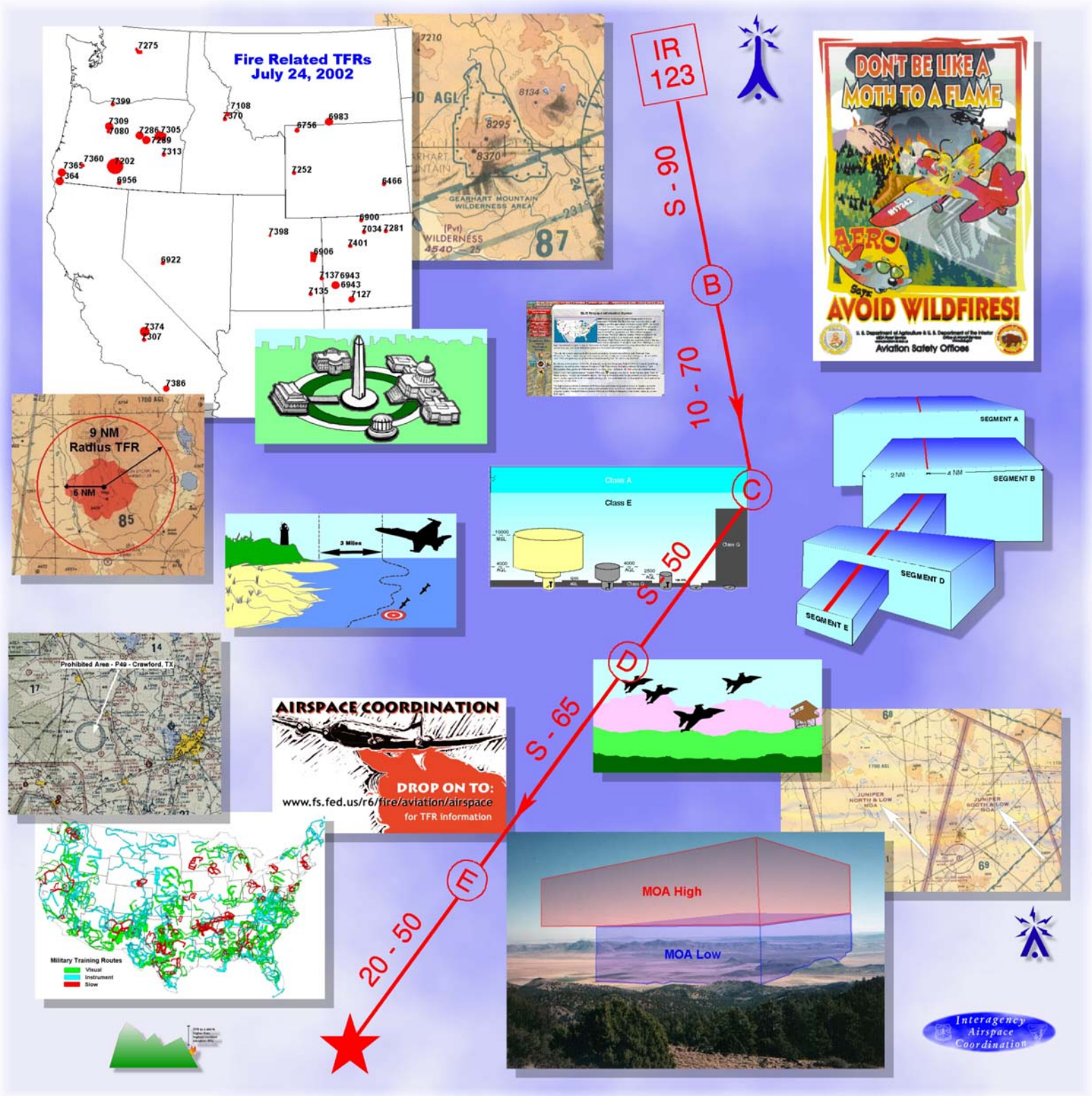
Interagency Airspace Coordination Guide



Interagency Airspace Coordination

July 29, 2003

AMC

INTERAGENCY AVIATION MANAGEMENT COUNCIL

To: User of the *Interagency Airspace Coordination Guide*

From: Interagency Aviation Management Council

Date: July 29, 2003

Subject: Publication of 2003 *Interagency Airspace Coordination Guide* (IACG)

The purpose of the IACG is to promote safe, consistent, and standardized approaches to resolving airspace conflicts. Agency personnel will be able to deal with airspace issues using procedures designed to enhance the coordination of agency flights within the National Airspace System.

The Office of Aircraft services and the Forest Service tasked the Interagency Airspace Natural Resource Coordination Group to revise the 1991 IACG.

Subsequent meetings with the Department of Defense, Federal Aviation Administration, DOI Bureaus and the Forest Service led to a complete rewrite of the original Guide. We are confident that the 2003 version provides the necessary changes as identified by field personnel and agency program managers. The IACG is a dynamic document and revisions will be posted as necessary.

All participants in the re-write and review of the IACG are to be commended for their participation.

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CHAPTER 1
Introduction

I. Introduction

Congress has charged the Federal Aviation Administration (FAA) to administer and manage the national airspace in the public interest to ensure the safety of aircraft and the efficient utilization of airspace. The national airspace is a limited natural resource. Airspace users, rights, rules and responsibilities are complex.

Airspace coordination and deconfliction is a shared responsibility among ALL aviation users and schedulers. The primary focus in airspace coordination is mid-air collision avoidance. When performing most agency aviation tasks, the pilot's attention will be diverted out of the aircraft towards the ground, conflicting with their primary responsibility to "see and avoid" other aircraft or obstructions. Other users of this airspace may have similar workload distractions.

In the past several years, there has been a marked increase in airspace-related conflicts (e.g., near mid-air collisions, intrusions into Temporary Flight Restriction areas, etc.). As the airspace becomes more complex and congested, effective communication processes are needed that will identify issues and facilitate our coordination efforts.

The Department of the Interior (DOI) and U.S. Forest Service (USFS) have embarked on an airspace coordination program to reduce risks. Efforts are coordinated with the Department of Defense (DoD) and the FAA to minimize risk during flight activities and view airspace coordination as a shared responsibility of the pilots, dispatchers, trainers, on-scene personnel and all managers of resources, operations, safety and airspace.

Agency personnel such as pilots, dispatchers and aviation managers who are familiar with the organization of the National Airspace System (as defined in chapter 3) will be able to adequately deconflict competing flight activity with respect to safety, environmental concerns and operational requirements.

All aviation activities proposed by agency personnel will occur in the National Airspace System (NAS) and many of them will occur within or adjacent to a variety of Special Use Airspace (SUA) and other airspace for special use (i.e.

Military Training Routes, Low Altitude Tactical Navigation Areas (LATN), etc.) ***As always, it is the pilot's responsibility to be familiar with the airspace of intended flight and to comply with all rules and regulations for flight through each type of airspace.***

An understanding and awareness of the procedures in this Guide will improve aviation safety through coordinated use of the NAS. A consistent approach will also maximize agency effectiveness as resource managers and compliance with the National Environmental Policy Act (NEPA).

II. Background

The Interagency Airspace Coordination Guide revision was a result of a team effort involving the DOI, USFS, DoD, and the FAA. The team decided it would best serve the participating agencies if some educational material was included to explain the actions of the agencies in respect to airspace coordination. For example, material explaining the dispatching system was placed in the Guide to facilitate DoD Airspace Managers in understanding agency structure.

The term "agency" used throughout the Guide refers to land management agencies who use the Guide (such as USFS, Bureau of Land Management (BLM), Bureau of Indian Affairs (BIA), National Park Service (NPS), Fish and Wildlife Service (FWS), etc.). The term "agency personnel" refers to land management personnel.

The target audience identified by the Airspace Guide Revision team includes an extensive list of users including: agency personnel (Aviation Program Managers, Unit Aviation Officers, Pilots, Dispatchers, On-Scene Personnel - Air Tactical Group Supervisors, Air Operations Branch Directors, Air Support Group Supervisors, Helicopter Managers, etc.), DoD Airspace Managers and Schedulers, and associated FAA personnel.

Refer to Appendix 'I' for an expanded list.

III. Purpose, Objectives and Goals

The purpose of this Guide is to promote aviation safety and to promote airspace coordination with respect to environmental issues. This is an educational process that will contribute to a clear understanding of the complex nature of the airspace in which aviators fly. Agency personnel will be able to deal with airspace issues using procedures designed to enhance the coordination of agency flights within the NAS. ***The Guide promotes safe, consistent, and standardized approaches to issues involving airspace and federal land management responsibilities.***

The objectives of the Interagency Airspace Coordination Guide are to:

1. Describe the components of the NAS and to define airspace management and coordination responsibilities among the various agencies and users of the NAS.

2. Describe those processes and procedures that an agency should employ so that users may:

   - conduct flight missions safely within the NAS and
   - coordinate airspace issues relating to the environment.

The goals of the Interagency Airspace Coordination Guide are:

1. Provide educational material aimed at both agency and military aviation managers that will contribute to a clear understanding of the complex nature of the airspace in which we all share.

2. Provide agency aviation managers with the proper procedures designed to enhance the coordination of aircraft within the national airspace.

3. Promote safe, consistent, and standardized approaches to addressing airspace and land management responsibilities on and above lands managed by military and civilian land management agencies.

4. Describe the components of the National Airspace System (NAS).

5. Identify airspace management and coordination responsibilities among both the civilian and military agencies sharing the national airspace.

6. Describe the processes and procedures that an agency should use so that aircraft may operate safely within the NAS.

The accomplish these goals, it is essential that all land and airspace managers be familiar with the procedures contained in this Guide. Remember however, that the final responsibility for collision avoidance rests with the Pilot-in-Command to "see and avoid."

IV. Authority

The Guide is published under the auspices of the National Fire Aviation Coordination Group as tasked to the Interagency Airspace Natural Resource Coordination Group (IANRCG). The aviation directives of participating agencies contain the authority to require implementation of this guide.

V. Participating Agencies

The following agencies have been involved in the development of this guide:

- USDA - Forest Service
- DOI - Office of Aircraft Services (OAS)
- DOI - Bureau of Land Management
- DOI - Fish and Wildlife Services
- DOI - Bureau of Indian Affairs
- DOI - National Park Service
- USN - United States Navy
- USAF - United States Air Force, Air National Guard and Reserves
- United States Army
- Participating States and Local Agencies
- FAA - Federal Aviation Administration

VI. Guide Organization

The chapters of the guide are organized to assist participants and users in identifying the standards and operational procedures for airspace coordination. The appendices provide specific user information and other job aids.

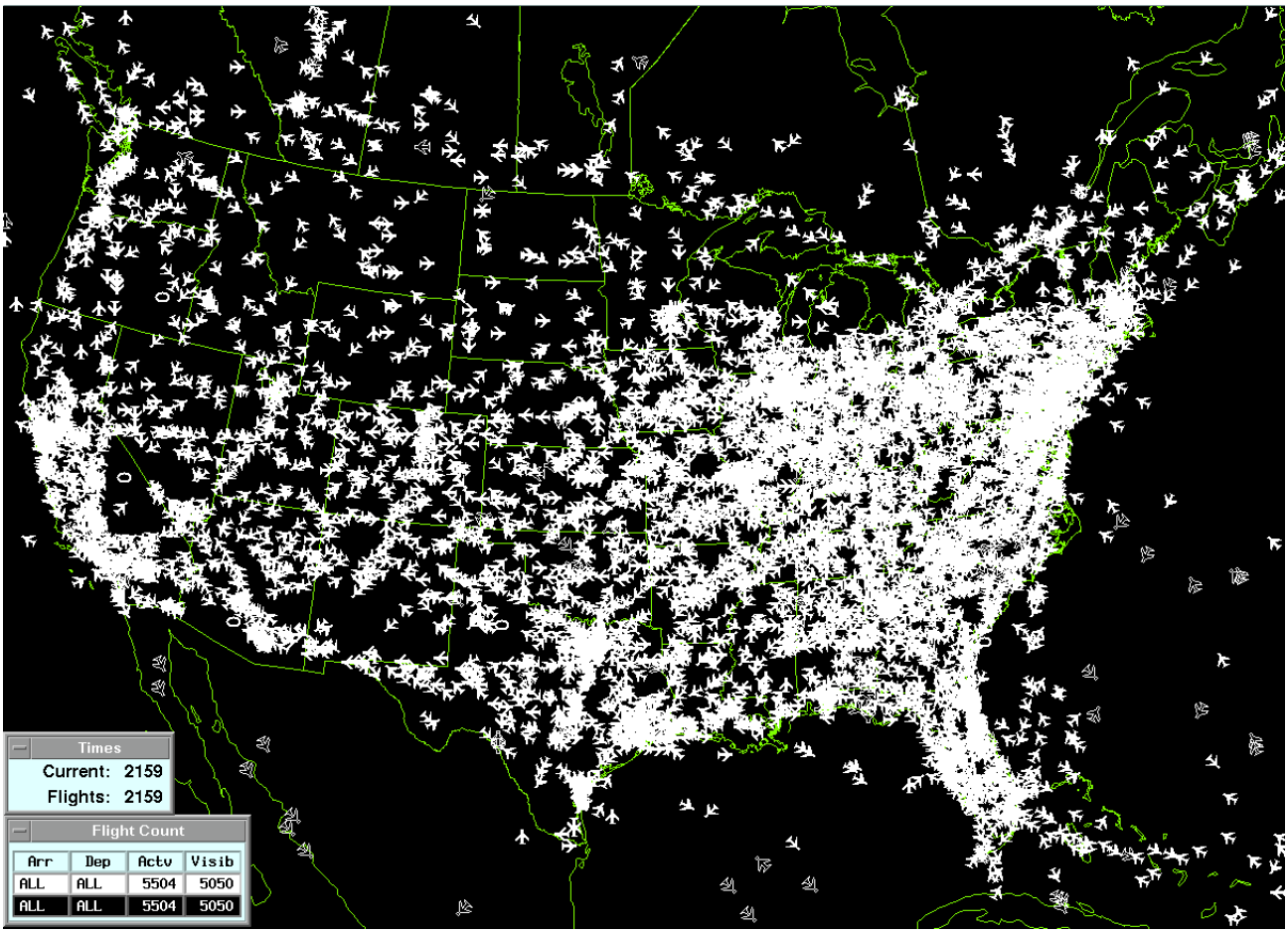
VII. Ordering and Distribution

This guide will be distributed via the Interagency Airspace Coordination website (www.fs.fed.us/r6/fire/aviation/airspace) where the user will be responsible for printing the guide. Currently there are no plans to print or publish this guide through Publication Management System at the National Interagency Fire Center.

VIII. Review and Revisions

Agencies were invited to participate in a national review of the Guide. Users are encouraged to recommend changes and improvements to this document through their respective aviation safety manager. Revisions to the Guide will be posted on the Interagency Airspace Coordination website (*www.fs.fed.us/r6/fire/aviation/airspace*).

FIGURE 1-1 Example of Aviation Traffic in Continental United States



CHAPTER 2

Agency Organizations, Roles and Responsibilities, and Airspace Committees

Flying safely is an on-going responsibility of the Pilot in Command (PIC). Airspace management is the responsibility of the FAA and designated agencies, such as the DoD. Airspace coordination is the responsibility of multiple agencies including land management organizations. Specific agency missions result in diverse airspace and safety requirements and mitigation of environmental issues. The following provides an overview with which users need to be familiar in order to effectively coordinate airspace amongst multiple agencies.

I. Federal Aviation Administration (FAA)

"The navigable airspace is a limited national resource, the use of which Congress has charged the FAA to administer in the public interest as necessary to insure the safety of aircraft and the efficient utilization of such airspace . . . . Accordingly, while a sincere effort shall be made to negotiate equitable solutions to conflicts over its use for non-aviation purposes, preservation of the navigable airspace for aviation must receive primary emphasis." (FAA Order 7400.2D)

In the 1950s, the advent of jet airliner service and faster aircraft in ever increasing numbers created new challenges and hazards along the nation's air routes. Congress passed the Federal Aviation Act in 1958 that created the Federal Aviation Agency. The FAA was subsequently renamed the Federal Aviation Administration in 1967.

