Federal Aviation Administration

Aeronautical Information Services

Aeronautical Chart User's Guide

Effective as of 20 June 2019

Table of Contents

Table of Contents

Table of Contents

INTRODUCTION

This Chart User's Guide is an introduction to the Federal Aviation Administration's (FAA) aeronautical charts and publications. It is useful to new pilots as a learning aid, and to experienced pilots as a quick reference guide.

The FAA is the source for all data and information utilized in the publishing of aeronautical charts through authorized publishers for each stage of Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) air navigation including training, planning, and departures, enroute (for low and high altitudes), approaches, and taxiing charts. Digital charts are available online at:

- VFR Charts - https://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/vfr/
- IFR Charts - https://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/ifr/
- Terminal Procedures Publication - http://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/dtpp/
- Chart Supplements - https://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/dafd/

Paper copies of the charts are available through an FAA Approved Print Provider. A complete list of current providers is available at http://www.faa.gov/air_traffic/flight_info/aeronav/print_providers/

The FAA Aeronautical Information Manual (AIM) Pilot/Controller Glossary defines in detail, all terms and abbreviations used throughout this publication. Unless otherwise indicated, miles are nautical miles (NM), altitudes indicate feet above Mean Sea Level (MSL), and times used are Coordinated Universal Time (UTC).

The Notices to Airmen Publication (NOTAM) includes current Flight Data Center (FDC) NOTAMs. NOTAMs alert pilots of new regulatory requirements and reflect changes to Standard Instrument Approach Procedures (SIAPs), flight restrictions, and aeronautical chart revisions. This publication is prepared every 28 days by the FAA, and is available by subscription from the Government Printing Office. For more information on subscribing or to access online PDF copy, http://www.faa.gov/air_traffic/publications/notices/

In addition to NOTAMs, the Chart Supplement and the Safety Alerts/Charting Notices page of the Aeronautical Information Services website are also useful to pilots

KEEP YOUR CHARTS CURRENT

Aeronautical information changes rapidly, so it is important that pilots check the effective dates on each aeronautical chart and publication. To avoid danger, it is important to always use current editions and discard obsolete charts and publications.

To confirm that a chart or publication is current, refer to the next scheduled edition date printed on the cover. Pilots should also check Aeronautical Chart Bulletins and NOTAMs for important updates between chart and publication cycles that are essential for safe flight.

EFFECTIVE DATE OF CHART USER'S GUIDE AND UPDATES

All information in this guide is effective as of **20 June 2019**. All graphics used in this guide are for educational purposes. Chart symbology may not be to scale. Please do not use them for flight navigation.

The Chart User's Guide is updated as necessary when there is new chart symbology or changes in the depiction of information and/or symbols on the charts. When there are changes, it will be in accordance with the 56-day aeronautical chart product schedule.

COLOR VARIATION

Although the digital files are compiled in accordance with charting specifications, the final product may vary slightly in appearance due to differences in printing techniques/processes and/or digital display techniques.

REPORTING CHART DISCREPANCIES

Your experience as a pilot is valuable and your feedback is important. We make every effort to display accurate information on all FAA charts and publications, so we appreciate your input. Please notify us concerning any requests for changes, or potential discrepancies you see while using our charts and related products.

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Aeronautical Inquires: http://www.faa.gov/air_traffic/flight_info/aeronav/aero_data/Aeronautical_Inquiries/

WHAT'S NEW?

Update as of 20 June 2019

The following charting items have been added to the Online Chart User's Guide since the Guide was last published on 25 April 2019:

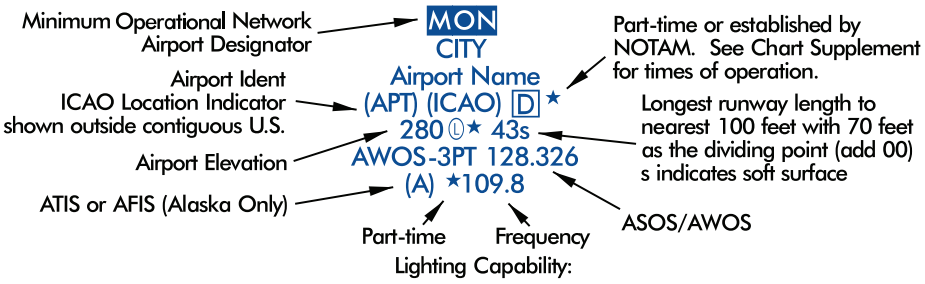
VFR CHARTS

No Changes Applied

IFR ENROUTE CHARTS

VOR MINIMUM OPERATIONAL NETWORK (MON) AIRPORT DESIGNATOR

Effective June 20, 2019, IFR US Enroute Charts will symbolize VOR Minimum Operational Network (MON) airports with the MON designator placed above the airport name in reverse negative text. The intent of the MON designation is to alert pilots, in the event of a GPS outage, of those airports that have retained ILS and VOR instrument approach procedures for safe recovery during such an outage.



TERMINAL PROCEDURE PUBLICATIONS (TPPS)

No Changes Applied

EXPLANATION OF VFR TERMS AND SYMBOLS

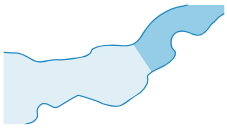
This chapter covers the Sectional Aeronautical Chart (Sectional). These charts include the most current data at a scale of (1:500,000) which is large enough to be read easily by pilots flying by sight under Visual Flight Rules. Sectionals are named after a major city within its area of coverage.

The chart legend includes aeronautical symbols and information about drainage, terrain, the contour of the land, and elevation. You can learn to identify aeronautical, topographical, and obstruction symbols (such as radio and television towers) by using the legend.

A brief description next to a small black square indicates the exact location for many of the landmarks easily recognized from the air, such as stadiums, pumping stations, refineries, etc. A small black open circle with descriptive type indicates oil, gas or mineral wells. A small black circle with descriptive type indicates water, oil or gas tanks. The scale for some items may be increased to make them easier to read on the chart.

Aeronautical Information Services' charts are prepared in accordance with specifications of the Interagency Air Committee (IAC) and are approved by representatives of the Federal Aviation Administration (FAA) and the Department of Defense (DoD).

WATER FEATURES (HYDROGRAPHY)



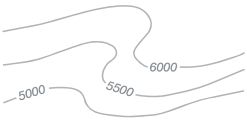
Water features are depicted using two tones of blue, and are considered either "Open Water" or "Inland Water." "Open Water," a lighter blue tone, shows the shoreline limitations of all coastal water features at the average (mean) high water levels for oceans and seas. Light blue also represents the connecting waters like bays, gulfs, sounds and large estuaries.

Exceptionally large lakes like the Great Lakes, Great Salt Lake, and Lake Okeechobee, etc., are considered Open Water features. The Open Water tone extends inland as far as necessary to adjoin the darker blue "Inland Water" tones. All other bodies of water are marked as "Inland Water" in the darker blue tone.

LAND FEATURES (TERRAIN) AND OBSTRUCTIONS

The elevation and configuration of the Earth's surface is important to pilots. Our Aeronautical Information Specialists are devoted to showing the contour of the earth and any obstructions clearly and accurately on our charts. We use five different techniques: contour lines, shaded relief, color tints, obstruction symbols, and Maximum Elevation Figures (MEF).

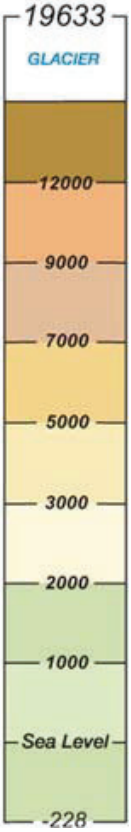
1. Contour lines join points of equal elevation. On Sectionals, basic contours are spaced at 500' intervals. Intermediate contours are typically at 250' intervals in moderately level or gently rolling areas. Auxiliary contours at 50', 100', 125', or 150' intervals occasionally show smaller relief features in areas of relatively low relief. The pattern of these lines and their spacing gives the pilot a visual concept of the terrain. Widely spaced contours represent gentle slopes, while closely spaced contours represent steep slopes.



2. Shaded relief shows how terrain may appear from the air. Shadows are shown as if light is coming from the northwest, because studies have shown that our visual perception has been conditioned to this view.

3. Different color tints show bands of elevation relative to sea level. These colors range from light green for the lower elevations, to dark brown for the higher elevations.

4. Obstruction symbols show man made vertical features that could affect safe navigation. FAA's Aeronautical Information Manual (AIM) maintains a database of over obstacles in the United States, Canada, the Caribbean, Mexico and U.S. Pacific Island Territories. Aeronautical Specialists evaluate each obstacle based on charting specifications before adding it to a visual chart. When a Specialist is not able to verify the position or elevation of an obstacle, it is marked UC, meaning it is "under construction" or being reported, but has not been verified.



The FAA uses a Digital Obstacle File (DOF) to collect and disseminate data. Because land and obstructions frequently change, the source data on obstructions and terrain is occasionally incomplete or not accurate enough for use in aeronautical publications. For example, when the FAA receives notification about an obstruction, and there is insufficient detail to determine its position and elevation, the FAA Flight Edit Program conducts an investigation.

The Flight Edit crew visually verifies the cultural, topographic, and obstacle data. Charts are generally flight-checked every four years. This review includes checking for any obstruction that has been recently built, altered, or dismantled without proper notification.

Obstacles less than 1000' AGL.

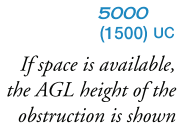
Obstacles 1000' AGL or greater.

Sectional Charts, Terminal Area (TACs) and Caribbean Charts (CACs) typically show man-made obstacles extending more than 200' Above Ground Level (AGL), or more than 299' AGL in yellow city tint. Features considered to be hazardous obstacles to low-level flight are; smokestacks, tanks, factories, lookout towers, and antennas, etc.

Man-made features used by FAA Air Traffic Control as checkpoints use a graphic symbol shown in black with the required elevation data in blue. The elevation of the top of the obstacle above Mean Sea Level (MSL) and the height of the structure (AGL) is also indicated (when known or can be reliably determined by a Specialist). The AGL height is in parentheses below the MSL elevation. In extremely congested areas, the FAA typically omits the AGL values to avoid confusion.

Group Obstacle Symbol

Whenever possible, the FAA depicts specific obstacles on charts. However, in high-density areas like city complexes, only the highest obstacle is represented on the chart using the group obstacle symbol to maximize legibility.



If space is available, the AGL height of the obstruction is shown

Obstacles under construction are indicated by placing the letters UC adjacent to the obstacle type.

Guy wires may extend outward from obstacles.

Obstacles with high-intensity strobe lighting systems may operate part-time or by proximity activation and are shown as follows:

5. The Maximum Elevation Figure (MEF) represents the highest elevation within a quadrant, including terrain and other vertical obstacles (towers, trees, etc.). A quadrant on Sectionals is the area bounded by ticked lines dividing each 30 minutes of latitude and each 30 minutes of longitude. MEF figures are rounded up to the nearest 100' value and the last two digits of the number are not shown.

In this example the MEF represents 12,500'.

MEFs over land and open water areas are used in areas containing man-made obstacles such as oil rigs.

In the determination of MEFs, the FAA uses extreme care to calculate the values based on the existing elevation data shown on source material. Aeronautical Information Specialists use the following procedure to calculate MEFs:

MEF - Man-made Obstacle

When a man-made obstacle is more than 200' above the highest terrain within the quadrant:

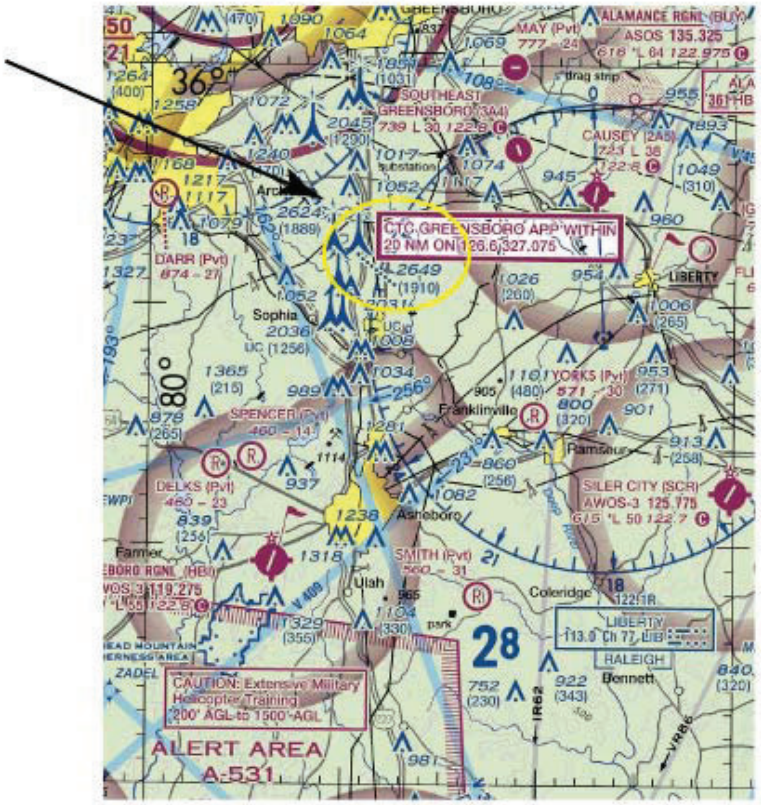
1. Determine the elevation of the top of the obstacle above MSL.

