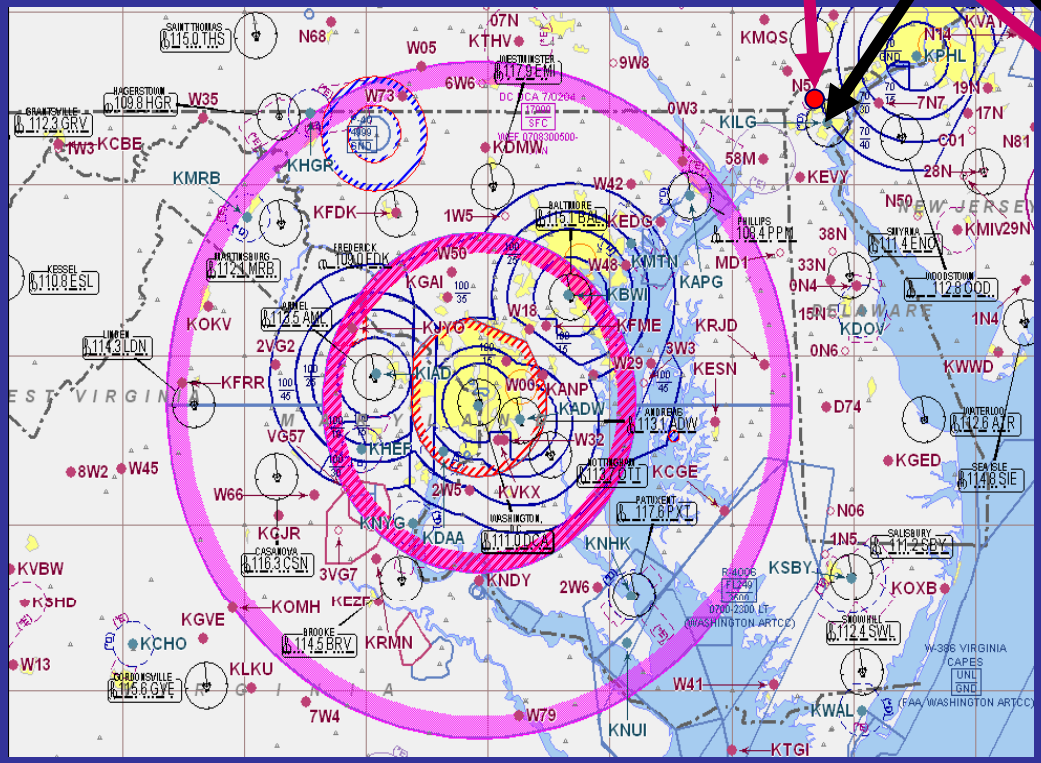
Typical Sporting Event TFR

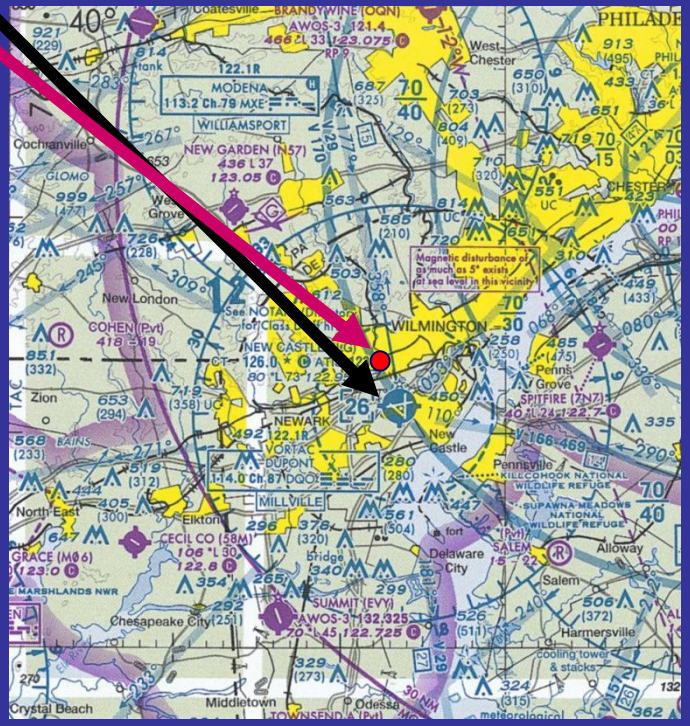
- TFR 3NMR sfc to 3000 AGL
- GA Flt PROHIBITED !
- Effective Times 1 HR Before to 1 HR After Event with 30K People
- Examples: MLB, NFL, NCAA Division 1, NASCAR events