The Federal Aviation Act of 1958, as amended, gave the FAA exclusive responsibility for safely and efficiently managing all national airspace within the continental United States. The Act requires the FAA, in exercising this responsibility, to give full consideration to the requirements of:

- national defense
- commercial aviation
- general aviation
- the public right of freedom of transit through the navigable airspace

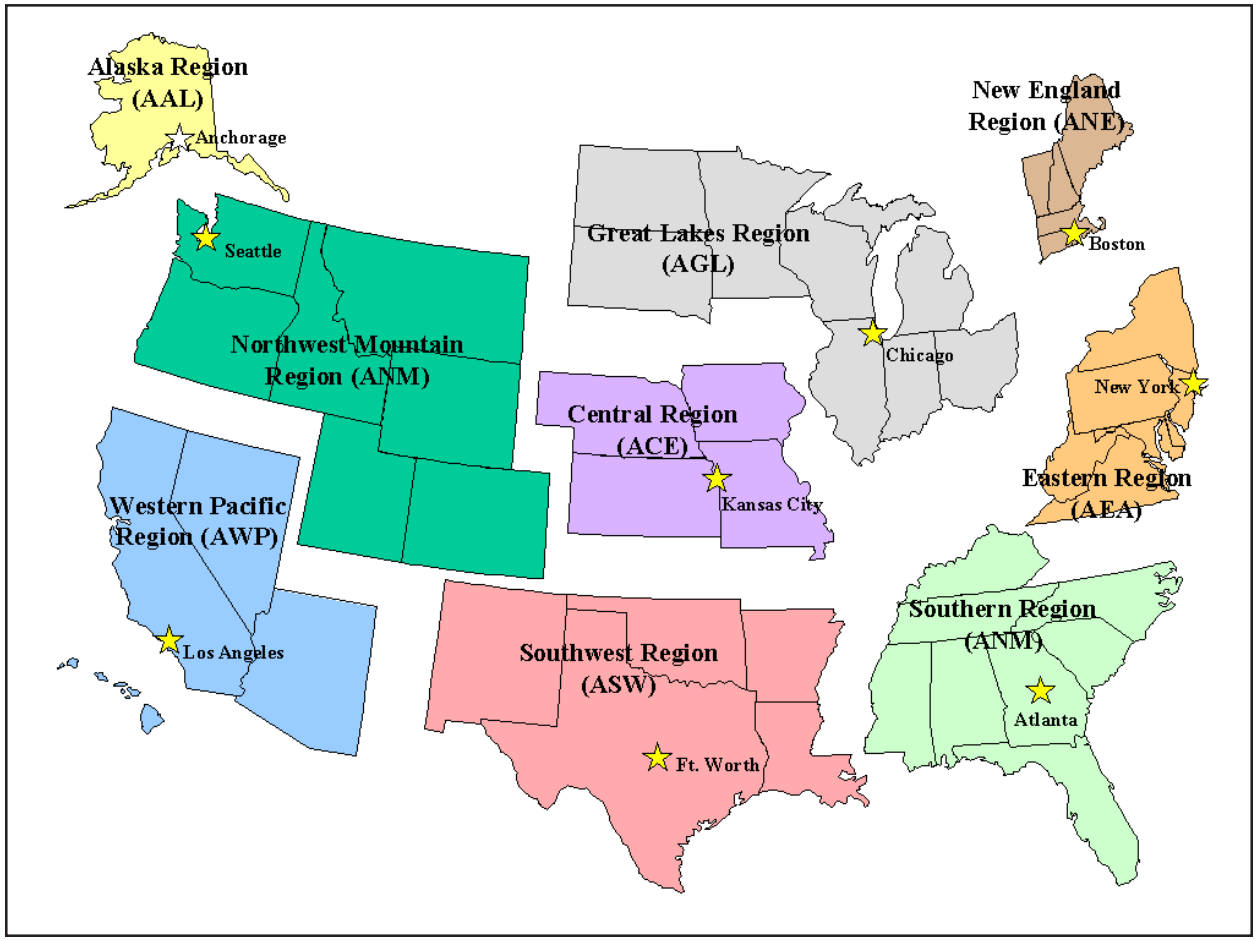
A. FAA Facilities and Functions

The FAA operates under the Department of Transportation (DOT) and is organized with a national headquarters and subordinate regions. The boundaries for the FAA regions are in Figure 2-1. FAA's national headquarters provides policies and new or updated Federal Aviation Regulations which apply to airports, air traffic and airspace matters. Regional Headquarters are charged with administration and enforcement within their respective boundaries.

B. Air Route Traffic Control Center (ARTCC)

The ARTCC is the FAA facility which is primarily responsible for separation and control of enroute traffic operating under instrument flight rules (IFR). The ARTCC is the initiating facility for Federal Agency Regulation 91.137 Temporary Flight Restrictions (TFRs). See Chapter 6 for TFR information.

FIGURE 2-1 FAA Regional Boundaries and Regional Office Locations



Each ARTCC uses long range surveillance radar for tracking and control of aircraft. Some areas within an ARTCC are non-controlled due to radar coverage inconsistencies.

The ARTCCs are also known as “ATC” (air traffic control) or often simply as “Center.” There are currently 22 ARTCC’s in the United States, however national redesign efforts will probably result in changes. Figure 2-3 shows the ARTCC boundaries.

The boundaries for ARTCCs are denoted on IFR Enroute Low/ High Altitude Charts with the jagged blue colored rectangle as shown in Figure 2-2. It is of critical value to know where the exact boundary locations are, particularly for dispatch/ coordination centers that have more than one ARTCC within their jurisdiction.

FIGURE 2-2 ARTCC Boundary Symbol

C. Terminal Radar Approach Control (TRACON)

TRACON facilities transition traffic to/from the enroute system to a terminal environment. When an airport does not have an operating control tower, TRACON may be the first or last air traffic control facility in contact with aircraft. In some areas, approach control service is provided by the military which enforce the same air traffic control rules. Note: RATCF (Navy), RAPCON (Air Force) and ARAC (Army) are approach controls operated by the military. There are about 185 TRACON’s in the United States.

D. Flight Service Stations (FSS)

Flight Service Stations are established as local communications centers that service a geographical area. These facilities provide flight and weather information to pilots, serve as the coordinating facility for flight plans and flight following and initiates search and rescue procedures for overdue aircraft.

The FSS disseminates information to pilots via the Notice to Airmen (NOTAM) process, which is used to update airport, navigation and

FIGURE 2-3 FAA Air Route Traffic Control Centers (ARTCC)

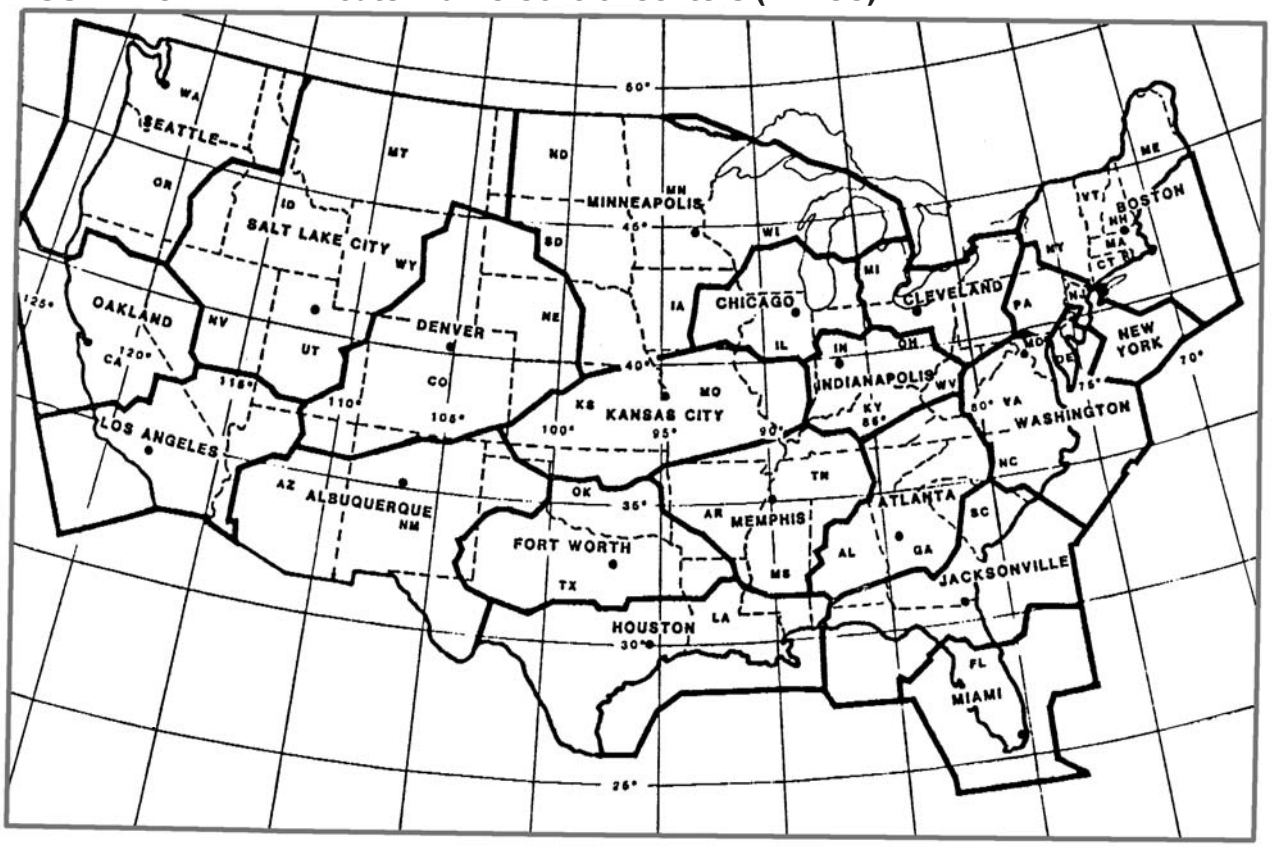
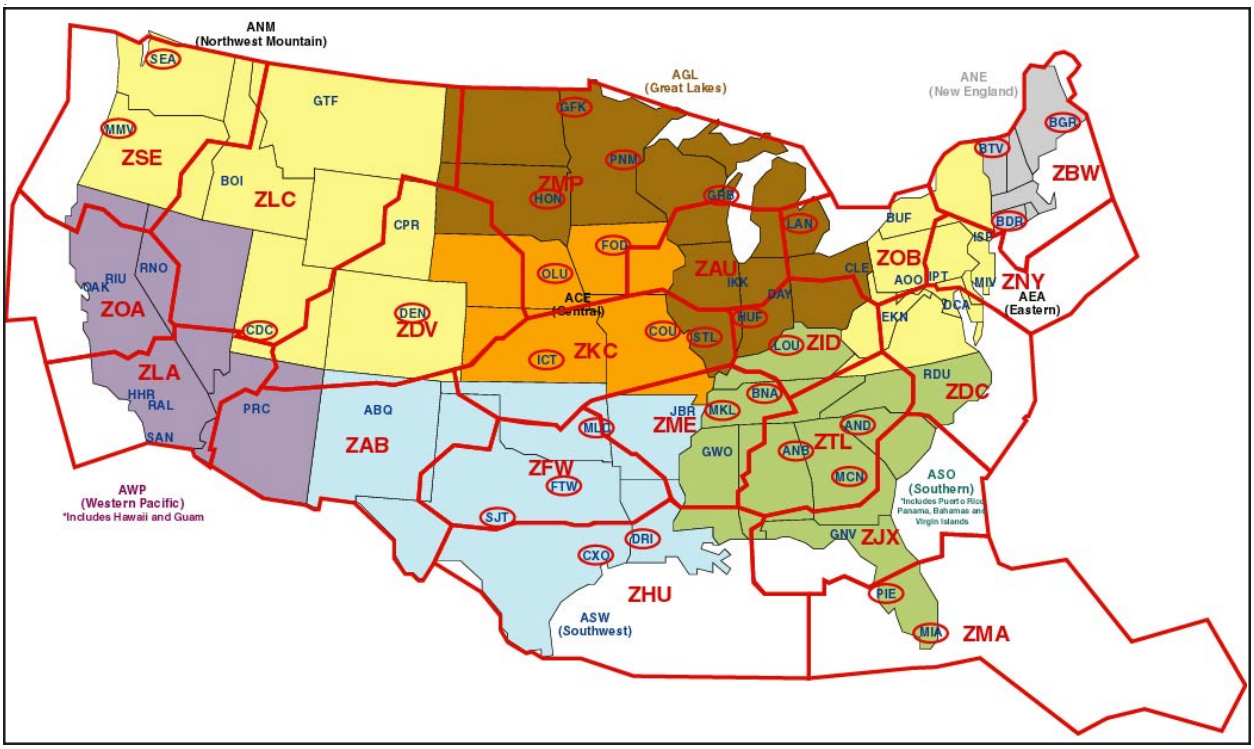


FIGURE 2-4 ARTCC Boundaries overlaid on FAA Regional Boundaries



airspace status, including TFRs and Military Training Routes (MTRs) schedules. There are approximately 61 Automated Flight Service Stations (AFSS) in the Continental United States (CONUS) and 14 Alaskan Flight Service Stations.

E. Flight Standard District Offices (FSDOs)

Flight Standard District Offices (FSDOs) are the field operating units of each region; they provide education, inspections, investigations and enforcement of Federal Aviation Regulations. The FSDO is the office which conducts the primary investigation of pilot deviations (i.e., entering a TFR without permission) and near mid-air collision reports (NMACs). See Chapter 8 for further discussion of these reports.

F. The United States NOTAM Office (USNOF)

The United States NOTAM Office (USNOF) is charged with operating and monitoring the NOTAM System, managing the agency's aeronautical information data base and collecting, validating and disseminating data for use by the charting and publication entities of the FAA, government and industry.

G. The National Flight Data Center (NFDC)

The National Flight Data Center is a facility in Washington, D.C., established by the FAA to operate a central aeronautical information service for the collection, validation and dissemination of aeronautical data in support of the government, industry and the aviation community. The NFDC monitors the NOTAM system for compliance with established criteria and procedures.

II. Department of Defense

The DoD Services (Army, Navy, Marine Corps and Air Force) must continually train with a wide variety of tactics in a variety of environments. With FAA concurrence, specific areas and routes have been established to provide airspace necessary for the military mission. In most cases, these areas and routes are represented on a number of charts to inform the public that increased vigilance and alertness are required due to the possibility of military aircraft operations in the area; while exercising the "see and avoid" concept of Visual Flight Rules (VFR). In addition, charting may provide segregation for hazardous ground operations. Each of the DoD services have flight rules and policies in addition to the Federal Aviation Regulations.

A crucial key in airspace coordination is understanding the kinds of airspace in which the DoD flies and how to contact the appropriate DoD facility that schedules the airspace. The types of airspace that DoD typically uses is covered in Chapter 3, Airspace Basics. The following DoD personnel are key contacts that work on airspace issues:

A. Military Representative to the FAA (MilReps)

Each military service has designated persons within most FAA regions to facilitate coordination with the FAA on air traffic and airspace issues, each of the military services have designated representatives to interface directly with the FAA. These personnel are referred to as AFREPS (Air Force and Air National Guard), NAVREPS (Navy/Marine Corps) and DARR (Army). The MilReps are frequently a good starting point for locating military points of contact dealing with airspace issues.

The MilReps also provide guidance and coordination services to their assigned military units to coordinate creation and changes to airspace and serve as a focal point for disseminating information concerning hazards to navigation and other general airspace information. MilReps commonly deal with the following issues: noise complaints, flight violation reports, airspace proposals, EIS/EA scoping meetings and airspace user forums. They provide an interface with land management agencies and serve as liaison to state, local and other government agencies.

Additionally each Service provides representation at FAA headquarters in Washington, D.C.

1. Air Force Representative (AFREP)

Regional AFREPs are established at FAA regional headquarters offices. Each AFREP represents the Department of the Air Force (USAF) and the Air National Guard (ANG) Commands through liaison with the FAA. They are authorized to coordinate, negotiate and communicate USAF/ANG positions on airspace and air traffic control matters within established policy and guidelines. The AFREPs represent the USAF in negotiations with competing aviation and land use interests, and assists with airspace proposals and environmental documents.

2. Navy Representative (NAVREP)

Navy Representatives to the FAA (NAVREPs) represent the Navy and Marine Corp and are located at most FAA regional headquarters. They

provide liaison between the FAA and the Department of the Navy (DON), assuring that regional DON airspace matters are consistent with national DON policy. NAVREPs provide technical guidance and procedural assistance in matters such as sonic boom or jet noise complaints, flight violation reports, near mid-air collision reports, TFR intrusions and airspace proposals.

3. Army Representative (DARR)

Department of the Army Representatives to the FAA (DARR) serve at FAA regional headquarters and provide assistance to local Army commands. This includes coordination of air traffic and airspace actions with the FAA regional headquarters as well as the investigation of flight violations involving Army assigned airspace and aircraft. They provide local Army commanders with technical expertise and assistance in areas that significantly affect Army airspace, air traffic control, aeronautical information, aviation matters and Special Use Airspace. They are the liaison with land management agencies in coordinating airspace issues. Additional information is available at *www.usaasa.belvoir.army.mil.*

B. Other Sources of Assistance Within DoD

1. Airspace Manager

Airspace managers have been assigned at some military facilities. These managers are responsible for working with the FAA and other agencies to identify, coordinate, procure and manage airspace, and to develop and coordinate agreements/procedures to support military flight operations in meeting both peace and war time requirements.

2. Air Traffic Representative (ATRep)

An ATRep is an FAA Air Traffic Representative. Some military facilities have an ATRep assigned to serve as a liaison officer between the military and the FAA and between the military and civil users. They serve as a technical advisor in all phases of air traffic control in order to improve ATC service, evaluate the amount of airspace required for ATC and coordinate approval of airport traffic pattens. They participate in appropriate intra-military meetings in which the FAA has an interest, encourage lecture and training programs for base pilots and civil air user groups and recommend

changes, if necessary to improve service. ATReps can be useful resources in coordinating with a DoD facility regarding specific airspace issues.