2. Add the possible vertical error of the source material to the above figure (100’ or 1/2 contour interval when interval on source exceeds 200’. U.S. Geological Survey Quadrangle Maps with contour intervals as small as 10’ are normally used).

3. Round the resultant figure up to the next higher hundred-foot level.

Example:

Elevation of obstacle top (MSL)	**2649**
Possible obstacle error	**+100**
equals	**2749**
Raise to the following 100’ level	**2800**
Maximum Elevation Figure (MEF)	**28**



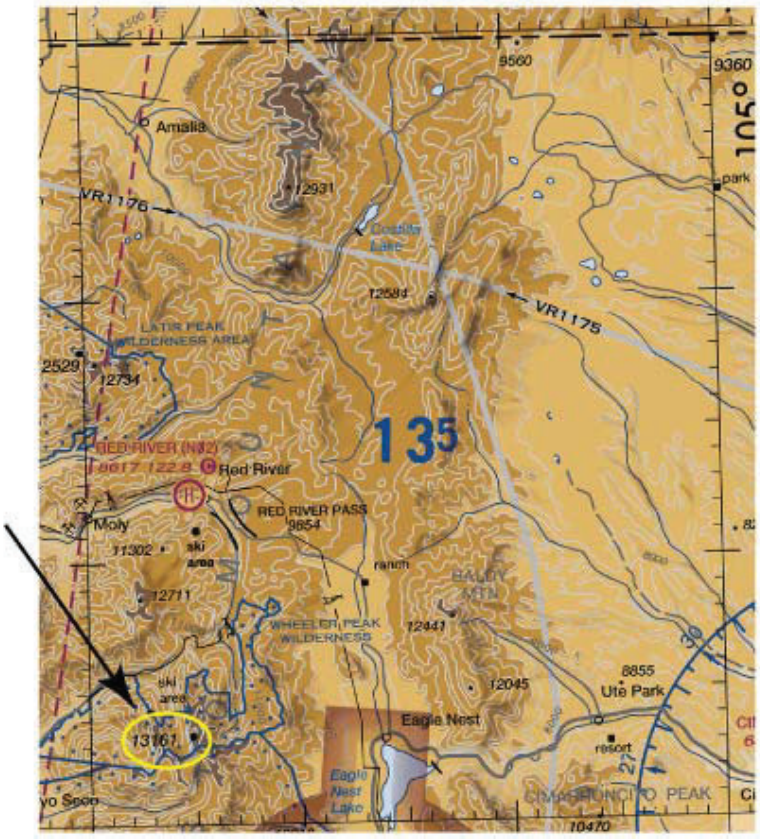
MEF - Natural Terrain Feature or Natural Vertical Obstacle

When a natural terrain feature or natural vertical obstacle (e.g. a tree) is the highest feature within the quadrangle:

1. Determine the elevation of the feature.
2. Add the possible vertical error of the source to the above figure (100’ or 1/2 the contour interval when interval on source exceeds 200’).
3. Add a 200’ allowance for uncharted natural or manmade obstacles. Chart specifications don’t require the portrayal of obstacles below minimum height.
4. Round the figure up to the next higher hundred-foot level.

Example:

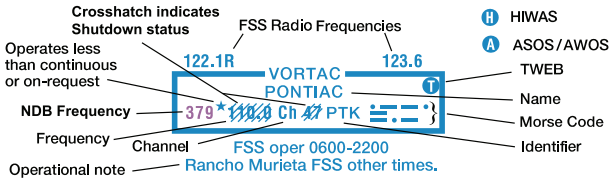
Elevation of obstacle top (MSL)	**13161**
Possible vertical error	**+100**
Obstacle Allowance	**+200**
equals	**13461**
Raise to the following 100’ level	**13500**
Maximum Elevation Figure (MEF)	**135**



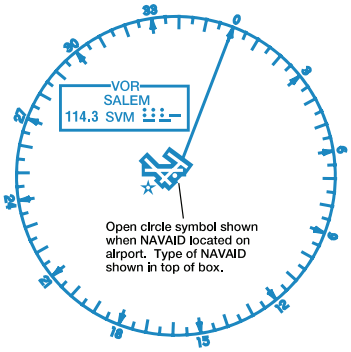
Pilots should be aware that while the MEF is based on the best information available to the Specialist, the figures are not verified by field surveys. Also, users should consult the Aeronautical Chart Bulletin in the Chart Supplement or Aeronautical Information Services website to ensure that your chart has the latest MEF data available.

RADIO AIDS TO NAVIGATION

On VFR Charts, information about radio aids to navigation (NAVAID) are boxed, as illustrated. Duplication of data is avoided. When two or more radio aids in a general area have the same name with different frequencies, Tactical Air Navigation (TACAN) channel numbers, or identification letters, and no misinterpretation can result, the name of the radio aid may be indicated only once within the identification box. Very High Frequency/Ultra High Frequency (VHF/UHF) NAVAID names and identification boxes (shown in blue) take precedence. Only those items that differ (e.g., frequency, Morse Code) are repeated in the box in the appropriate color. The choice of separate or combined boxes is made in each case on the basis of economy of space and clear identification of the radio aids.



A NAVAID that is physically located on an airport may not always be represented as a typical NAVAID symbol. A small open circle indicates the NAVAID location when collocated with an airport icon.



The type of NAVAID will be identified by: "VOR," (VHF Omni-Directional Range) "VORTAC" (VOR Tactical Aircraft Control), "VOR-DME," (VOR-Distance Measuring Equipment) or “DME” (Distance Measuring Equipment) positioned on and breaking the top line of the NAVAID box.

DMEs are shown without the compass rose.

AIRPORTS

Airports in the following categories are charted as indicated (additional symbols are shown later in this Section).
Public use airports:

- Hard-surfaced runways greater than 8069’ or some multiple runways less than 8069’
- Hard-surfaced runways 1500’ to 8069’
- Other than hard-surfaced runways
- Seaplane bases

Military airports:

- Other than hard-surfaced runways

Hard-surfaced runways are depicted the same as public-use airports.

U.S. military airports are identified by abbreviations such as AAF (Army Air Field), AFB (Air Force Base), MCAS (Marine Corps Air Station), NAS (Naval Air Station), NAV (Naval Air Facility), NAAS (Naval Auxiliary Air Station), etc. Canadian military airports are identified by the abbreviation DND (Department of National Defense).

Fuel Available:

- Tick marks around the basic airport symbol indicates that fuel is available Monday through Friday 10:00 AM to 4:00 PM local time or self-serve by credit card.

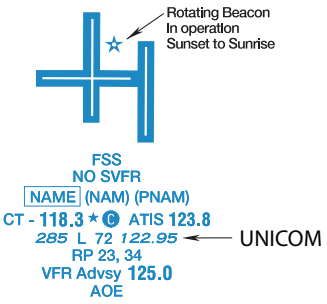
Other airports with or without fuel:

- H F U R

Airports are plotted in their true geographic position unless the symbol conflicts with a NAVAID at the same location. In such cases, the airport symbol will be displaced, but the relationship between the airport and the NAVAID will be retained.

Airports are identified by their designated name. Generic parts of long airport names (such as "airport," "field," or "municipal") and the first names of persons are commonly omitted unless they are needed to distinguish one airport from another with a similar name.

The figure at right illustrates the coded data that is provided along with the airport name.



The elevation of an airport is the highest point on the usable portion of the landing areas. Runway length is the length of the longest active runway, including displaced thresholds and excluding overruns. Runway length is shown to the nearest 100', using 70 as the rounding point; a runway 8070' in length is charted as 81, while a runway 8069' in length is charted as 80. If a seaplane base is collocated with an airport, there will be additional seaplane base water information listed for the elevation, lighting and runway.

Flight Service Station on field	FSS	*Elevation in feet*	285
Airports where fixed wing special VFR operations are prohibited (shown above airport name) FAR 91	NO SVFR	*Lighting in operation Sunset to Sunrise*	L
Indicates FAR 93 Special Air Traffic Rules and Airport Traffic Pattern		*Lighting limitations exist; refer to Chart Supplement*	*L
Location Identifier	(NAM)	*Length of longest runway in hundreds of feet; usable length may be less.*	72
ICAO Location Identifier	(PNAM)	*Aeronautical advisory station*	122.95
Control Tower (CT) - primary frequency	CT - 118.3	*Runways with Right Traffic Patterns (public use)*	RP 23,34
Star indicates operation part-time. See tower frequencies tabulation for hours of operation	*	*See Chart Supplement*	*RP
Follows the Common Traffic Advisory Frequency (CTAF)	C	*VFR Advisory Service Shown when ATIS is not available and frequency is other than the primary CT frequency.*	VFR Advsy 125.0
Automatic Terminal Information Services	ATIS 123.8	*Weather Camera (Alaska)*	WX CAM
Automatic Flight Information Service	AFIS 135.2	*Airport of Entry*	AOE
Automated Surface Weather Observing Systems; shown when full-time ATIS is not available.	ASOS/AWOS 135.42	*When information is lacking, the respective character is replaced by a dash. Lighting codes refer to runway edge lights and may not represent the longest runway or full length lighting.*	

Airports with Control Towers (CT) and their related data are shown in blue. All other airports and their related data are shown in magenta. The L symbol indicates that runway lights are on from dusk to dawn. *L indicates that the pilot must consult the Chart Supplement to determine runway lighting limitations, such as: available on request (by radio-call, letter, phone, etc), part-time lighting, or pilot/airport controlled lighting. Lighting codes refer to runway edge lights. The lighted runway may not be the longest runway available, and lights may not be illuminated along the full length of the runway. The Chart Supplement has a detailed description of airport and air navigation lighting aids for each airport. A dash represents no runway edge lights.

The symbol ☆ indicates the existence of a rotating or flashing airport beacon operating from dusk to dawn. The Aeronautical Information Manual (AIM) thoroughly explains the types and uses of airport lighting aids.

Right traffic information is shown using the abbreviation 'RP' for right pattern, followed by the appropriate runway number(s) (RP 18). Special conditions or restrictions to the right pattern are indicated by the use of an asterisk (*RP) to

direct the pilot to the Chart Supplement for special instructions and/or restrictions.

The type “OBJECTIONABLE” associated with an airport symbol indicates that an objectionable airspace determination has been made for the airport per FAA JO 7400.2 Section 4, Airport Charting and Publication of Airport Data. Objectionable airspace determinations are based upon a number of factors including conflicting traffic patterns with another airport, hazardous runway conditions, or natural or man-made obstacles in close proximity to the landing area. FAA Regional Airports Offices are responsible for airspace determinations. Address any challenges to objectionable airspace determinations to your FAA Regional Airports Office.

AIRSPACE

CONTROLLED AIRSPACE

Controlled airspace consists of those areas where some or all aircraft may be subject to air traffic control, such as: Class A, Class B, Class C, Class D, Class E Surface (SFC) and Class E Airspace.

Class A Airspace within the United States extends from 18,000' up to FL600. While visual charts do not depict Class A, it is important to note its existence.

Class B Airspace is shown in abbreviated form on the Caribbean Charts (CAC) . The Sectional Aeronautical Chart (Sectional) and Terminal Area Chart (TAC) show Class B in greater detail. The MSL ceiling and floor altitudes of each sector are shown in solid blue figures with the last two zeros omitted. Floors extending "upward from above" a certain altitude are preceded by a (+). Operations at and below these altitudes are outside of Class B Airspace. Radials and arcs used to define Class B are prominently shown on TACs. Detailed rules and requirements associated with the particular Class B are shown. The name by which the Class B is shown as LAS VEGAS CLASS B for example.

