



**Federal Aviation  
Administration**

**Aeronautical Information Services Products**

## **Aeronautical Chart Users' Guide**

**VFR Charting Products  
(Includes Sectional, Terminal Area, Caribbean,  
Flyway, and Helicopter Charts)**

**Effective as of 24 March 2022**



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## WHAT'S NEW?

Update as of 24 March 2022

The following charting items have been added to the Chart Users' Guide since the Guide was last published on 27 January 2022:

### VFR CHARTS

No Significant Changes Applied

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### IFR ENROUTE CHARTS

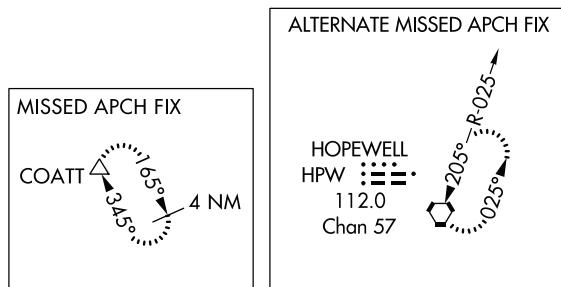
No Significant Changes Applied

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### TERMINAL PROCEDURE PUBLICATION (TPP)

The following was added to clarify the use of missed approach holding pattern inset boxes on IAPs:

Missed approach holding patterns that lie outside the geographic parameters of the planview and are unable to be shown with a scale break will be shown as a boxed inset. All alternate missed approach holding patterns will be shown in an inset.





# INTRODUCTION

This Chart Users' 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](#)
- [IFR Charts](#)
- [Terminal Procedures Publication](#)
- [Chart Supplements](#)

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/](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).

Notices to Air Missions (NOTAMs) alert pilots to time-critical aeronautical information that is either temporary or not sufficiently known in advance to permit publication on aeronautical charts or in other operational publications. Pilots can access NOTAM information via Flight Service Stations (FSS) or online via NOTAM Search at <https://notams.aim.faa.gov/notamSearch/>.

In addition to NOTAMs, the Safety Alerts/Charting Notices page of the Aeronautical Information Services website is 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 NOTAMs for important updates between chart and publication cycles that are essential for safe flight.

## EFFECTIVE DATE OF CHART USERS' GUIDE AND UPDATES

All information in this guide is effective as of **24 March 2022**. 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 Users' Guide is updated when there is new chart symbology or when there are changes in the depiction of information and/or symbols on the charts. It will be published 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.

FAA, Aeronautical Information Services  
1305 East-West Highway  
SSMC4, Room 3424  
Silver Spring, MD 20910-3281

Telephone Toll-Free 1-800-638-8972  
Aeronautical Inquiries: [https://www.faa.gov/air\\_traffic/flight\\_info/aeronav/aero\\_data/Aeronautical\\_Inquiries/](https://www.faa.gov/air_traffic/flight_info/aeronav/aero_data/Aeronautical_Inquiries/)



# EXPLANATION OF VFR TERMS AND SYMBOLS

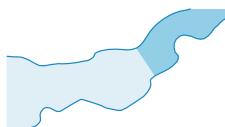
This chapter covers the Sectional Aeronautical Chart (Sectional). These charts include the most current data at a scale of (1:500,000) which is large enough to be read easily by pilots flying by sight under Visual Flight Rules. Sectionals are named after a major city within its area of coverage.

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.

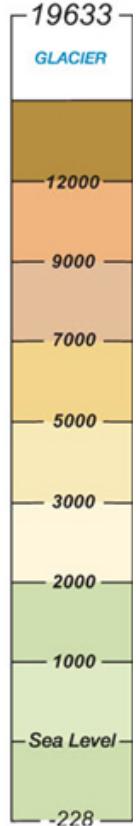


- Different color tints show bands of elevation relative to sea level. These colors range from light green for the lower elevations, to dark brown for the higher elevations.
- Obstruction symbols show man made vertical features that could affect safe navigation. FAA's Aeronautical Information Manual (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.*  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.
- Obstacles 1000' AGL or greater.*  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.
- 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:
- 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.



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

**125**

*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

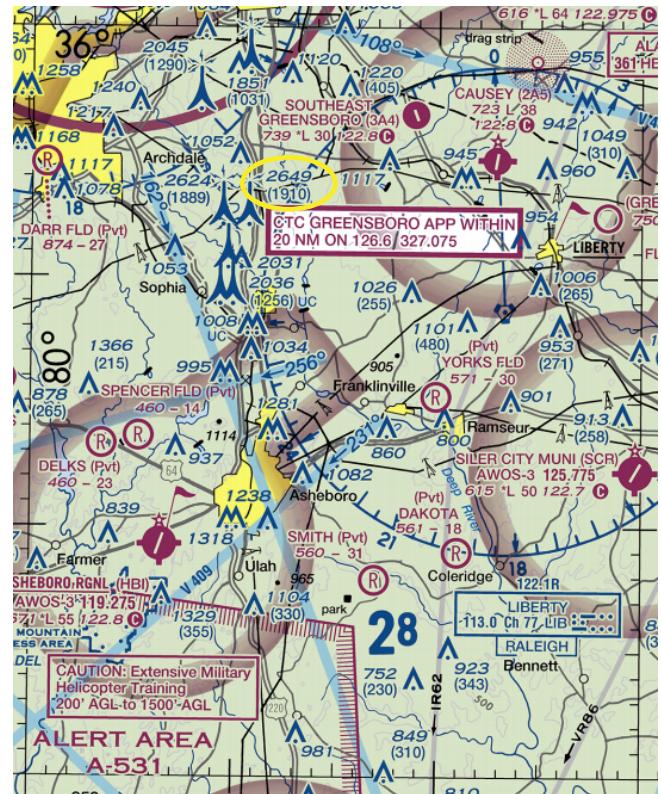
When a man-made obstacle is more than 200' above the highest terrain within the quadrant:

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   |

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

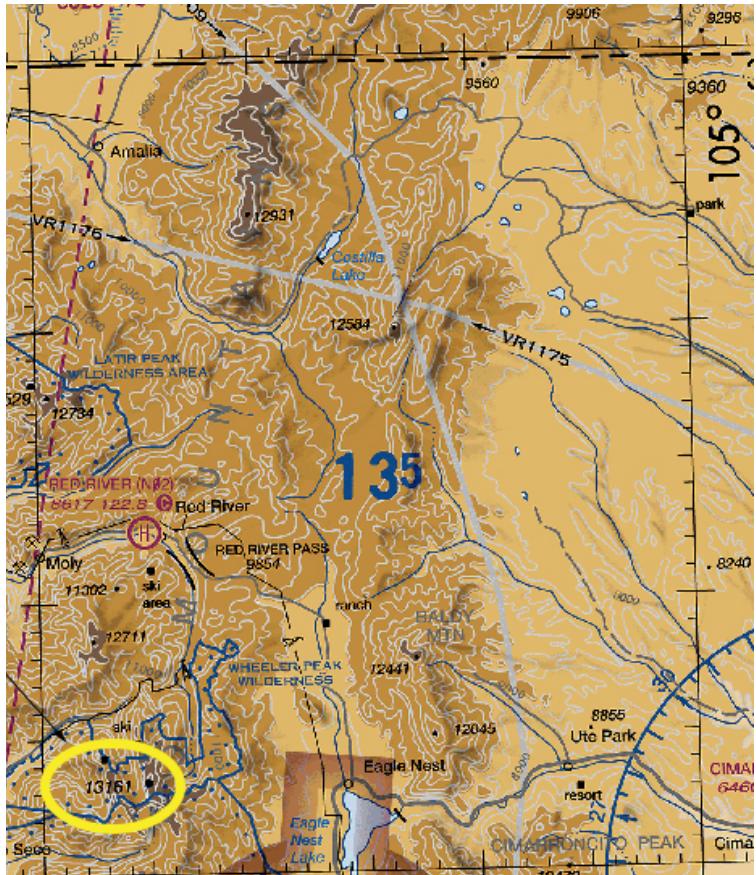
Possible vertical error +100

Obstacle Allowance +200

equals 13461

Raise to the following 100' level 13500

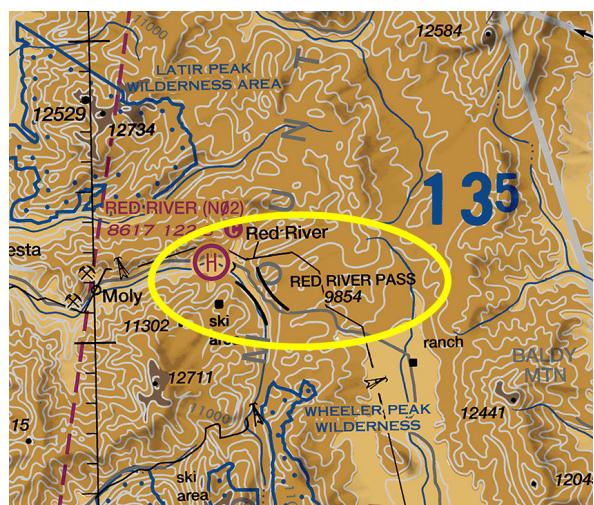
Maximum Elevation Figure (MEF) **135**



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 Information Services website to ensure that your chart has the latest MEF data available.

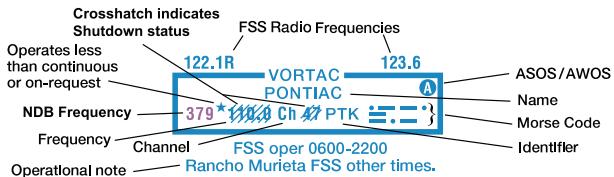
## LAND FEATURES - MOUNTAIN PASSES

Mountain Pass symbol does not indicate a recommended route or direction of flight and pass elevation does not indicate a recommended clearance altitude. Hazardous flight conditions may exist within and near mountain passes.



## 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.

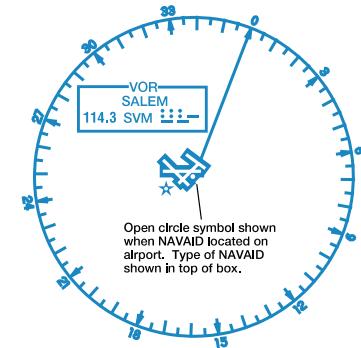
U.S. military airports are identified by abbreviations such as AAF (Army Air Field), AFB (Air Force Base), MCAS (Marine Corps Air Station), NAS (Naval Air Station), NAV (Naval Air Facility), NAAS (Naval Auxiliary Air Station), etc. Canadian military airports are identified by the abbreviation DND (Department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

Fuel Available:



Fuel availability indicated by use of tick marks around the basic airport symbol. Consult Chart Supplement for details and availability.

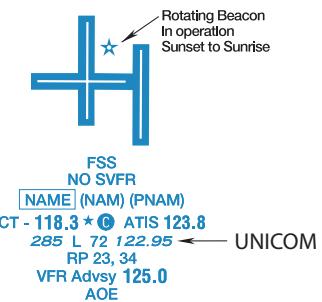
Other airports with or without fuel:



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. When depicting a seaplane base, the eye of the anchor symbol will be charted as close to the docking area as possible, with the remainder of the symbol in the water.

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 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)  | ©                | 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 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.

 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: 

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

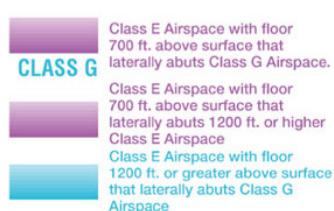
**Class E Surface (SFC) Airspace** is symbolized with a magenta dashed line. Class E (SFC) operating less than continuous is indicated by the following note: See NOTAMs/Supplement for Class E (sfc) eff hrs

**Class E Airspace** exists at 1200' AGL unless designated otherwise. The lateral and vertical 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



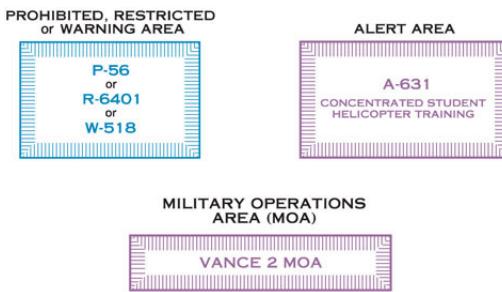
If the ceiling is less than 18,000' MSL, the value (preceded by the word "ceiling") is shown along the limits of the controlled airspace. These limits are shown with the same symbol indicated above.

## 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.



TRUCKEE - TAHOE

**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 SFRAs. 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 Air Missions (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.

**National Defense Airspace Temporary Flight Restriction (TFR) Areas** are bounded with cross hatching: . These areas include airspace that is subject to routine TFRs published as NOTAMs that have a 12+ month duration.

**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: . 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.

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.