C. Using, Controlling and Scheduling Agencies/Activities For SUA/MTR

MTRs and SUAs must be scheduled for use by DoD aircraft. DoD schedulers are tasked as either Scheduling Activities for MTRs or Scheduling Authorities for SUAs. Schedulers are the front line resources that dispatch calls to deconflict or share airspace coordination information. The offices are listed on sectionals or DoD AP/1A for SUAs and the DoD AP/1B Handbook for MTRs, Slow Routes, Aerial Refueling Routes.

When coordinating with DoD facilities regarding airspace issues, the following organizational terminology applies:

1. Using Agency

The Using Agency is that agency or military command organization designated by the FAA as responsible for the administration and management of the designated SUA/MTR. Normally, this is the cosigner(s) on the Interagency Airspace Agreement for the SUA/MTR.

2. Scheduling Agency/Activity

The Scheduling Agency/Activity is that organization responsible for scheduling and day-to-day administration of the SUA or MTR on behalf of the Using Agency. The Scheduling Agency may be the same as the Using Agency or may be a delegated organization. Airspace will not be used for military activities unless scheduled by the responsible military office. There may also be an alternate Scheduling Agency/Activity for after-hours or weekend coordination. Note that the:

- Scheduling agency is the DoD term associated with SUA.
- Scheduling activity is the DoD term associated with MTRs.

3. Controlling Agency

The controlling agency is the FAA or military designated facility responsible for air traffic control for a SUA. The controlling agency

could either be an ARTCC responsibility, a TRACON facility, or a Military RAPCON facility. Controlling agencies for SUA's are listed on the legend of a sectional chart or in the DoD AP/1A.

III. Land Management Agencies (USDA-FS, DOI and States)

The United States Congress has charged the federal land management agencies, primarily the USFS and bureaus of the DOI, to administer public lands in the public interest. Similar responsibilities are assigned to State agencies. Although not a regulator of airspace, the land management agencies operate within the airspace above public lands in the administration of public service. As a user of the NAS, agency flights are bound by the Federal Aviation Regulations. This use is primarily conducted at the same altitudes at which much of the military trains and general aviation operates.

Most federal land management agencies (both USFS and DOI) have headquarters offices in Washington, D.C. They are further divided by region, area, or state, with sub-units of these divided into National Forests (USFS), districts (BLM), reservations (BIA), National Parks and Monuments (NPS), and National Wildlife Refuges (FWS). Maps of the boundaries for these agencies may be found in Appendix B.

Not all government agencies are alike in organization or structure. Roles and responsibilities will overlap in some cases, and differ in others.

A. Land Management Dispatch/Logistical Support Organizations

Land management agencies that manage natural resources have a designated ordering procedure to support wildland fire use and suppression as well as natural disasters. Wildland fires and natural disasters are called "incidents" and are frequently managed using the Incident Command System (ICS). Associated with ICS are established ordering channels that provide for rapid movement of personnel, aircraft and equipment in an efficient and effective manner to support incidents. There are three primary levels of coordination centers: national, geographic area and local.

1. National Interagency Fire Center (NIFC) (*http://www.nifc.gov*)

The National Interagency Fire Center (NIFC) in Boise, Idaho includes the nation's primary logistical support center for wildland fire suppression. The center is also home to federal wildland fire

experts in fields as diverse as fire ecology, fire behavior, technology, aviation and weather. Working together and in cooperation with state and local agencies, NIFC's role is to provide national response to wildfire and other emergencies, and to serve as a focal point for wildland fire information and technology.

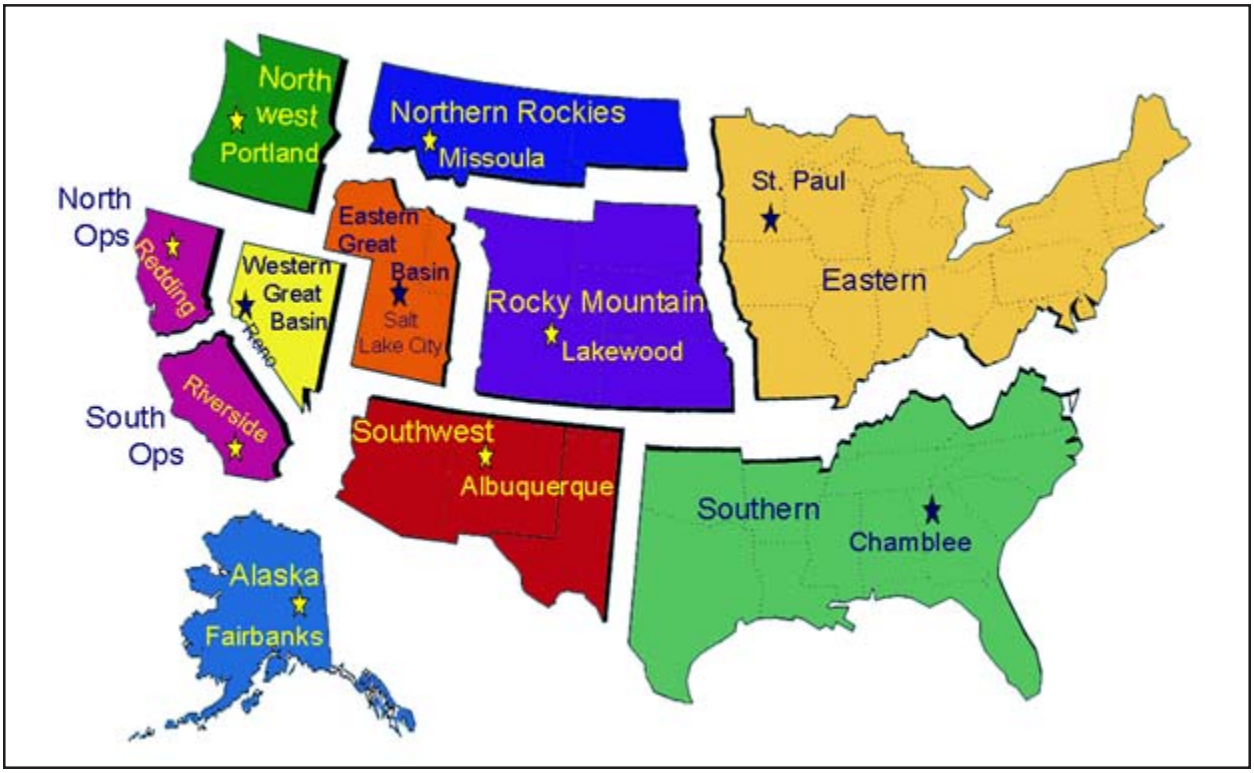
2. National Interagency Coordination Center (NICC)

The national response level is coordinated at the NICC which is part of the NIFC in Boise, Idaho. NICC is responsible for coordination and support of all resource movement between the Geographic Area Coordination Centers (GACCs) that are not covered by local operating plans.

3. Geographic Area Coordination Centers

Each of the 11 geographic areas is coordinated at a GACC (see Figure 2-5). GACCs act as focal points for internal and external requests for personnel, equipment and resources that cannot be filled at the local level.

FIGURE 2-5 Geographic Areas and Coordination Centers (GACC)

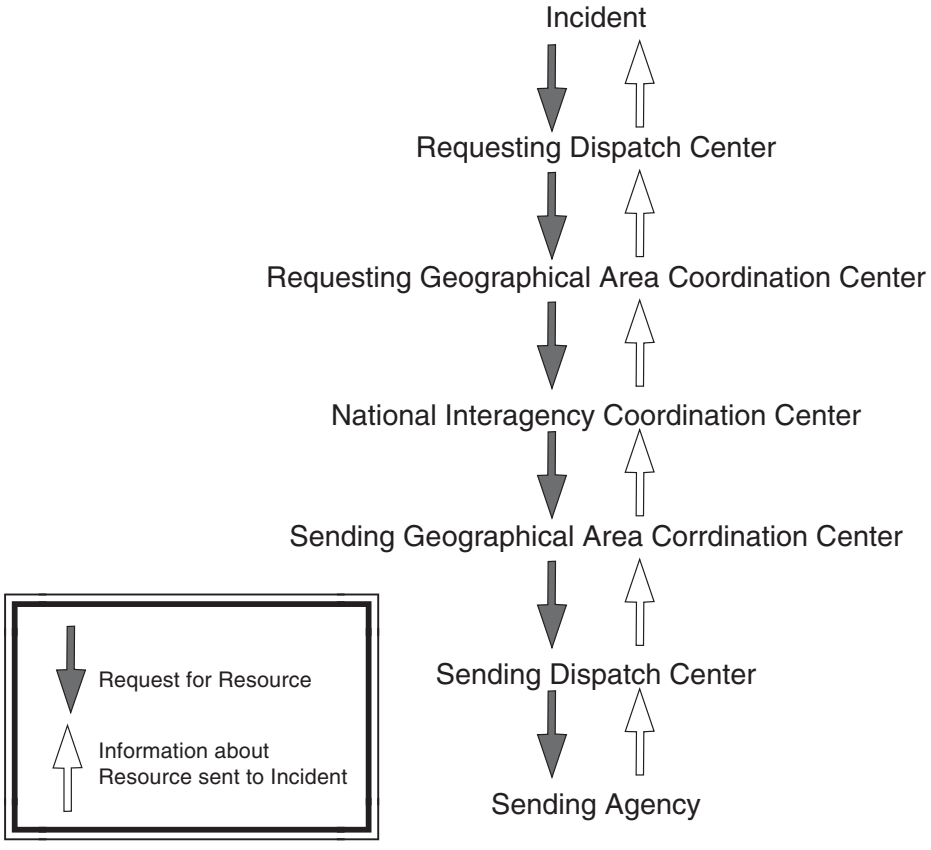


4. Local Dispatch Coordination Centers

Dispatch responsibilities are usually coordinated on a local level. Many dispatch offices are organized on an inter-agency basis . This provides for the “closest forces response concept” for resource assignment. Many dispatch offices at this level of responsibility originate TFR requests and assist in coordinating airspace deconfliction.

FIGURE 2-6 Dispatch Organization and Ordering Channels

All agencies have designated ordering procedures for incidents and wildland fire support and services. These established ordering channels provide for: rapid movement of resources and cost effectiveness. These communications occur between dispatch centers, GACC's and the NICC. NICC is responsible for Coordinating the movement of all resources between Geographical Areas not covered by local operating plans. At the point in the ordering flow, when an order can be filled, the flow is reversed to insure proper notification back to the incident.



VI. Land Management Agencies Roles And Responsibilities

Airspace coordination is the responsibility of multiple agencies including land management agencies. Specific agency missions result in some diversity of airspace and safety requirements. The airspace above public lands is not owned by the agencies and proper coordination is a key to safe use.

The following provides an overview of the roles and responsibilities of land management organizations who are involved in airspace coordination.

A. State or Regional Aviation Manager

State or Regional Aviation Managers provide leadership and oversight for agency airspace programs. If one is not available, consult with a national aviation program manager. Where appropriate, the State or Regional Aviation Manager has the responsibility to:

1. Evaluate the airspace system and potential problems within their particular jurisdiction.

2. Coordinate with the FAA, military, and the agency airspace coordination representative in regard to airspace coordination issues.

3. Coordinate with other cooperating federal and state land management agencies to initiate Airspace Agreements with military facilities.

4. Ensure that all dispatchers, aviation managers, and other appropriate personnel receive training in airspace coordination policy and procedures.

5. Disseminate and discuss airspace coordination policy and procedures with local military services, law enforcement, news media, and the FAA.

6. Collect, compile, analyze and disseminate all SAFECOMs (Safety Communications) involving airspace conflicts. Share SAFECOM information with DoD and FAA when appropriate.

7. On projects which affect multiple agencies or areas, coordinate with the affected local aviation managers, resource managers, and military facilities regarding airspace activities that may affect environmental resources on land, or land management activities that may affect airspace.

8. Review airspace and environmental proposals (Environmental Assessments and Environmental Impact Studies, Federal Register notices, etc.) for agency aviation concerns. Relay aviation concerns via the FAA circularization process or through the NEPA process.

9. Acquaint agency planners and natural resource managers with current airspace structure over agency lands.

10. Maintain awareness of local aeronautical issues (new airports, obstructions, noise abatement procedures, local fly-in or air shows) that may have an impact on airspace.

B. Agency Resource Managers

Agency Resource Managers provide management of natural and cultural resources on public lands. This can include federally designated wildernesses, wild and scenic rivers, and national recreational areas and congressional designated areas. Where appropriate, the Agency Resource Manager has the responsibility to:

1. Review airspace and environmental proposals and aviation projects as they pertain to environmental resource management. Information regarding current airspace structure can be obtained from the State or the Regional Aviation Manager.

2. Coordinate with aviation managers and military facilities to mitigate the impact of airspace activities on environmental resources, and the impact of land management activities on the airspace.

3. Provide technical advice on overlying airspace when reviewing proposals and plans for structure construction. See Chapter 4 for further information regarding obstruction evaluations and approvals as prescribed by the FAA.

C. National Interagency Coordination Center (*http://www.nifc.gov*)

NICC coordinates and supports operations for managing wildland fire suppression and natural disasters throughout the United States. NICC has the responsibility to:

1. Maintain the Interagency Airspace Agreement for temporary towers with the FAA's Northwest Mountain Region.

2. Coordinates the requests for temporary towers located in the following states: Washington, Oregon, Idaho, Colorado, Wyoming, Utah and Montana.

3. Coordinates resource orders for airspace coordinators (technical specialists) when the position cannot be filled on a geographic basis.

D. Geographic Area Coordination Center

Where appropriate the GACC has the responsibility to:

1. Coordinate TFRs and DoD deconfliction upon request. Track current TFRs or areas of air operations in local jurisdictions. Modify TFRs when necessary (see local dispatch/aviation staff responsibilities if GACC has TFR responsibilities).

2. Coordinate with appropriate FAA ARTCC facilities, particularly during large, adjacent multiple-fire operations, to avoid overlapping or conflicting airspace restrictions.

3. Publish daily TFR information through intelligence reports or GACC websites.

4. Immediate relay of documentation of airspace conflicts received from local units (dispatchers or aviation managers) to the appropriate State or Regional Aviation Manager.

5. Develop a comprehensive listing of phone and fax numbers for the MTRs, SUAs, and FAA facilities within its jurisdiction. Publish them in the State, Area or Regional Mobilization Guide as appropriate.

6. Maintain current sets of aeronautical sectional charts and the DoD AP/1B handbook and charts.

7. Maintain Airspace Agreements with FAA Regional Headquarters regarding ordering and staffing of temporary towers.

8. Work with Airspace Coordination Specialist (THSP-Airspace) when the position is assigned. Some or all duties, including receipt of TFR requests and implementation with FAA may be transferred to the Airspace Coordination Specialist.

E. Local Dispatch and Aviation Staff

Airspace coordination with the FAA and the DoD is primarily a local responsibility. Where appropriate, local dispatchers and/or aviation managers have the responsibility to:

1. Evaluate potential airspace issues within their jurisdiction. Maintain airspace awareness within their response area.

2. Coordinate TFRs and other NOTAMs to include:

    a. Relaying information on identified airspace hazards or concerns to pilots and/or on-scene aviation personnel. Ensure that radio frequencies are distributed to expedite communications over an incident.

    b. Coordinate the need for TFRs/NOTAMs. Obtaining complete information and documentation to meet FAA's needs. For further information see Chapter 6, TFRs and NOTAMs.

    c. Request TFRs/NOTAMs from the appropriate ARTCC and forward a copy to the GACC and other affected facilities (DoD, etc.). Coordinate with neighboring agencies. Document requests via agency procedures (i.e. resource orders, TFR request form, etc.).

    d. Monitor and modify TFRs/NOTAMs requests as needed. Coordinate modifications with on scene personnel and determine size and shape of the TFR as the incident or project size changes. Modify NOTAM if TFR related frequency changes.

    e. Verify the TFRs/NOTAMs are published as requested, and the facilities affected have timely notification (especially FSS and military units). Access NOTAM via Internet or DUAT or have the Flight Service Station fax the actual NOTAM to the dispatch office for verification.

    f. If problems or conflicts are encountered during the TFRs/NOTAMs, document via agency procedures and notify agency management (i.e., SAFECOM).

    g. Brief local initial attack and other participating aircraft on procedures for entering airspace (initial points of contact for entry, etc.).

h. If the airspace becomes unsafe, it is the responsibility of the individual who is aware of the hazard to ensure operations are temporarily suspended until the conflict is resolved.

i. Notify (i.e. e-mail and/or fax) agency pilots and other affected personnel that the TFRs/NOTAMs are in place. This may include helibases, air tanker bases, incident command posts, all dispatch offices within GACC boundaries and neighboring units, airports, etc.

j. Cancel TFRs/NOTAMs immediately when the restriction is no longer necessary. Coordinate with on scene official-in-charge (i.e. Incident Management Team, etc.).

3. Document all Near Midair Collisions (NMACs) and instances of TFR intrusions. Immediately notify the FAA, the military (if appropriate), and the State or Regional Aviation Manager of any NMACs or intrusions.