Class B MSL Altitudes 90 / 20

Class C Airspace is shown in abbreviated form on Caribbean Charts (CAC). Sectionals and TACs show Class C in greater detail. The MSL ceiling and floor altitudes of each sector are shown in solid magenta figures with the last two zeros eliminated.

Class C MSL Altitudes 70 / 15

T / SFC The figure at left identifies a sector that extends from the surface to the base of the Class B.

Class C Airspace is identified by name: BURBANK CLASS C

Separate notes, enclosed in magenta boxes, give the approach control frequencies to be used by arriving VFR aircraft to establish two-way radio communication before entering the Class C (generally within 20 NM):

CTC BURBANK APP WITHIN 20 NM ON 124.6 395.9

Class C operating less than continuous is indicated by the following note: See NOTAMs/Supplement for Class C eff hrs

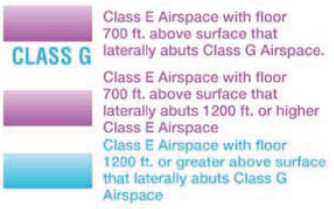
Class D Airspace is identified with a blue dashed line. Class D operating less than continuous is indicated by the following note: See NOTAMs/Supplement for Class D eff hrs

Ceilings of Class D are shown as follows: 30

A minus in front of the figure is used to indicate "from surface to, but not including..."

Class E Surface (SFC) Airspace is symbolized with a magenta dashed line. Class E (SFC) operating less than continuous is indicated by the following note: See NOTAMs/Supplement for Class E (sfc) eff hrs

Class E Airspace exists at 1200' AGL unless designated otherwise. The lateral and vertical vertical limits of all Class E, (up to, but not including 18,000') are shown by narrow bands of vignette on Sectionals and TACs.



Controlled airspace floors of 700' above the ground are defined by a magenta vignette; floors other than 700' that laterally abut uncontrolled airspace (Class G) are defined by a blue vignette; differing floors greater than 700' above the ground are annotated by a symbol and a number indicating the floor. 2400 AGL / 4500 MSL

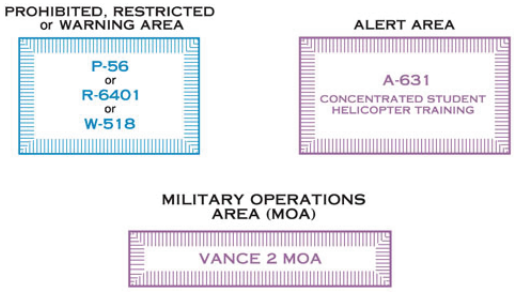
If the ceiling is less than 18,000' MSL, the value (preceded by the word "ceiling") is shown along the limits of the controlled airspace. These limits are shown with the same symbol indicated above.

UNCONTROLLED AIRSPACE

Class G Airspace within the United States extends up to 14,500' Mean Sea Level. At and above this altitude is Class E, excluding the airspace less than 1500' above the terrain and certain special use airspace areas.

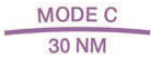
SPECIAL USE AIRSPACE

Special Use Airspace (SUA) confines certain flight activities and restricts entry, or cautions other aircraft operating within specific boundaries. Except for Controlled Firing Areas, SUA areas are depicted on VFR Charts. Controlled Firing Areas are not charted because their activities are suspended immediately when spotter aircraft, radar, or ground lookout positions indicate an aircraft might be approaching the area. Nonparticipating aircraft are not required to change their flight paths. SUA areas are shown in their entirety (within the limits of the chart), even when they overlap, adjoin, or when an area is designated within another area. The areas are identified by type and identifying name/number, and are positioned either within or immediately adjacent to the area.



* Alert Areas do not extend into Class A, B, C and D airspace, or Class E airport surface areas.

OTHER AIRSPACE AREAS

Mode C Required Airspace (from the surface to 10,000' MSL) within a 30 NM radius of the primary airport(s) for which a Class B is designated, is depicted by a solid magenta line. 

Mode C is required, but not depicted for operations within and above all Class C up to 10,000' MSL.

Enroute Mode C requirements (at and above 10,000' MSL except in airspace at and below 2500' AGL) are not depicted. See FAR 91.215 and the AIM.

FAR 93 Airports and heliports under Federal Aviation Regulation 93 (FAR 93), (Special Air Traffic Rules and Airport Traffic Patterns), are shown by "boxing" the airport name.

FAR 91 Airports where fixed wing special visual flight rules operations are prohibited (FAR 91) are shown with the type "NO SVFR" above the airport name.

National Security Areas indicated with a broken magenta line and Special Flight Rules Areas (SFRAs) indicated with the following symbol: , consist of airspace with defined vertical and lateral dimensions established at locations where there is a requirement for increased security and safety of ground facilities. Pilots should avoid flying through these depicted areas. When necessary, flight may be temporarily prohibited.

The Washington DC Flight Restricted Zone (FRZ) is related to National Security. It is depicted using the Prohibited/Restricted/Warning Area symbology and is located within the SFRA. It is defined as the airspace within approximately a 13 to 15 NM radius of the DCA VOR-DME. Additional requirements are levied upon aviators requesting access to operate inside the National Capital Region.

Temporary Flight Restriction (TFR) Areas Relating to National Security are indicated with a broken blue line . A Temporary Flight Restriction (TFR) is a type of Notice to Airmen (NOTAM). A TFR defines an area where air travel is restricted due to a hazardous condition, a special event, or a general warning for the entire airspace. The text of the actual TFR contains the fine points of the restriction. It is important to note that only TFRs relating to National Security are charted.

Air Defense Identification Zones (ADIZs) are symbolized using the ADIZ symbol: . As defined in Code of Federal Regulations 14 (CFR 14) Part 99, an ADIZ is an area in which the ready identification, location, and control of all aircraft is required in the interest of national security. ADIZ boundaries include Alaska, Hawaii, Guam, Canada and the Contiguous U.S.

Terminal Radar Service Areas (TRSAs) are shown in their entirety, symbolized by a screened black outline of the entire area including the various sectors within the area .

The outer limit of the entire Terminal Radar Service Areas (TRSA) is a continuous screened black line. The various sectors within the TRSA are symbolized by narrower screened black lines.

Each sector altitude is identified in solid black color by the MSL ceiling and floor values of the respective sector, eliminating the last two zeros. A leader line is used when the altitude values must be positioned outside the respective sectors because of charting space limitations. The TRSA name is shown near the north position of the TRSA as follows: PALM SPRINGS TRSA. Associated frequencies are listed in a table on the chart border.

Military Training Routes (MTRs) are shown on Sectionals and TACs. They are identified by the route designator: ← IR21. Route designators are shown in solid black on the route centerline, positioned along the route for continuity. The designator IR or VR is not repeated when two or more routes are established over the same airspace, e.g., IR201-205-227. Routes numbered 001 to 099 are shown as IR1 or VR99, eliminating the initial zeros. Direction of flight along the route is indicated by small arrowheads adjacent to and in conjunction with each route designator.

The following note appears on Helicopters, Sectionals and TACs except for Hawaiian Islands which is different.

MILITARY TRAINING ROUTES (MTRs)

All IR and VR MTRs are shown, and may extend from the surface upwards. Only the route centerline, direction of flight along the route, and the route designator are depicted - route widths and altitudes are not shown.

Since these routes are subject to change every 56 days, you are cautioned and advised to contact Flight Service for route dimensions and current status for those routes affecting your flight.

Routes with a change in the alignment of the charted route centerline will be indicated in the Aeronautical Chart Bulletin of the Chart Supplement.

DoD users refer to Area Planning AP/1B Military Training Routes North and South America for current routes.

There are IFR (IR) and VFR (VR) routes as follows:

Route identification:

a. Routes at or below 1500' AGL (with no segment above 1500') are identified by four-digit numbers; e.g., VR1007, etc. These routes are generally developed for flight under Visual Flight Rules.

b. Routes above 1500' AGL (some segments of these routes may be below 1500') are identified by three or fewer digit numbers; e.g., IR21, VR302, etc. These routes are developed for flight under Instrument Flight Rules.

MTRs can vary in width from 4 to 16 miles. Detailed route width information is available in the Flight Information Publication (FLIP) AP/1B (a Department of Defense publication), or through the 56 Day NASR Subscription from the National Flight Data Center (NFDC).

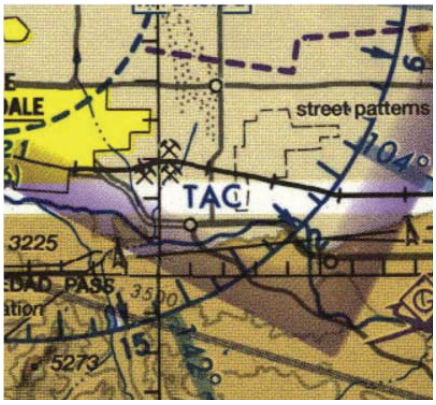
Special Military Activity areas are indicated on Sectionals by a boxed note in black type. The note contains radio frequency information for obtaining area activity status.

SPECIAL MILITARY ACTIVITY
CTC MOBILE RADIO
ON 123.6
FOR ACTIVITY STATUS

TERMINAL AREA CHART (TAC) COVERAGE

TAC coverage is shown on appropriate Sectionals by a 1/4" masked line as indicated below. Within this area pilots should use TACs, which provide greater detail. A note indicating that the area is on the TAC appears near the masked boundary line.

LOS ANGELES TERMINAL AREA
Pilots are encouraged to use the Los Angeles VFR Terminal Area Chart for flights at or below 10,000'



INSET AND SPECIAL CHART COVERAGE

Inset and Special Chart Coverage (.i.e., Grand Canyon Chart) is shown on appropriate Sectionals by a 1/8" masked line as indicated below. A note to this effect appears near the masked boundary line. (Additional examples shown in VFR Sectional and Terminal Charts > Navigational and Procedural Information > Chart Limits.)

If inset chart is on the same chart as outline:

INDIANAPOLIS INSET
See inset chart for additional detail

If inset chart is on a different chart:

INDIANAPOLIS INSET
See inset chart on the St. Louis Sectional for additional information

CHART TABULATIONS

Airport Tower Communications are provided in a columnized tabulation for all tower-controlled airports that appear on the respective chart. Airport names are listed alphabetically. If the airport is military, the type of airfield, e.g., AAF, AFB, NAS, is shown after the airfield name. In addition to the airport name, tower operating hours, primary Very High Frequency/Ultra High Frequency (VHF/UHF) local Control Tower (CT), Ground Control (GND CON), and Automatic Terminal Information Service (ATIS) frequencies, when available, will be given. Airport Surveillance Radar (ASR) and/or Precision Approach Radar (PAR) procedures are listed when available.

Approach Control Communications are provided in a columnized tabulation listing Class B, Class C, Terminal Radar Service Areas (TRSA) and Selected Approach Control Facilities when available. Primary VHF/UHF frequencies are provided for each facility. Sectorization occurs when more than one frequency exists and/or is approach direction dependent. Availability of service hours is also provided.

Special Use Airspace (SUA): Prohibited, Restricted and Warning Areas are presented in blue and listed numerically for U.S. and other countries. Restricted, Danger and Advisory Areas outside the U.S. are tabulated separately in blue. A tabulation of Alert Areas (listed numerically) and Military Operations Areas (MOA) (listed alphabetically) appear on the chart in magenta. All are supplemented with altitude, time of use and the controlling agency/contact facility, and its frequency when available. Users need to be aware that a NOTAM addressing activation will NOT be issued to announce permanently listed times of use. The controlling agency will be shown when the contact facility and frequency data is unavailable.

Airports with control towers are indicated on the face of the chart by the letters CT followed by the primary VHF tower frequency(ies). Information for each tower is listed in the table below. Operational hours are local time. The primary VHF and UHF tower and ground control frequencies are listed.

Automatic Terminal Information Service (ATIS) frequencies shown on the face of the chart are arrival VHF/UHF frequencies. All ATIS frequencies are listed in the table below. ATIS operational hours may differ from tower operational hours.

ASR and/or PAR indicate Radar Instrument Approach available.

"MON-FRI" indicates Monday through Friday.

O/T indicates other times.