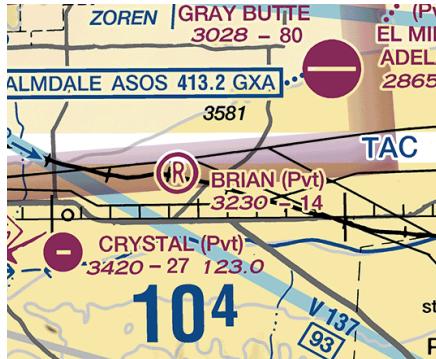
**SPECIAL MILITARY ACTIVITY**  
CTC MOBILE RADIO  
ON 123.6  
FOR ACTIVITY STATUS

## 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)             |   |  |                     |                              |                              |
|-----------------------------------|---|--|---------------------|------------------------------|------------------------------|
| <b>Airport Name</b>               | <b>OPERATES</b>   | <b>TOWER</b>   | <b>GND CON</b>      | <b>ATIS</b>                  | <b>ASR/PAR</b>               |
| AIRBORNE                          | 0700 MON-1800 SAT<br>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<br>Runway dependent  | { 118.3 (RWYS 18R/36L & 09/27)<br>118.975 360.85 (RWY 18L/36R) | 121.3 (E) 121.7 (W) | 134.375 (ARR)<br>135.3 (DEP) | ASR                          |
| COX DAYTON INTL                   | CONTINUOUS  | 119.9 257.8  | 121.9               | 125.8                        |                              |
| EASTERN WV RGNL/ SHEPHERD         | 0700-2200 TUE-THU<br>0700-1600 FRI-SAT<br>1300-1800 SUN<br>O/T BY NOTAM | 124.3 236.6  | 121.8 275.8         |                              | Approach direction dependent |

Hours of Operation (local time)

Radar Instrument Approach available

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

Airspace Name

Radar Approach Control

#### 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-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

| <b>NUMBER</b> | <b>ALTITUDE</b>               | <b>TIME OF USE</b>                            | <b>CONTROLLING AGENCY/ CONTACT FACILITY</b> | <b>FREQUENCIES</b> — VHF/UHF |
|---------------|-------------------------------|---|---|------------------------------|
| R-6602 A      | TO BUT NOT INCL 4000          | CONTINUOUS MAY 1-SEP 15<br>†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                                      |                              |

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

| <b>MOA NAME</b> | <b>ALTITUDE*</b>             | <b>TIME OF USE†</b>                    | <b>CONTROLLING AGENCY/ CONTACT FACILITY</b> | <b>FREQUENCIES</b> — VHF/UHF |
|-----------------|------------------------------|--|---|------------------------------|
| 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<br>0800-1600 SAT-SUN | INDIANAPOLIS CNTR                           | 134.0 135.57                 |
| EVERS           | 1000 AGL                     | SR-SS BY NOTAM                         | WASHINGTON CNTR                             |                              |

\*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.

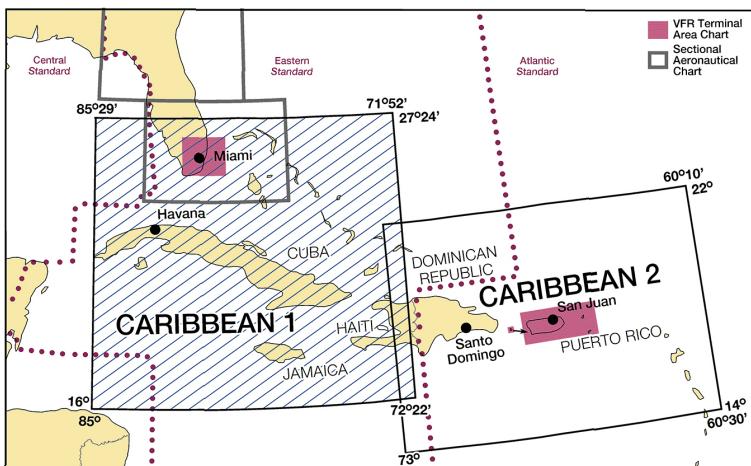
Sunrise to Sunset

#### CANADA R-RESTRICTED, D-DANGER AND A-ADVISORY AREA

| <b>NUMBER</b> | <b>LOCATION</b>          | <b>ALTITUDE</b> | <b>TIME OF USE</b>                | <b>CONTROLLING AGENCY</b> |
|---------------|--------------------------|-----------------|-----------------------------------|---------------------------|
| CYR754        | CONFEDERATION BRIDGE, PE | TO 500          | CONTINUOUS                        |                           |
| CYD734        | HALIFAX, NS              | TO FL 200       | OPTIONAL BY NOTAM                 | MONCTON ACC               |
| CYA702 (P)    | GREENWOOD, NS            | TO 500          | CONT DAYLIGHT                     |                           |
| CYA752 (M)    | LIVERPOOL, NS            | TO FL 280       | CONT DAYLIGHT<br>MON-FRI EXC HOLT | MONCTON ACC               |

# 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.



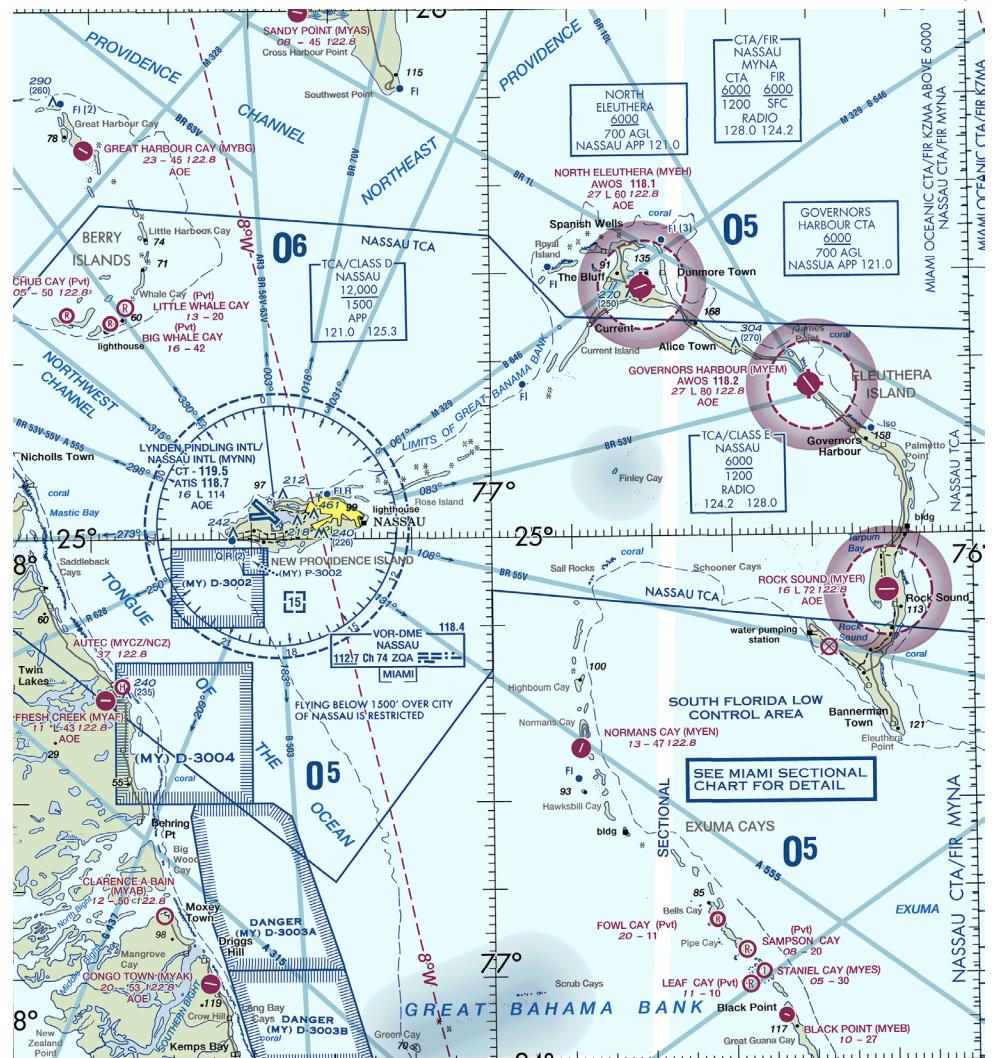
Caribbean Charts are designed for VFR and provide aeronautical and topographic information of the Caribbean. The aeronautical information includes airports, radio aids to navigation, Class B airspace and special use airspace. The topographic information includes city tint, populated places, principal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

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

Non-Towered      Towered



### Landplane: Emergency / Landmark Value

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.) Non-public use having emergency or landmark value.



**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.

### Landplane: Civil-Military

Non-Towered      Towered



### Landplane: Military

Refueling and repair facilities not indicated.

Non-Towered      Towered



### Heliport

(Selected)

Non-Towered      Towered



### Seaplane: Civil

Non-Towered      Towered



### Ultralight Flight Park

(Selected)



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



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

### Seaplane: Emergency



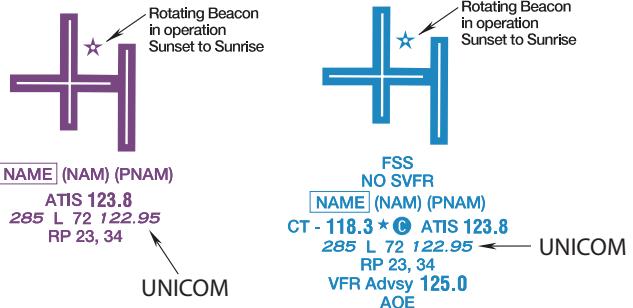
Fuel not available or complete information is not available.

# AIRPORTS (Continued)

## Airport Data Grouping

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

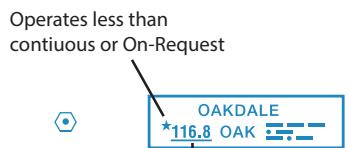
"OBJECTIONABLE": This airport may adversely affect airspace use.



|   |                  |   |                 |
|---|------------------|---|-----------------|
| Flight Service Station on field   | FSS              | 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)  | ○                | 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. |                 |

# RADIO AIDS TO NAVIGATION

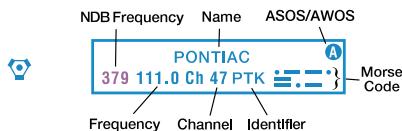
## VOR



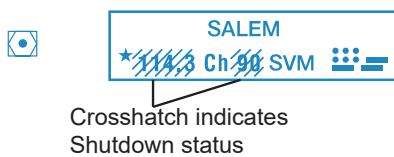
Underline indicates no voice on this frequency

## VORTAC

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



## VOR-DME



## DME

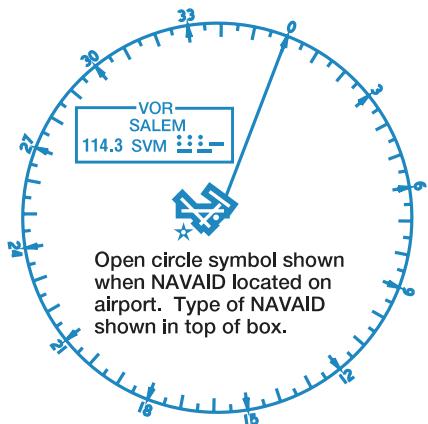


DME co-located at an airport  
Note: DMEs are shown without the compass rose.

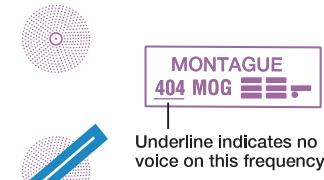


## Compass Rose

Compass Rose is "reference" oriented to magnetic north



## Non-Directional Radio Beacon (NDB)



## NDB-DME



## NAVAID Used To Define Class B Airspace ILS Components

### ILS-DME



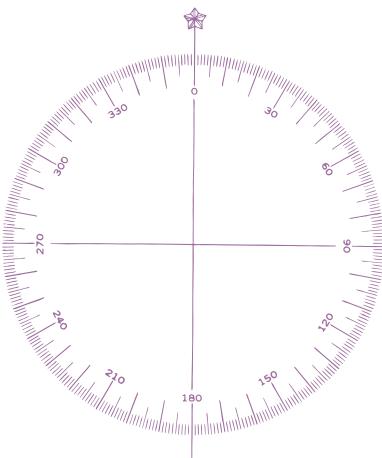
TAC - Shown when used in description of Class B airspace.



## Compass Rosette

Shown only in areas void of VOR roses.

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



Example of VOR NAVAID co-located at airport

## RADIO AIDS TO NAVIGATION (Continued)

### Automated Weather Broadcast Services

Automated Weather Observing System (AWOS) / Automated Surface Observing System (ASOS).

VHF/UHF      LF/MF

**A**      **A**

### Flight Service Station (FSS)

Heavy line box indicates Flight Service Station (FSS). Frequencies 122.2 and 255.4 (Conterminous U.S.); 121.5, 122.2, 243.0 and 255.4 (Alaska); and 121.5, 126.7, and 243.0 (Canada) are available at many 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

**PONTIAC PTK**

No NAVAID of the same name as FSS

OR

**122.1R**      **123.6**  
**NORTHWAY**  
**116.3** Ch 110 ORT 

FSS oper 0600-2200  
 Rancho Murieta FSS other times

NAVAID same name as FSS but not an RCO

### Off Airport AWOS/ASOS

**SANDBERG ASOS 120.625 SDB**

### Broadcast Stations (BS)

 **KFTM**       **BS KFTM 1400**

### 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.

**122.525**      **123.65**  
**HANCOCK RCO**  
**GREEN BAY**

**122.35**  
**ST PAUL**  
**108.6 STP** 

**MINNEAPOLIS**

**122.35**  
**HUMPHREY**  
**275 HPY**   
**MILES CITY**

FSS Radio providing voice communications

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

## AIRSPACE INFORMATION

### Class B Airspace

#### Sectional

**LAS VEGAS CLASS B**



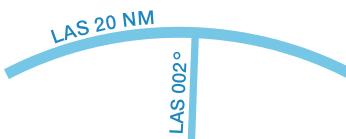
Appropriate notes as required may be shown.