4. Notify affected agencies and personnel of airspace activities and hazards that do not receive FAA's TFRs/NOTAMs notifications. Brief non-local inbound aircraft on updated frequencies and airspace coordination information and procedures.

5. Develop a comprehensive listing of phone and fax numbers for the MTRs, SUAs, and FAA facilities within unit jurisdiction. Maintain a list of critical airspace contacts and publish them in the State, Area or Regional Mobilization Guide.

6. Participate in pilot pre-contract and pre-use briefings and discuss unit airspace procedures and problems.

7. Coordinate mitigation of airspace activities impact on environmental resources, and the impact of land management activities on the airspace with resource managers and military representatives.

8. Maintain current sets of sectionals and the DoD AP/1B handbook and charts.

9. Coordinate airspace deconfliction for non-emergency activities such as blasting, reconnaissance flights and prescribed burning activities.

10. Maintain knowledge of the NAS and the NOTAM System.

11. Maintain aviation maps with airspace hazards.

12. Maintain knowledge and proficiency in agency airspace deconfliction program (CAHIS, IAMS, ROSS, CAN, etc.).

F. Pilot

As a user of the NAS, the pilot flies according to the Federal Aviation Regulations. Pilots who fly for land management agencies (as either employees or contractors) must, in addition to the FARs, comply with agency regulations and procedures as well as contractual clauses. Where appropriate, the pilot has the responsibility to:

1. Be familiar (preflight) with all available information concerning the flight including that which pertains to the airspace involved in the area of operations.

2. Determine the status of SUAs/MTRs prior to flight near or within operational airspace.

3. Report all airspace conflicts to the appropriate authority and agency personnel using agency or contractual procedures.

4. Report NMACs to the FAA. Report information to appropriate agency aviation safety personnel.

5. Refrain from operating an aircraft so close to another aircraft as to create a collision hazard.

6. Fly with lights on (if possible) when in known SUAs or MTRs to enhance visibility.

7. If possible squawk with Air Traffic Control for deconfliction and use the national fire transponder code (1255) when appropriate.

8. Be familiar with agency procedures to enter incident airspace including flight following, dispatch coordination and frequency procedures. Remain clear of TFR until contact is established.

9. When flying on incidents where a TFR is in place:

   a. Remain clear of the TFR area when not assigned or until contact can be made with the air tactical group supervisor (ATGS) or aerial supervisor for transit through the TFR.

   b. Establish contact with the ATGS for the assignment of aircraft routes, orbit altitudes, etc., if assigned to an incident.

   c. Maintain assigned altitude or block assigned altitude unless altitude change is cleared by ATGS or aerial supervisor.

10. When flying on incidents where a TFR is not in place, remain clear of the incident area until contact can be made with the ATGS or aerial supervisor for entry into the area of operations.

11. Participate in briefings and debriefings, identify any problems encountered and recommending any corrective action necessary. Update base manager/dispatch with any changes (e.g. frequencies, incident outside of TFR, etc.).

The Pilot In Command (PIC) of an aircraft is directly responsible for, and is final authority as to the operation of the aircraft (14 CFR 91.3).

G. On-Scene Personnel

On-scene personnel include, but are not limited to, aerial observers, aircraft managers (chief of party, etc.), project aviation managers, air tactical group supervisors (ATGS), air tanker coordinators, air operations branch directors (AOBD), air support group supervisors (ASGS), helitack personnel, division/group supervisors and incident commanders. When appropriate, on-scene personnel have the responsibility to:

1. Maintain knowledge and awareness of the airspace in which they are operating. Obtain or conduct briefings regarding incident airspace and associated hazards (i.e. MTRs, SUA, obstructions, etc.).

2. Provide accurate information needed for local dispatchers or aviation managers to request or modify a TFR. Relay modifications or updates as necessary relating to:

   - Incident location
   - Frequency
   - Center point if circular, corner coordinates if non-circular
   - Latitude and Longitude
   - Radius if circular
   - Altitude MSL
   - Air-to-Air VHF-AM Contact Frequency
   - Special considerations (within Class B, C or D airspace areas, airports, etc.)
   - Initial points for entry into TFR
   - Incident growth potential

3. Brief responding and on-scene pilots about TFRs and known airspace hazards. Encourage lights on (strobe and pulsating lights) for safety.

4. Be familiar with agency procedures regarding aircraft entry into incident airspace.

5. When operations within incident airspace become unsafe, ensure that operations are temporarily suspended until unsafe situation is mitigated.

6. When releasing aircraft from the incident, brief pilots regarding TFRs at other sites so they may avoid intrusions.

7. Identify and correct unsafe airspace operations. Follow through with SAFECOMs via agency procedures.

8. Consult with agency aviation personnel when risk assessment indicates the need for an FAA Temporary Tower.

9. Keep dispatch updated on frequency changes for incident aircraft.

10. Report and document all airspace conflicts to the appropriate authority and agency personnel using agency procedures.

11. Notifying the appropriate local dispatch office or aviation manager once the agency flight operations have changed or ceased.

H. Air Tactical Group Supervisor

The ATGS is responsible for the assignment of all incident aircraft in safe orderly holding and mission flight patterns and routes. In addition to the on-scene responsibilities, the ATGS performs a critical safety responsibility as air traffic control. Responsibilities are outlined in detail in the Interagency Air Tactical Supervisors Guide. This task requires the following basic responsibilities:

1. Conduct a briefing each morning that provides updated, accurate airspace information regarding TFRs, ingress, egress, etc. (Note: May be performed by Air Tanker Base Manager or Helibase Manager.) Briefings are covered in Chapter 7, Airspace Deconfliction.

2. Follow established agency procedures for entering and exiting the airspace.

3. Give and request position reports within the airspace.

4. Advise pilots of other air traffic and of air traffic hazards.

5. Maintain radio communication with all assigned aircraft in the airspace.

6. Maintain visual contact for “close traffic work”.

7. Monitor status of all assigned incident aircraft in the airspace.

8. Assign flight patterns and routes to establish safe vertical and horizontal separation as guided by the Interagency Air Tactical Supervisors Guide. Pilots must be consulted before establishing complex routes or patterns.

9. Coordinate media, VIP and other agency flights within TFR.

10. Conduct debriefing and recommend any necessary corrective actions regarding airspace.

I. Airspace Coordination Specialist (THSP)

May be ordered to assume or assist with airspace duties. An Airspace Coordinator Specialist should be ordered when incident activity is wide-spread and involves a number of complex TFRs, complex airspace is involved or difficult conflict resolutions exist with various agencies. A working knowledge of IAMS/CAHIS is required.

NOTE TO DISPATCHERS: *This position should be ordered as a technical specialist (THSP). Airspace Coordination Specialists can function in a variety of situations and at various levels within the organization. Please designate the level of expertise when ordering (i.e. Field, GACC, Local, Support).*

1. Field Airspace Coordinator Specialist

   Reports to the National Airspace Program Manager. Ordered to assist with airspace coordination in the field among Area Commands, Incident Management Teams, Dispatch organizations, local airports, general aviation, FAA offices and DoD office. Must have extensive experience coordinating airspace issues. May be accompanied by an assistant or GIS Specialist.

2. GACC Airspace Coordinator Specialist

   Often located at a GACC and supports airspace activity within a GACC boundary. Usually has extensive aviation and dispatch background to facilitate coordinating activity.

3. Local Unit Airspace Coordinator Specialist

   Supports airspace activity within a local unit and can often assume airspace coordination duties relieving local unit dispatchers so they can concentrate on initial attack and large incident support. Often has Initial attack background as a dispatcher.

4. Airspace Coordination Specialist Support

   Positions to support the airspace program. Must have knowledge of IAM/CAHIS and various aviation programs to support the Airspace Coordinator Specialist. Could be a webmaster, computer programer, GIS specialist, Mapping specialist or likewise.

When appropriate, the Airspace Coordinator has responsibility to:

1. Plot all current TFRs on sectionals. Assess situations involving:

   - Classes of Airspace
   - Airport Approaches and Departures
   - Flight Schools, Sky Diving Schools
   - Congested Airspace, Special Use Airspace, MTRs and unpublished airspace situations
   - Cruise Missile Routes

2. Contact involved ARTCC's with assessment of incident situation and discuss airspace coordination and TFR procedures.

3. Coordinate the ordering of TFRs with Dispatch. TFRs ordering will involve an Aircraft Resource Order for document purposes. Maintain a log of ALL airspace discussions (for legal purposes). Airspace coordinator will maintain documentation. Airspace Coordinators phone number may be published on all related TFRs.

4. Distribute current TFRs to Incident Management Team's aviation operations. Discuss size and altitudes involved.

5. Coordinate the combining of TFRs when they overlap. Non-circular TFRs are acceptable when coordinated with FAA ARTCC and are described in such a way that the U.S. NOTAM office can publish them. Ask AOBDs to modify airspace on a timely basis, particularly if they can downsize the area or lower the ceiling.

6. Obtain copies of any Airspace Agreements involving land management agencies and military bases. Contact Scheduling Activities (MTRs) or Controlling Agencies (SUAs) with maps of current TFRs. Provide briefing, discussing airspace deconfliction and procedures for handling intrusions.

7. Obtain copies of TFRs (FDC NOTAMS) from the Internet, DUATs, or the FAA. Carefully check published NOTAMs with TFR requests and verify that they are accurate with no typographical errors. Check NOTAMs on a daily basis.

8. Brief incoming Incident Management Teams, ATGSs and any other assigned pilots on the current TFRs and known airspace hazards.

9. Coordinate with other agencies. Non-participating agencies often have to continue their work and will be in contact to ask for permission to fly within the TFR. Provisions are already established for media and Law Enforcement entry. Establish contact with respective Air Operations Branch Director and coordinate the agencies request for entry (i.e. mosquito spraying, highway survey, etc.). Non-participating aircraft should only be allowed into a TFR when it is feasible, safe and previously coordinated so that frequencies are shared.

10. Receive reports of any intrusions. Take immediate action with ARTCC and or MilReps and Scheduling Activities/Scheduling Agencies. If the intruder is Military, ask for assistance from the Military Operations Specialist (MOS) at the Area Managers desk at ARTCC.

11. Assure that a SAFECOM be filed for any airspace intrusions. Follow through with FAA, DOD, Media or AOPA contacts on an as needed basis.

12. Adjust TFRs on an as needed basis (after conferring with the appropriate Air Operations Branch Director). Credibility and good faith will be established if airspace is given back to the FAA when it is no longer needed.

13. Coordinate publishing a list of daily TFRs in the Air Operations Plan. The list should include: NOTAM number, VOR/DME, ALT, Radius, Latitude/Longitude, and Incident Name.

14. Follow requests for temporary towers. Coordinate any staffing issues with FAA, AOBD and dispatch.

During extremely complex situations, the Airspace Coordinator may find it appropriate to:

1. Contact FAA Regional 520 Airspace Branch Manager with executive briefing and ask for assignment of a FAA Regional Headquarters Liaison.

2. As necessary, brief daily with TFR depictions and assessments:

   - ARTCC, FSDO, FSS
   - Appropriate FAA Towers and involved airports
   - MilReps (AFREP, NAVREP, DARR, ATREP, etc.)

- All involved DoD Bases
- FAA Regional Headquarters Liaison
- Air Tanker Bases, Helibases, Smokejumper, Rappel Bases
- Incident Management Teams (All Air Ops Branch Directors)
- GACCs and Dispatch Centers
- National Broadcasting Pilots Association (NBPA)
- AOPA Regional Rep or AOPA Pilot Hotline

3. Contact local NBPA members and assess media coordination regarding TFRs.

4. Contact AOPA national office or regional representative with briefing. Establish coordination with AOPA Pilot Hotline and daily briefings with AOPA.

5. If needed, ask FAA Regional Headquarters Liaison if the FAA will issue a press release identifying TFRs and the need for General Aviation pilots to remain away from the incident area.

6. Presidential and Vice Presidential visits will be coordinated through the local ARTCC and assigned FAA Regional Headquarters Liaison. The FAA will coordinate the 14 CFR 91.141 Presidential TFR.

7. Discuss the 1255 Transponder Code with the FAA. Assure that local FAA is aware of transponder frequency. If they are unaware, share documentation of assignment and fax info to local towers and ARTCCs.

8. Coordinate mailing of airspace or TFR posters to all incidents and involved airports with an attached letter discussing the safety aspects of staying away from TFRs.

V. Airspace Committees

Either through acts of Congress, delegations of the military or public interest, many airspace committees exist. The following committees have been developed to provide interagency involvement and cooperation between agencies and public interest groups.

A. Interagency Airspace Natural Resource Coordination Group (IANRCG)

The IANRCG was a national committee formed in 1994 upon direction

from the Senate Armed Services Committee to the Secretaries of Defense and the Interior. The intent of the committee was to resolve airspace conflicts between the DoD, the USFS and the DOI agencies. The Coordination Group provided a forum for interagency discussion, integrated planning, collaborative dispute resolution, and facilitation of local and regional issues concerning the use of the nations federally protected land resources and airspace. IANRCG was comprised of all branches of the DoD and members representing the BLM, USFS, FWS and BIA. IANRCG has a charter (see Appendix D) and has three sub-committees:

- Education and Awareness
- Safety and Operations
- NEPA Compliance and Environmental Affairs

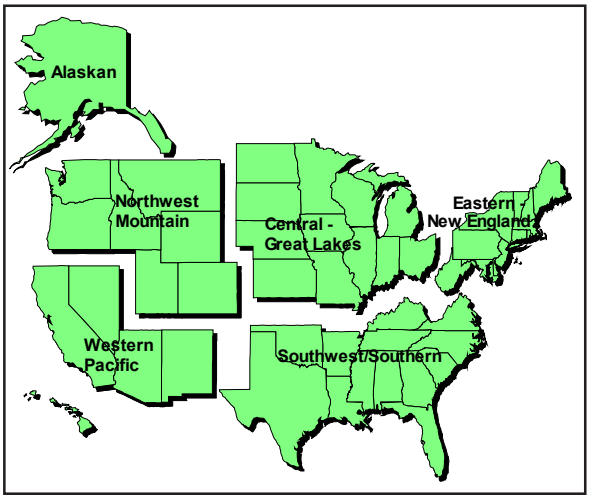
IANRCG increased awareness of airspace and was instrumental in the resolution of many problems. The committee has not met for several years as the focus on issues is now regionally or locally.

B. USAF/ANG Airspace and Range Council Meetings

The Airspace/Range Council Meetings were begun in 1989 and modeled after the Air National Guard long range planning process. In 1995, Air Force Headquarters formally endorsed the regional process and now co–chairs and sponsors all council meetings.

These meetings ensure Air Force offices involved in an airspace/range issue have a common understanding of the objectives, status and key issues, and provide for a thorough review by an interdisciplinary team. The meetings incorporate interagency involvement and cooperation at the appropriate level.

FIGURE 2-7 Airspace and Range Council Meeting Boundaries



The meetings exist regionally and nationally to advise units, major commands, and Air Force Headquarters on airspace and range issues, and to provide all council members with a flow of information and lessons learned in airspace and range development. DoD

airspace meetings are aligned with FAA regional boundaries, which provide a geographic focus on airspace/range issues.

Council meetings may be hosted by the units, major commands, and/or Regional AFREPS. National Councils are convened annually to allow senior Air Force leaders to review pending and proposed range and airspace actions from a national perspective and provide feedback to regional councils.

They are **open** to delegates from all military services, **land management agencies**, and other interested or concerned parties with which the Air Force should exchange constructive information concerning flight activities in the region

C. Interagency Military Land Use Coordination Committee (IMLUCC)

This committee was formed in 1997 to enhance dialogue on land use issues of mutual interest to the DoD, DOI, USFS, and the DOT. The mission of the committee is to facilitate cooperation and communication at the policy level. IMLUCC membership is at the Deputy Under Secretary level within the DoD and USDA and at the Assistant Secretary level with in DOI. The scope of issues dealt with by IMLUCC is broad and includes the following subcommittees:

- Land Withdrawal
- Special Uses
- Joint Stewardship
- Contamination/Clean-up
- Overflight/Airspace

D. Federal Interagency Committee for Aviation Noise (FICAN) (*www.fican.org*)

Federal Interagency Committee for Aviation Noise (FICAN) was formed in 1993 to provide forums for the debate of future research needs to better understand, predict and control the effects of aviation noise. FICAN members include DOT, DoD, NASA, EPA, HUD and NPS.

E. DOT/NPS Interagency Working Group (IWG) (*www.nps.gov*)

In 1987, Congress enacted Public Law 100-91, commonly known as the National Parks Overflights Act. It required the US Forest Service and the

NPS to submit reports to Congress on the effects of overflights on Forest Service wilderness areas and National Park Service units resources and visitor experiences. It further required the NPS submit to the FAA recommendations associated with the effects of overflights. The law also required the FAA to prepare and issue a final plan for the management of air traffic above the Grand Canyon and implement the recommendations of DOI.

On December 22, 1993, the Secretary of Transportation (Pena) and the Secretary of the Interior (Babbitt) formed an interagency working group (IWG) to explore ways to limit or reduce the impacts from overflights of national parks, including the Grand Canyon. Noise generated by the air tour industry has received the most attention, however, all components of aviation are likely to be impacted by this Act.