Frequencies (VHF/UHF)

CONTROL TOWER	OPERATES	TOWER	GND CON	ATIS	ASR/PAR
AIRBORNE	0700 MON-1800 SAT 0600-1800 SUN	119.475	121.6	124.925	
BLUE GRASS	CONTINUOUS	119.1 257.8	121.9	126.3	
BOLTON	0730-1930	128.1	121.3 (E) 121.8 (W)		ASR/PAR
CHARLOTTESVILLE-ALBEMARLE	0600-2300	124.5 338.275	121.9 338.275	118.425	PAR
CINCINNATI/NORTHERN KENTUCKY INTL	CONTINUOUS Runway dependent	118.3 (RWYS 18R/36L & 09/27) 118.975 360.85 (RWY 18L/36R)	121.3 (E) 121.7 (W)	134.375 (ARR) 135.3 (DEP)	ASR
COX DAYTON INTL	CONTINUOUS	119.9 257.8	121.9	125.8	
EASTERN WV RGNL/ SHEPHERD	0700-2200 TUE-THU 0700-1600 FRI-SAT 1300-1800 SUN O/T BY NOTAM	124.3 236.6	121.8 275.8		

Airport Name

Radar Instrument Approach available

Hours of Operation (local time)

Approach direction dependent

Frequencies (VHF/UHF)

CLASS B, CLASS C, TRSA AND SELECTED RADAR APPROACH CONTROL FREQUENCIES

FACILITY	FREQUENCIES	SERVICE AVAILABILITY
CINCINNATI CLASS B	VHF 119.7 (RWY 09/27 090°-269°) (RWY 18R/36L 180°-359°) UHF 123.875 (RWY 09/27 270°-089°) (RWY 18L/36R 360°-179°) 363.15	CONTINUOUS
CHARLESTON CLASS C	124.1 269.125 (N) 119.2 269.125 (S)	CONTINUOUS
COLUMBUS CLASS C	120.2 317.775 (280°-099°) 132.3 279.6 (100°-279°)	CONTINUOUS
DAYTON CLASS C	127.65 294.5 (360°-090°) 118.85 327.1 (091°-180°) 134.45 316.7 (181°-359°)	CONTINUOUS
BRISTOL TRSA	134.425 349.0 (047°-227°) 125.5 317.5 (228°-046°) O/T 127.85 371.85 ZTL CNTR	0600-2400 local time
HUNTINGTON TRSA	119.75 257.8 (S) 132.95 257.8 (N)	CONTINUOUS
PERKINSON/BAAF RADAR	118.75 353.9	CONTINUOUS

Airspace Name

Sectors for VHF and UHF traffic

Radar Approach Control

O/T indicates Other times

SPECIAL USE AIRSPACE ON SECTIONAL CHART

Unless otherwise noted altitudes are MSL and in feet. Time is local. "TO" an altitude means "To and including." FL – Flight Level
NO A/G – No air to ground communications. Contact nearest FSS for information.

† Other times by NOTAM.
NOTAM – Use of this term in Restricted Areas indicates FAA and DoD NOTAM systems. Use of this term in all other Special Use areas indicates the DoD NOTAM system.

U.S. P–PROHIBITED, R–RESTRICTED, W–WARNING, A–ALERT, MOA–MILITARY OPERATIONS AREA

NUMBER	ALTITUDE	TIME OF USE	CONTROLLING AGENCY/ CONTACT FACILITY	FREQUENCIES
R-6602 A	TO BUT NOT INCL 4000	CONTINUOUS MAY 1-SEP 15 †24 HRS IN ADVANCE	WASHINGTON CNTR	118.75 377.1
R-6602 B	4000 TO BUT NOT INCL 11,000	BY NOTAM 24 HRS IN ADVANCE	WASHINGTON CNTR	118.75 377.1
R-6602 C	11,000 TO BUT NOT INCL 18,000	BY NOTAM 24 HRS IN ADVANCE	WASHINGTON CNTR	118.75 377.1
A-220	TO 4000 AGL	0800-2200	NO A/G	

VHF/UHF

Alert Areas do not extend into Class A, B, C and D airspace, or Class E airport surface areas.

MOA NAME	ALTITUDE*	TIME OF USE†	CONTROLLING AGENCY/ CONTACT FACILITY	FREQUENCIES
BRUSH CREEK	100 AGL TO BUT NOT INCL 5000	0800-2200 MON-SAT	INDIANAPOLIS CNTR	134.0 135.57
BUCKEYE	5000	0800-2200 MON-FRI 0800-1600 SAT-SUN	INDIANAPOLIS CNTR	134.0 135.57
EVERS	1000 AGL	SR-SS BY NOTAM	WASHINGTON CNTR	

VHF/UHF

*Altitudes indicate floor of MOA. All MOAs extend to but do not include FL 180 unless otherwise indicated in tabulation or on chart.
†Other times by DoD NOTAM.

Sunrise to Sunset

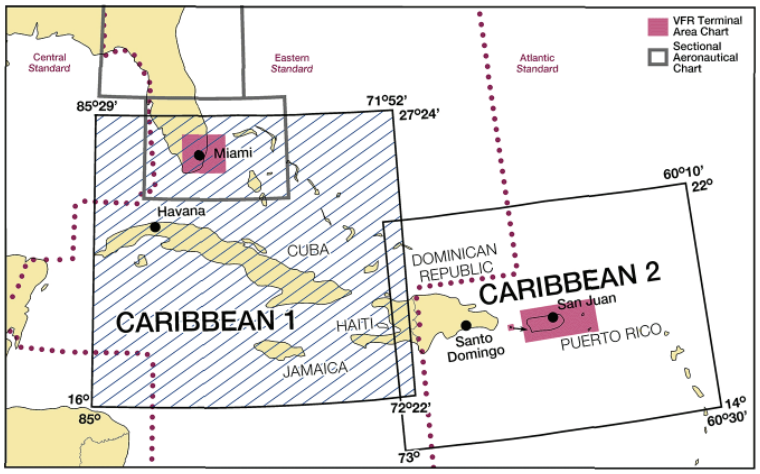
CANADA R–RESTRICTED, D–DANGER AND A–ADVISORY AREA

NUMBER	LOCATION	ALTITUDE	TIME OF USE	CONTROLLING AGENCY
CYR754	CONFEDERATION BRIDGE, PE	TO 500	CONTINUOUS	
CYD734	HALIFAX, NS	TO FL 200	OCCASIONAL BY NOTAM	MONCTON ACC
CYA702 (P)	GREENWOOD, NS	TO 500	CONT DAYLIGHT	
CYA752 (M)	LIVERPOOL, NS	TO FL 280	CONT DAYLIGHT MON-FRI EXC HOL†	MONCTON ACC

Restricted
Danger
Advisory

CARIBBEAN VFR AERONAUTICAL CHARTS (CAC)

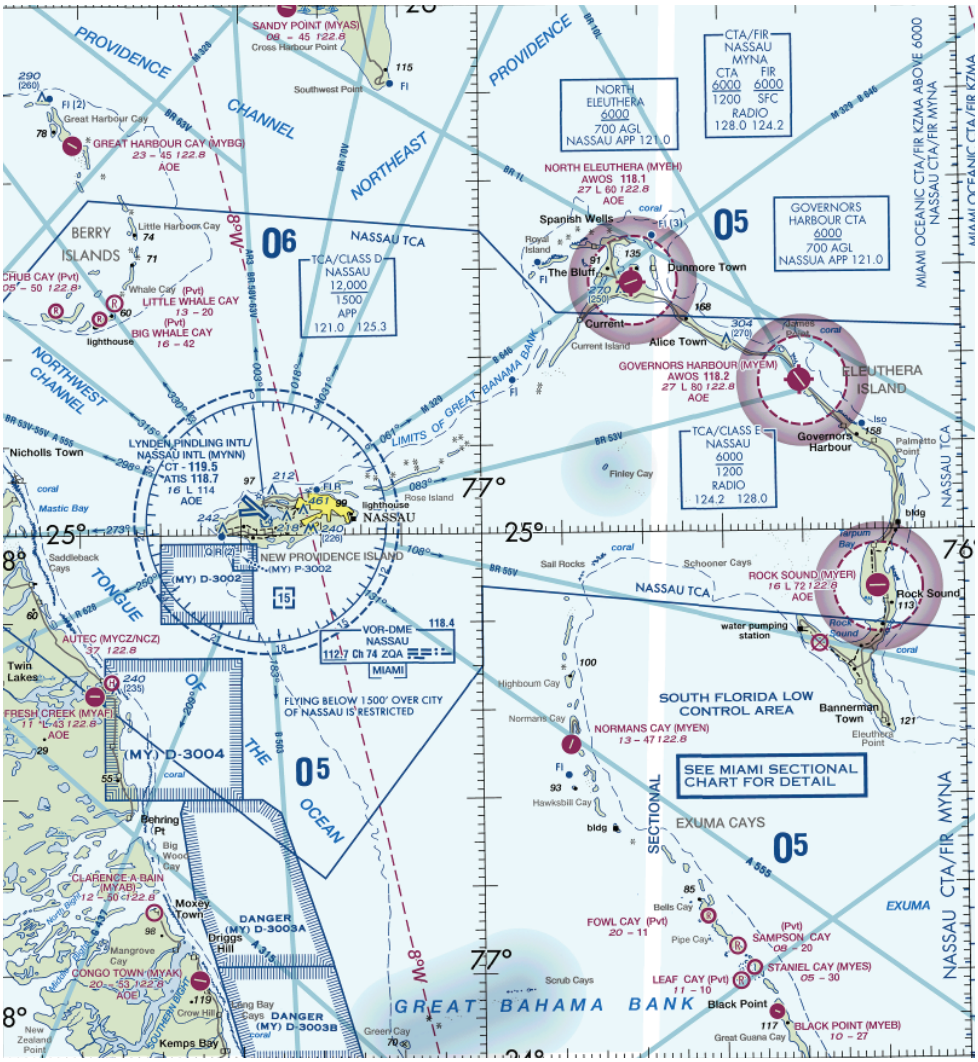
Starting in 2016, the FAA CARIBBEAN VFR Aeronautical Charts were first published, replacing the discontinued World Aeronautical Charts (WACs), parts of CH-25, CJ-26, and CJ-27, with CJ-26's last effective date of 1 February 2018 and CJ-27 last effective date of 29 March 2018. The Caribbean Charts are published as two VFR Charts: Caribbean 1 (CAC-1) covers Southern Florida, Cuba, Haiti and the Bahamas; Caribbean 2 (CAC-2) covers Puerto Rico, Haiti, Dominican Republic, the Lesser Antilles and Leeward Islands. CAC-1 is updated annually and CAC-2 biennially.



Caribbean Charts are designed for VFR and provide aeronautical and topographic information of the Caribbean. The aeronautical information includes airports, radio aids to navigation, Class B airspace and special use airspace. The topographic information includes city tint, populated places, principal roads, drainage patterns and shaded relief.

The chart symbols used on the Caribbean Charts are similar to those used in the Sectional and Terminal Area Charts, the major difference being in scale. The Caribbean VFR Chart scale is 1:1,000,000 vs the Sectional Chart Scale of 1:500,000 and Terminal Area Chart Scale of 1:250,000. Chart symbology will appear smaller on the Caribbean VFR Charts.

Example from Caribbean 1 VFR Aeronautical Chart



Airport Traffic Service and Airport Space Information Unique to CAC

Only airway and reserved airspace effective below 18,000' MSL in the U.S. airspace and below FL200 outside of the U.S. airspace are shown.

VFR SECTIONAL AND TERMINAL AREA CHARTS

GENERAL INFORMATION

The symbols shown in this section illustrate those that appear in the Sectional Aeronautical Charts (Sectionals) and Terminal Area Charts (TACs). The same symbology is utilized in VFR Flyway Planning Charts, Helicopter Route Charts and Caribbean Aeronautical Charts (CACs), however the scale of the symbols may be different due to the particular chart scales. Where symbology is distinctive to a given chart, examples and explanations are given in the additional examples.

AIRPORTS

Landplane: Civil

Non-Towered Towered

Airports having control towers (CT) are shown in blue, all others are shown in magenta.

All recognizable runways, including some which may be closed, are shown for visual identification purposes. Fuel available.

Runway patterns will be depicted at airports with at least one hard surfaced runway 1500´ or greater in length.

Landplane: Civil-Military

Non-Towered Towered

Landplane: Military

Non-Towered Towered

Refueling and repair facilities not indicated.

Heliport

Non-Towered Towered

(Selected)

Seaplane: Civil

Non-Towered Towered

Ultralight Flight Park

(Selected)

Landplane: Emergency

Fuel not available

or

Complete information is not available.

PUBLIC USE - (Soft surfaced runway, or hard surfaced runway less than 1500' in length.) Fuel not available.