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

(Mode C see FAR 91.215 / AIM)

### Terminal Area Chart (TAC)

**LAS VEGAS CLASS B**



**CTC LAS VEGAS APP  
 ON 121.1 OR 257.8**

All mileages are nautical (NM).

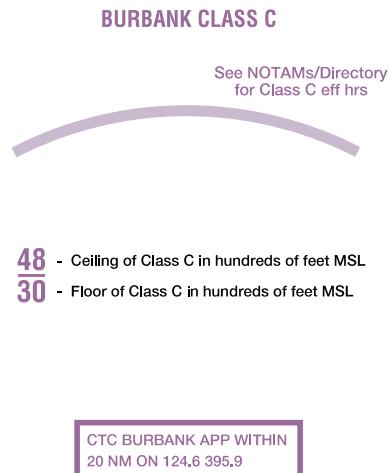
All radials are magnetic.

## 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.

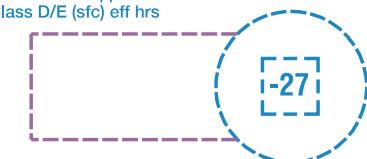
### Class D Airspace

Altitude in hundreds of feet MSL

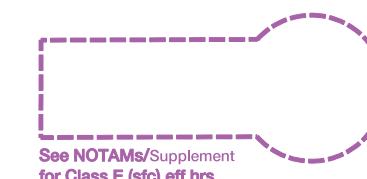
See NOTAMs/Supplement for Class D eff hrs

Class D excluded below 1500' MSL  
See NOTAMs/Supplement for Class D/E (sfc) eff hrs

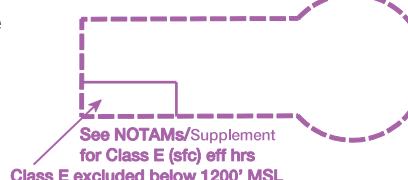
(A minus in front of the figure is used to indicate "from surface to but not including...")



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

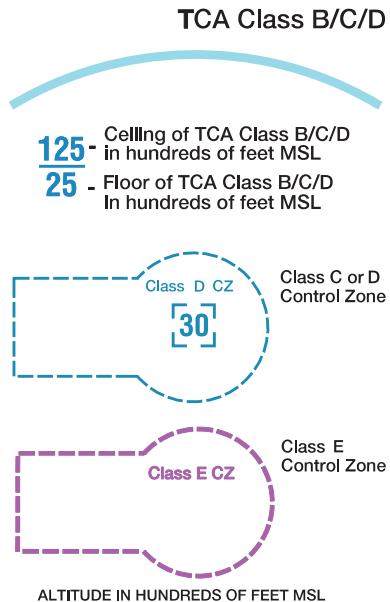
Combined Federal Airway/RNAV 2 "T" Routes are identified in solid blue type adjacent to the solid magenta federal airway identification.

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



**V2N** ← 270°

Alternate Airway radial

Total mileage  
between NAVAIDS  
on direct Airways.

25  
V2  
Enroute Airway radial

255°

**R40**

LF / MF Airway

**T 319**

**TK 313**

(helicopter only)

RNAV 2 Route

**BR 63V**

← 265°

125

Bahama Route

**A 301**

Oceanic & ATS Route

**AR5**

Atlantic Route

**B ROUTE 2**

Class G Route

**A 301 T 319**

Federal / RNAV 2 Route

### Flight Information Regions (FIR)

No FIR exists this side - No ticks

**MONCTON FIR CZQM**

**WINNIPEG FIR CZWG**

**EDMONTON FIR CZEG**

### Oceanic Control Areas (OCA)

**OAKLAND OCEANIC  
CONTROL AREA**

**MAZATLAN CTA SECTOR 2**

**MONTERREY CTA SECTOR 3**

### Offshore Control Areas

**ATLANTIC LOW  
CONTROL AREA**

Class G Airspace

9500 MSL

**ATLANTIC LOW  
CONTROL AREA**

8000 MSL

**CONTROL AREA 1148L**

## AIRSPACE INFORMATION (Continued)

### Special Conservation Areas

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

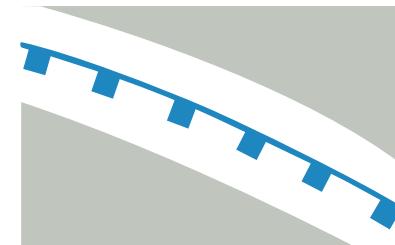


### Special Flight Rules Area (SFRA) Relating to National Security

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.



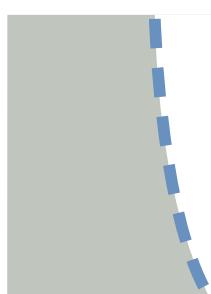
**WASHINGTON DC METROPOLITAN AREA SFRA**

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.

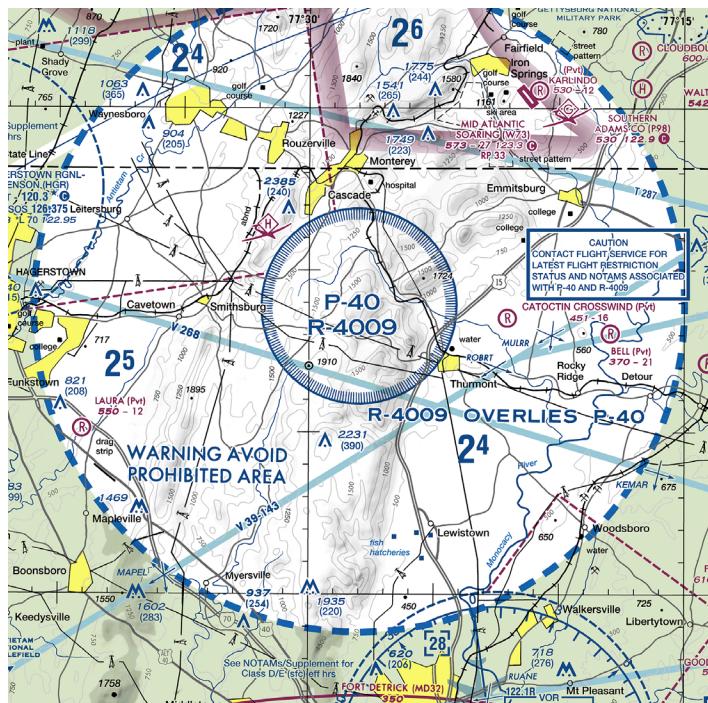
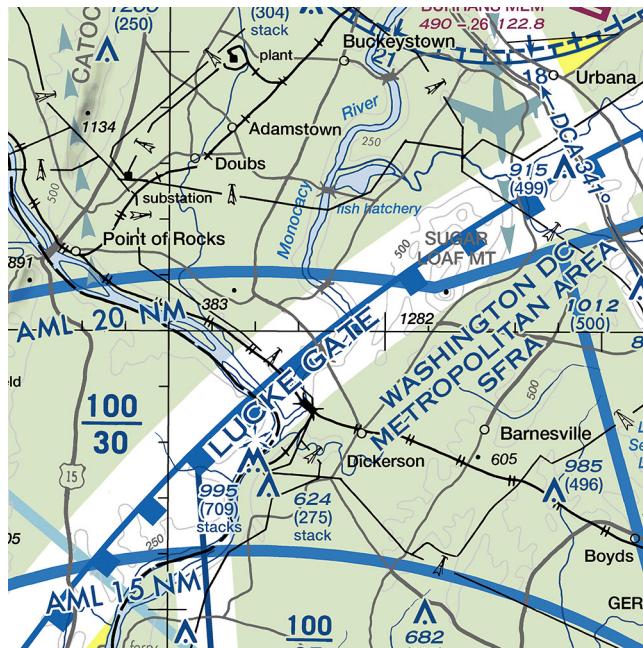


**CAUTION**  
CONTACT FLIGHT SERVICE FOR  
LATEST FLIGHT RESTRICTION  
STATUS AND NOTAMS ASSOCIATED  
WITH P-40 AND R-4009

### NOAA Regulated National Marine Sanctuary Designated Areas

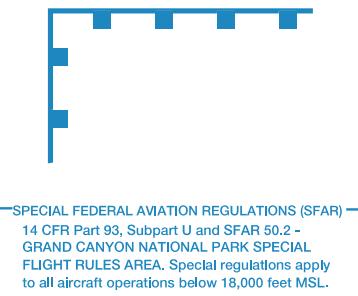


Flight operations below 1000' AGL over the designated areas within the Gulf of Farallones National Marine Sanctuary violate NOAA regulations (see 15 CFR 922).



## 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.

Inside the FAR Part 93 boundary area, the cross hatching is at a 45 degree angle. The hypsometric tint shall be masked within the area around the yellow city tint when applicable (should not be confused with white glacier tint).



SPECIAL NOTICE  
Pilots are required to obtain an ATC clearance prior to entering this area.

### Flight Restricted Zone (FRZ) Relating to National Security



### National Security Area

Appropriate notes as required may be shown



Small Area



### Special Awareness Training Areas



### Mode C (FAR 91.215)

Appropriate notes as required may be shown.



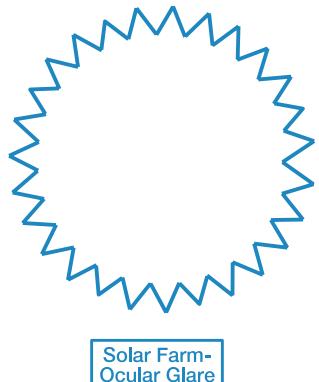
### Air Defense Identification Zone (ADIZ)

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

CONTIGUOUS U.S. ADIZ

## AIRSPACE INFORMATION (Continued)

### High Energy Radiation Areas

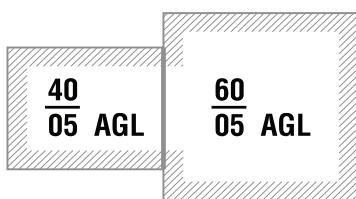


Appropriate notes as required may be shown.

### Military Training Routes (MTR)

VR269

### Special Military Activity Routes (SMAR)



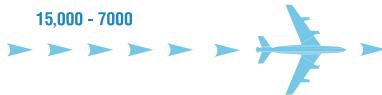
Boxed notes shown adjacent to route.

SPECIAL MILITARY ACTIVITY  
CTC ALBUQUERQUE CNTR ON 135.875  
FOR ACTIVITY STATUS

40  
05 AGL

### IFR Routes

Arrival



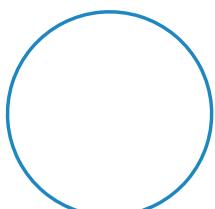
Departure

8000 - 12000

Arrival/Departure

IFR ARRIVALS      IFR DEPARTURES  
8000 - 5000      5000 - 8000  
TAC only

### Special Security Notice Permanent Continuous Flight Restriction Areas



DISNEYLAND THEME PARK  
See Note for requirements

### Sporting Event Temporary Flight Restriction (TFR) Sites

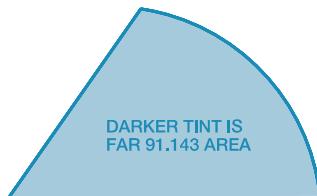
STADIUM

### National Defense Airspace Temporary Flight Restriction (TFR) Areas



Dallas National  
Defense Airspace TFR  
Check NOTAMS

### Space Operations Area (FAR Part 91.143)



### Miscellaneous Activity Areas

Aerobic 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



TAC only

Example: Los Angeles



### Terminal Radar Service Area (TRSA)

TRSA Name

HARRISBURG TRSA

TRSA Boundaries



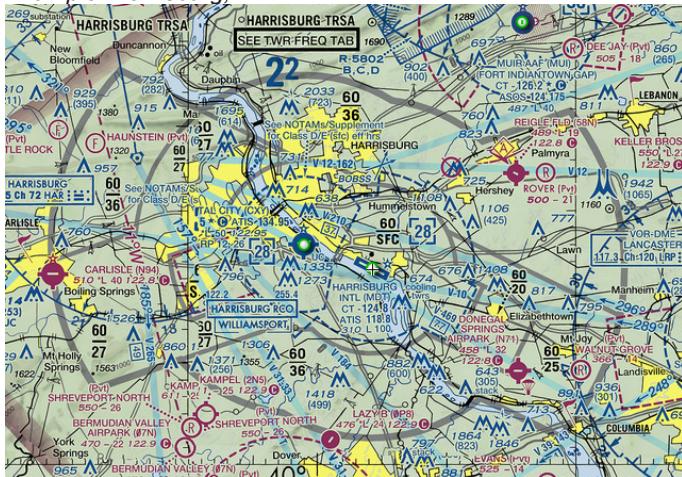
TRSA Sectors

80  
40

- Ceiling of TRSA in hundreds of feet MSL  
- 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.