VP TFR, Wilmington, DE

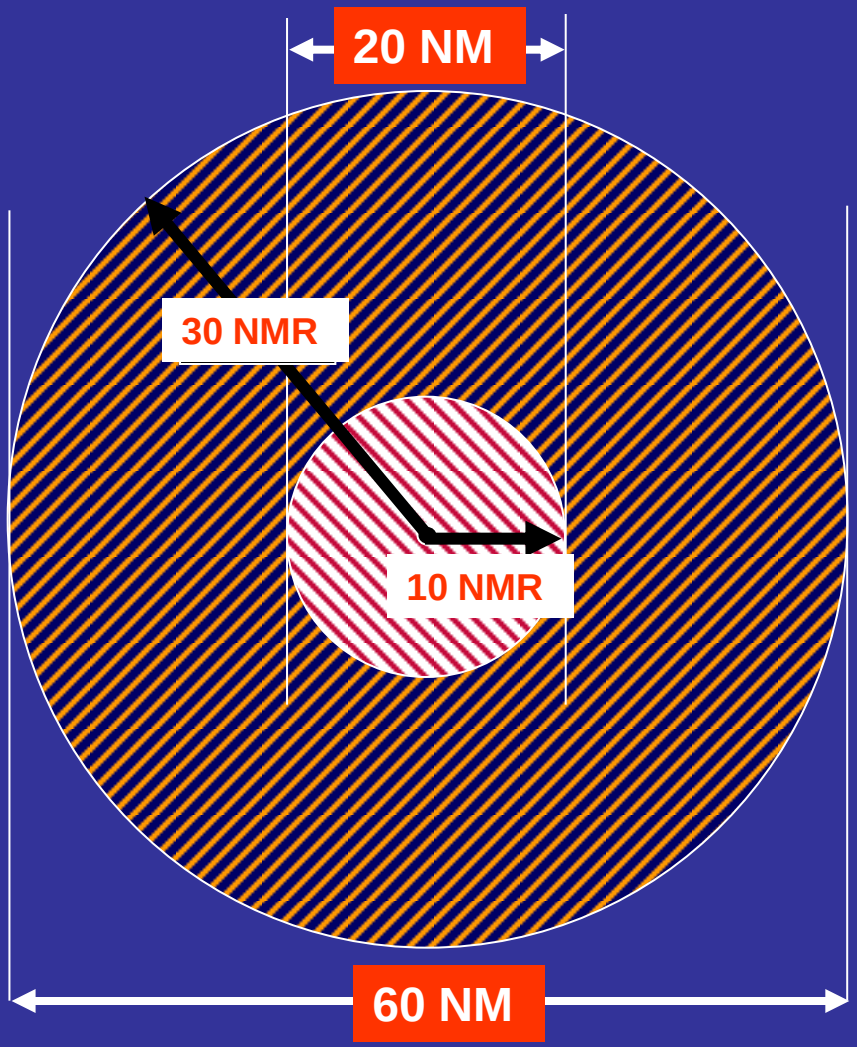
1.0 NMR Sfc to 1500 AGL centered on DQO005005.4