As a result, the IWG (comprised of NPS and FAA) have been working together to implement the NPS recommendations from the NPS Overflight report of 1994. So far regulatory action has been limited to only a few parks such as Grand Canyon, Hawaiian Volcanos and Haleakala where special federal aviation regulations (SFARs) have been developed as interim measures. Rocky Mountain National Park has legislation that was passed by Congress that prohibits commercial air tour operations over the park.

The National Parks Air Tour Management Act was passed in 2000. It provides for the regulation of commercial air tours throughout the National Park System. The Natural Sounds Program Office opened in October of 2000 and is headquartered in Ft. Collins, Colorado. The programs priority is to work with the FAA to implement the National Parks Air Tour Management Act of 2000. The two agencies are required to jointly develop an Air Tour Management Plan (ATMP) for every national park where air tours exist or are proposed.

F. DoD Policy Board on Federal Aviation (PBFA)

The DoD management of airspace designated for military use is decentralized. Each of the military services has a centralized office that sets policy and oversees airspace matters for that military branch. Joint service airspace issues or inter-service problems are resolved by a DoD headquarters committee, and the DoD PBFA. The PBFA has established a subcommittee with primary interest in DoD airspace issues.

G. FAA Users Group/Users Forum

The FAA sponsors local meetings quarterly to allow users groups of local airspace to provide input to airport improvements, airspace issues or other topics, and to provide a forum for information sharing. Contact your local FAA office to find times and places for scheduled meetings.

H. Other Committees and Groups

There are many other committees and interest groups. Colorado, Alaska, Idaho, California all have active Airspace Advisory Groups that coordinate airspace issues. They are frequently associated with either the State Aviation Board or the Governors office.

VI. Aviation Interest Committees and Groups

A Aircraft Owners and Pilots Association (AOPA) (*www.aopa.org*)

AOPA consists of over 350,000 members. AOPA is often referred to as the "voice of General Aviation." AOPA pursues public acceptance of general aviation. They work closely with the FAA, NTSB, and the US Congress to ensure that the interests of its members are well represented. AOPA is a watchdog for airspace issues that threaten the "public right to freedom of transit" as outlined in the 1958 National Airspace Act.

B. National Business Aircraft Association (NBAA) (*www.nbaa.org*)

NBAA is the voice of business aviation and maintains strong relationships with government and industry. Through staff analysis of proposed governmental legislative and rule changes, they alert Congress and its members of any airspace proposals that might affect airspace usage by NBAA members.

C. Helicopter Association International (HAI) (*www.rotor.com*)

Since it's inception nearly 50 years ago, the Helicopter Association International (HAI) has brought together helicopter professionals from around the globe to share insights and information about succeeding in a climate of change and challenge. HAI sponsors an annual workshop that incorporates forums, exhibits and training. More than 10,000 professionals attend Heli-Expo annually. At Heli-Expo, HAI often hosts a panel

discussion that focuses on land management agencies involvement with airspace issues.

D. National Broadcasting Pilot's Association (NBPA) (*www.nbpa.rotor.com*)

The National Broadcasting Pilots Association (NBPA) is an advocate of the "Freedom of the Press" and works closely with FAA headquarters personnel to ensure that the press will continue to have access to the nation's airspace. NBPA is an organization for pilots and crew members flying Electronic News Gathering (ENG) aircraft for both television and radio as well as those companies directly involved in making aerial news possible.

CHAPTER 3
Airspace Basics

I. The National Airspace System (NAS)

The NAS consists of all airspace over the United States above the ground and up to 60,000 feet MSL. Despite the apparent vastness of this resource it has become crowded (in some places) and competition for its use is increasing. By law, the FAA is the controlling authority for all airspace in the United States and, in order to provide for the orderly and safe use of the airspace, has published numerous regulations which are found in Chapter 14, Code of Federal Regulations.

This chapter presents basic airspace information as it might pertain to land management agencies. **Consult the FAA for current policies and procedures when flight planning or navigating.**

II. Conceptualizing Airspace

When defining a section of airspace, four criteria are considered.

A. Volume

Volume is a key concept to understanding the amount of airspace actually being used. The length and width of airspace are visible on a two-dimensional map, but the floor and ceiling must also be included to see the complete picture, as airspace is always defined using three dimensions. Airspace used for flying operations could begin as low as the surface and extend upward over 50,000'. This unique characteristic of airspace enables numerous users to safely operate at the same geographical location, but at different altitudes.

B. Proximity

Airspace is often associated with a geographic area, airport or an airfield or a military installation. The proximity affects the utility of a piece of airspace and its use.

C. Time

Airspace is allotted for use for specific amounts of time. A designated block of airspace can be used to separate unusual flight maneuvers from other aircraft, and only minutes later that same block can be used to route aircraft to their final destinations.

D. Attributes

Airspace attributes describe the physical characteristics of the underlying land that make certain pieces of airspace unique. Those attributes might be a range or a certain type of terrain needed to meet testing and training requirements, including open water, desert or mountains.

III. Understanding VFR/IFR Flight Terms

The terms IFR (Instrument Flight Rules) and VFR (Visual Flight Rules) are used throughout this Airspace Guide. General aviation aircraft flying between local airports, sight-seeing, etc., comprise the majority of flying completed under VFR. VFR generally allows pilots to fly off published routes using visual references such as highways, power lines, railroads, etc. In order to fly under VFR, the weather must meet or exceed the minimum requirements, which generally means there must be at least three miles of visibility and the pilot must be able to remain clear of clouds by at least 500'.

The minimum requirements change depending on the exact airspace classification. VFR flight is restricted to altitudes below 18,000' MSL and does not require flight clearances from ATC. VFR pilots exercise "See and Avoid" clearance precautions, which means that they must be vigilant of their surroundings, and alter their course or altitude, as necessary, to remain clear of other traffic, terrain, populated areas, clouds, etc.

IFR requires pilots to be trained and certified in navigational methodologies and to adhere to ATC clearances containing specific flight route and altitude directions. ATC clearances and use of radar and navigational aid systems keep IFR aircraft separated from each other.

IV. Airspace Categories

The national airspace is divided into two broad categories, controlled and uncontrolled airspace. Within these two categories, there are a variety of classifications which determine flight rules, pilot qualifications, and aircraft capabilities required in order to operate within any section of the airspace. The specific classification of any area is determined by the FAA and is broadly based upon these:

- Complexity or density of aircraft movements
- Nature of operations conducted within the airspace
- Level of safety required
- National and public interest

It is important that pilots, dispatchers and managers be familiar with the operational requirements of each of the various types of airspace in order to assess their impact on the ground activity underlying them and potential conflicts for agency aircraft operating above agency lands. It is also incumbent on both the pilot and the dispatcher to be familiar with all the points of contact regarding controlled and Special Use Airspace. Unfortunately there is no “one call solves all” point of contact in airspace coordination. Each type of airspace has its own designated unit that is responsible for controlling, scheduling and/or coordinating the use of the designated portion of the NAS.

V. Overview of Airspace Designations of the United States

To describe how airspace is structured and managed, the explanation is grouped into major categories with sub-categories as follows.

- Controlled Airspace
  - Class A Airspace
  - Class B Airspace
  - Class C Airspace
  - Class D Airspace
  - Class E Airspace
  - Class F Airspace (International–not in United States)

- Uncontrolled Airspace
  - Class G Airspace

- Enroute Routing System
  - Victor Routes (Victor Airways)
  - VFR Flyways
  - Jet Routes

- Special Use Airspace (SUA)
  - Prohibited Area (PA)
  - Restricted Area (RA)
  - Military Operations Area (MOA)
  - Alert Area (AA)
  - Warning Area (WA)
  - Controlled Fire Area (CFA)

- Military Training Route (MTR)
  - Basic Information About Military Training Routes (IR and VR)
  - Maneuver Areas/LOWAT (Low Altitude Tactical)
  - Corridor Width and Height

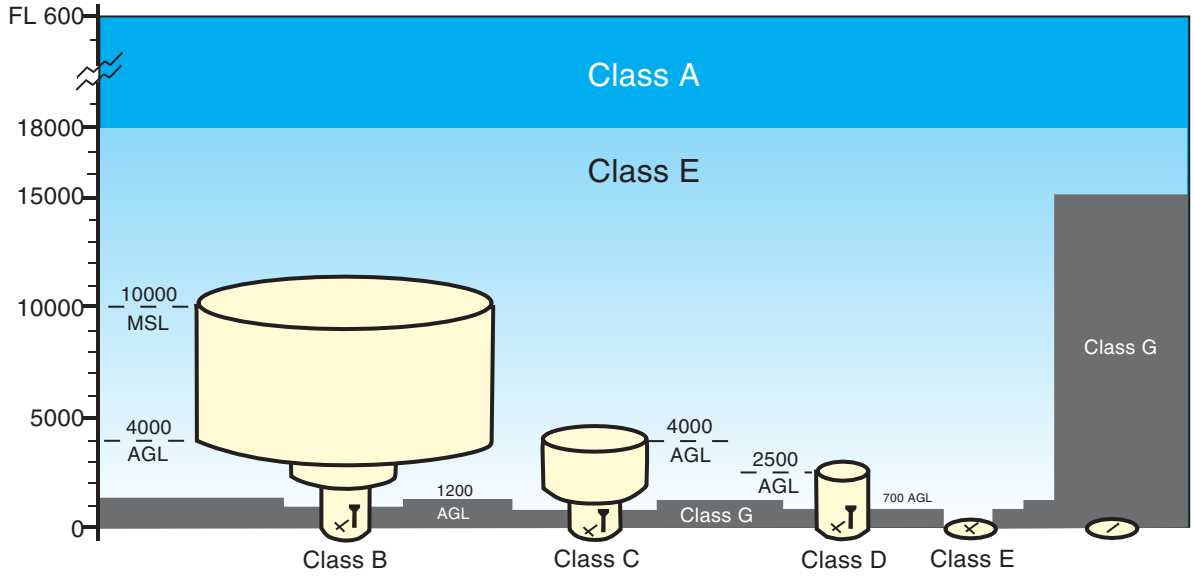
- Other Kinds of Airspace
  - Slow Routes
  - Low Altitude Tactical Navigation Areas (LATN)
  - Local Flying Areas
  - Air Refueling Routes
  - Temporary Special Use Airspace (TSUA)
  - Cruise Missile Routes
  - National Security Areas (NSA)
  - ATCAAs

VI. Airspace Classifications

The primary designation utilized within the NAS is “class.” There are seven classes, “A” through “G” (see Figure 3-1). In addition to classes there are a variety of terms utilized to identify operational structures, hazards, and unique areas within the airspace.

“Controlled” and “uncontrolled” airspace are generic terms that broadly cover all airspace. These refer to the level of air traffic control required to operate within the airspace. Most controlled airspace has specific, predetermined dimensions whereas uncontrolled airspace can be of almost any size. Class G is the only class of uncontrolled airspace. Except as noted in the following descriptions, the FAA normally is the controlling agency for each area of the NAS.

FIGURE 3-1 Airspace Classifications



A. Class A Airspace Areas

Class A Airspace Areas include airspace from 18,000 feet MSL up to 60,000 feet MSL, including the airspace overlying the waters within 12 nautical miles (NM) of the coast of the 48 contiguous states and Alaska. All operations within Class A airspace must be under Instrument Flight Rules (IFR) and are under direct control of air traffic controllers. Class A airspace always starts at 18,000 MSL and it is not specifically charted or designated on commonly used maps .

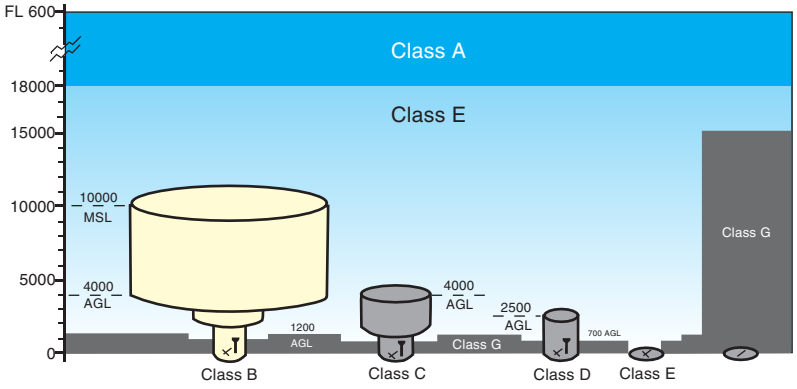
It is unlikely that the agencies will have to consider flight activity within this airspace except for occasional point-to-point transportation of passengers. All flights in Class A airspace are under positive control.

B. Class B Airspace Areas

This airspace surrounds the nation's busiest commercial airports. This is the most congested airspace and has the most complex mix of aircraft operations with everything from single engine trainers to high speed jet transports. At its core, it extends from the surface airspace areas to 10,000 feet MSL.

The overall shape of Class B can be likened to an upside down wedding cake of several layers. Each layer is divided into sectors with the exact dimensions and shape individually tailored to meet local traffic and safety needs. The outer limit of Class B can extend to 30 NM from the primary airport. Air traffic control clearance is required to operate in Class B airspace areas. To increase safety, the airspace is designed to minimize the number of turns aircraft are required to perform as they descend to an airport, while still enabling other aircraft to safely transition the area.

FIGURE 3-2 Class B Airspace



Class B airspace is charted on sectional charts, IFR enroute (low altitude) charts, and terminal area charts.

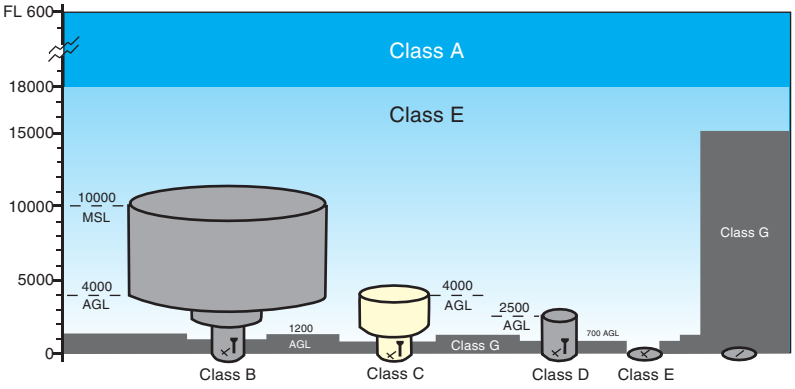
Agency flight operations within Class B airspace are generally very complex and require considerable planning and coordination. TFR coordination in Class B airspace must be carefully coordinated with the FAA due to a significant impact on the airport. A TFR will generally not be issued in Class B airspace areas because the area is already controlled airspace. Operations must be with air traffic clearance.

C. Class C Airspace Areas

This airspace surrounds the busy airports of mid-sized cities with a large number of commercial flight operations as well as some military airports. An operating control tower at the primary airport and radar services are key components of Class C airspace.

The overall shape is also that of an upside down wedding cake but there are only two layers. The inner ring has a radius of 5 NM and is from the

FIGURE 3-3 Class C Airspace



surface up to, but not including 4,000 feet above airport elevation. The outer ring has a radius of 10 NM and is from 1,200 feet AGL to 4,000 feet above airport elevation. A third ring with a 20 nautical mile radius exists in which ATC provides traffic separation services to VFR aircraft who voluntarily request this service.

Radio communications must be established with ATC prior to entering Class C airspace but specific permission to operate within the airspace is not required as it is in Class A and B.

Class C airspace is charted on sectional charts, IFR enroute (low altitude) charts, and in specific terminal area charts.

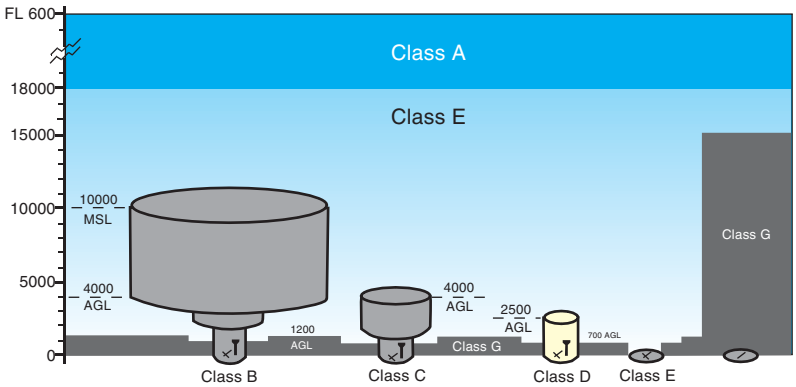
Agency flight operations within Class C airspace should be viewed as complex and will normally require planning and coordination similar to that for operations in Class B airspace.

TFR requests within Class C airspace must be carefully coordinated with the FAA.

D. Class D Airspace Areas

This airspace is applied to airports with operating control towers but where the traffic volume does not meet Class C or Class B standards. Traffic usually lacks the heavy jet transport activity but often includes a complex mix of general aviation, turbo prop and business jet traffic. Radar service is often available.