### 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.

### Aeronautical Lights

By Request



Rotating or Oscillating



Isolated Location



Rotating Light with Flashing Code  
Identification Light



Site

Rotating Light with Course Lights and  
Site Number



### Intersections

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



VHF



LF/MF



Combined  
VHF - LF/MF



WATSY

## NAVIGATIONAL AND PROCEDURAL INFORMATION (Continued)

### Airport Beacons

Rotating or Flashing

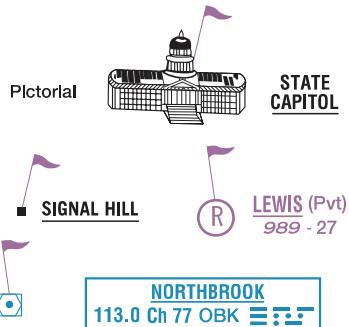


Isolated Locations

2520

### VFR Checkpoints

Underline indicates proper name of VFR Checkpoint.



### VFR Waypoints

RNAV

GRANT

Stand-Alone

VPXYZ

Collocated with VFR Checkpoint

NAME  
(VPXYZ)

### Obstruction

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

1473  
(394)  
bldg

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

628  
UC

1000' and higher (AGL)

3368  
(1529)

Wind Turbine

2179  
(315)

### 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

Oc  
R SEC  
Land Light

Red

R

White

\*W

Green

G

Blue

BU

Orange

OR

Black

B

Yellow

Y

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

FFI

Alternating

AI

Group

Gp

Long Flash

LFI

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

Interrupted 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)

1062  
(227)

1000' and higher (AGL)

4977  
(1432)

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

2889  
(1217)

Wind Turbines

2735  
(415)

### 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)

135

## NAVIGATIONAL AND PROCEDURAL INFORMATION (Continued)

### Chart Limits

#### Outline on Sectional of Terminal Area Chart



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

#### Outline on Sectional of Inset Chart



If Inset chart is on the same chart as outline:

INDIANAPOLIS INSET  
See inset chart for additional detail

#### Outline of Special Chart on Sectional and Terminal Area Chart



If inset chart is on a different chart:

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

## CULTURE

### Railroads

Single Track



Double Track



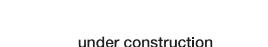
More Than Two Tracks



Electric



Non-operating, Abandoned or Under Construction



### Roads

Dual-Lane Divided Highway  
Category 1



Primary  
Category 2



Secondary  
Category 2



### Trails

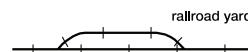
Category 3



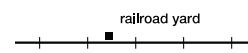
Provides symbolization for dismantled railroad when combined with label "dismantled railroad."

### Railroad Yards

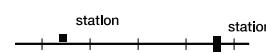
Limiting Track To Scale



Location Only



### Railroad Stations



### Railroad Sidings and Short Spurs



### Road Markers

Interstate Route No.



U.S. Route No.



Air Marked Identification Label



### Road Names

LINCOLN HIGHWAY



### Roads Under Construction



## CULTURE (Continued)

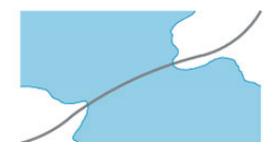
### Related Features to Railroads and Roads

#### Bridges and Viaducts

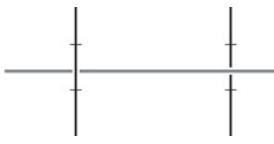
Railroad



Causeways



Overpasses and Underpasses



Tunnels-Road and Railroad



#### 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

Cities and Large Towns Category 2

- population 25,000 to 250,000

Towns and Villages Category 3

- population less than 25,000

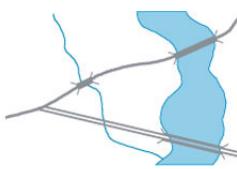
ST LOUIS

NASHVILLE

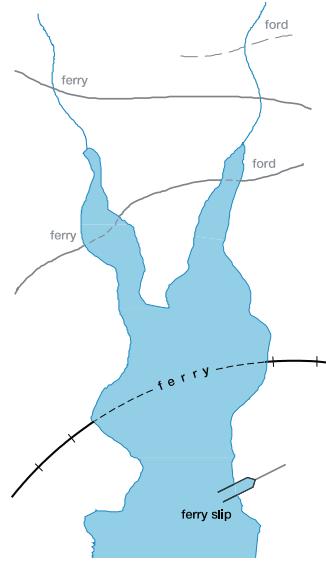
Frankfort

#### Bridges and Viaducts

Road



#### Ferries, Ferry Slips and Fords



## CULTURE (Continued)

### BOUNDARIES

#### International



#### State or Province

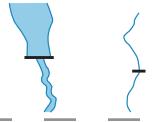


#### Convention or Mandate Line



### Miscellaneous Cultural Features

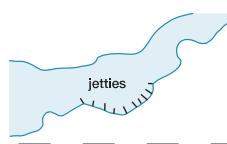
#### Dams



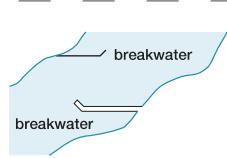
#### Passable Locks



#### Weirs and Jetties



#### Breakwaters



#### Pipelines

pipeline

#### Underground

underground pipeline

#### Landmark Features

- substation
- fort
- cemetery

#### Mines or Quarries



#### Wells

#### Other than water



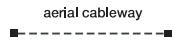
#### Lookout Towers

(Elevation Base of Tower)



618

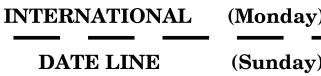
#### Aerial Cableways, Conveyors, Etc.



### Time Zones

PST  
+8 (+7DT) = UTC  
MST  
+7 (+6DT) = UTC

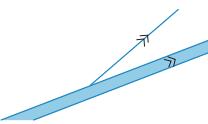
#### Date Line



#### Dam Carrying Road



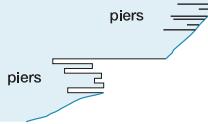
#### Small Locks



#### Seawalls



#### Piers, Wharfs, Quays, etc.



#### Power Transmission and Telecommunication Lines



#### Tanks

- water
- oil
- gas

#### Outdoor Theater



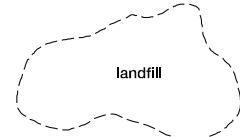
#### Race Tracks



#### Coast Guard Station

CG

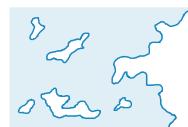
#### Landmark Areas



# HYDROGRAPHY

## Open Water

### Open/Inland Water



### Lakes

Label as required.



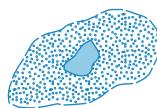
### Perennial

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



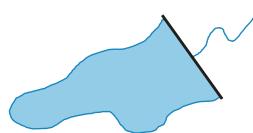
### Non-Perennial

(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

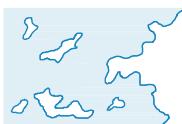


## Inland Water



### Shorelines

Definite



Fluctuating



Unsurveyed  
Indefinite



Man-made



## HYDROGRAPHY (Continued)

### Streams

Perennial

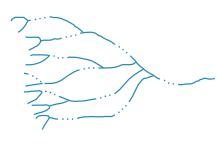


Non-Perennial



Fanned Out

Alluvial fan



Braided

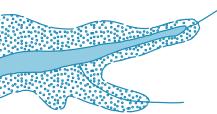


Disappearing

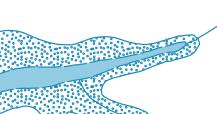


Seasonally Fluctuating

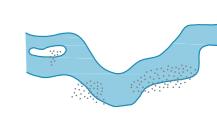
with undefined limits



with maximum bank limits,  
prominent and constant



Sand Deposits in and along  
riverbeds



### Wet Sand Areas

Within and adjacent to desert areas



### Aqueducts

To Scale



Abandoned or Under Construction

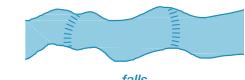


Underground



### Falls

Double-Line



falls

Single-Line



falls

### Canals

ERIE



To Scale



Abandoned or Under Construction



Abandoned to Scale

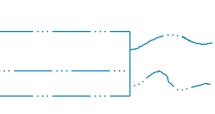


### Small Canals and Drainage / Irrigation Ditches

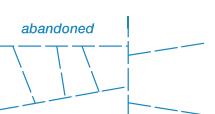
Perennial



Non-Perennial



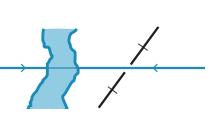
Abandoned or Ancient  
Numerous



Representative pattern and/or  
descriptive note.



Suspended or Elevated



Tunnels

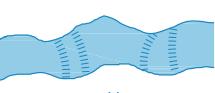


Kanats  
Underground with Air Vents



### Rapids

Double-Line



rapids

Single-Line

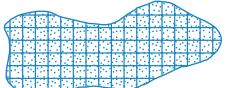


rapids

## HYDROGRAPHY (Continued)

### Salt Evaporators and Salt Pans Man Exploited

*salt pans*



### Hummocks and Ridges



### Peat Bogs



### Rice Paddies

Extensive areas indicated by label only.

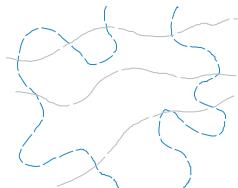


### Springs, Wells and Waterholes

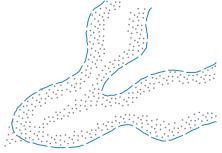


### Permanent Snow and Ice Areas

#### Glaciers



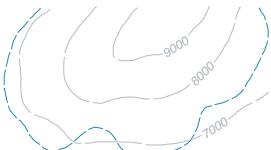
#### Glacial Moraines



#### Ice Cliffs

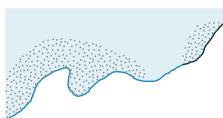


#### Snowfields, Ice Fields And Ice Caps



#### Foreshore Flats

Tidal flats exposed at low tide.



### Swamps, Marshes and Bogs



### Mangrove And Nipa



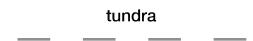
### Cranberry Bogs



### Land Subject To Inundation

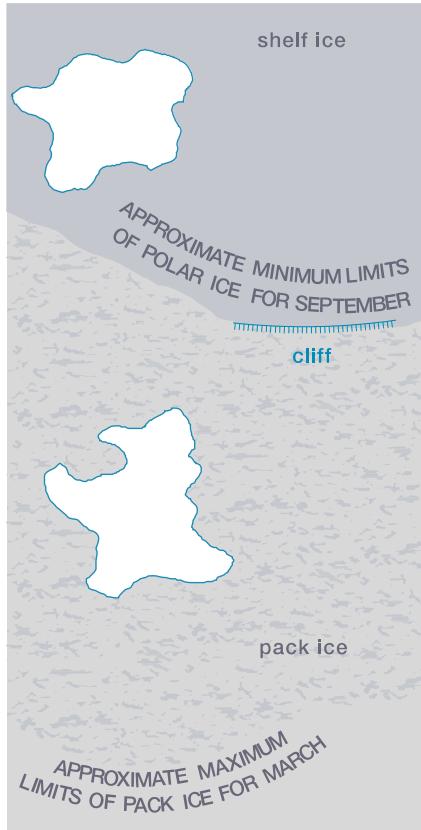


### Tundra

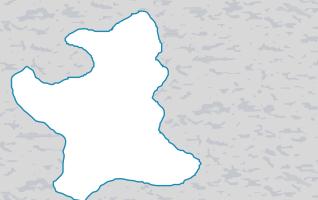


### Ice

#### Permanent Polar Ice



#### Pack Ice

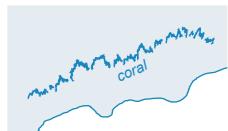


### Ice Peaks

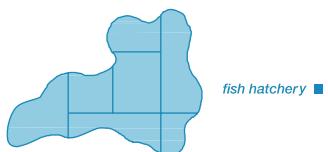


## HYDROGRAPHY (Continued)

### Reefs-Rocky or Coral



### Fish Ponds and Hatcheries



### RELIEF

#### Contours

Basic



Approximate



Intermediate



Auxiliary



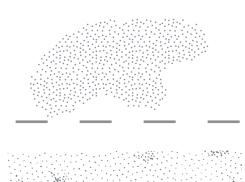
Depression  
(Illustration includes mound within depression)