TFR Surrounding Wilmington Airport Frequently in Effect due to VP Travel To/From



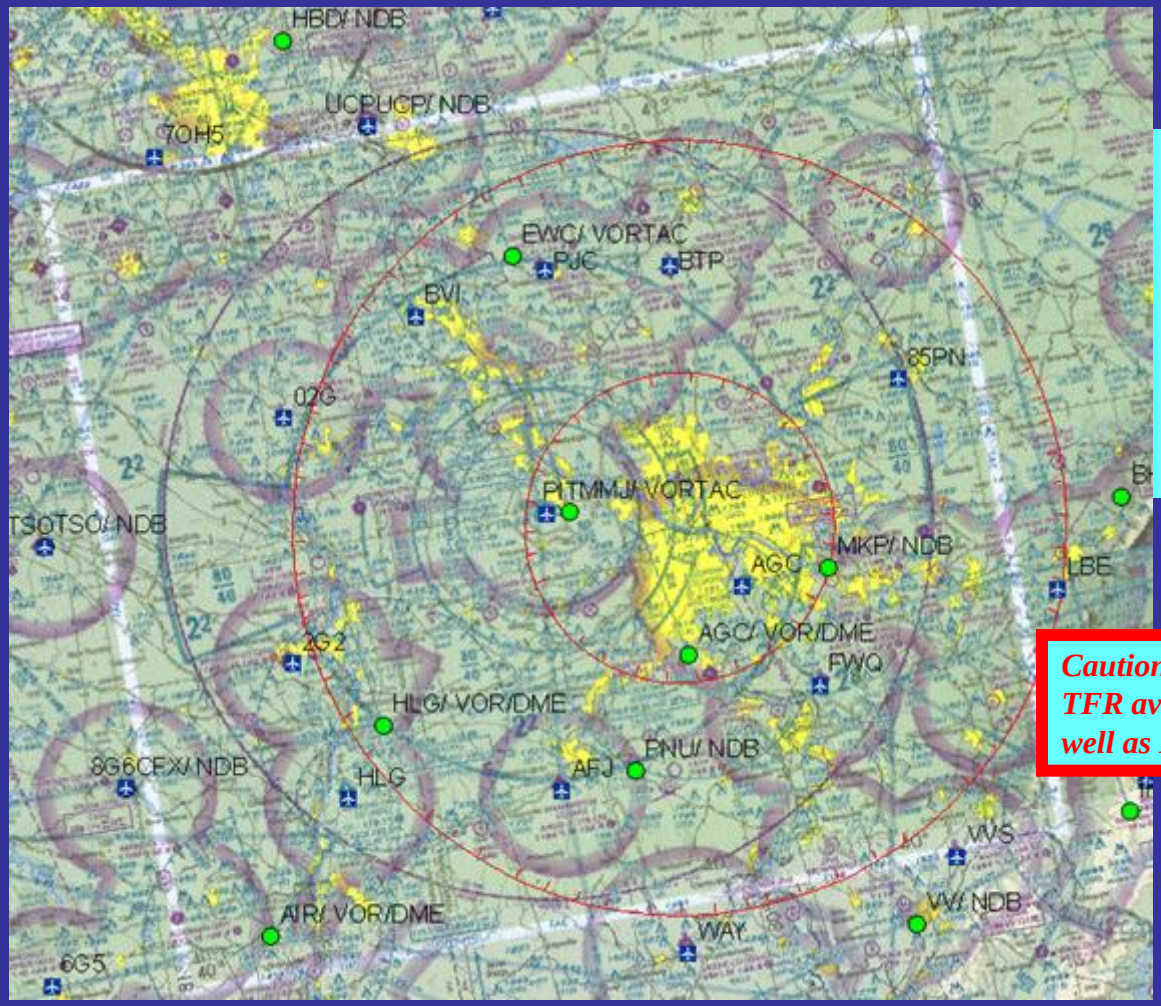


Typical POTUS TFR



1. TFR 30NMR sfc to FL180
2. Inner 10NMR GA No-Fly (GA Flt PROHIBITED !)
3. Outer 10-30NMR GA Fly Rules
   a) GA on IFR or VFR Flt Plan
   b) GA needs ATC permission prior to operating within
   c) GA talking with ATC
   d) GA squawking discrete XPDR code
   e) GA airport opns allowed but training, repeated take-offs/landings prohibited
4. Allows Safe VIP Movement
   a) Effective while VIP present
   b) May move as VIP moves

Pittsburgh, PA 9/24-25 POTUS TFR
Notam 9/9248 eff 3PM 9/24/09 -7PM 9/25/09



10NM No-Fly Areas
Centered on POTUS on-the-ground presence

Outer 30NM Restricted GA Fly Area

a) No flight training allowed
b) Transit limited to access/egress
c) ATC permission required
d) Discrete XPONDR code required
e) Flight plan required.

Caution: This is not to be used for navigation nor for TFR avoidance. Please consult 9/9248 as well as FSS for latest information on this TFR Area

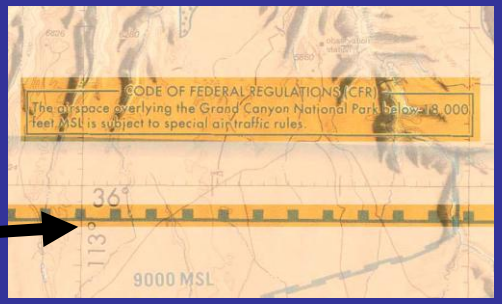
Special Flight Rules Areas (SFRAs)

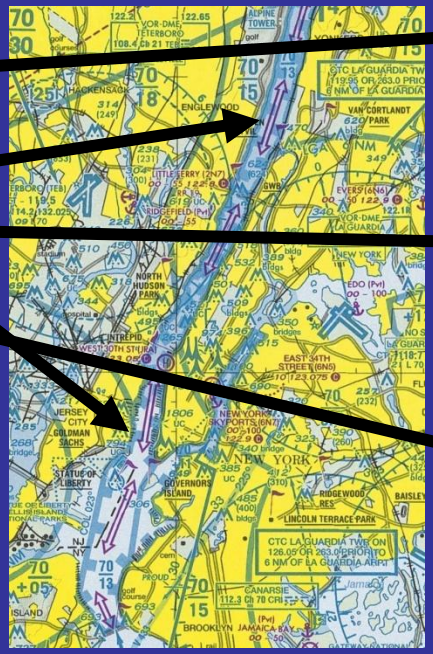
Ref. Part 91 Special Federal Aviation Regulations (SFAR)