FIGURE 3-4 Class D Airspace



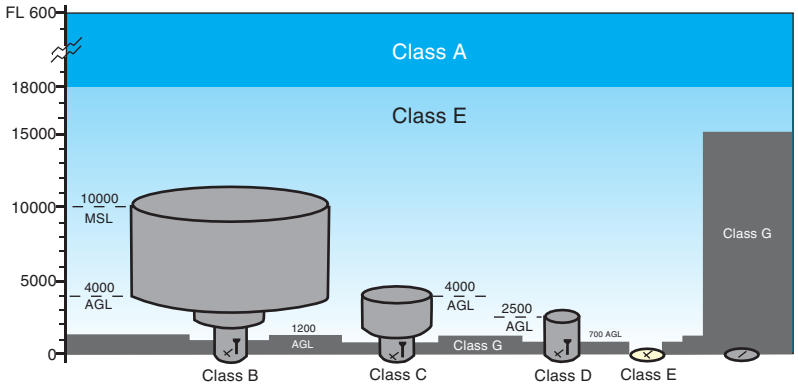
The above airport elevation shape is a five nautical mile radius surrounding an operational control tower from the surface up to, but not including, 2,500 feet AGL. Class D airspace may have one or more extensions to accommodate IFR traffic. Where radar service is available ATC will provide separation service to IFR traffic and to participating VFR traffic. All traffic must maintain radio communication with the tower or have prior arrangements for operating within the Class D airspace. Class D airspace is charted on sectional charts, IFR enroute (low altitude) charts.

Agency flight operations commonly involve Class D airspace and must be coordinated by the control tower. Managers should remember that a large number of civilian and military flight training occurs in and around Class D airspace. It is also important to consider that radar service may not be available.

E. Class E Airspace Areas

Class E airspace exists primarily to assist IFR traffic. It includes all airspace from 14,500 feet MSL up to, but not including 18,000 feel MSL. It extends upward from either the surface or a designated altitude to the overlying or adjacent controlled airspace.

FIGURE 3-5 Class E Airspace



Radar coverage may or may not be available and there are no requirements for VFR communications with ATC. Class E airspace below 14,500 feet MSL is charted on Sectional, Terminal, IFR Enroute Low Altitude Charts with a segmented magenta line.

Agency aviation operations will routinely involve Class E airspace and should be coordinated with the applicable ARTCC or TRACON. This will help to avoid conflicts with IFR traffic. As always, “see and avoid” is the recommended procedure.

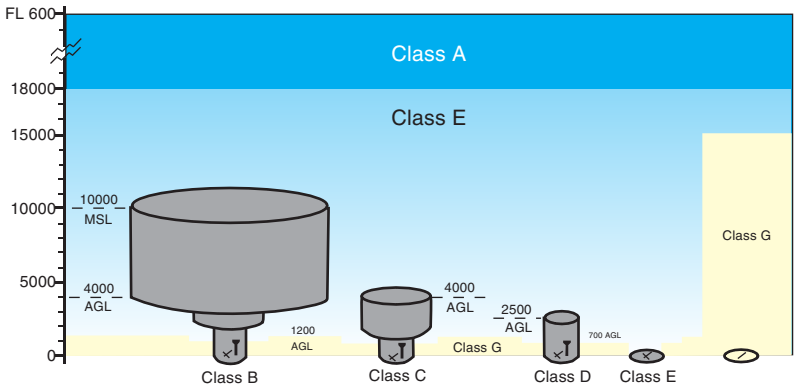
F. Class F Airspace Areas

This is an international classification which is not utilized in the United States.

G. Class G Airspace Areas

Class G is uncontrolled airspace and includes all airspace not otherwise designated as A, B, C, D or E. It is virtually non-existent in the eastern United States but relatively large blocks of Class G can be found in some areas of the west and Alaska. Operations within Class G airspace are governed by the principle of "see and avoid."

FIGURE 3-6 Class G Airspace



Agency flight operations in uncontrolled airspace should be approached with caution and all flight crew members and passengers should be reminded to assist the pilot with "see and avoid."

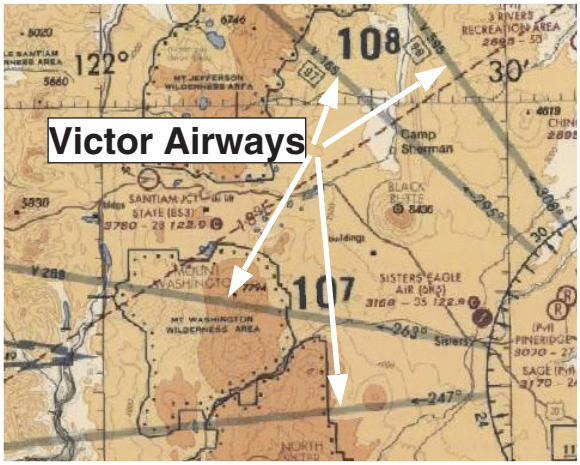
VII. Enroute Structures

Enroute structures consist of several routing corridors, essentially highways in the sky, utilized by both IFR and VFR traffic. Relatively large amounts of traffic are concentrated along these routes.

A. Low Altitude Airways (Victor Airways)

Victor airways are the primary "highways" utilized by both IFR and VFR traffic. They are 8 NM wide and generally range from 1,200 feet AGL up to but not including 18,000 MSL. The airway floor varies to ensure that aircraft operating on the airway remain clear of ground obstructions and have the ability to receive the radio signals from the navigational facilities.

FIGURE 3-7 Victor Airways



They are depicted on sectionals as blue shaded lines with a "V" (hence the term "victor") followed by a number (i.e. V-500, see Figure 3-7).

B. Jet Routes

Jet routes serve the same function as the above low altitude airways except that they are found between 18,000 MSL and to 45,000 MSL. Traffic on a jet route is always IFR designated and is managed by air traffic control. Jet routes are shown on the high altitude charts as a gray line and are represented by the letter “J” followed by a number. Jet routes are normally not of much concern to land management agencies except in a few western areas with very high terrain.

C. VFR Flyway

These are general routes for VFR traffic wishing to fly through, or near Class B airspace. The intent is to provide VFR aircraft with a way to transition the airspace. An air traffic control clearance is not required to utilize a flyway. Flyways may be charted on the back of terminal area charts but may also be used locally based on word of mouth. The best way to determine if a flyway exists locally is to ask the ATC facility controlling the Class B airspace area.

D. VFR Transition Routes

These are similar to VFR flyways and are used to accommodate VFR traffic transitioning certain Class B airspace. The difference from a VFR flyways is that a clearance is required from air traffic control and radar separation service is always provided. VFR transition routes are identified by a notation on terminal area charts.

E. Air Traffic Control Assigned Airspace (ATCAA)

ATCAAs were established to permit the continuation of MOA activities above 18,000’ MSL. From the standpoint of the MOA “user,” MOA and ATCAA are combined into one piece of airspace, with 18,000’ MSL acting as an administrative boundary. Usually, the ATCAA is activated concurrently with the MOA. VFR aircraft are permitted to enter a MOA, but are not permitted to enter most ATCAAs because they are not permitted to fly VFR above 18,000’ MSL. MOAs are depicted on aeronautical charts, but ATCAAs are not depicted.

F. VFR Waypoints Chart Program

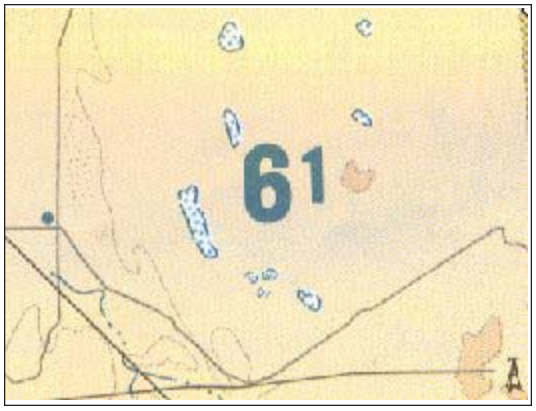
FIGURE 3-8 Example of a VFR Waypoint

The VFR Waypoint Chart program was established to provide VFR pilots with a supplemental tool to assist with position awareness. The program is designed to enhance safety, reduce pilot deviations and provide navigation aids for pilots unfamiliar with an area in or around Class B, Class C and Special Use Airspace. The name of a VFR waypoint (for computer entry and flight plans) consists of five letters beginning with "VP." VFR waypoints will be portrayed on sectionals as a four point star symbol. VFR Waypoints co-located with Visual Check Points on the sectional will be identified by small magenta flag symbols. Each VFR Waypoint name will appear in parentheses adjacent to the geographic location on the chart.

G. Maximum Elevation Figure (MEF)

Within each grid on a sectional is a large blue number followed by a smaller number, for example 6_1. This represents the highest elevation (including terrain and other vertical obstacles such as towers, etc.) within each square. The designation of 6_1 translates to 6,100' MSL. Agency personnel need to take MEF into account when planning a TFR.

FIGURE 3-9 Example of an MEF



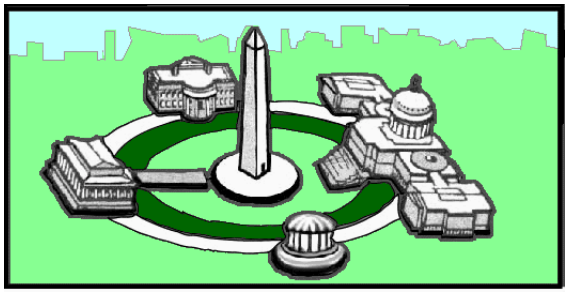
VIII. Special Use Airspace (SUA)

This special designation is designed to alert users about areas of military activity, unusual flight hazards, or national security needs, and to segregate that activity from other airspace users to enhance safety. While most SUAs involve military activity, others involve civilian users such as the Department of Energy.

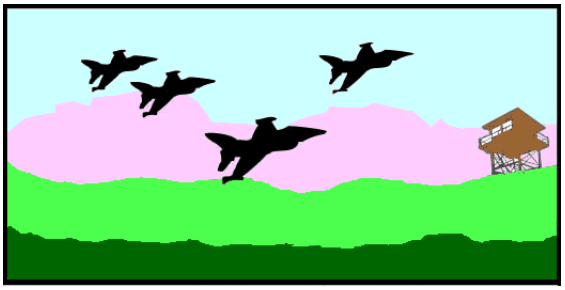
Special Use Airspace is established by the FAA. Detailed information regarding the process for establishing SUA and other types of airspace is contained in FAA Handbook 7400.2, Procedures for Handling Airspace Matters. The DoD flight information publication AP/1A contains detailed information about current SUA.

There are six different kind of SUAs as shown in Figure 3-10.

FIGURE 3-10 Categories of Special Use Airspace



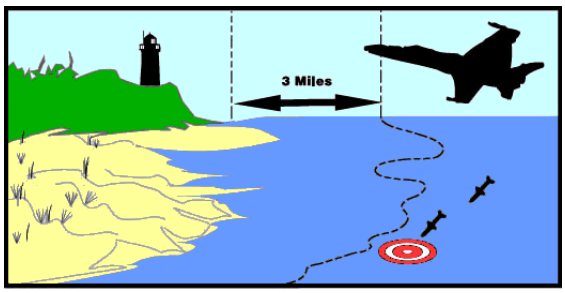
PROHIBITED AREAS



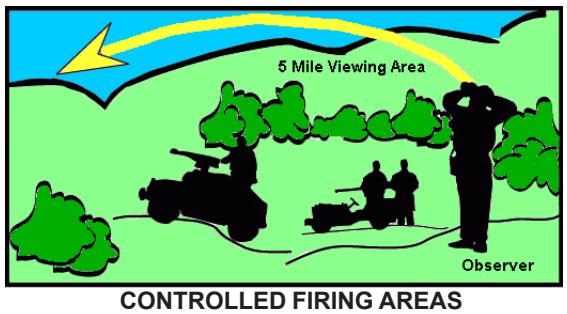
MILITARY OPERATIONS AREAS

RESTRICTED AREAS

ALERT AREAS

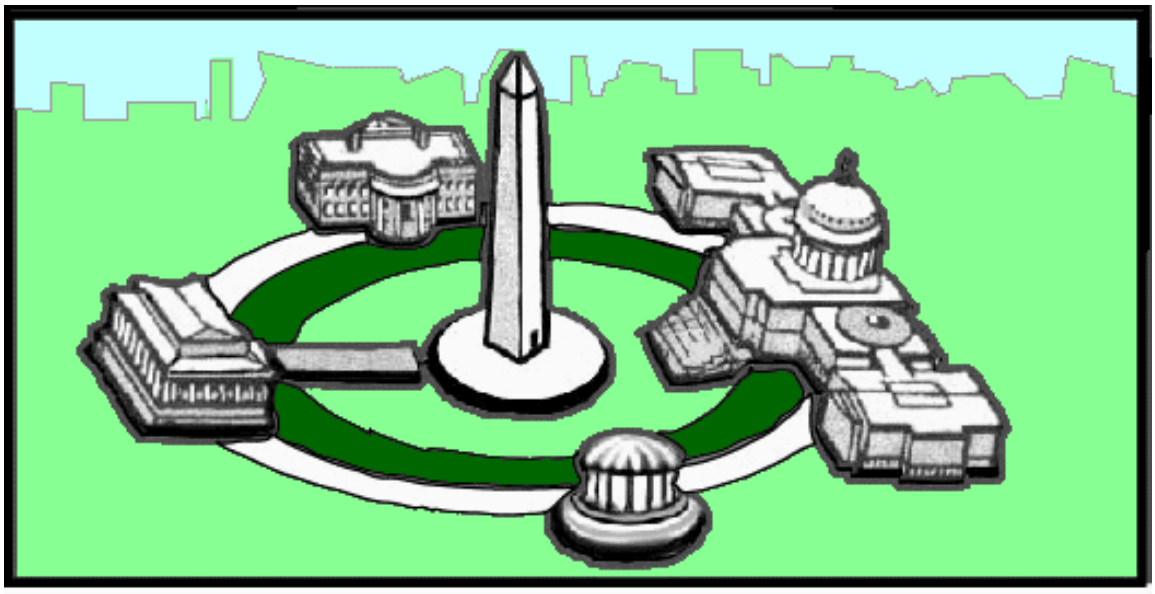


WARNING AREAS



CONTROLLED FIRING AREAS

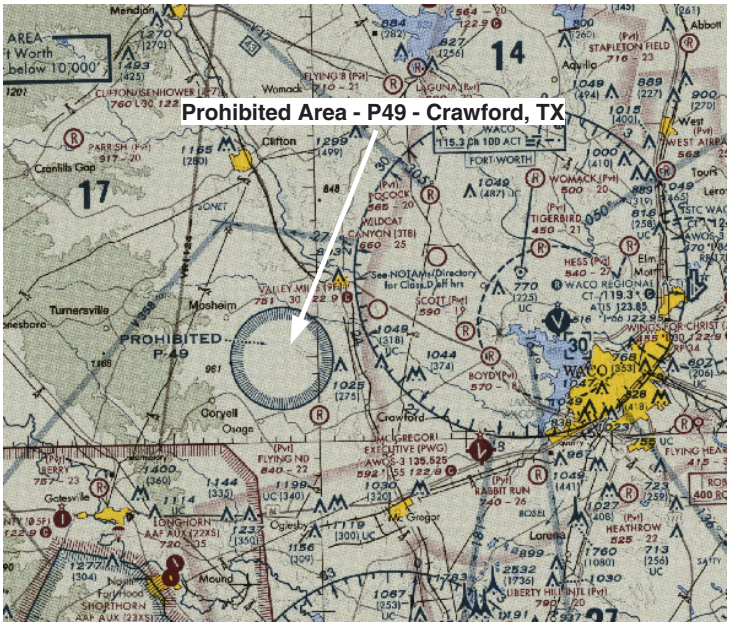
FIGURE 3-11 Prohibited Areas



A. Prohibited Areas (PA)

Prohibited areas are established over sensitive ground facilities such as the White House, Camp David, presidential homes, etc. (see Figure 3-9). The dimensions of the prohibited area vary. All aircraft are prohibited from flight operations within a prohibited area unless specific prior approval is obtained from the FAA or the controlling agency. Prohibited areas are charted on sectionals, IFR enroute charts, and terminal area charts. They are identified by the letter "P" followed by a number.

FIGURE 3-12 Example of a Prohibited Area on a Sectional



Many agency personnel are familiar with the Boundary Waters Canoe Area in Minnesota which is a Prohibited Area by Executive Order. President Truman issued Executive Order 10092 on December 17, 1949, establishing

an airspace reservation of certain areas of the Superior National Forest. The order prohibited, with few exceptions, flight below 4,000 MSL over designated areas.

Agency personnel can not plan any operations into a PA unless special authorization has been granted by the FAA or controlling agency.

FIGURE 3-13 Restricted Areas

B. Restricted Areas (RA)

Restricted areas are established in areas where on-going or intermittent activities occur which create unusual, and often invisible hazards to aircraft such as artillery firing, aerial gunnery, practice bomb dropping and guided missile testing (see Figure 3-13). Dimensions of the restricted area vary depending upon the needs of the activity and the risks to aircraft.