Values



### Sand or Gravel Areas



### Sand Dunes

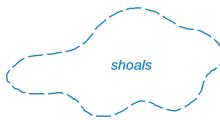
To Scale



### Hachuring



### Miscellaneous Underwater Features Not Otherwise Symbolized



### Wrecks

261

### Exposed

### Rocks-Isolated

\*

### Bare or Awash

### Spot Elevations

Position Accurate

2216

Position Accurate, Elevation Approximate

2260

Highest in General Area

6973

Highest on Chart

12770

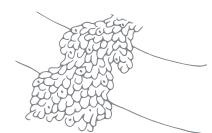
### Mountain Pass

BRENNER  
PASS  
12632

### Distorted Surface Areas



### Lava Flows



### Sand Ridges

To Scale



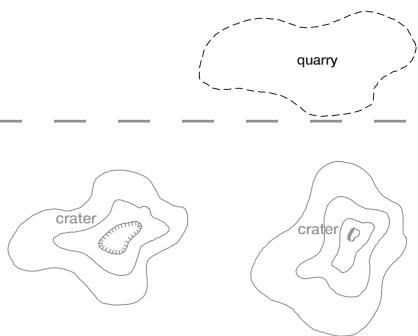
### Shaded Relief



## RELIEF (Continued)

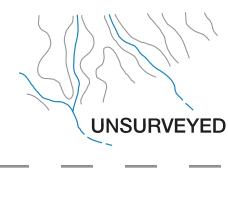
### Quarries To Scale

#### Craters



#### Unsurveyed Areas

Label appropriately as required



#### Levees And Eskers

levee

### Rock Strata Outcrop

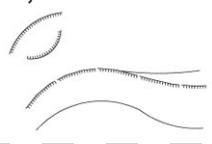


### Strip Mines, Mine Dumps And Tailings

To Scale

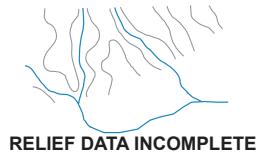


### Escarpsments, Bluffs, Cliffs, Depressions, Etc.



### Uncontoured Areas

Label appropriately as required





# VFR FLYWAY PLANNING CHARTS

## GENERAL INFORMATION

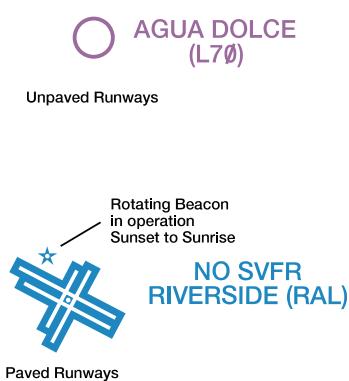
**VFR Flyway Planning Charts** are printed on the reverse sides of the Baltimore-Washington, Charlotte, Chicago, Cincinnati, Dallas-Ft. Worth, Denver, Detroit, Houston, Las Vegas, Los Angeles, Miami, Orlando, New Orleans, Phoenix, St. Louis, Salt Lake City, San Diego, San Francisco and Seattle Terminal Area Charts (TACs). The scale is 1:250,000, with area of coverage the same as the associated TACs. Flyway Planning Charts depict flight paths and altitudes recommended for use to by-pass areas heavily traversed by large turbine-powered aircraft. Ground references on these charts provide a guide for visual orientation. VFR Flyway Planning charts are designed for use in conjunction with TACs and are not to be used for navigation.

## AIRPORTS

### Landplane

No distinction is made between airports with fuel and those without fuel. Runways may be exaggerated to clearly portray the pattern. Hard-surfaced runways which are closed but still exist are included in the charted pattern.

FAR 91 - Fixed wing special VFR operations prohibited.



### Landplane (continued)

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



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



ABANDONED - Depicted for landmark value or to prevent confusion with an adjacent usable landing area. Only portrayed beneath or close to the VFR flyway routes or requested by the FAA. (Normally at least 3000' paved).



## RADIO AIDS TO NAVIGATION

### VHF Omni-Directional Radio Range (VOR)



### VORTAC



Crosshatch indicates Shutdown status

### VOR-DME



Underline indicates no voice on this frequency

### DME



Example: DME co-located at an airport.



### Non-Directional Radio Beacon (NDB)



WDP 396

Underline indicates no voice on this frequency



LSJ 206

### NAVAIDS Used to Define Class Airspace

ILS - DME



Shared ILS - DME



## AIRSPACE INFORMATION

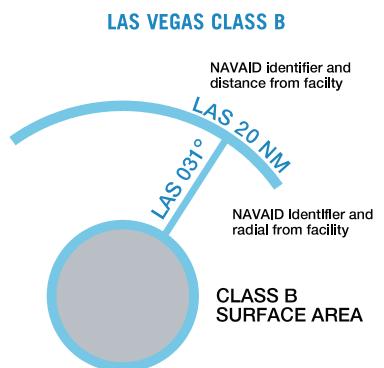
## Class B Airspace

Appropriate notes as required  
may be shown.

(Mode C see  
FAR 91.215/ AIM)

All mileages are nautical (NM).

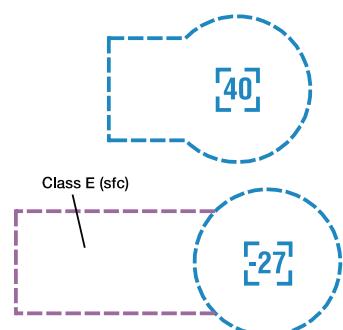
All radials are magnetic.



80 - Ceiling of Class B In hundreds of feet MSL  
40 - Floor of Class B in hundreds of feet MSL

Floors extending "upward and above" a certain altitude are preceded by a +. Operations at or below these altitudes are outside of the Class B Airspace.)

## Class D Airspace



#### ALTITUDE IN HUNDREDS OF FEET MSI

## Special Airspace Areas

## **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.

## Class C Airspace

Appropriate notes as required may be shown.

(Mode C see  
FAR 91.215/AIM)

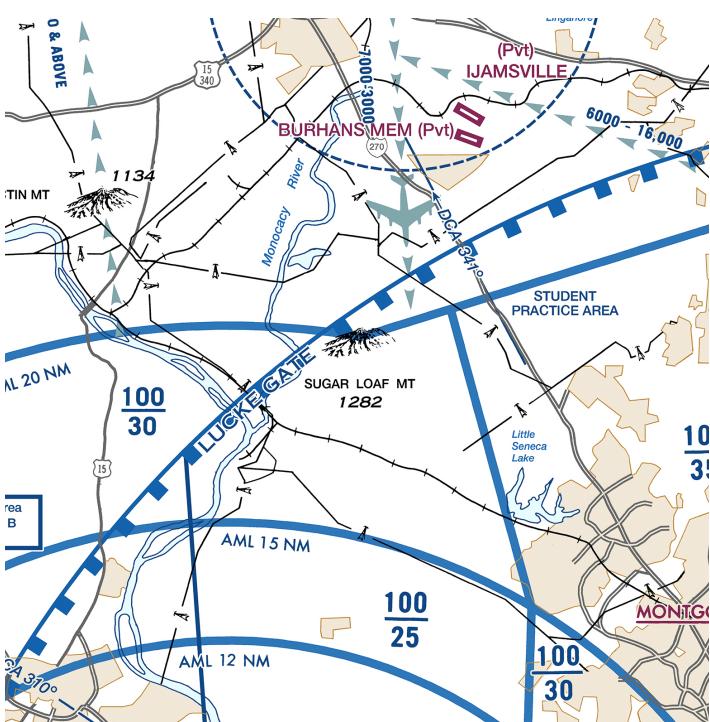
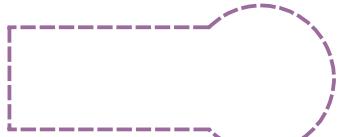


48  
30

- Ceiling of Class C in hundreds of feet MSL
- Floor of Class C in hundreds of feet MSL

T  
SEC. - Ceiling is to but not including floor of Class B  
- Surface

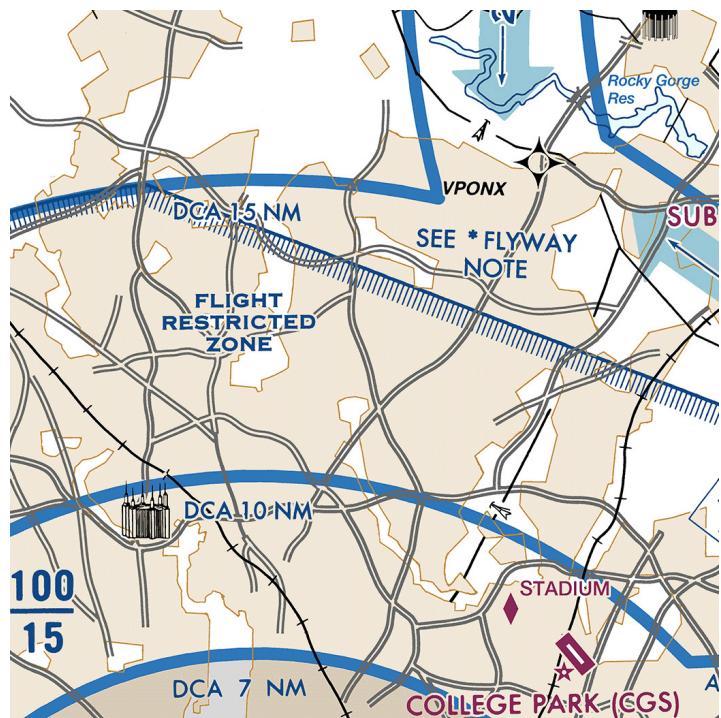
## Class E Surface (SFC) Airspace



## AIRSPACE INFORMATION (Continued)

### Flight Restricted Zone (FRZ) Relating To National Security

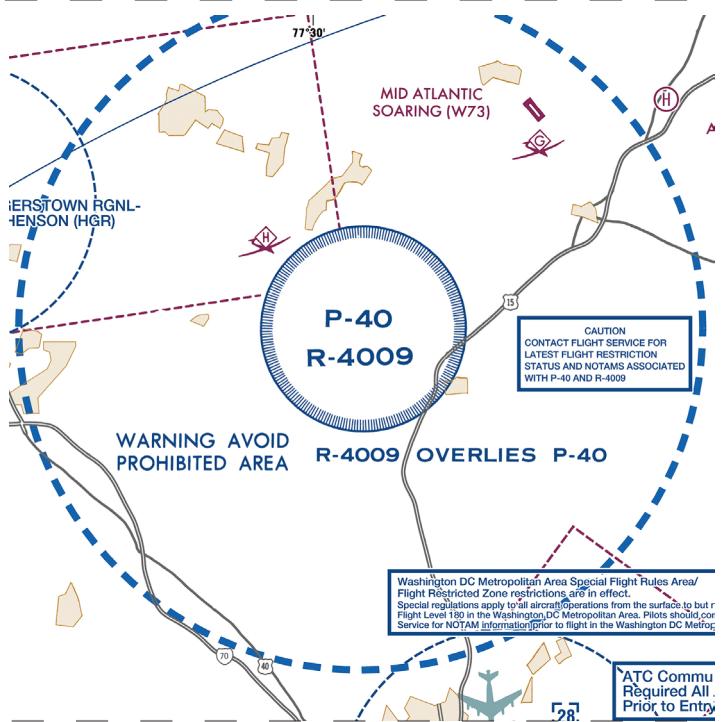
Example: Washington DC



### Temporary Flight Restriction (TFR) Relating To National Security

Example: Washington DC

Appropriate notes as required may be shown.



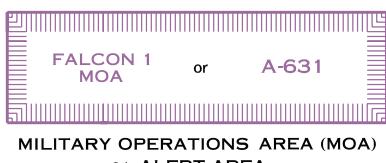
### Special Use Airspace

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



PROHIBITED, RESTRICTED or WARNING AREA

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



MILITARY OPERATIONS AREA (MOA) or ALERT AREA

### Air Defense Identification Zone (ADIZ)

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

CONTIGUOUS U.S. ADIZ

## AIRSPACE INFORMATION (Continued)

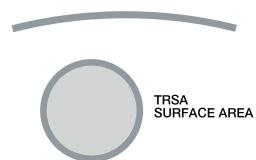
### Special Air Traffic Rules/Airport Traffic Areas (FAR Part 93)

Appropriate boxed note as required shown adjacent to area. Inside the FAR Part 93 boundary area, the cross hatching is at a 45 degree angle.



### Terminal Radar Service Area (TRSA)

PALM SPRINGS TRSA



100  
90 • Ceiling of TRSA in hundreds of feet MSL  
• Floor of TRSA in hundreds of feet MSL

### IFR Routes

Arrival



Departure



Arrival/Departure



### VFR Transition Routes

Appropriate notes as required may be shown.



Uni-directional



Bi-directional

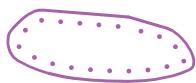


Bi-directional with NAVAID Ident and Radial



### Special Conservation Areas

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).

### Mode C (FAR 91.215)

Appropriate notes as required may be shown.