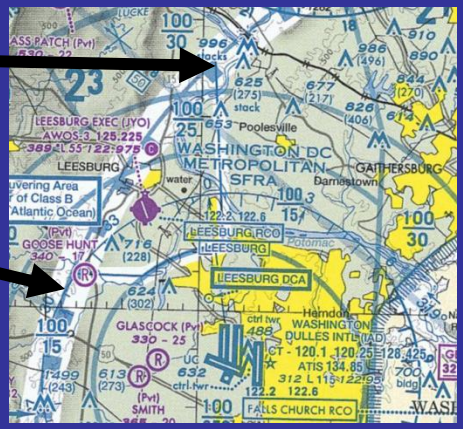
Description

- Depicts Airspace subject to Special Regulation.
- Examples:

1) Grand Canyon,
2) New York City Hudson River.
3) D.C. SFRAs







Requirements/Limitations

- Dependent on individual SFRA

DC Special Flight Rules Area (DC SFRA/FRZ)

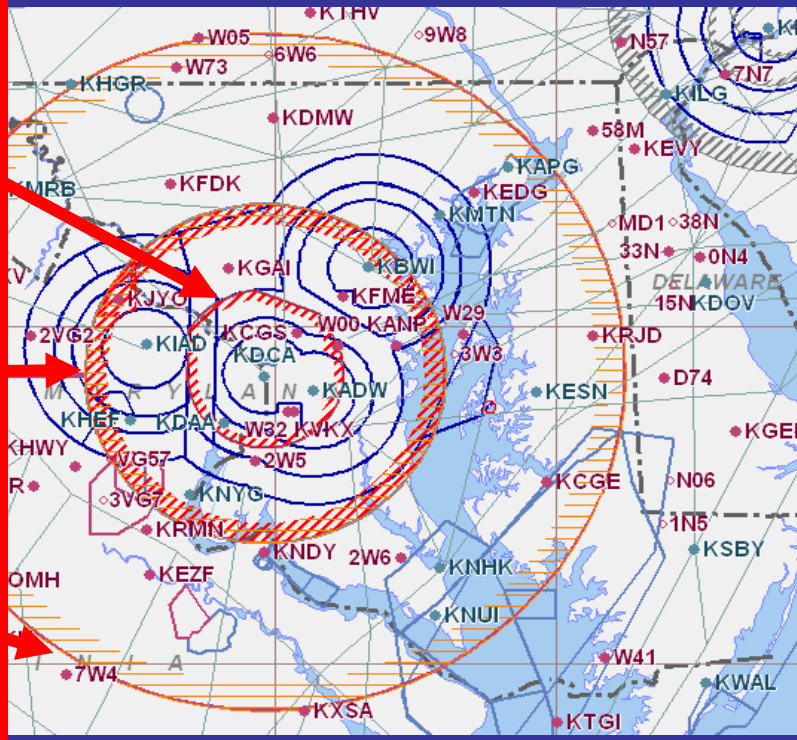
‡‡ Take "Washington DC SFRA/FRZ" online at FAAsafety.gov !!

KEY DCA VOR/DME Values

1. ≤ 15 NM = FRZ (DME varies from 13 to 15)
{GA No-Fly Zone except for DC-3 and DCA Arpts}