FIGURE 3-14 Example of Restricted Area on a Sectional

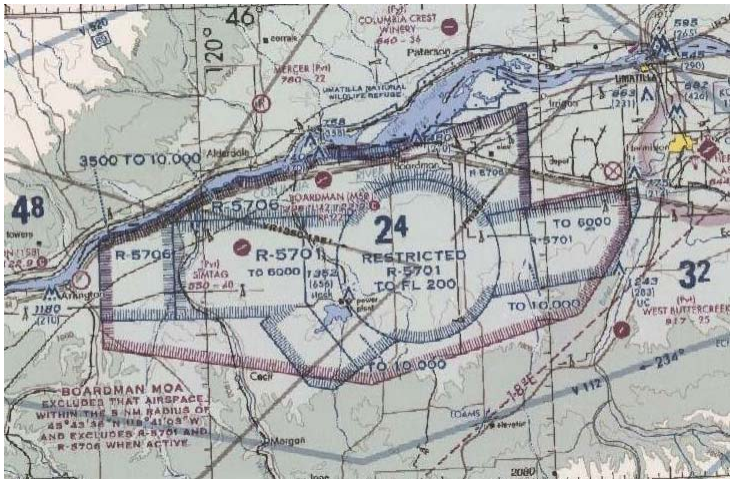
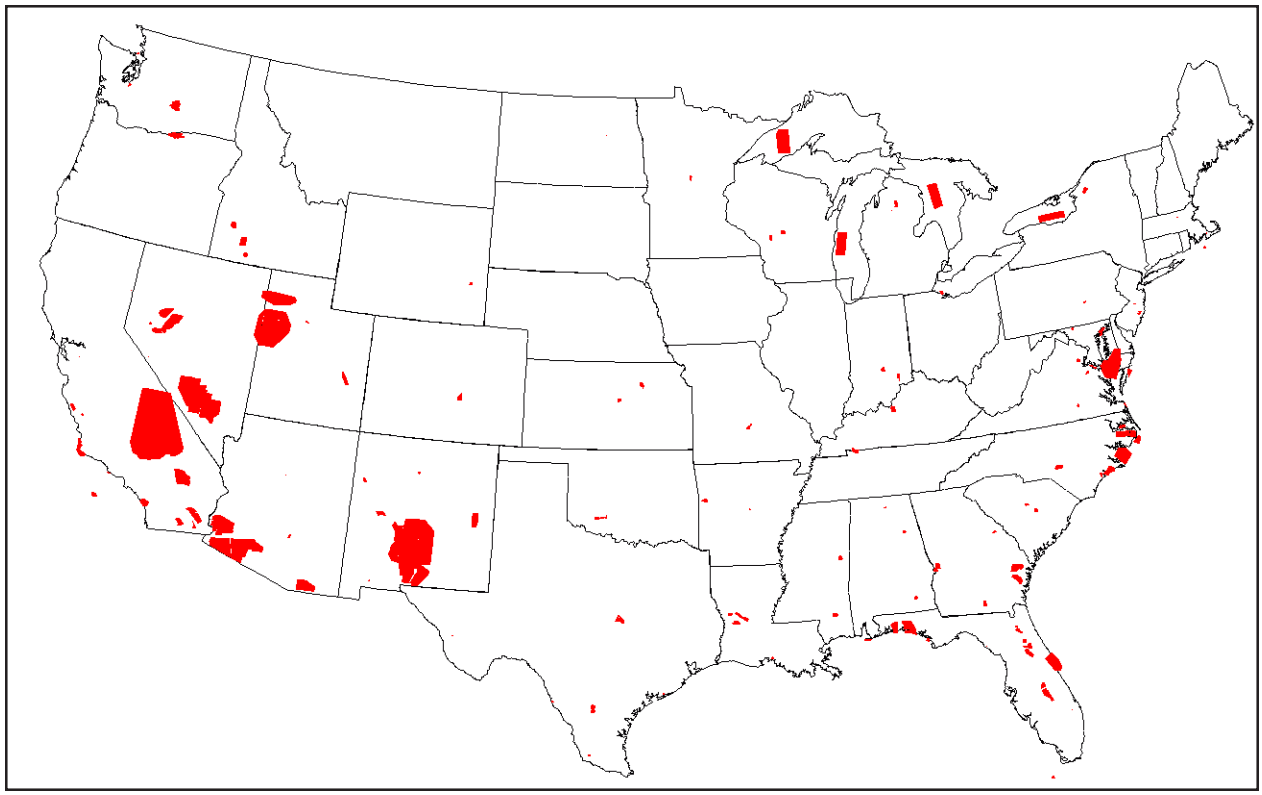


FIGURE 3-15 IAMs/CAHIS Restricted Area Map Example



Restricted areas differ from prohibited areas in that most RAs have specific hours of operation and entry during these hours requires specific permission from the FAA or the controlling agency. In addition, there may be a separate scheduling agency who must also grant permission. Agency personnel must understand that hazardous flight activity is occurring in the RA when it is active.

Restricted areas are charted on sectionals, IFR enroute charts, and terminal area charts. They are identified by the letter "R" followed by a number (see Figure 3-14). The floor and ceiling, operating hours, and controlling agency for each restricted area can be found in the chart legend.

FIGURE 3-16 Example of IAMs/CAHIS Restricted and Warning Area

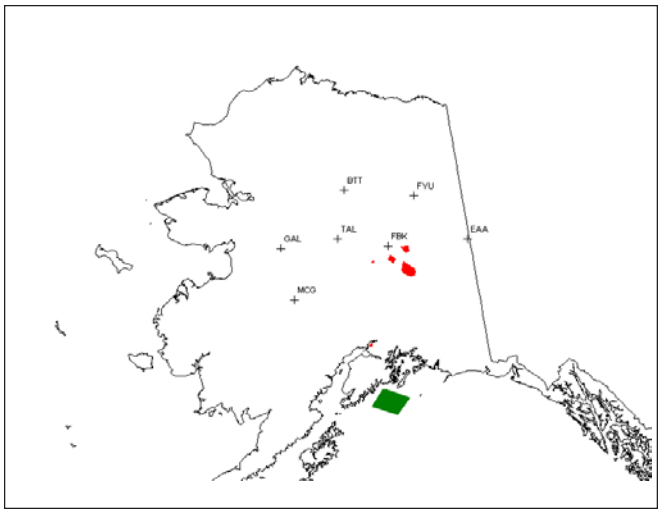


Figure 3-17 displays an example from the Special Use Airspace Table on a

sectional. In this example, each Restricted Area is described with its identification number, location, altitude, time of use and the controlling agency.

This is one reason why it is critical that each office that has coordination responsibilities for airspace have current copies of all sectionals for their area of responsibility.

FIGURE 3-17 Example of Special Use Airspace Table (Restricted Areas) from a Sectional Legend

SPECIAL USE AIRSPACE ON SEATTLE SECTIONAL CHART

Unless otherwise noted, altitudes are MSL and in feet and Time is local.
Contact nearest FSS for information.
**Other time by NOTAM, contact FSS.

The word "TO" an altitude means "To and including."
"MON-FRI" indicates "Monday thru Friday"
FL - Flight level
NO A/G - No air to ground communications

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

NUMBER	LOCATION	ALTITUDE*	TIME OF USE **	CONTROLLING AGENCY***
R-5701	BOARDMAN, OR	SEE FACE OF CHART	0730-2359 MON-FRI **6 HRS IN ADVANCE	ZSE CNTR
R-5704	HERMISTON, OR	TO NOT INCLUDING 4000	0900-1700 MON-THU	NO A/G
R-5706	BOARDMAN, OR	3500 TO 10,000	0730-2359 MON-FRI **6 HRS IN ADVANCE	ZSE CNTR
R-6701	ADMIRALTY INLET, WA	TO 5000	INTERMITTENT BY NOTAM **2 HRS IN ADVANCE	NAS WHIDBEY ISLAND APP CON
R-6703A	FORT LEWIS, WA	TO 14,000	0700-2300 MON-FRI **2 HRS IN ADVANCE	SEATTLE-TACOMA APP CON
R-6703B,D	FORT LEWIS, WA	TO 5000	0700-2300 MON-FRI **2 HRS IN ADVANCE	SEATTLE-TACOMA APP CON
R-6703C	FORT LEWIS, WA	TO 14,000	INTERMITTENT BY NOTAM 2 HRS IN ADVANCE	SEATTLE-TACOMA APP CON

*Altitudes indicate floor of MOA. All MOAs extend to but do not include FL 180 unless otherwise indicated in tabulation or on chart.
** Other time by notam--CONTACT fss
***ZSE - Seattle

(This chart is for illustration only. Consult current sectional for navigational information.)

FIGURE 3-18 Military Operations Area

C. Military Operations Areas (MOA)

A MOA is an area of airspace designated for military training activities (see Figure 3-18). MOAs were established to contain certain military activities such as air combat maneuvers, intercepts, acrobatics, etc. Civilian VFR flights are allowed within a MOA even when the area is in use by the military. Air traffic control will separate IFR traffic from military activity. A clearance is not required for VFR operations.

FIGURE 3-19 Example of a MOA Chart Table from a Sectional

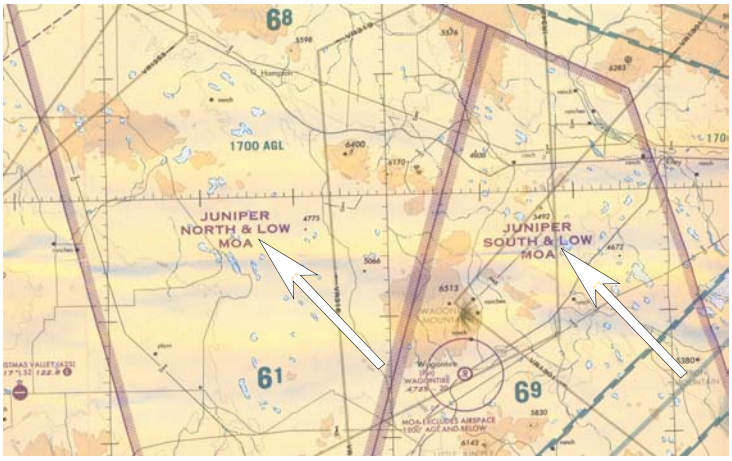
MOA Name	Altitude of Use*	Time of Use **	Controlling Agency***
BOARDMAN	4,000	0730-2359 MON-FRI ** 6 HRS IN ADVANCE	ZSE CNTR
CHINOOK A,B	300 TO 5,000	SUNRISE-SUNSET	NAS WHIDBEY ISLAND APP CON
OKANOGAN	9,000	CONTINUOUS DAYLIGHT	ZSE CNTR
OKANOGAN B,C	300 AGL TO BUT NOT INCLUDING 9,000	INTERMITTENT BY NOTAM	ZSE CNTR
OLYMPIC A,B	6,000	BY NOTAM	ZSE CNTR
RAINIER 1,2,3	2,000 TO 9,000	INTERMITTENT BY NOTAM	SEATTLE-TACOMA APP CON
ROOSEVELT A	9,000	INTERMITTENT BY NOTAM	ZSE CNTR
ROOSEVELT A	300 AGL TO BUT NOT INCLUDING 9,000	INTERMITTENT BY NOTAM	ZSE 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 time by NOTAM - contact FSS
*** ZSE - Seattle

(This chart is for illustration only. Consult current sectional for navigational information.)

Users may encounter high-speed military aircraft involved in flight training, acrobatic or abrupt flight maneuvers and formation flying often at speeds greater than 250 Knots Indicated Air Speed (KIAS). Military pilots conducting training within an active MOA are exempt from the provisions of the Federal Aviation Regulations prohibiting acrobatic flight within federal airways and control zones. They are also exempt with respect to the Federal Aviation Regulations for flights at speeds in excess of 250 knots below 10,000 feet MSL.

FIGURE 3-20 Example of a MOA on a Sectional



MOAs have a defined floor and ceiling which can range up to the floor of Class A airspace (18,000 feet). MOAs are identified by a specific name, the letters “MOA”, and are charted in magenta on sectionals, IFR enroute charts, and terminal area charts. MOA dimensions, hours of use, and controlling agency can be found in the chart legend (see Figure 3-19).