### Sporting Event Temporary Flight Restriction (TFR) Sites

STADIUM

### National Defense Airspace Temporary Flight Restriction (TFR) Areas



Dallas National Defense Airspace TFR Check NOTAMs

### Miscellaneous Activity Areas

Aerobic Practice Area



Glider Operations



Hang Glider Activity



Ultralight Activity



Unmanned Aircraft Activity



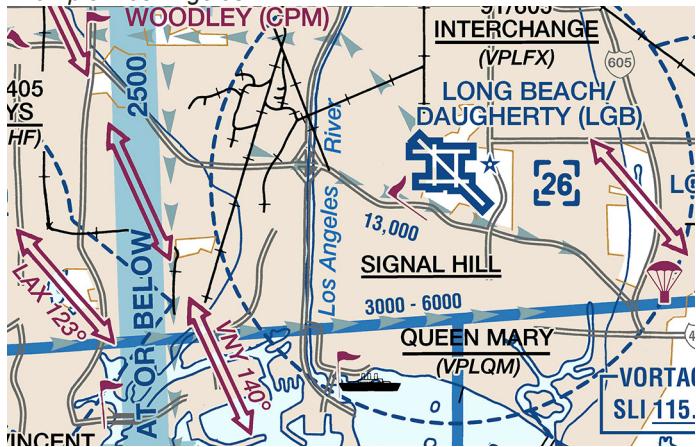
Parachute Jumping Area with Frequency



Space Launch Activity Area

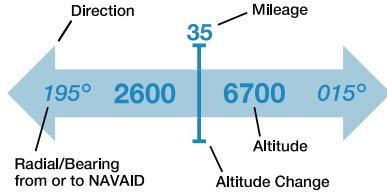


### Example: Los Angeles



## AIRSPACE INFORMATION (Continued)

### Suggested VFR Flyway And Altitude



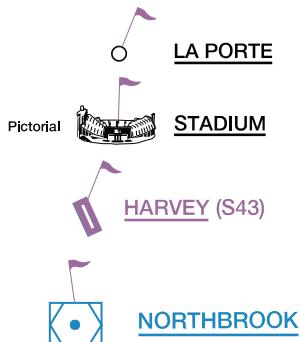
### Military Training Routes (MTR)



## NAVIGATIONAL AND PROCEDURAL INFORMATION

### VFR Checkpoints

Underline indicates proper name of VFR Checkpoint



### VFR Waypoints

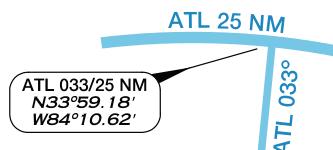
Stand-Alone



Collocated with VFR Checkpoint



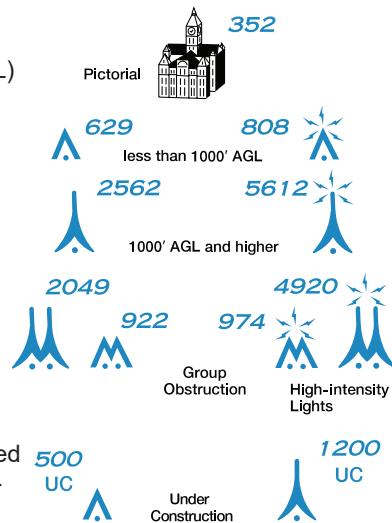
### Navigational Data



### Obstructions

Only obstacles greater than 999' above ground level (AGL) or specified by the local ATC Facility shall be shown.

AGL heights are not shown. High-intensity lights may operate part-time or by proximity activation.



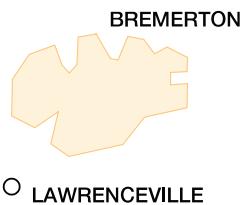
Under Construction or reported and position/elevation unverified.

**CULTURE****Railroads**

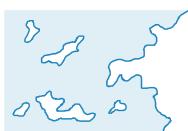
Single and Multiple Tracks

**Populated Places**

Built-up Areas



Towns

**BOUNDARIES****International****HYDROGRAPHY****Shorelines****RELIEF****Spot Elevations**Position Accurate  
Mountain Peaks**Roads**

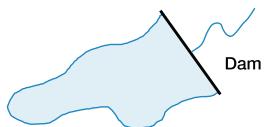
Dual-Lane



Divided Highway Primary

**Prominent Pictorials****Power Transmission Lines****Landmarks**

■ POWER PLANT

**Reservoirs****Major Lakes and Rivers**

# HELICOPTER ROUTE CHARTS

## GENERAL INFORMATION

**Helicopter Route Charts** are three-color charts that depict current aeronautical information useful to helicopter pilots navigating in areas with high concentrations of helicopter activity. Information depicted includes helicopter routes, four classes of heliports with associated frequency and lighting capabilities, NAVAIDS, and obstructions. In addition, pictorial symbols, roads, and easily-identified geographical features are portrayed. The scale is 1:125,000. These charts are updated every three years or as needed to accommodate major changes.

## AIRPORTS

### Landplane

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



Public



Private



Unverified



Abandoned



### Seaplane



### Airport Data Grouping

Boxed airport name indicates airport for which a Special Traffic Rule has been established.

(Pvt): Non-public use having emergency or landmark value.  
"OBJECTIONABLE": This airport may adversely affect airspace use.

Flight Service Station on field

FSS

Airspace where fixed wing special visual flight rules operations are prohibited (shown above airport name) FAR 91

NO SVFR

Indicates FAR 93 Special Air Traffic Rules and Airport Traffic

NAME

Location Identifier

(NAM)

ICAO Location Identifier

(PNAM)

Control Tower (CT) - primary frequency

CT - 119.1

Star indicates operation part-time. See tower frequencies tabulation for hours of operation

\*

When lighting 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. Dashes are not shown on heliports or helipads unless additional information follows the elevation (e.g. UNICOM, CTAF).

### Heliport

Heliports public and private



Medical Center



Helipads located at major airports (when requested)



### Ultralight Flight Park



FSS  
NO SVFR  
NAME (NAM) (PNAM)  
CT - 119.1\* (119.8 HELI)  
ATIS 115.4  
ASOS/AWOS 135.42  
285 L 122.95  
(Unverified)  
AOE

Automated Terminal Information Service

ATIS 115.4

Automated Surface Weather Observing Systems (shown when full-time ATIS is not available). Some ASOS/AWOS facilities may not be located at airports.

ASOS/AWOS 135.42

Elevation in feet

285

Lighting in operation Sunset to Sunshine

L

Lighting limitations exists, refer to Chart Supplement

L

UNICOM - Aeronautical advisory station

122.95

Follows the Common Traffic Advisory Frequency (CTAF)

C

Unverified Heliport

(Unverified)

Airport of Entry

AOE

# RADIO AIDS TO NAVIGATION

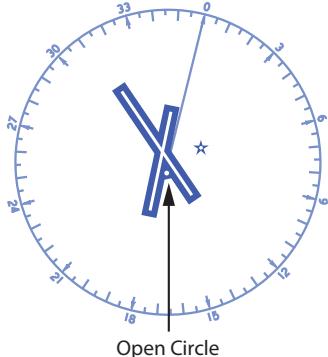
## NAVAIDS

### VHF Omni-Directional Radio (VOR) Range

Open circle symbol shown when NAVAID located on airport. Type of NAVAID shown in top of box.

Compass Rose is "reference" oriented to magnetic north.

VOR-DME  
\*109.0 Ch 27 AHC 



### VOR

Operates less than continuous or On-Request

OAKDALE  
\*116.8 OAK 

Underline indicates no voice on this frequency

### VORTAC

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

NDB Frequency  
PONTIAC 379 111.0 Ch 47 PSI   
ASOS/AWOS  
Frequency Channel Morse Code Identifier

### VOR-DME

SALEM  
\*~~108.5~~ Ch ~~108.5~~ SVM 

Crosshatch indicates Shutdown status

### DME

PROVO  
Ch 21 PVU  (108.4)

### Flight Service Station (FSS)

Heavy line box indicates Flight Service Station (FSS). Frequencies 122.2 and 255.4 (Conterminous U.S.); 121.5, 122.2, 243.0 and 255.4 (Alaska); and 121.5, 126.7, and 243.0 (Canada) are available at many FSSs and are not shown above boxes. All other frequencies are shown.

Certain FSSs provide Airport Advisory Service, refer to Chart Supplement.

R - Receive Only

### Non-Directional Radio Beacon (NDB)



MONTAGUE  
404 MOG 

Underline Indicates no voice on this frequency



GAMBELL  
369 GAM   
DME Ch 92 (114.5)

### NDB-DME

### NAVAID Used to Define Class B Airspace

ILS - DME  
CLEVELAND-HOPKINS DME ANTENNA (I-HPI) Ch 36 (110.3)

Shared ILS - DME  
MINNEAPOLIS DME ANTENNA (I-MSP/I-HKZ) Ch 40 (110.3)

### Broadcast Stations (BS)

On request by the proper authority or when a VFR Checkpoint.



BS  
KFTM  
KFTM 1400

### Remote Communications Outlet (RCO)

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

123.6  
OLYMPIA RCO  
MCCHORD

122.1R  
FREDERICK  
109.9 FDK   
LEESBURG

122.25  
TOGIAK  
393 TOG   
DME Ch 114 (116.7)  
KENAI

## AIRSPACE INFORMATION

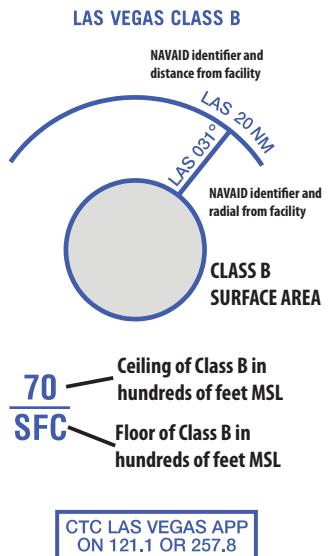
## Class B Airspace

Appropriate notes as required  
may be shown. (Mode C see FAR  
91.215/AIM)

All mileages are nautical (NM)

(Floors extending "upward from above" a certain altitude are preceded by a +. Operations at and below these altitudes are outside of Class B Airspace.)

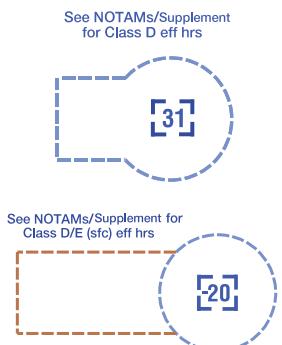
All radials are magnetic.



## Class D Airspace

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

Altitudes in hundreds of feet MSL.



## Special Airspace Areas

## Special Flight Rules Area (SFRA) Relating to National Security

Example: Washington DC

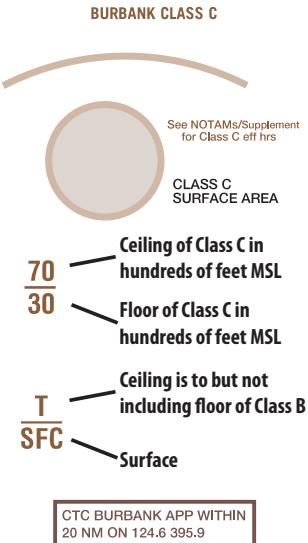
Appropriate notes as required  
may be shown.

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

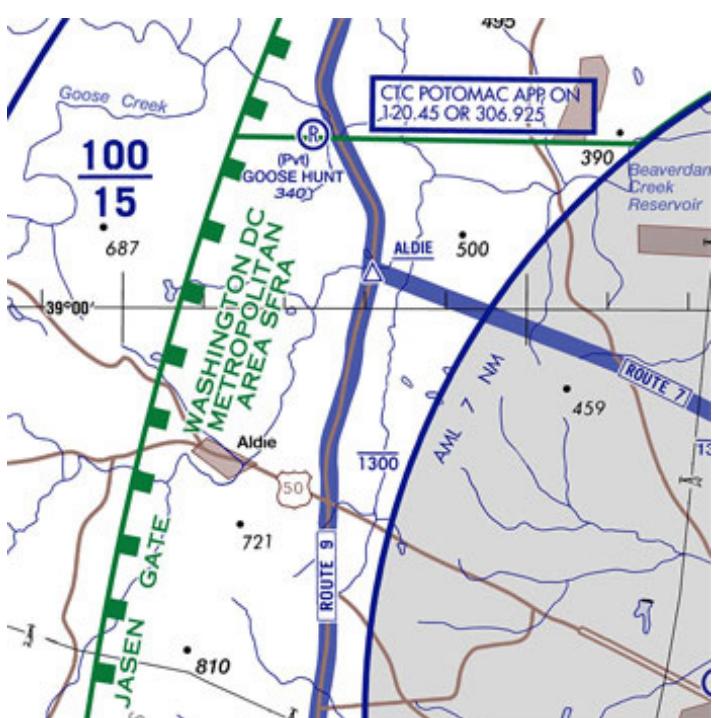
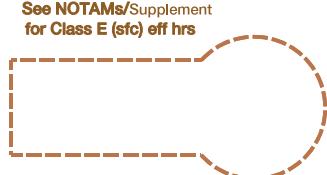


## Class C Airspace

Appropriate notes as required may be shown. (Mode C see FAR 91.215/ AIM)



## Class E Surface (SFC) Airspace



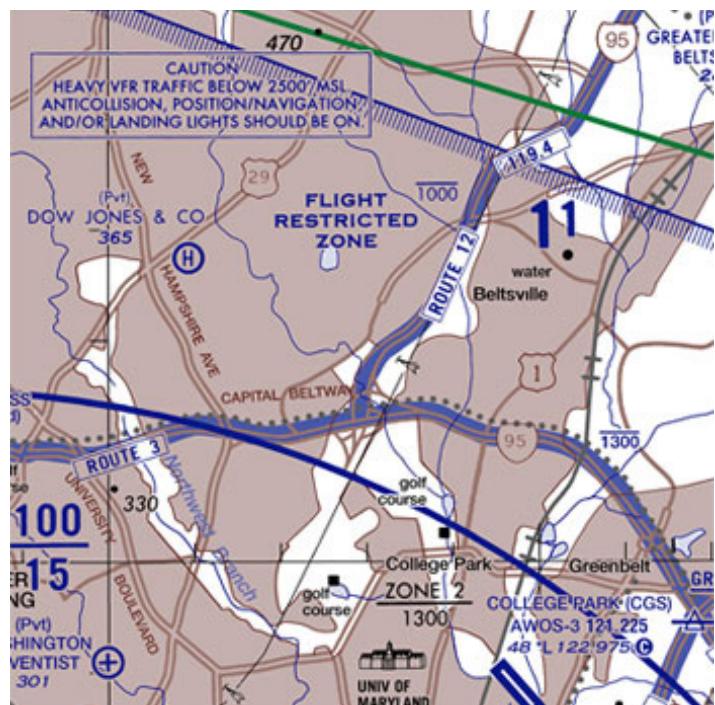
## AIRSPACE INFORMATION (Continued)

### Special Airspace Areas (Continued)

#### Flight Restricted Zone (FRZ) Relating to National Security



Example: Washington DC



#### Air Defense Identification Zone (ADIZ)

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

#### CONTIGUOUS U.S. ADIZ



#### Special Security Notice Permanent Continuous Flight Restriction Areas

DISNEYLAND THEME PARK  
See Panel for requirements

#### Mode C (FAR 91.215)

Appropriate notes as required may be shown.