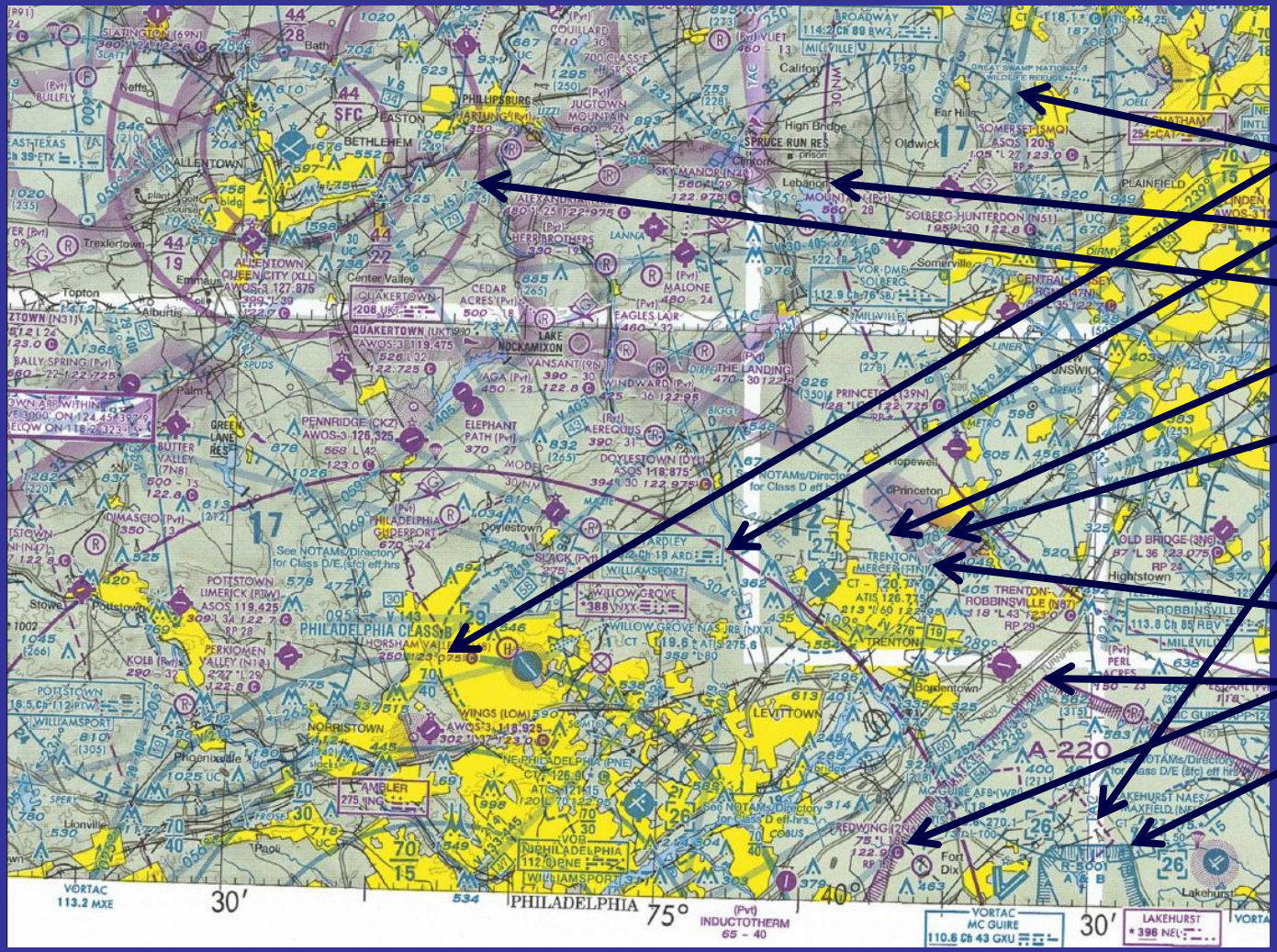
2. ≤ 30 NM = DC SFRA
{SFRA Flt Plan, Mode C Xpondr Code, ATC Communications/Permission, V < 180KIAS for all VFR traffic}

3. ≤ 60 NM = VFR Speed and Training Reqts
{Mandatory Training ‡‡ for all VFR Pilots and V < 230KIAS for all VFR traffic}



SFRA GA Ops Prohibited for National Security Events Such as State of the Union Address!!!!