RESTRICTED OR PRIVATE - (Soft surfaced runway, or hard surfaced runway less than 1500' in length.) Use only in emergency, or by specific authorization.

OBJECTIONABLE is an airport that has an airspace determination based upon a number of factors including conflicting traffic patterns with another airport, hazardous runway conditions, or natural or man-made obstacles in close proximity to the landing area.

UNVERIFIED - A landing area available but warranting more than ordinary precaution due to:

(1) lack of current information on field conditions,

and/or

(2) available information indicates peculiar operating limitations.

ABANDONED - Depicted for landmark value or to prevent confusion with an adjacent usable landing area. (Normally at least 3000' paved).

Appropriate note as required for hard surfaced runways only: "(CLOSED)"

Seaplane: Emergency

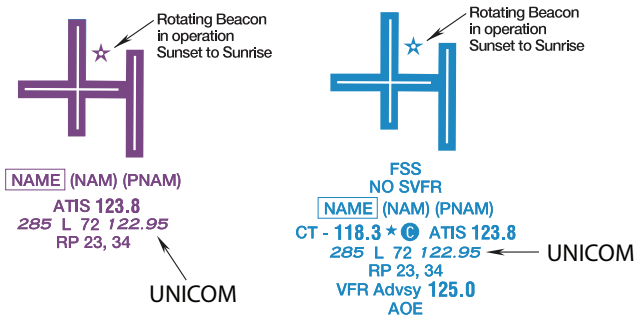
Fuel not available or complete information is not available.

AIRPORTS (Continued)

Airport Data Grouping

(Pvt): Non-public use having emergency or landmark value.

"OBJECTIONABLE": This airport may adversely affect airspace use.



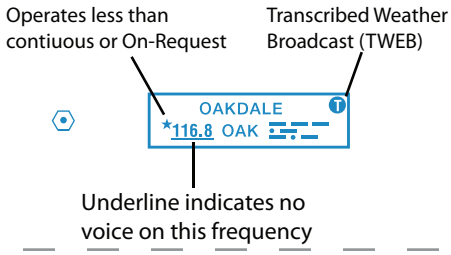
Flight Service Station on field	FSS
Airports where fixed wing special VFR operations are prohibited (shown above airport name) FAR 91	NO SVFR
Indicates FAR 93 Special Air Traffic Rules and Airport Traffic Pattern	▭
Location Identifier	(NAM)
ICAO Location Identifier	(PNAM)
Control Tower (CT) - primary frequency	CT - 118.3
Star indicates operation part-time. See tower frequencies tabulation for hours of operation	★
Follows the Common Traffic Advisory Frequency (CTAF)	C
Automatic Terminal Information Services	ATIS 123.8
Automatic Flight Information Service	AFIS 135.2
Automated Surface Weather Observing Systems; shown when full-time ATIS is not available.	ASOS/AWOS 135.42

Elevation in feet	285
Lighting in operation Sunset to Sunrise	L
Lighting limitations exist; refer to Chart Supplement	*L
Length of longest runway in hundreds of feet; usable length may be less.	72
Aeronautical advisory station	122.95
Runways with Right Traffic Patterns (public use)	RP 23,34
See Chart Supplement	*RP
VFR Advisory Service Shown when ATIS is not available and frequency is other than the primary CT frequency.	VFR Advsy 125.0
Weather Camera (Alaska)	WX CAM
Airport of Entry	AOE

When information is lacking. the respective character is replaced by a dash. Lighting codes refer to runway edge lights and may not represent the longest runway or full length lighting.

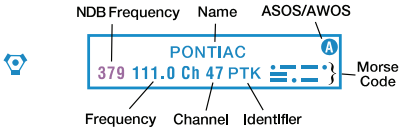
RADIO AIDS TO NAVIGATION

VOR

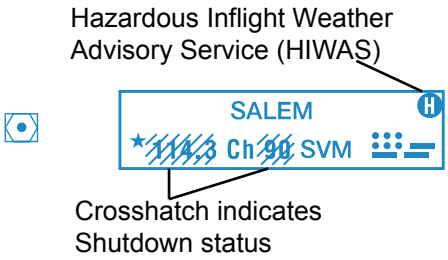


VORTAC

When an NDB NAVAID shares the same name and Morse Code as the VOR NAVAID the frequency can be co-located inside the same box to conserve space.

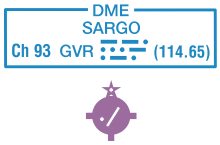


VOR-DME



DME

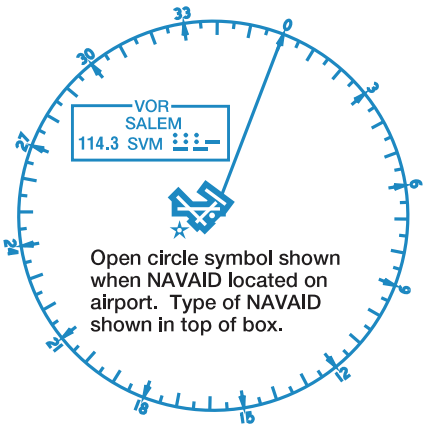
DME co-located at an airport
Note: DMEs are shown without the compass rose.



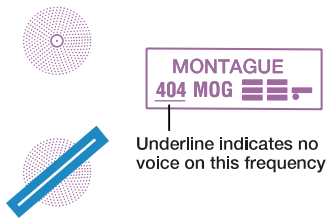
Compass Rose

Compass Rose is "reference" oriented to magnetic north

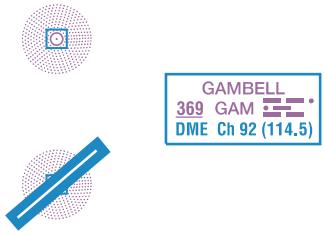
Example of VOR NAVAID co-located at airport



Non-Directional Radio Beacon (NDB)



NDB-DME



NAVAID Used To Define Class B Airspace

ILS Components

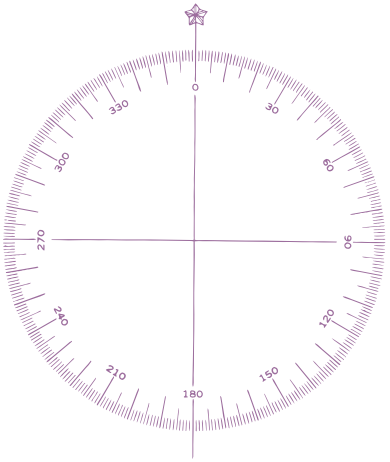
ILS-DME

TAC - Shown when used in description of Class B airspace.

Compass Rosette

Shown only in areas void of VOR roses.

Compass rosette will be based on the five year epoch magnetic variation model.



RADIO AIDS TO NAVIGATION (Continued)

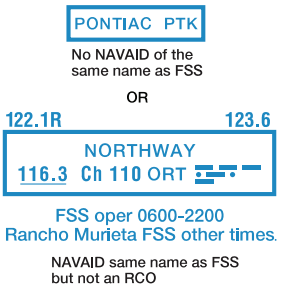
Automated Weather Broadcast Services

	VHF/UHF	LF/MF
Transcribed Weather Broadcast (TWEB)	T	T
Hazardous Inflight Weather Advisory Services (HIWAS)	H	H
Automated Weather Observing System (AWOS) / Automated Surface Observing System (ASOS).	A	A

Flight Service Station (FSS)

Heavy line box indicates Flight Service Station (FSS). Frequencies 121.5, 122.2, 243.0 and 255.4 (Canada - 121.5, 126.7, and 243.0) are normally available at all FSSs and are not shown above boxes. All other frequencies are shown. Frequencies transmit and receive except those followed by an R.

R - receive only



International Flight Service Station

Off Airport AWOS/ASOS

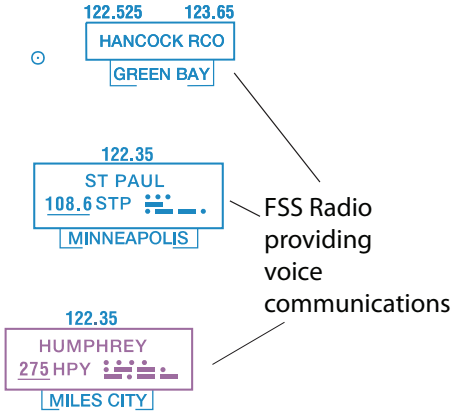
Broadcast Stations (BS)

On request by the proper authority or when a VFR Checkpoint

Remote Communications Outlet (RCO)

Frequencies above thin line box are remoted to NAVAID site. Other frequencies at FSS providing voice communication may be available determined by altitude and terrain. Consult Chart Supplement for complete information.

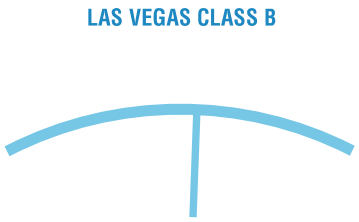
Thin line box without frequencies and controlling FSS name indicates no FSS frequency available.



AIRSPACE INFORMATION

Class B Airspace

Sectional

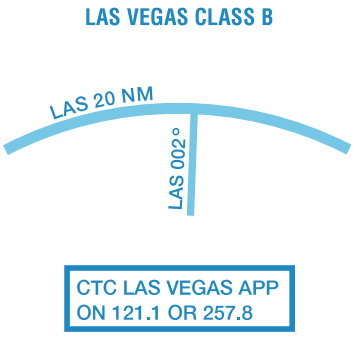


Appropriate notes as required may be shown.

Only the airspace effective below 18,000 feet MSL are shown.

(Mode C see FAR 91.215 / AIM)

Terminal Area Chart (TAC)



All mileages are nautical (NM).

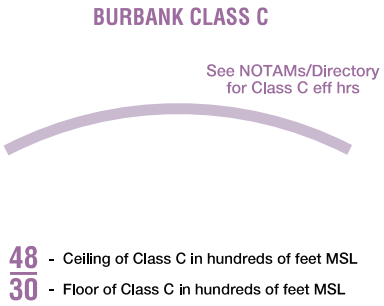
All radials are magnetic.

AIRSPACE INFORMATION (Continued)

Class C Airspace

Appropriate notes as required may be shown.

(Mode C see FAR 91.215/ AIM)



Class E Airspace

The limits of Class E airspace shall be shown by narrow vignettes or by the dashed magenta symbol. Individual units of designated airspace are not necessarily shown; instead, the aggregate lateral and vertical limits shall be defined by the following:

Airspace beginning at the surface (sfc) designated around airports..

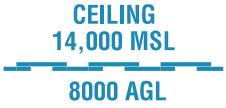
Airspace beginning at 700 feet AGL that laterally abuts 1200 feet or higher Class E Airspace...

Airspace beginning at 700 feet AGL that laterally abuts uncontrolled (Class G) airspace...

Airspace beginning at 1200 feet AGL that laterally abuts uncontrolled (Class G) airspace...

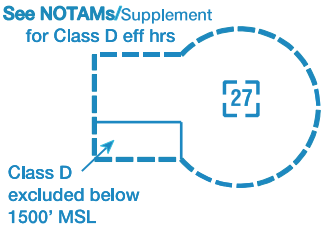
Differentiates floors of airspace greater than 700 feet above the surface...

When the ceiling is less than 18,000 feet MSL, the value prefixed by the word "CEILING", shall be shown along the limits.



Class D Airspace

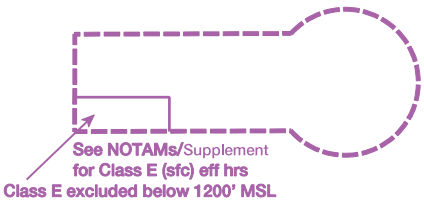
Altitude in hundreds of feet MSL



(A minus in front of the figure is used to indicate "from surface to but not including..."

Airspace beginning at the surface (sfc) designated around airports...

Airspace beginning at the surface with an airspace exclusion area where Class E airspace is excluded below 1200' MSL.



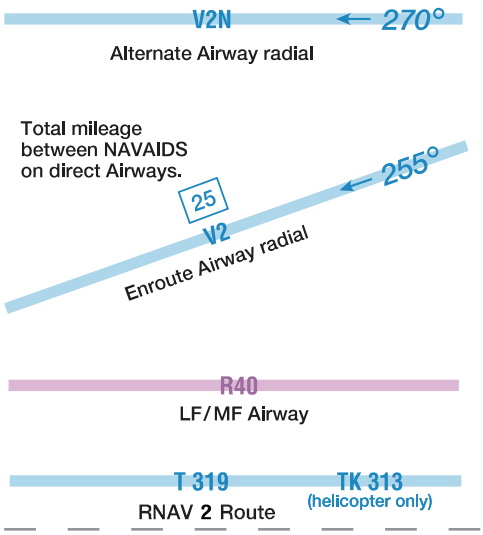
AIRSPACE INFORMATION (Continued)

Class E Airspace (Continued)

Low Altitude Airways VOR and LF/MF (Class E Airspace)

Low altitude Federal Airways are indicated by centerline.