MODE C & ADS-B OUT  
30 NM

#### Terminal Radar Service Area (TRSA)

PALM SPRINGS TRSA



SEE TWR FREQ TAB

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

#### Special Air Traffic Rules / Airport Traffic Areas (FAR Part 93)

Appropriate boxed notes as required shown adjacent to area. Inside the FAR Part 93 boundary area, the cross hatching is at a 45 degree angle.



**SPECIAL NOTICE**  
Pilots are required to obtain an ATC clearance prior to entering this area.

#### Sporting Event Temporary Flight Restriction (TFR) Sites



#### National Defense Airspace Temporary Flight Restriction (TFR) Areas



Dallas National Defense Airspace TFR  
Check NOTAMs

## AIRSPACE INFORMATION (Continued)

### 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            |  |

### Military Training Routes (MTR)

### Helicopter Routes

|   |  |
|---|--|
| Primary Route with Route Name and Tower Frequency |  |
| Secondary Route                                   |  |
| Transition Symbol                                 |  |

### Reporting Points

|                      |  |
|----------------------|--|
| Non-compulsory       |  |
| Compulsory           |  |
| Reporting Point Name |  |

### Canadian Airspace

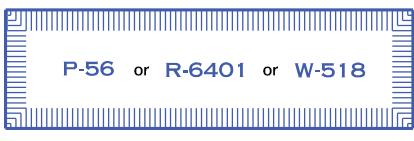
|                            |  |
|----------------------------|--|
| Class B, C or D TCA        |  |
| Airspace Ceiling and Floor |  |
| Class E Control Zone       |  |

### Police Zones

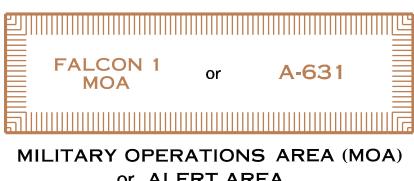
.....  
ZONE 8  
1000

### 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.



### One-way Route



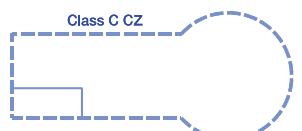
### Altitude Changeover Point



### Recommended Altitudes

|                      |  |
|----------------------|--|
| Maximum Altitude     |  |
| Minimum Altitude     |  |
| Recommended Altitude |  |

### Class B, C or D Control Zone



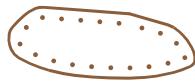
## AIRSPACE INFORMATION (Continued)

### Special Conservation Areas

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



NOAA Regulated National Marine Sanctuary Designated Areas

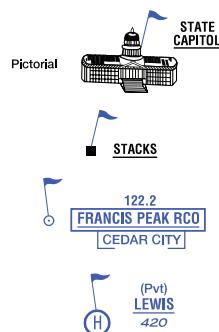


Flight operations below 1000' AGL over the designated areas within the Gulf of Farallones National Marine Sanctuary violate NOAA regulations (see 15 CFR 922).

## NAVIGATIONAL AND PROCEDURAL INFORMATION

### VFR Checkpoints

Underline indicates proper name of VFR Checkpoint.



### VFR Waypoints

Stand-Alone



Collocated with VFR Checkpoint



Collocated with VFR Checkpoint & Reporting Point



### Obstruction

Above 299' and below 1000' AGL



1000' and higher AGL

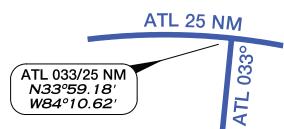


### High-Intensity Obstruction Lights

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



### Navigation Data



### Group Obstruction

Above 299' and below 1000' AGL

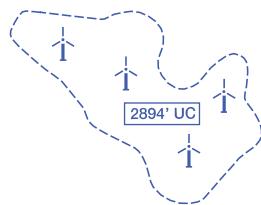


1000' and higher AGL



### 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)

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## CULTURE

### Railroads

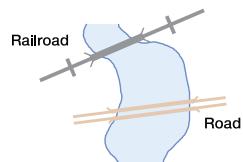
Single Track



Double Track

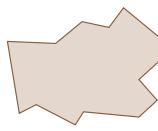


### Bridges



### Populated Places

Built-up Areas



### Roads

Dual-Lane:

Divided Highways



Major Boulevards & Major Streets  
Primary



### Boundaries

International



State or Province



### Power Transmission Lines



### Prominent Pictorials



### Landmarks

■ Landmark-stadium,  
factory, school, etc.

△ Lookout  
Tower

▲ Mines or  
Quarries

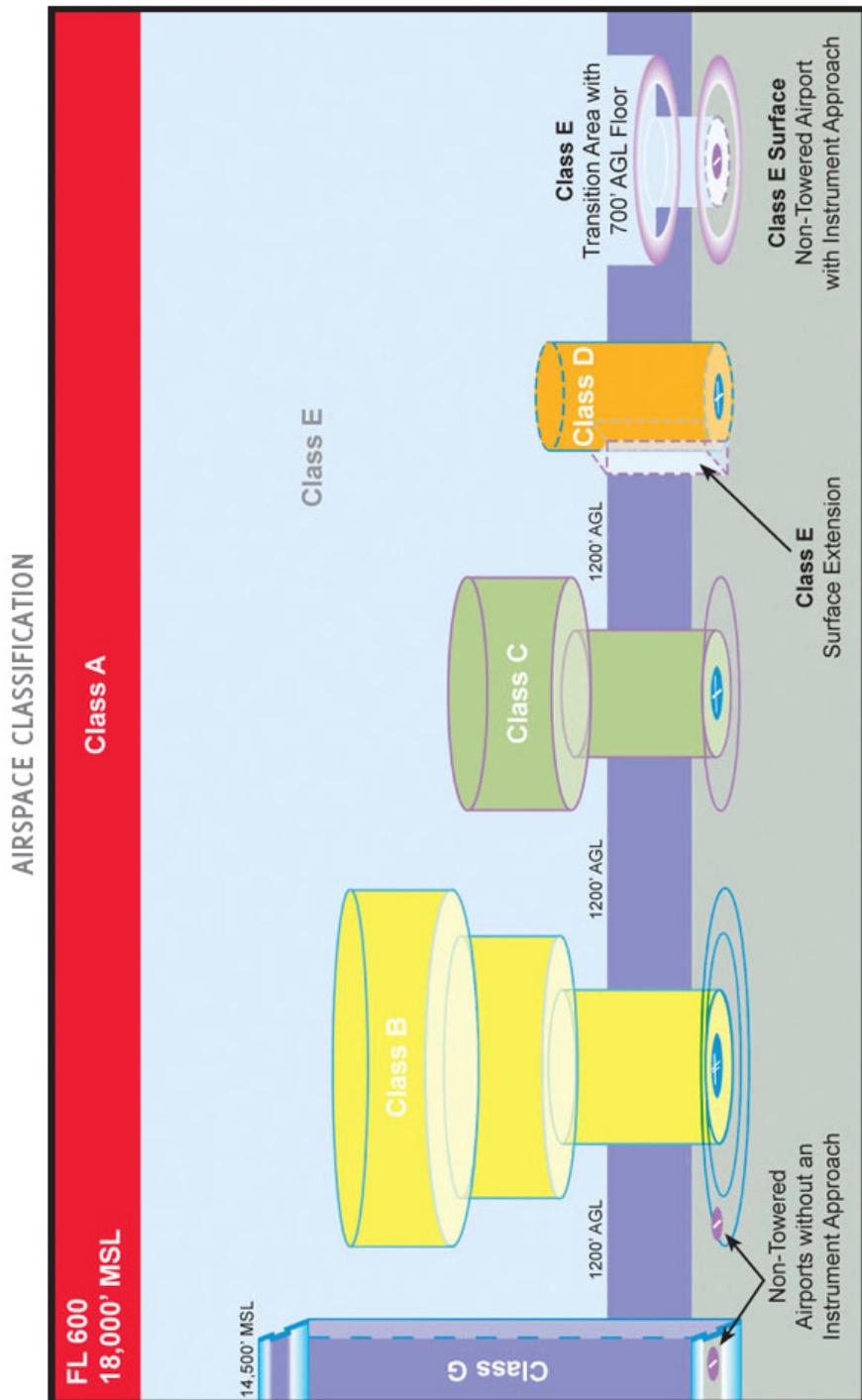
○ Race Track

○ Outdoor  
Theater

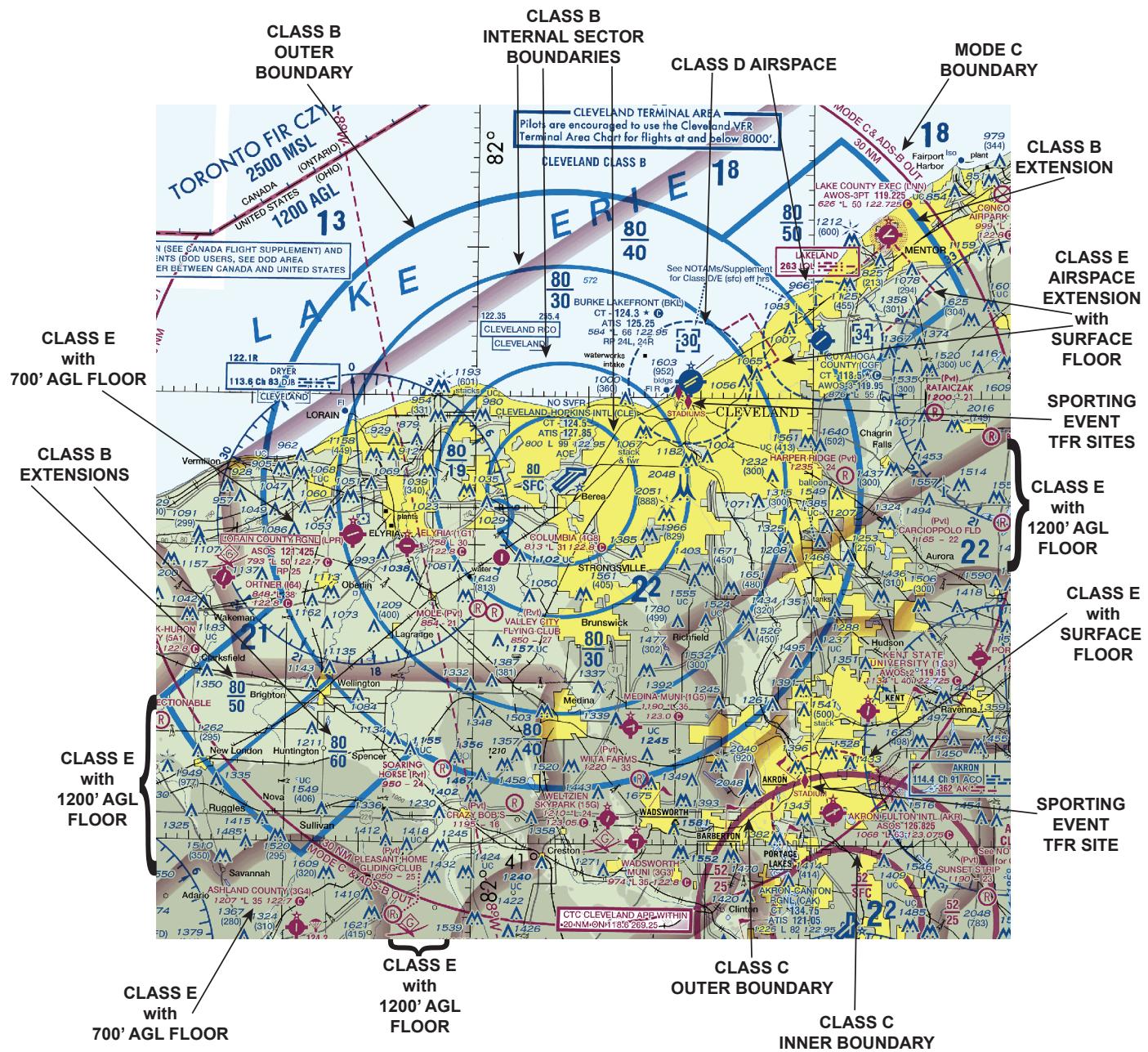
● Tank-water,  
oil or gas



# AIRSPACE



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



# REFERENCES

There are several references available from the FAA to aid pilots and other interest parties to learn more about FAA Charts and other aspects of aviation.