Types of Airspace North of PHL



Types of Airspace in NYC Area

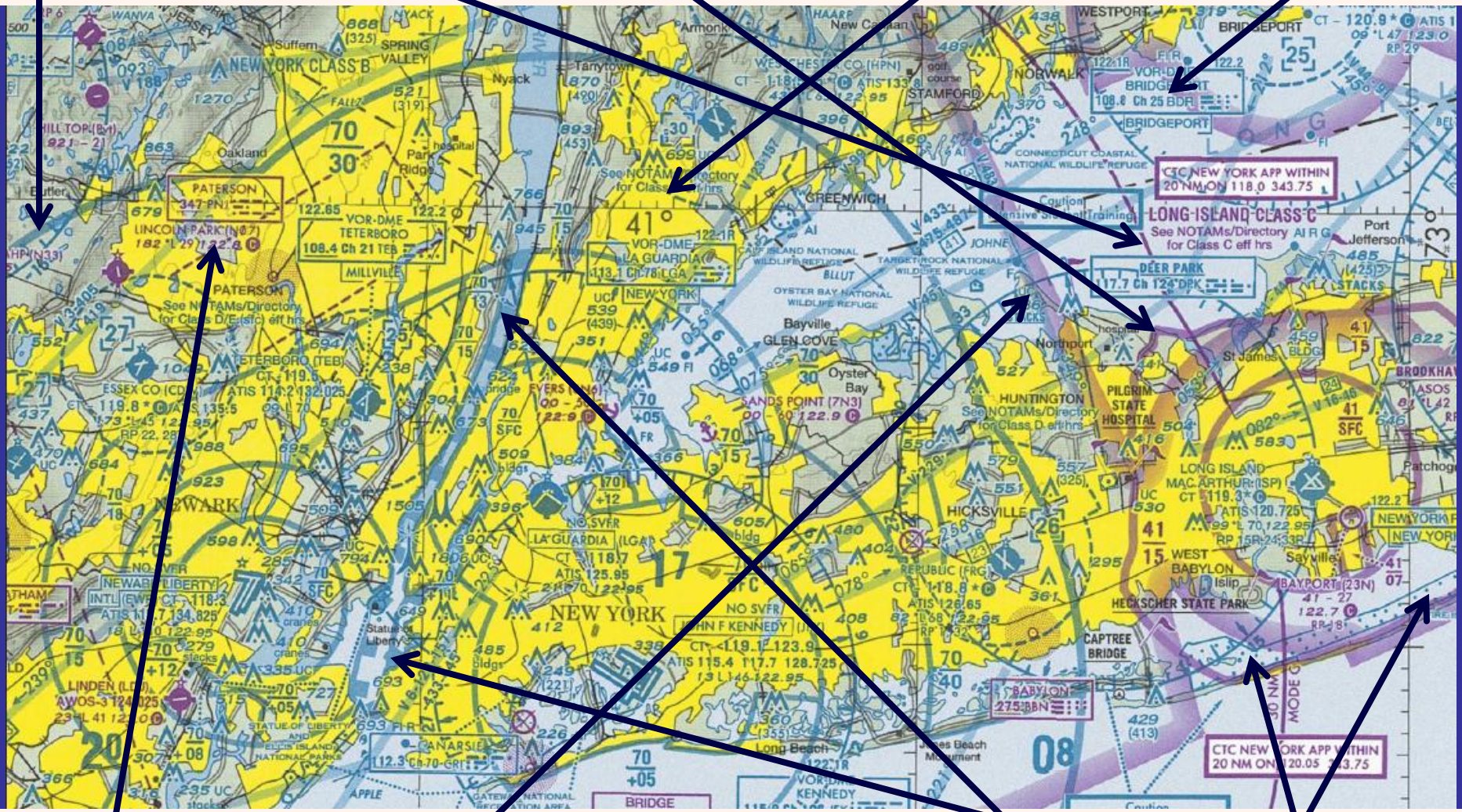
Class B Boundary

Class B Mode C Veil

Class C Boundary

Class D Boundary

Class E 700′ AGL vs 1200′ AGL Boundary



United States National Airspace Summary

Uncontrolled = Class G
Controlled = Class A, B, C, D, E

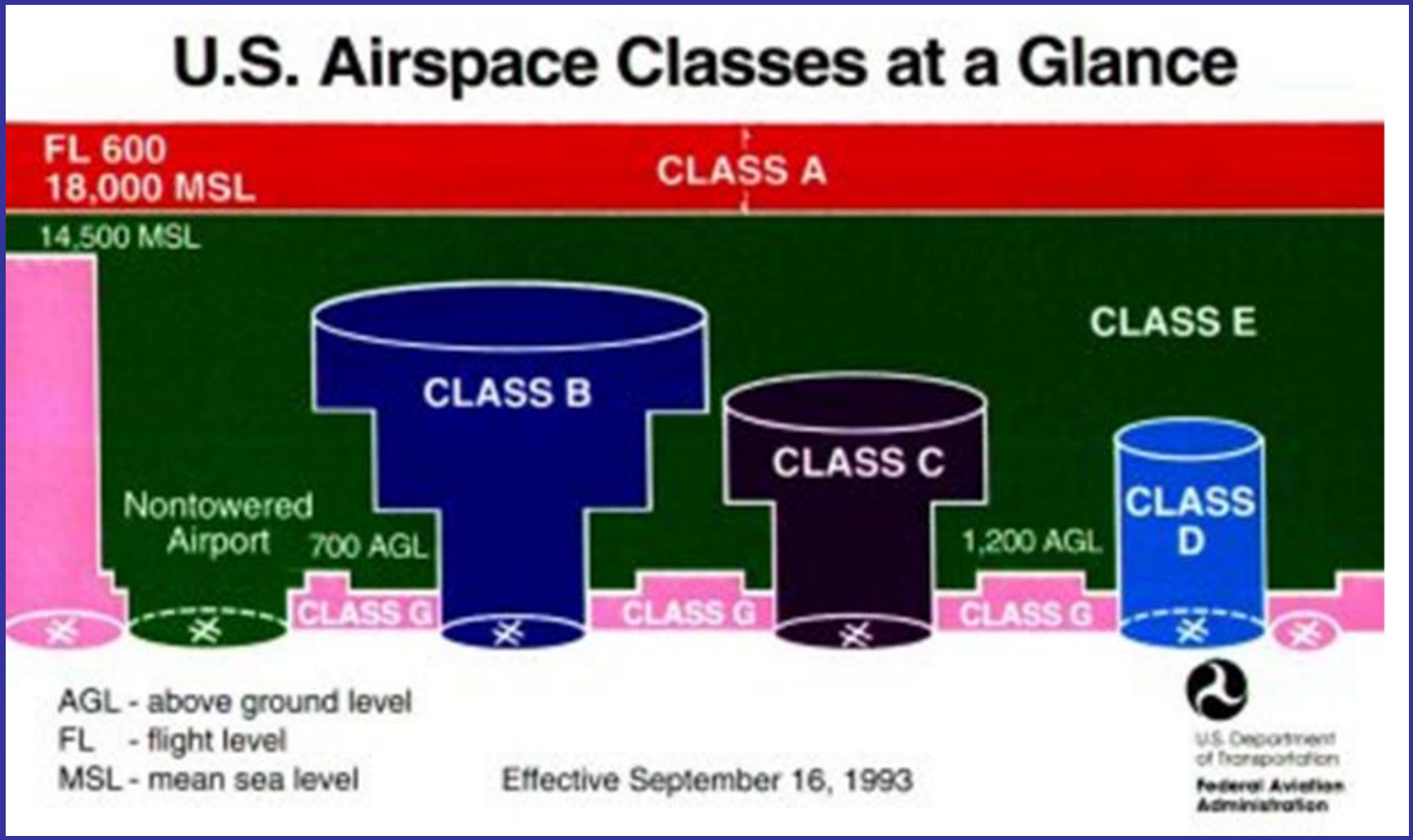
	Class A	Class B	Class C	Class D	Class E	Class G
Minimum Pilot Qualification	Instrument Rating	Student ‡	Student ‡	Student ‡	Student ‡	Student
Entry Requirements	IFR: ATC Clearance VFR: Prohibited	ATC Clearance	IFR: ATC Clearance VFR: 2-Way Com-munication w/ATC	IFR: ATC Clearance VFR: 2-Way Com-munication w/ATC	IFR: ATC Clearance VFR: None	None
VFR Visibility Below 10,000 ‡‡	N/A	3 Statute Miles	3 Statute Miles	3 Statute Miles	3 Statute Miles	Day: 1 Statute Mile Night: 3 Statute Miles
VFR Cloud Clearance Below 10,000	N/A	Clear of Clouds	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 2,000 Horizontal ‡‡‡
VFR Visibility 10,000 msl and Above ‡‡	N/A	3 Statute Miles	3 Statute Miles	3 Statute Miles	5 Statute Miles	5 Statute Miles
VFR Cloud Clearance 10,000 msl and Above	N/A	Clear of Clouds	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 2,000 Horizontal	1,000 Below 1,000 Above 1 Statute Mile Horiz	1,000 Below 1,000 Above 1 Statute Mile Horiz