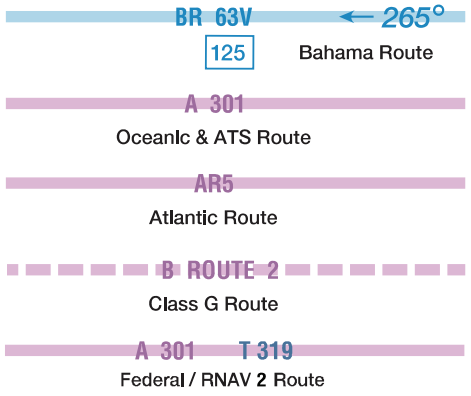
Only the controlled airspace effective below 18,000 feet MSL is shown



Miscellaneous Air Routes

Combined Federal Airway/RNAV 2 "T" Routes are identified in solid blue type adjacent to the solid magenta federal airway identification.

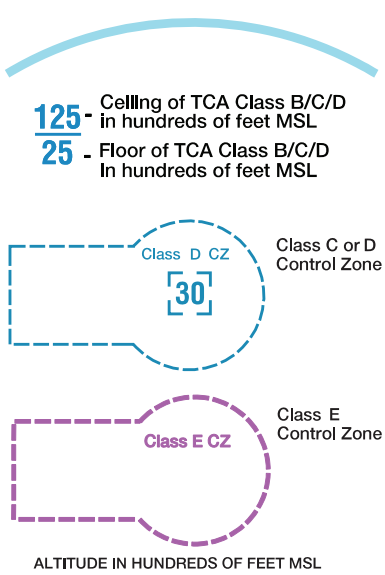
The joint route symbol is screened magenta.



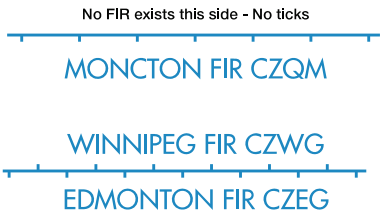
Canadian Airspace

Individual units of designated Canadian airspace are not necessarily shown; instead, the aggregate lateral and vertical limits shall be portrayed as closely as possible to the comparable U.S. airspace.

Appropriate notes as required may be shown



Flight Information Regions (FIR)



Oceanic Control Areas (OCA)

Control Areas (CTA)

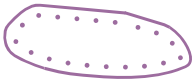
Offshore Control Areas

AIRSPACE INFORMATION (Continued)

Special Conservation Areas

National Park, Wildlife Refuge, Primitive and Wilderness Areas, etc.

NOAA Regulated National Marine Sanctuary Designated Areas



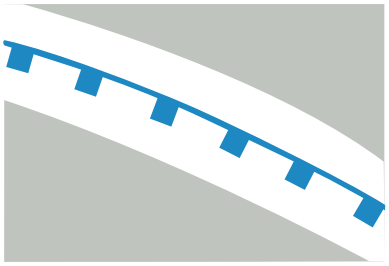
Flight operations below 1000' AGL over the designated areas within the Gulf of Farallones National Marine Sanctuary violate NOAA regulations (see 15 CFR 922).

Special Flight Rules Area (SFRA) Relating to National Security

Example: Washington DC

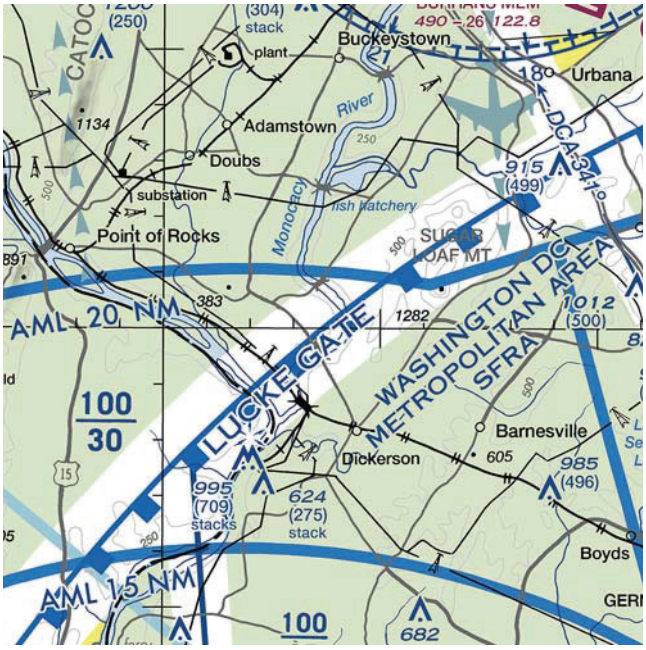
Appropriate notes as required may be shown.

Note: Delimiting line not shown when it coincides with International Boundary, projection lines or other linear features.



WASHINGTON DC METROPOLITAN AREA SFRA

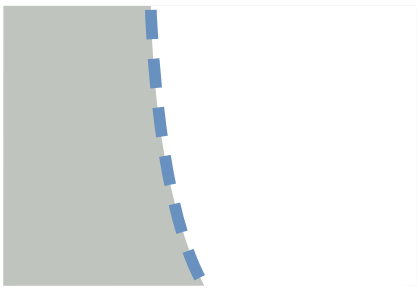
Washington DC Metropolitan Area Special Flight Rules Area/Flight Restricted Zone (DC SFRA & DC FRZ) (See description in Atlantic Ocean).



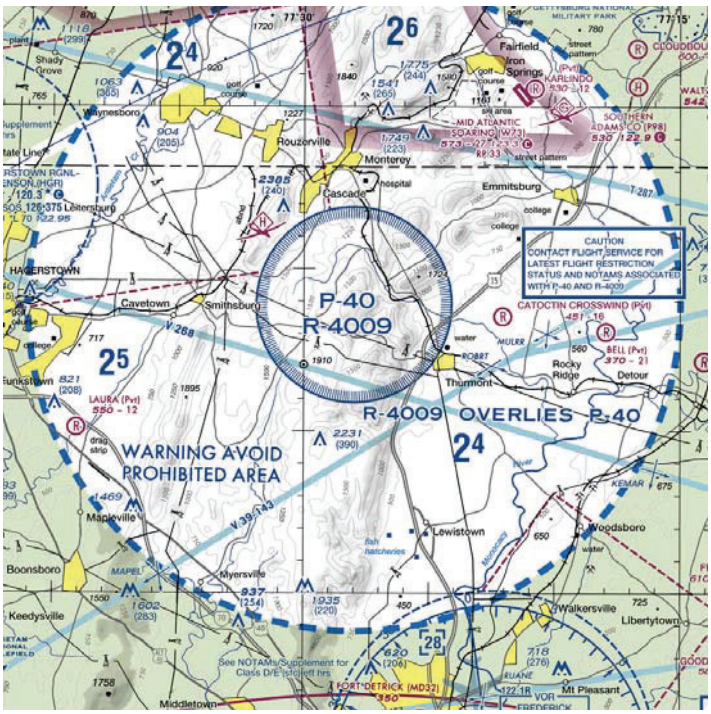
Temporary Flight Restriction (TFR) Relating to National Security

Example: Washington DC

Appropriate notes as required may be shown.

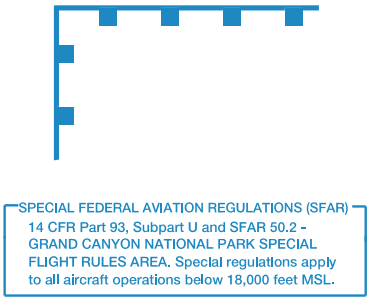


CAUTION
CONTACT FLIGHT SERVICE FOR LATEST FLIGHT RESTRICTION STATUS AND NOTAMS ASSOCIATED WITH P-40 AND R-4009



AIRSPACE INFORMATION (Continued)

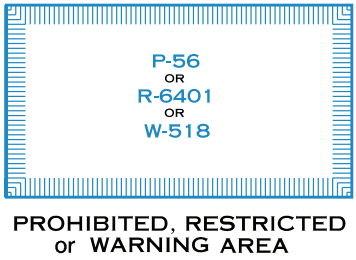
Special Flight Rules Area (SFRA)



Special Use Airspace

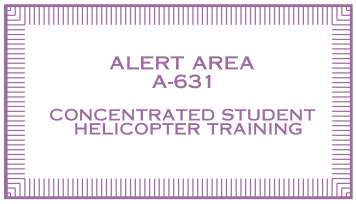
Only the airspace effective below 18,000 feet MSL is shown.

The type of area shall be spelled out in large areas if space permits.



PROHIBITED, RESTRICTED or WARNING AREA

* Alert Areas do not extend into Class A, B, C and D airspace, or Class E airport surface areas.

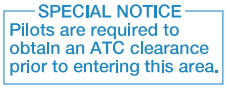


ALERT AREA

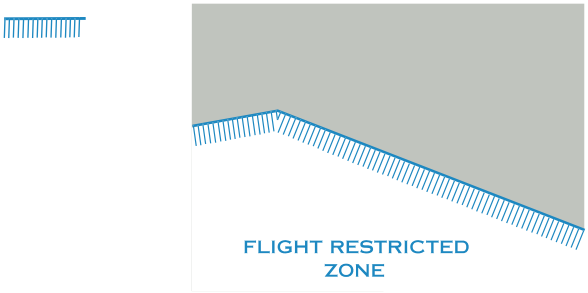
MILITARY OPERATIONS AREA (MOA)

Special Air Traffic Rules / Airport Patterns (FAR Part 93)

Appropriate boxed note as required shown adjacent to area.

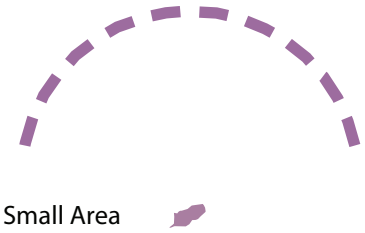


Flight Restricted Zone (FRZ) Relating to National Security



National Security Area

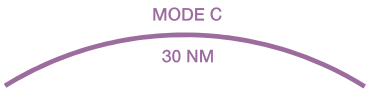
Appropriate notes as required may be shown



Special Awareness Training Areas

Mode C (FAR 91.215)

Appropriate notes as required may be shown.

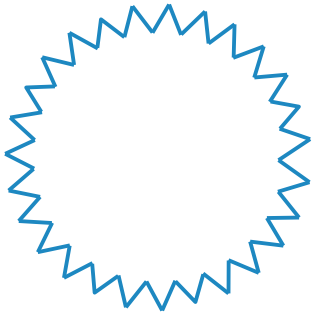


Air Defense Identification Zone (ADIZ)

Note: Delimiting line not shown when it coincides with International Boundary, projection lines or other linear features.

AIRSPACE INFORMATION (Continued)

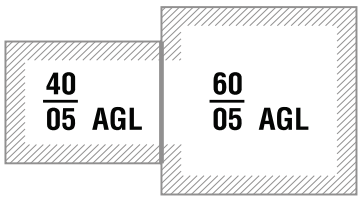
High Energy Radiation Areas



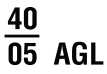
Appropriate notes as required may be shown.

Military Training Routes (MTR)

Special Military Activity Routes (SMAR)

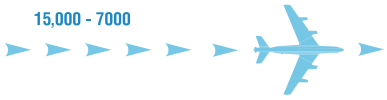


Boxed notes shown adjacent to route.



IFR Routes

Arrival

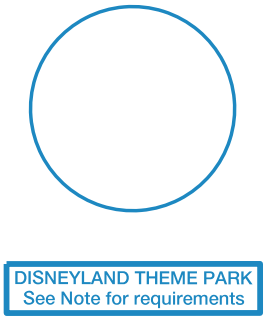


Departure

Arrival/Departure

TAC only

Special Security Notice Permanent Continuous Flight Restriction Areas



Sporting Event Temporary Flight Restriction (TFR) Sites

Space Operations Area (FAR Part 91.143)

Miscellaneous Activity Areas

Aerobatic Practice Area

Glider Operations

Hang Glider Activity

Ultralight Activity

Unmanned Aircraft Activity

Parachute Jumping Area with Frequency

Space Launch Activity Area

AIRSPACE INFORMATION (Continued)

VFR Transition Routes

Appropriate notes as required may be shown.