| Publication   | FAA Publication ID   |
|---|--|
|    | Aeronautical Information Manual (AIM)<br><br>URL: <a href="http://www.faa.gov/air_traffic/publications/">http://www.faa.gov/air_traffic/publications/</a>  |
|    | Airplane Flying Handbook<br><br>URL: <a href="https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/airplane_handbook/">https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/airplane_handbook/</a>   |
|    | Helicopter Flying Handbook<br><br>URL: <a href="http://www.faa.gov/regulations_policies/handbooks_manuals/aviation/helicopter_flying_handbook/">http://www.faa.gov/regulations_policies/handbooks_manuals/aviation/helicopter_flying_handbook/</a>   |
|  | Instrument Procedures Handbook<br><br>URL: <a href="http://www.faa.gov/regulations_policies/handbooks_manuals/aviation/instrument_procedures_handbook/">http://www.faa.gov/regulations_policies/handbooks_manuals/aviation/instrument_procedures_handbook/</a>                                   |
|  | Instrument Flying Handbook<br><br>URL: <a href="http://www.faa.gov/regulations_policies/handbooks_manuals/aviation/media/FAA-H-8083-15B.pdf">http://www.faa.gov/regulations_policies/handbooks_manuals/aviation/media/FAA-H-8083-15B.pdf</a>   |
|  | Pilot's Handbook of Aeronautical Knowledge<br><br>URL: <a href="https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/phak/">https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/phak/</a>   |
|  | Remote Pilot - Small Unmanned Aircraft Systems Study Guide<br><br>URL: <a href="http://www.faa.gov/regulations_policies/handbooks_manuals/aviation/media/remote_pilot_study_guide.pdf">http://www.faa.gov/regulations_policies/handbooks_manuals/aviation/media/remote_pilot_study_guide.pdf</a> |



# ABBREVIATIONS

## A

AAF - Army Air Field  
AAS - Airport Advisory Service  
AAUP - Attention All Users Page  
AC - Advisory Circular  
ADF - Automatic Direction Finder  
ADIZ - Air Defense Identification Zone  
ADS - Automatic Dependent Surveillance  
ADS-B - Automatic Dependent Surveillance-Broadcast  
Advsry - Advisory  
AFB - Air Force Base  
AFIS - Automatic Flight Information Service  
AFS - Air Force Station  
AFSS - Automated Flight Service Station  
AGL - Above Ground Level  
AIM - Aeronautical Information Manual  
AIRAC - Aeronautical Information Regulation And Control  
AK - Alaska  
AL - Approach and Landing  
ANG - Air National Guard  
APP - Approach  
APP CON - Approach Control  
APP CRS - Approach Course  
Apt - Airport  
APV - Approaches with Vertical Guidance  
ARP - Airport Reference Point  
ARTCC - Air Route Traffic Control Center  
ASDA - Accelerate-Stop Distance Available  
ASDE-X - Airport Surface Detection Equipment-Model X  
ASOS - Automated Surface Observing Station  
ASR - Airport Surveillance Radar  
ATC - Air Traffic Control  
ATIS - Automatic Terminal Information Service  
ATS - Air Traffic Service  
AUNICOM - Automated Aeronautical Advisory Station  
AWOS - Automated Weather Observing Station

## B

Baro-VNAV - Barometric Vertical Navigation  
BS - Broadcast Station

## C

CAC - Caribbean Aeronautical Chart  
CAT - Category  
CFA - Controlled Firing Areas  
CFR - Code of Federal Regulations  
CH - Channel  
CL - Runway Centerline Lights  
CLNC DEL - Clearance Delivery  
CNF - Computer Navigation Fix  
COP - Changeover Point  
CPDLC - Controller Pilot Data Link Communication  
CRS - Course  
CT - Control Tower

CTAF - Common Traffic Advisory Frequency  
CVFP - Charted Visual Flight Procedure  
CZ - Control Zone (Canada)

## D

DA - Decision Altitude  
DA - Density Altitude  
D-ATIS - Digital Automatic Terminal Information Service  
DH - Decision Height  
DME - Distance Measuring Equipment  
DND - Department of National Defense (Canada)  
DoD - Department of Defense  
DOF - Digital Obstacle File  
DP - Departure Procedure  
DT - Daylight Savings Time  
DVA - Diverse Vector Area

## E

E - East  
EFAS - Enroute Flight Advisory Service  
EFB - Electronic Flight Bag  
Elev - Elevation  
EMAS - Engineered Materials Arresting System

## F

FAA - Federal Aviation Administration  
FAF - Final Approach Fix  
FAP - Final Approach Point  
FAR - Federal Aviation Regulation  
FBO - Fixed-Based Operator  
FIR - Flight Information Region  
FL - Flight Level  
FLIP - Flight Information Publication  
FMS - Flight Management System  
FREQ - Frequency  
FRZ - Flight Restricted Zone  
FSDO - Flight Standards District Office  
FSS - Flight Service Station

## G

GBAS - Ground-Based Augmentation System  
GCO - Ground Communications Outlet  
GLS - GBAS Landing System  
GND - Ground  
GND CON - Ground Control  
GNSS - Global Navigation Satellite System  
GP - Glide Path  
GPS - Global Positioning System  
GS - Glide Slope  
GS - Ground Speed

**H**

HAA - Height Above Airport  
 HAR - High Altitude Redesign  
 HAT - Height Above Touchdown  
 HCH - Heliport Crossing Height  
 HF - High Frequency  
 HIRL - High Intensity Runway Lights  
 HS - Hot Spot

**I**

IAC - Interagency Air Committee  
 IACC - Interagency Air Cartographic Committee  
 IAF - Initial Approach Fix  
 IAP - Instrument Approach Procedure  
 ICAO - International Civil Aviation Authority  
 IDT - Identifier  
 IF - Intermediate Fix  
 IFR - Instrument Flight Rules  
 ILS - Instrument Landing System  
 IMC - Instrument Meteorological Conditions  
 INS - Inertial Navigation System  
 IR - Instrument Route (Military)  
 IRU - Inertial Reference Unit

**J**

JO - Joint Order

**K**

KIAS - Knots

**L**

LAA - Local Airport Advisory  
 LAAS - Local Area Augmentation System  
 LAHSO - Land and Hold Short  
 LDA - Landing Distance Available  
 LDA - Localizer-type Directional Aid  
 Ldg - Landing  
 LF - Low Frequency  
 LIRL - Low Intensity Runway Lights  
 LNAV - Lateral Navigation  
 LOC - Localizer  
 LOM - Locator Outer Marker  
 LPV - Localizer Performance with Vertical Guidance  
 LRRS - Long Range Radar Station  
 LTP - Landing Threshold Point

**M**

MAA - Maximum Authorized Altitude  
 MAP - Missed Approach Point  
 MCA - Minimum Crossing Altitude  
 MCAS - Marine Corps Air Station  
 MDA - Minimum Descent Altitude  
 MDH - Minimum Descent Height

MEA - Minimum Enroute Altitude  
 MEF - Maximum Elevation Figure  
 MF - Medium Frequency  
 MIA - Minimum IFR Altitude  
 MIRL - Medium Intensity Runway Lights  
 MOA - Military Operations Areas  
 MOCA - Minimum Obstruction Clearance Altitude  
 MON - Minimum Operational Network  
 MORA - Minimum Off-Route Altitude  
 MRA - Minimum Reception Altitude  
 MSA - Minimum Safe Altitude  
 MSL - Mean Sea Level  
 MTA - Minimum Turning Altitude  
 MTR - Military Training Route  
 MVA - Minimum Vector Altitude

**N**

N - North  
 N/A - Not Applicable  
 NA - Not Authorized  
 NAAS - Naval Auxiliary Air Station  
 NAS - Naval Air Station  
 NAS - National Airspace System  
 NAV - Naval Air Facility  
 NAVAID - Navigational Aid (Ground based)  
 NDB - Non-Directional Radiobeacon  
 NextGen - Next Generation Air Transportation System  
 NFDC - National Flight Data Center  
 NFPO - National Flight Procedures Office  
 NM - Nautical Mile  
 NOAA - National Oceanic and Atmospheric Administration  
 NO A/G - No Air-to-Ground Communication  
 NOTAM - Notice to Air Missions, formerly known as Notice to Airmen  
 NoPT - No Procedure Turn  
 NPA - Non-Precision Approach  
 NTAP - Notices to Air Missions Publication  
 NWS - National Weather Service

**O**

OAT - Outside Air Temperature  
 OBS - Omni Bearing Selector  
 OCA - Ocean Control Area  
 OCS - Obstacle Clearance Surface  
 ODP - Obstacle Departure Procedure  
 OM - Outer Marker  
 OROCA - Off Route Obstruction Clearance Altitude

**P**

PA - Precision Approach  
 PAR - Precision Approach Radar  
 PBN - Performance-Based Navigation  
 PRM - Precision Runway Monitor  
 PT - Procedure Turn  
 PTP - Point-to-Point  
 Pvt - Private

## R

R - Radial  
R - Receive  
R - Restricted Area (Special Use Airspace)  
RCO - Remote Communications Outlet  
RF - Radius-to-Fix  
RNAV - Area Navigation  
RNP - Required Navigation Performance  
RNP AR - Required Navigation Performance Authorization Required  
ROC - Required Obstacle Clearance  
RP - Right Pattern  
RVR - Runway Visual Range  
RVSM - Reduced Vertical Separation Minimum  
Rwy - Runway

## S

S - South  
SAAAR - Special Aircraft and Aircrew Authorization Required  
SAAR - Special Aircraft and Aircrew Requirements  
SATNAV - Satellite Navigation  
SDF - Simplified Directional Facility  
SER - Start End of Runway  
SFAR - Special Flight Rules Area  
SFC - Surface  
SFRA - Special Flight Rules Area  
SIAPs - Standard Instrument Approach Procedures  
SID - Standard Instrument Departure  
SM - Statute Mile  
SMAR - Special Military Activity Routes  
SMGCS - Surface Movement Guidance and Control System  
SOIA - Simultaneous Offset Instrument Approaches  
SSV - Standard Service Volume  
STAR - Standard Terminal Arrival Procedure  
SUA - Special Use Airspace  
SVFR - Special Visual Flight Rules

## T

T - Transmit  
TA - Travel Advisory  
TAA - Terminal Arrival Area  
TAC - Terminal Area Chart  
TACAN - Tactical Air Navigation  
TAS - True Air Speed  
TCA - Terminal Control Areas (Canada)  
TCH - Threshold Crossing Height  
TDZ - Touchdown Zone  
TDZE - Touchdown Zone Elevation  
TDZL - Touchdown Zone Lights  
TDZ/CL - Touchdown Zone/Centerline Lights  
TERPS - U.S. Standard for Terminal Instrument Procedures  
TFR - Temporary Flight Restriction  
TIBS - Telephone Information Briefing Service  
TIS-B - Traffic Information Service - Broadcast

TOC - Top of Climb  
TOD - Top of Descent  
TODA - Takeoff Distance Available  
TOGA - Takeoff/Go Around  
TORA - Takeoff Runway Available  
TPP - Terminal Procedures Publication  
TRSA - Terminal Radar Service Area  
TWR - Tower

## U

UC - Under Construction  
UHF - Ultra High Frequency  
UIR - Upper Information Region  
UNICOM - Universal Communications  
U.S. - United States  
USA - United States Army  
USAF - United States Air Force  
USCG - United State Coast Guard  
UTA - Upper Control Area

## V

VCOA - Visual Climb Over Airport / Airfield  
VDA - Vertical Descent Angle  
VDP - Visual Descent Point  
VFR - Visual Flight Rules  
VGSI - Visual Glide Slope Indicator  
VHF - Very High Frequency  
VMC - Visual Meteorological Conditions  
VNAV - Vertical Navigation  
VOR - VHF Omnidirectional Radio Range  
VORTAC - VHF Omnidirectional Radio Range/Tactical Air Navigation  
VPA - Vertical Path Angle  
VR - Visual Route (Military)

## W

W - Warning Area (Special Use Airspace)  
W - West  
WAAS - Wide-Area Augmentation System  
WAC - World Aeronautical Chart  
WP - Waypoint  
WX CAM - Weather Camera (Alaska)