‡ Students (solo students, sport, recreational) must meet the applicable Part 61 requirements prior to operation in Class E with an Operating Control Tower, Class B, Class C, or Class D

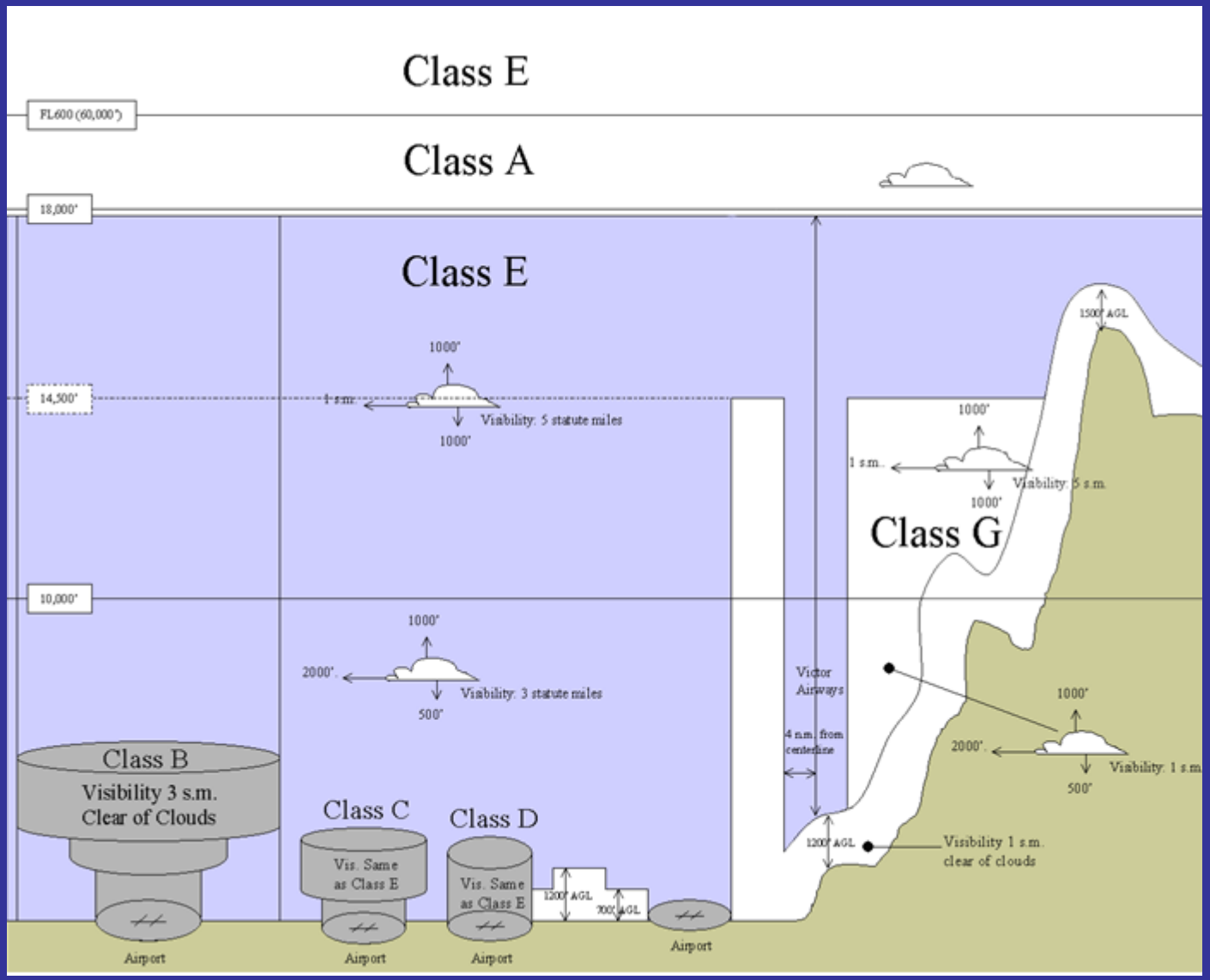
‡‡ Student operations require 3 statute miles during day and 5 statute miles during night