VFR TRANSITION ROUTE
ATC CLEARANCE REQUIRED
SEE SHOWBOAT GRAPHIC
ON SIDE PANEL

Uni-directional

Bi-directional

Bi-directional with NAVAID Ident and Radial

VNY 140°

TAC only

Example: Los Angeles

Terminal Radar Service Area (TRSA)

TRSA Name

HARRISBURG TRSA

TRSA Boundaries

TRSA Sectors

Appropriate notes as required may be shown.

80 - Ceiling of TRSA in hundreds of feet MSL
40 - Floor of TRSA in hundreds of feet MSL

SEE TWR FREQ TAB

Example: Harrisburg, PA

NAVIGATIONAL AND PROCEDURAL INFORMATION

Isogonic Line and Value

Isogonic lines and values shall be based on the five year epoch magnetic variation model.

42°E

Local Magnetic Notes

Unreliability Notes

Magnetic disturbance of as much as 78° exists at ground level and 10° or more at 3000 feet above ground level in this vicinity.

Intersections

Named intersections used as reporting points. Arrows are directed toward facilities which establish intersection.

ANGOO — VHF

ROAMS — LF/MF

WATSY — Combined VHF - LF/MF

Aeronautical Lights

By Request

Rotating or Oscillating

Isolated Location

Rotating Light with Flashing Code Identification Light

Site 5

18

4B

Rotating Light with Course Lights and Site Number

Fl

Fl

NAVIGATIONAL AND PROCEDURAL INFORMATION (Continued)

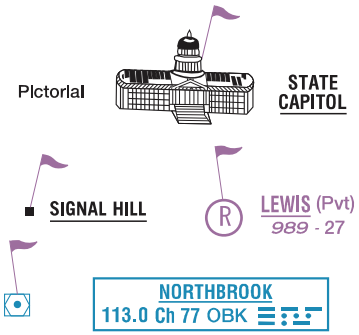
Airport Beacons

Rotating or Flashing

Isolated Locations

VFR Checkpoints

Underline indicates proper name of VFR Checkpoint.



VFR Waypoints

RNAV

Stand-Alone

Collocated with VFR Checkpoint

Obstruction

Above 200’ & below 1000’ AGL (above 299’ AGL in urban area)

Under Construction (UC) or reported and position/elevation unverified

1000’ and higher (AGL)

Wind Turbine

High-Intensity Obstruction Lights

Less than 1000’ (AGL)

1000’ and higher (AGL)

Wind Turbine

Group obstruction

Wind Turbines

High-intensity lights may operate part-time or by proximity activation.

Marine Lights

With Characteristics of Light

Red	R
White	*W
Green	G
Blue	B
Sector	SEC
Fixed	F
Single Occulting	Oc
Group Occulting	Oc (2)
Composite Group Occulting	Oc (2+1)
Isophase	Iso
Flashing	Fl
Group Flashing	Fl (2)
Composite Group Flashing	Fl (2+1)
Quick	Q
Interrupted Quick	IQ
Morse Code	Mo (A)
Fixed and Flashing	FFl
Alternating	Al
Group	Gp
Long Flash	LFl
Group Quick Flashing	Q (3)
Interrupted Quick Flashing	IQ
Very Quick Flashing	VQ
Group Very Quick Flashing	VQ (3)
Interrupted Very Quick Flashing	IVQ
Ultra Quick Flashing	UQ
Interuppted Ultra Quick Flashing	IUQ

**** Marine Lights are white unless otherwise noted. Alternating lights are red and white unless otherwise noted.***

Group Obstruction

Above 200’ & below 1000’ AGL (above 299’ AGL in urban area)

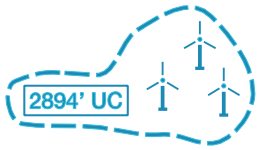
1000’ and higher (AGL)

At least two in group 1000’ and higher (AGL)

Wind Turbines

Wind Turbine Farms

When highest wind turbine is unverified, UC will be shown after MSL value.



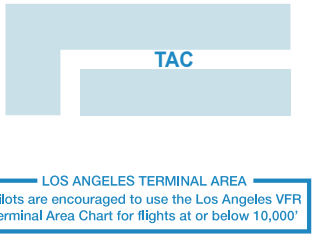
Maximum Elevation Figure (MEF)

(see VFR Terms tab for explanation)

NAVIGATIONAL AND PROCEDURAL INFORMATION (Continued)

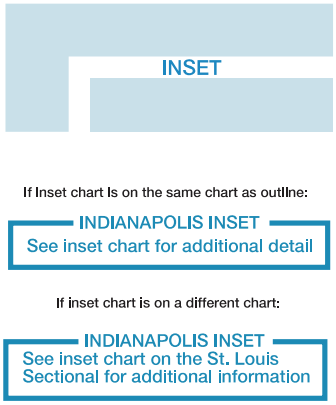
Chart Limits

Outline on Sectional of Terminal Area Chart



Outline of Special Chart on Sectional and Terminal Area Chart

Outline on Sectional of Inset Chart



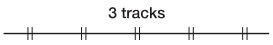
CULTURE

Railroads

Single Track

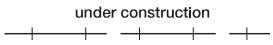
Double Track

More Than Two Tracks



Electric

Non-operating, Abandoned or Under Construction



Roads

Dual-Lane Divided Highway Category 1

Primary Category 2

Secondary Category 2

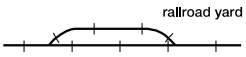
Trails

Category 3

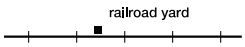
Provides symbolization for dismantled railroad when combined with label "dismantled railroad."

Railroad Yards

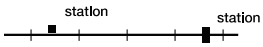
Limiting Track To Scale



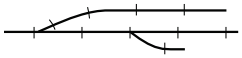
Location Only



Railroad Stations



Railroad Sidings and Short Spurs



Road Markers

Interstate Route No.

U.S. Route No.

Air Marked Identification Label

Road Names

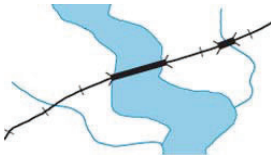
Roads Under Construction

CULTURE (Continued)

Related Features to Railroads and Roads

Bridges and Viaducts

Railroad



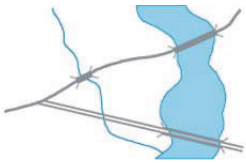
Causeways

Overpasses and Underpasses

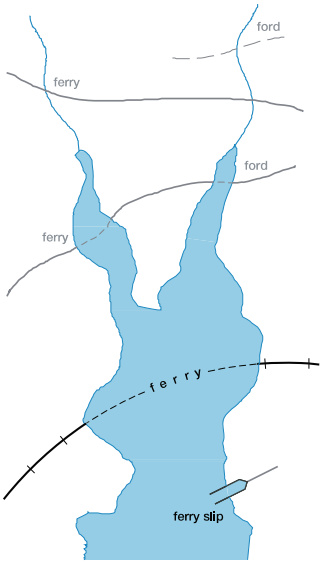
Tunnels-Road and Railroad

Bridges and Viaducts

Road



Ferries, Ferry Slips and Fords



Populated Places

Yellow tinted areas indicate populated places.

Small circle indicates an area too small to depict using yellow tint.

Font Style and Size indicate the category of the populated area:

Large Cities Category 1
- population more than 250,000

ST LOUIS

Cities and Large Towns Category 2
- population 25,000 to 250,000

NASHVILLE

Towns and Villages Category 3
- population less than 25,000

Frankfort

CULTURE (Continued)

BOUNDARIES

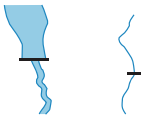
International

State or Province

Convention or Mandate Line

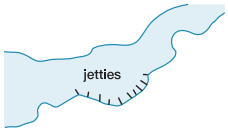
Miscellaneous Cultural Features

Dams

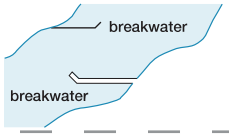


Passable Locks

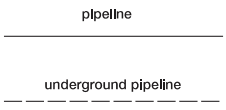
Weirs and Jetties



Breakwaters

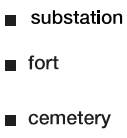


Pipelines



Underground

Landmark Features



Mines or Quarries

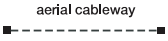
Shaft Mines or Quarries

Wells

Other than water

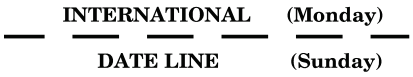
Lookout Towers
(Elevation Base of Tower)

Aerial Cableways,Conveyors, Etc.



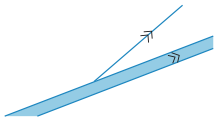
Time Zones

Date Line

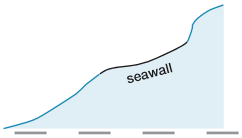


Dam Carrying Road

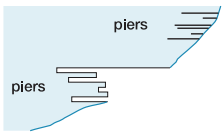
Small Locks



Seawalls

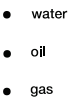


Piers, Wharfs, Quays, etc.



Power Transmission and Telecommunication Lines

Tanks

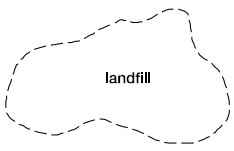


Outdoor Theater

Race Tracks

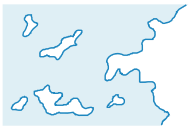
Coast Guard Station

Landmark Areas



HYDROGRAPHY

Open Water



Open/Inland Water

Lakes

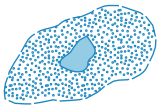
Label as required.

Perennial

When too numerous to show individual lakes, show representative pattern and descriptive note. Number indicates elevation.

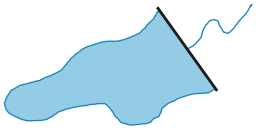
Non-Perennial

(dry, intermittent, etc.) Illustration includes small perennial lake.



Reservoirs

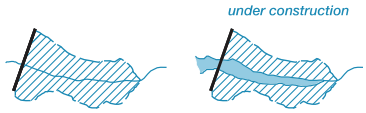
Natural Shorelines



Man-made Shorelines
Label when necessary for clarity

Too small to show to scale

Under Construction



Inland Water

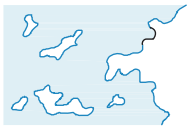
Shorelines

Definite

Fluctuating

Unsurveyed
Indefinite

Man-made



HYDROGRAPHY (Continued)

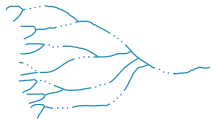
Streams

Perennial

Non-Perennial

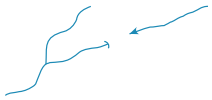
Fanned Out

Alluvial fan



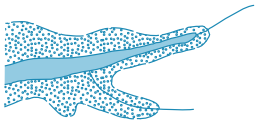
Braided

Disappearing

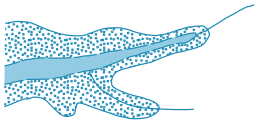


Seasonally Fluctuating

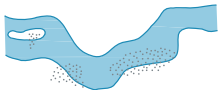
with undefined limits



with maximum bank limits, prominent and constant



Sand Deposits in and along riverbeds



Wet Sand Areas

Within and adjacent to desert areas

Canals

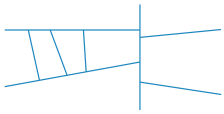
To Scale

Abandoned or Under Construction

Abandoned to Scale

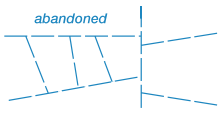
Small Canals and Drainage / Irrigation Ditches

Perennial

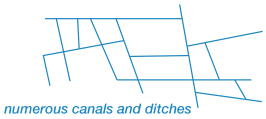


Non-Perennial

Abandoned or Ancient
Numerous



Representative pattern and/or descriptive note.