‡‡‡ Class G VFR cloud clearance at 1,200 agl and below (day) is clear of clouds

United States National Airspace Summary



United States National Airspace Summary



VFR Transition Routes

Ref. AIM 3-5-5

Description

- Used by ATC to route VFR traffic through Class B airspace
- Depicted on terminal area charts (TACs)

Requirements/ Limitations

- ATC clearance
- Mode C transponder
- Adherence to published route and ATC instructions

VFR Flyways

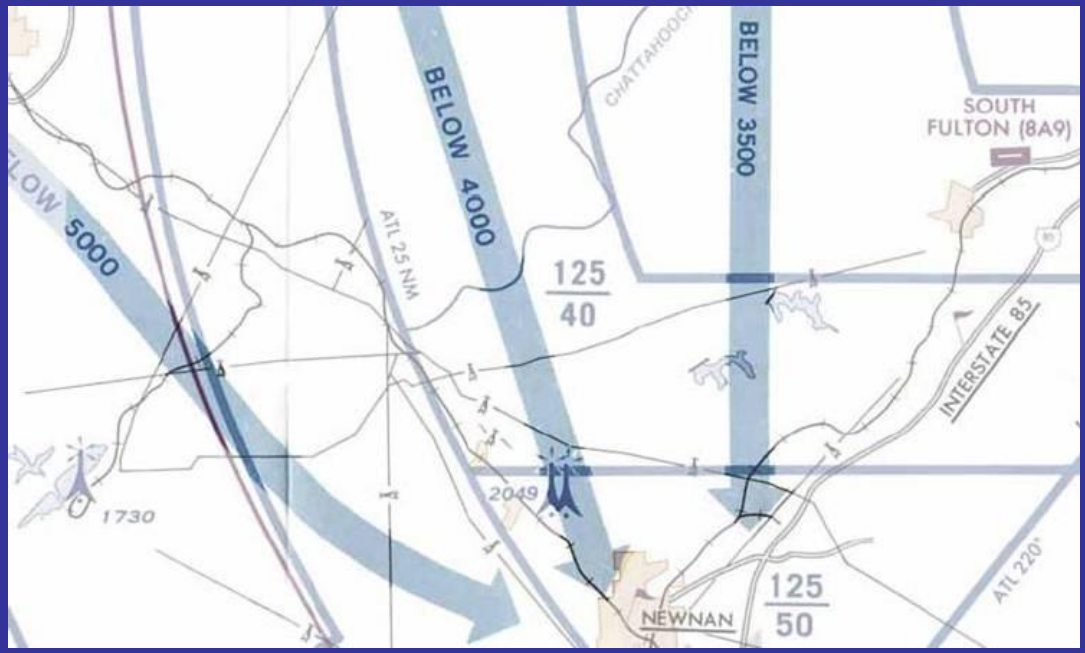
Description

- A general flight path that helps pilots plan flights into, out of, through, or near complex terminal airspace to avoid Class B airspace
- ATC clearance not required

Requirements/Limitations

- Mode C transponder
- Pilot must still comply with requirements for other airspace entered
- Depicted on the back of terminal area charts

Ref. AIM 3-5-5



IFR Routes

Description

• Only depicted on VFR Terminal Area Charts

• Shows arrival and departure routes and altitudes of IFR traffic into and out of the terminal area of Class B airspace

Requirements/ Limitations

• Not Applicable

• VFR pilots must be on the lookout for IFR traffic when naviagating in vicinity of these routes