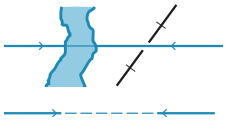
Aqueducts

To Scale

Abandoned or Under Construction

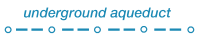
Underground

Suspended or Elevated



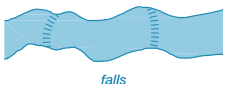
Tunnels

Kanats
Underground with Air Vents



Falls

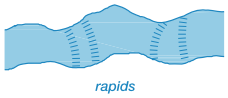
Double-Line



Single-Line

Rapids

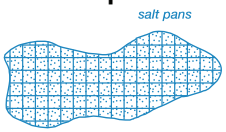
Double-Line



Single-Line

HYDROGRAPHY (Continued)

Salt Evaporators and Salt Pans Man Exploited



Hummocks and Ridges

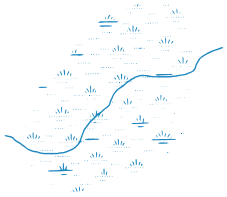
Peat Bogs

Rice Paddies

Extensive areas indicated by label only.

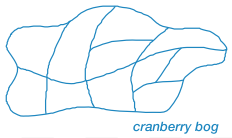
Springs, Wells and Waterholes

Swamps, Marshes and Bogs



Mangrove And Nipa

Cranberry Bogs

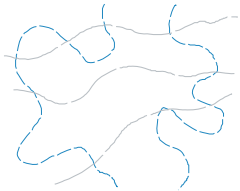


Land Subject To Inundation

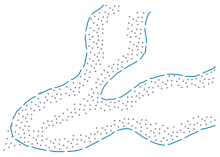
Tundra

Permanent Snow and Ice Areas

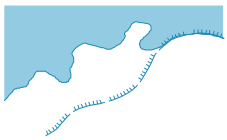
Glaciers



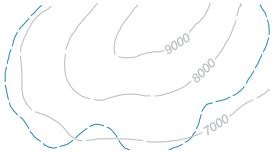
Glacial Moraines



Ice Cliffs

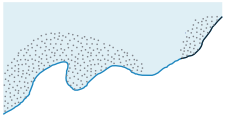


Snowfields, Ice Fields And Ice Caps



Foreshore Flats

Tidal flats exposed at low tide.



Ice

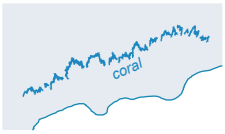
Permanent Polar Ice

Pack Ice

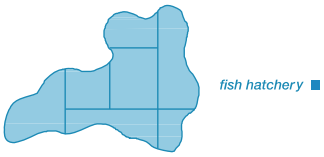
Ice Peaks

HYDROGRAPHY (Continued)

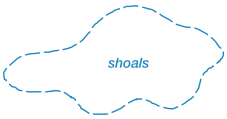
Reefs-Rocky or Coral



Fish Ponds and Hatcheries



Miscellaneous Underwater Features Not Otherwise Symbolized



Wrecks

Exposed

Rocks-Isolated

Bare or Awash

RELIEF

Contours

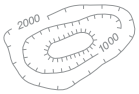
Basic

Approximate

Intermediate

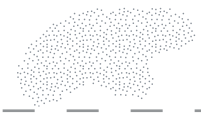
Auxiliary

Depression
(Illustration includes mound within depression)



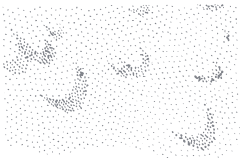
Values

Sand or Gravel Areas



Sand Dunes

To Scale



Hachuring

Spot Elevations

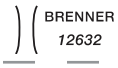
Position Accurate

Position Accurate, Elevation Approximate

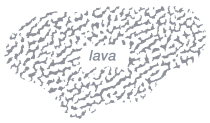
Highest in General Area

Highest on Chart

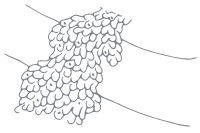
Mountain Pass



Distorted Surface Areas

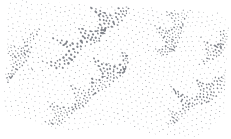


Lava Flows



Sand Ridges

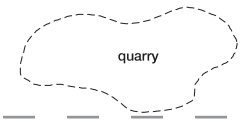
To Scale



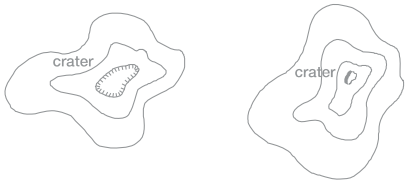
Shaded Relief

RELIEF (Continued)

Quarries To Scale

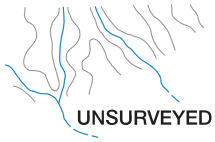


Craters



Unsurveyed Areas

Label appropriately as required



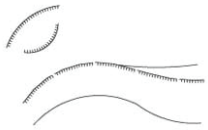
Levees And Eskers

Rock Strata Outcrop

Strip Mines, Mine Dumps And Tailings

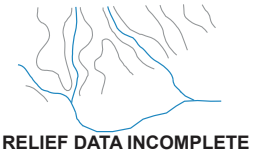
To Scale

Escarpments, Bluffs, Cliffs, Depressions, Etc.

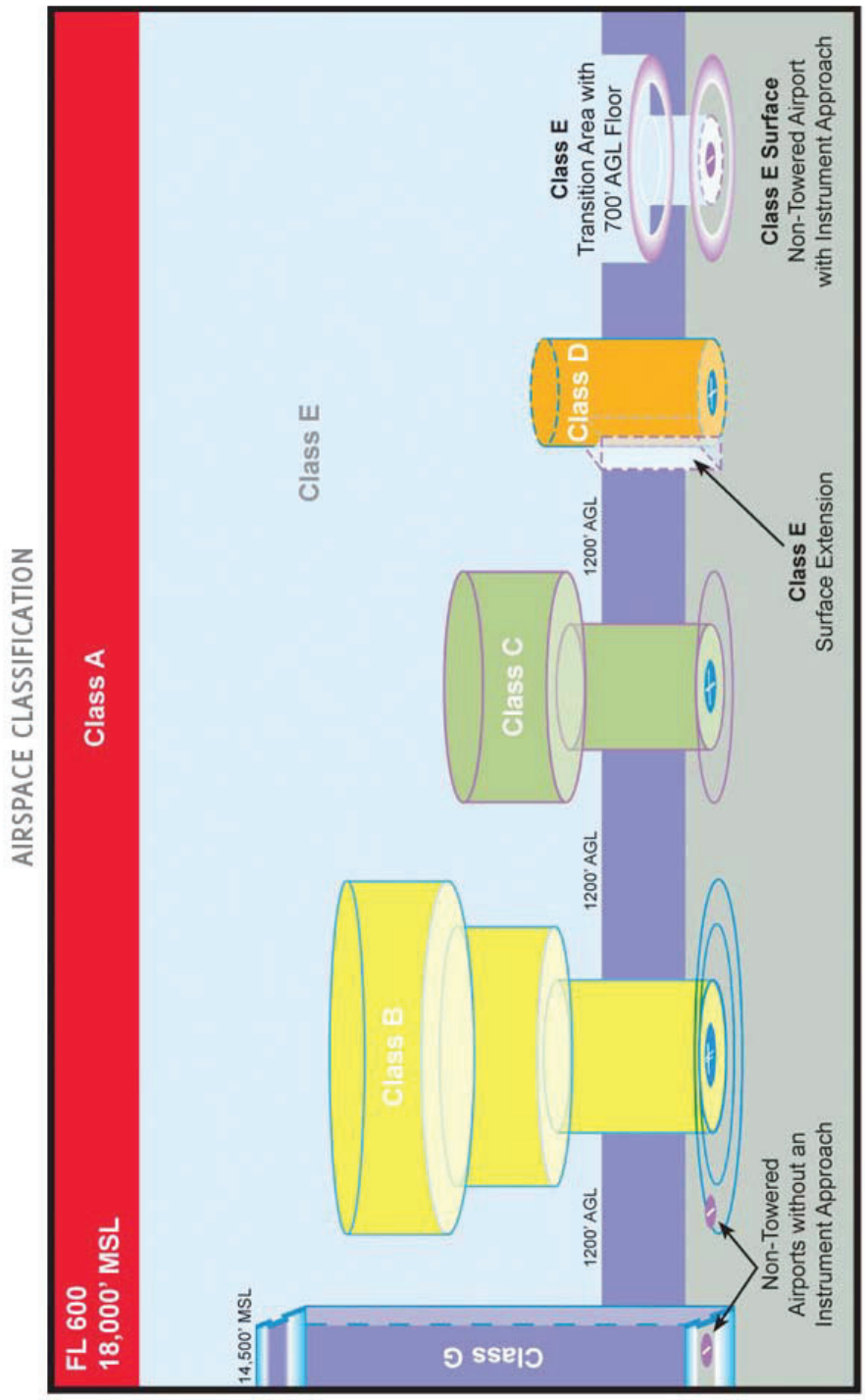


Uncontoured Areas

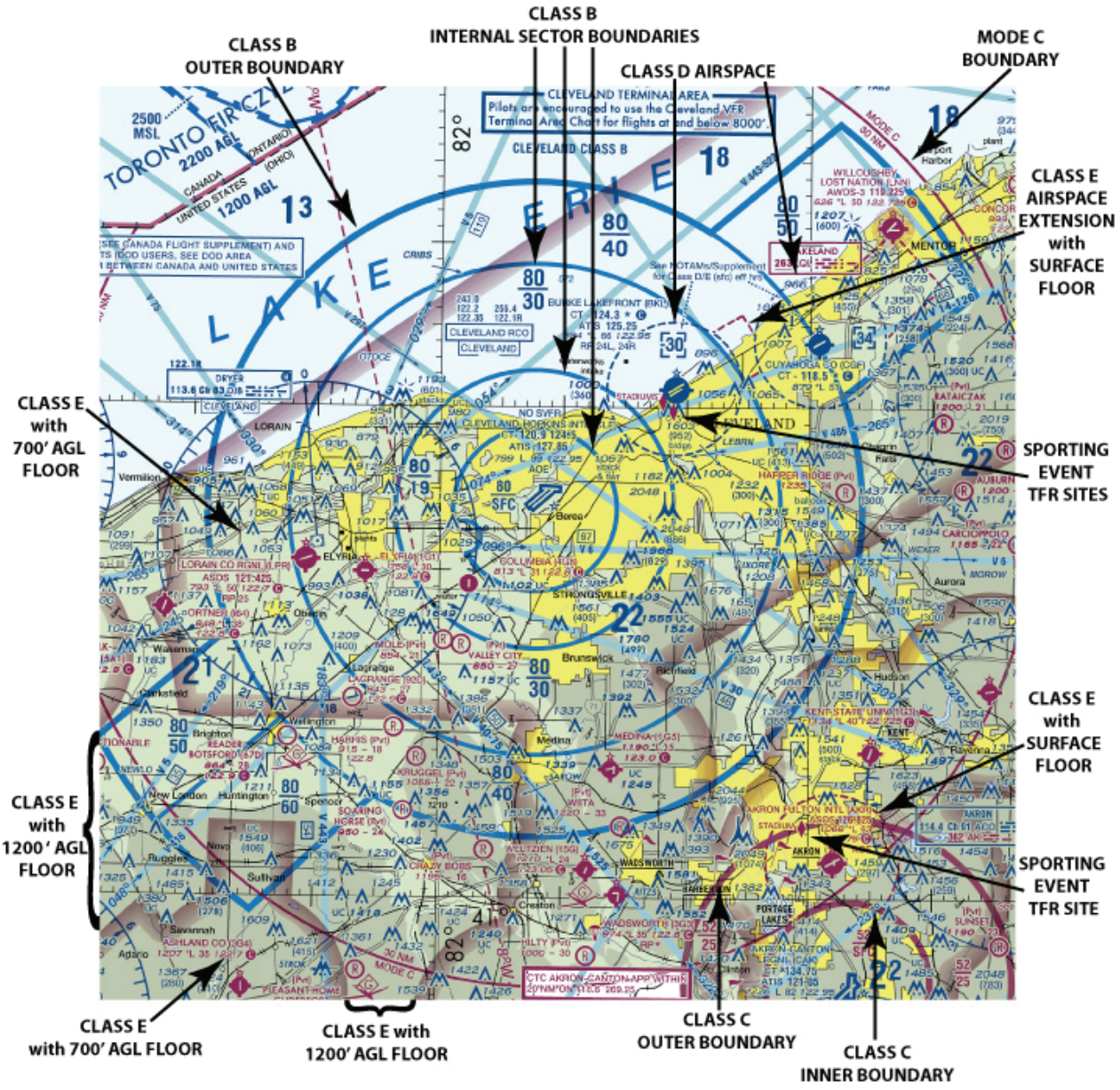
Label appropriately as required



AIRSPACE



U.S. Airspace depiction as shown on Visual Aeronautical Charts



Excerpt from Detroit Sectional Chart