FIGURE 3-21 Illustration of stacked MOAs

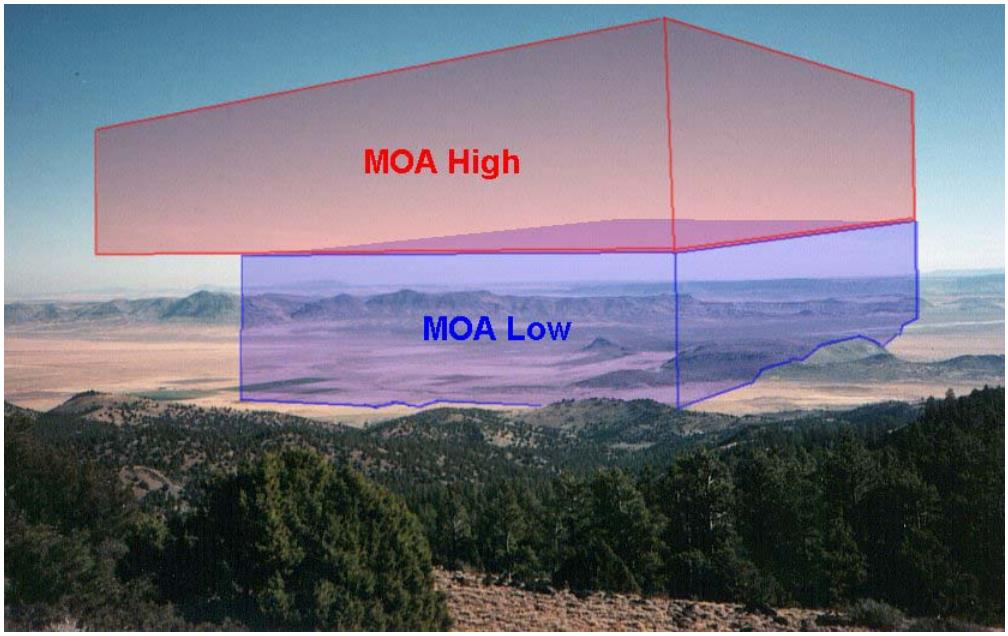


FIGURE 3-22 Example of IAMs/CAHIS Military Operations Area Map

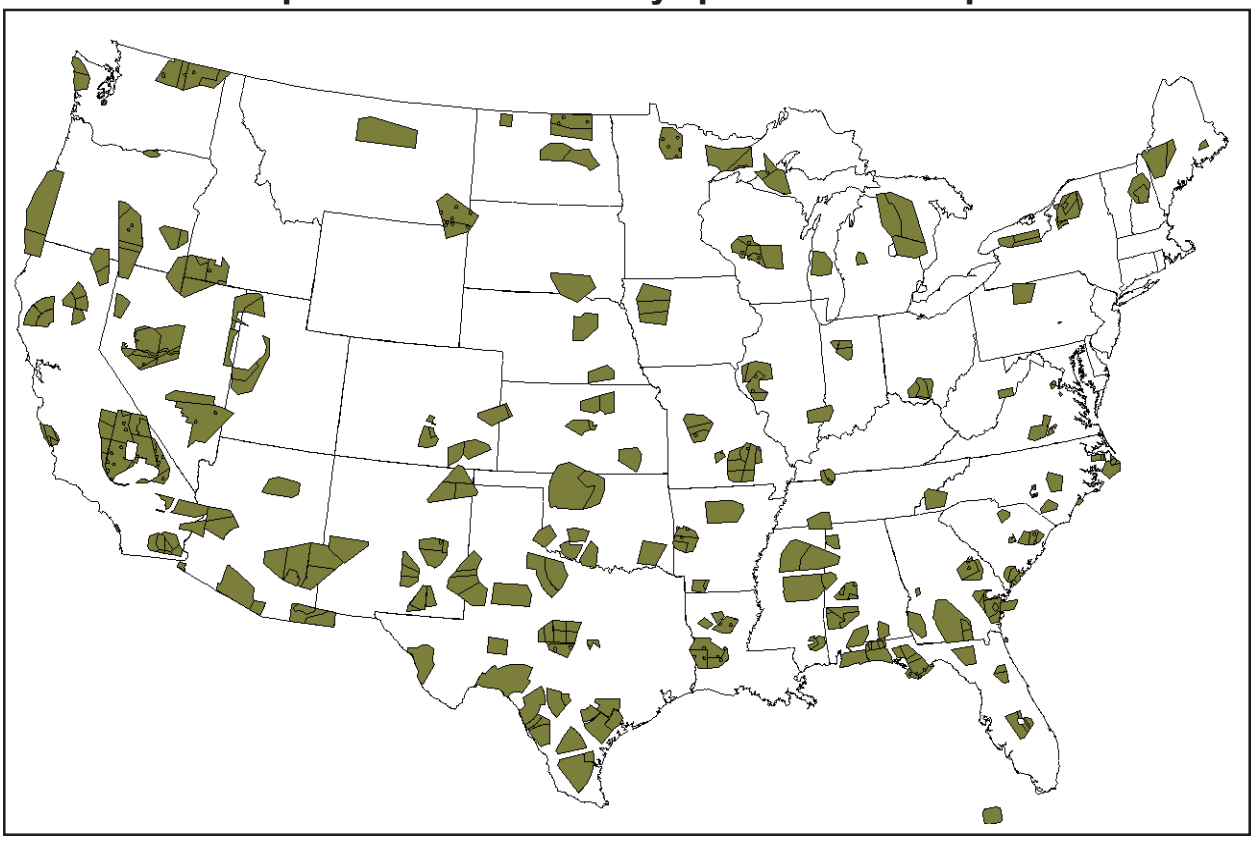


FIGURE 3-23 Example of IAMs/CAHIS Alert Area Map

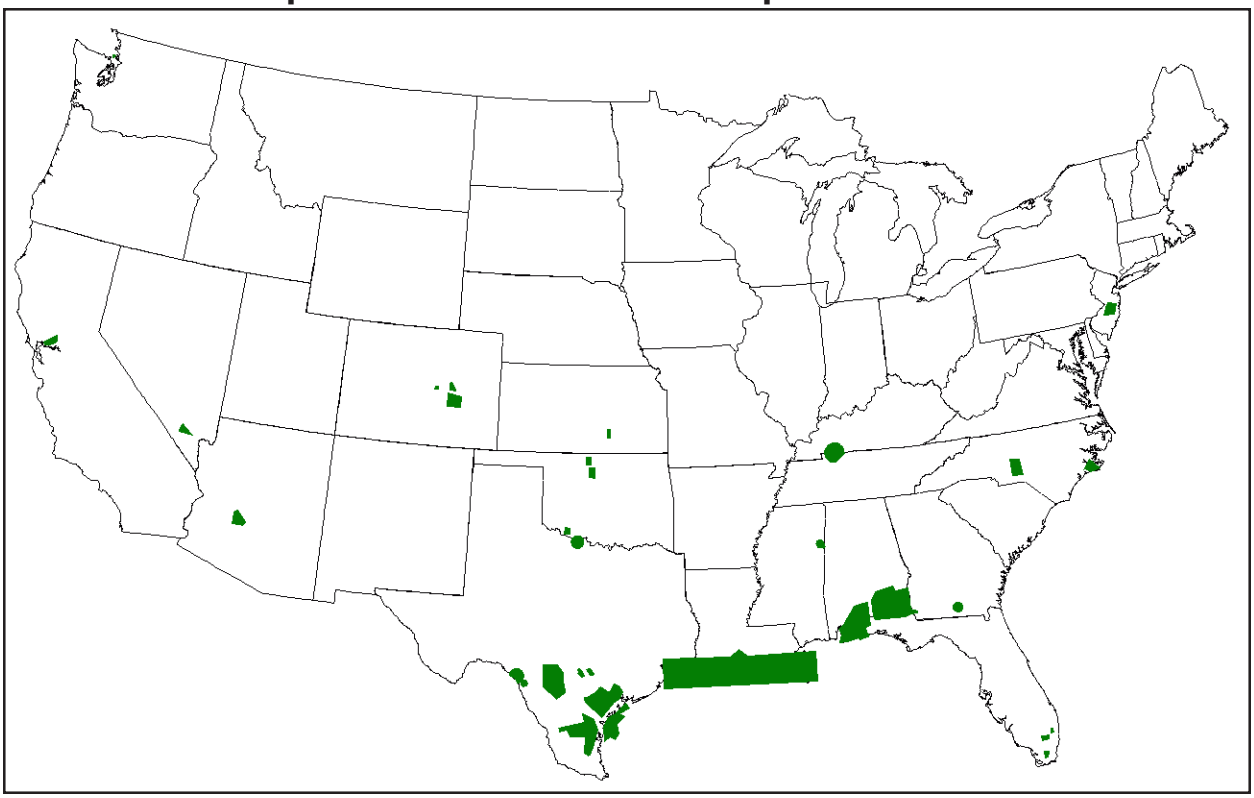
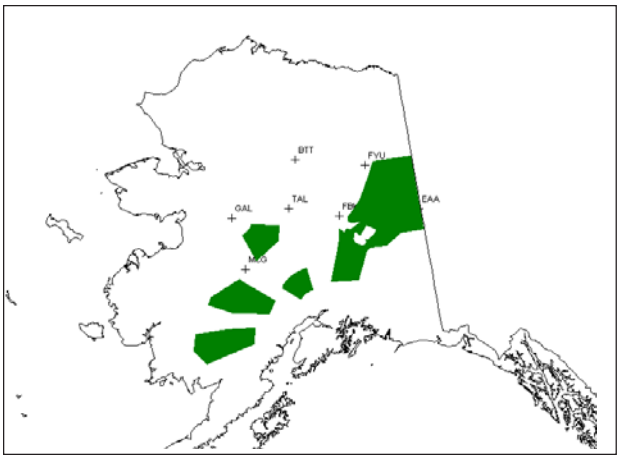


FIGURE 3-24 IAMs/CAHIS Example of Military Operations Areas



Agency personnel should note that MOAs can be "stacked" on top of each other (see Figure 3-21). The status of a MOA can change rapidly and should be checked frequently when agency flight operations are occurring.

MOA's will have a scheduling agency responsible for scheduling all military flights intending to use the airspace. If the scheduling agency does not have a continuous point of contact, then an alternate scheduling agency will be designated. Consult the AP1/A for scheduling MOA information.

It is strongly recommended that communications be established with the controlling agency of any MOA in proximity to agency flight operations, even if the MOA is not active. At a minimum, pilots should contact air traffic control prior to entering an MOA to get the most current status information.

D. Alert Areas (AA)

Alert areas may contain a high volume of pilot training or an unusual type of aerial activity (see Figure 3-25). There are no special requirements for

FIGURE 3-25 Alert Areas

FIGURE 3-26 Example of an Alert Area on a Sectional

operations within alert areas, other than heightened vigilance. All operations must be in compliance with the Federal Aviation Regulations. The types of flying involved could be military, aircraft manufacturers or a high concentration of flights (i.e. helicopter activity near oil rigs).

Alert Areas are depicted by defined areas marked with the letter “A” followed by a number (see Figure 3-26). Alert area dimensions differ for each area and are depicted on sectional charts, IFR enroute charts, or terminal area charts.

E. Warning Areas (WA)

Warning areas contain the same kind of hazardous flight activity as restricted areas but have a different title since they are located offshore over domestic and international waters (see Figure 3-27). Examples of likely hazards include artillery firing, aerial gunnery, guided missile exercises and fighter interceptions.

Warning areas generally begin three miles offshore. Executive Order 10854 extends the application of the Federal Aviation Act of 1958, as

FIGURE 3-27 Warning Areas

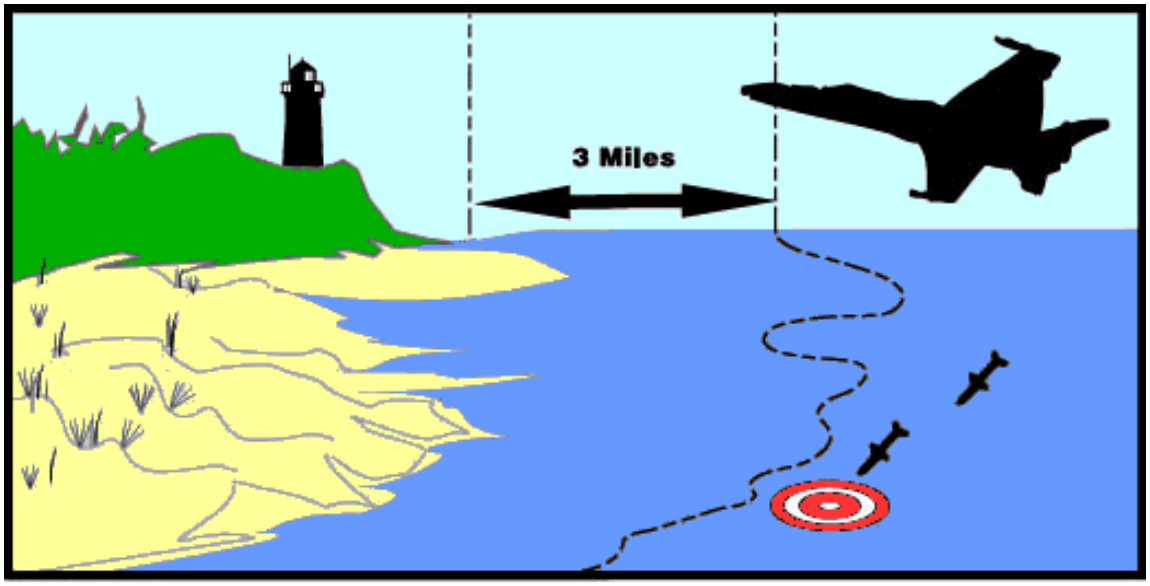
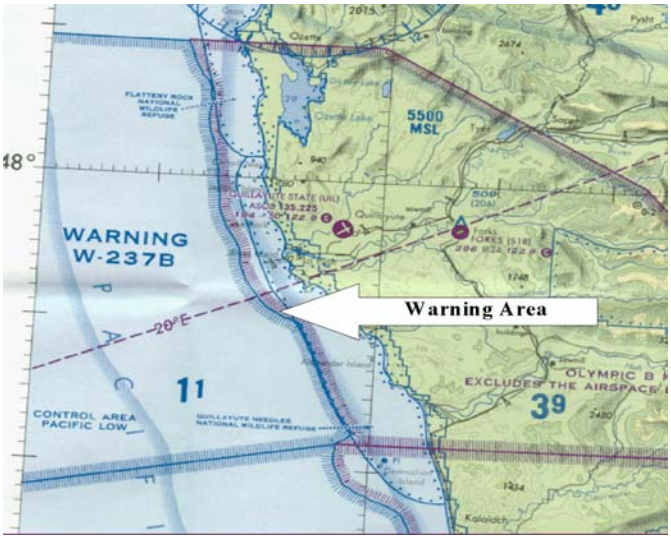


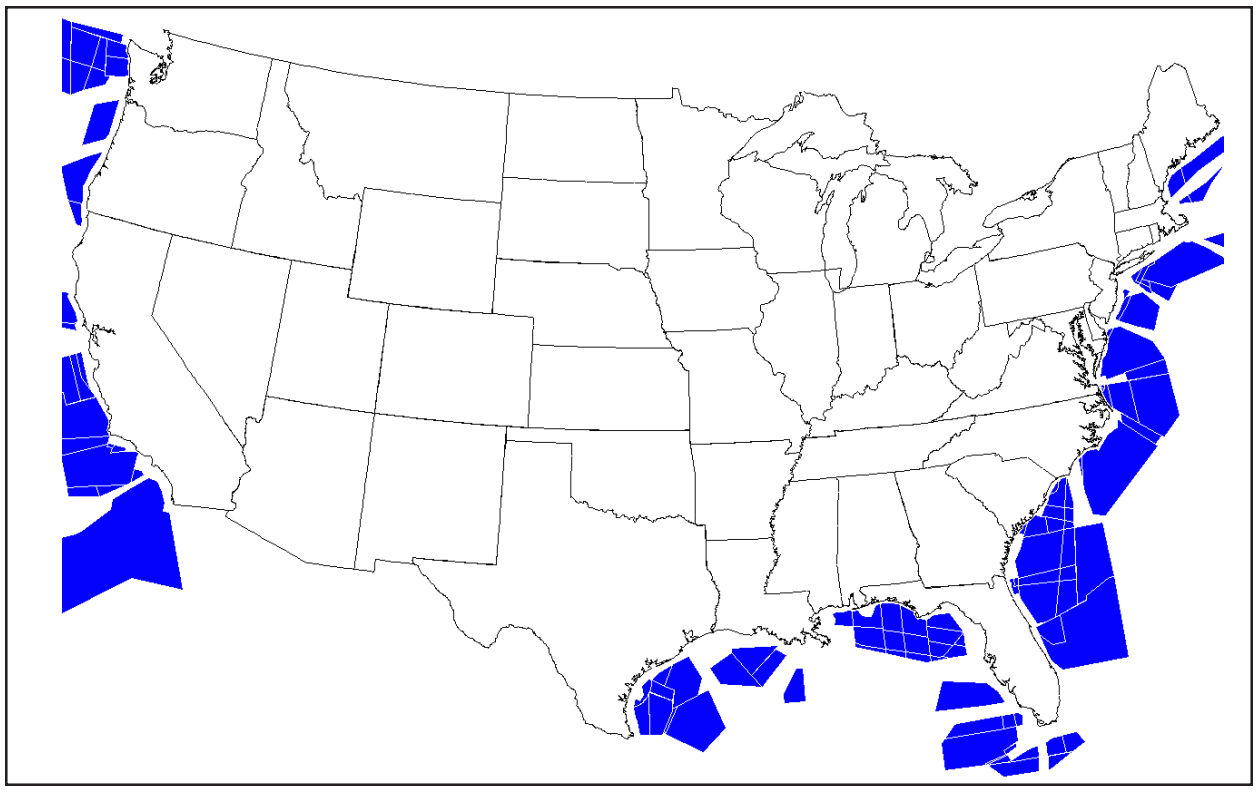
FIGURE 3-28 Warning Area from Sectional



amended, to the overlying airspace of those areas of land or water outside the United States beyond the 12-mile offshore limit. It includes areas that the United States has appropriate jurisdiction or control under international treaty agreement.

Warning areas overlying the territorial waters of the United States are under FAA jurisdiction. However, any airspace action, rulemaking or non-rulemaking that concerns airspace beyond the 12-mile offshore limit requires coordination with the Departments of Defense and the adjacent State. Although VFR operations are permitted in warning areas, the FAA does not guarantee traffic separation and agency personnel should carefully weigh the risks of such operations.

FIGURE 3-29 Example of IAMs/CAHIS Warning Area Map



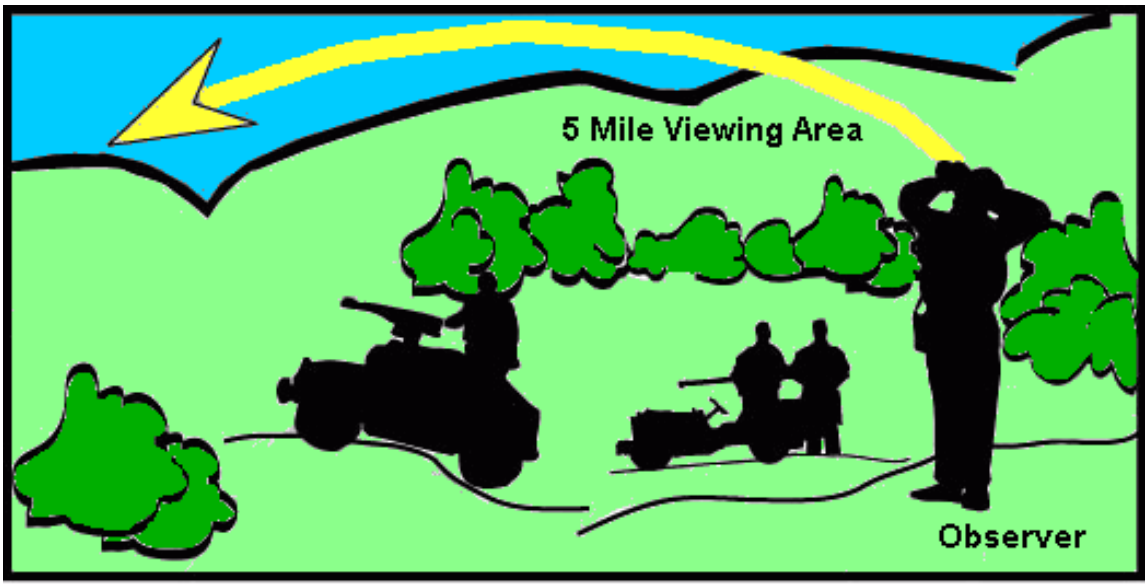
Warning areas are represented on sectionals, IFR enroute charts and some terminal area charts. They are depicted by a “W” with a number following it (see Figure 3-28). Dimensions for each warning area can be determined by consulting the appropriate chart legend.

F. Controlled Firing Areas (CFA)

Controlled firing areas contain civilian and military activities which, if not contained, could be hazardous to “non participating” aircraft (see Figure 3-30). These include rocket testing, ordinance disposal, small arms fire, chemical disposal, blasting, etc. CFAs are differentiated from MOAs and restricted areas in that radar or a ground lookout is utilized to indicate when an aircraft might be approaching the area. All activities are then suspended.

The FAA does not chart CFAs because a CFA does not require a nonparticipating aircraft to change it’s flight path. Agency personnel may find information about CFAs from the nearest regional FAA headquarters.

FIGURE 3-30 Controlled Firing Areas



IX. Military Training Routes (MTR)

Military training routes are designed for low level, high-speed terrain following training missions. These routes are provided for military training at speeds of more than 250 knots and at altitudes that range from ground level (surface) to 18,000 feet, though most operations are conducted well below 10,000 feet MSL.

There are more than 500 routes, roughly divided in half for VFR and IFR operations. They pose flight hazards to any uncoordinated aviation mission within their perimeters.

FIGURE 3-31 Example of IAMS/CAHIS Map of Military Training Routes

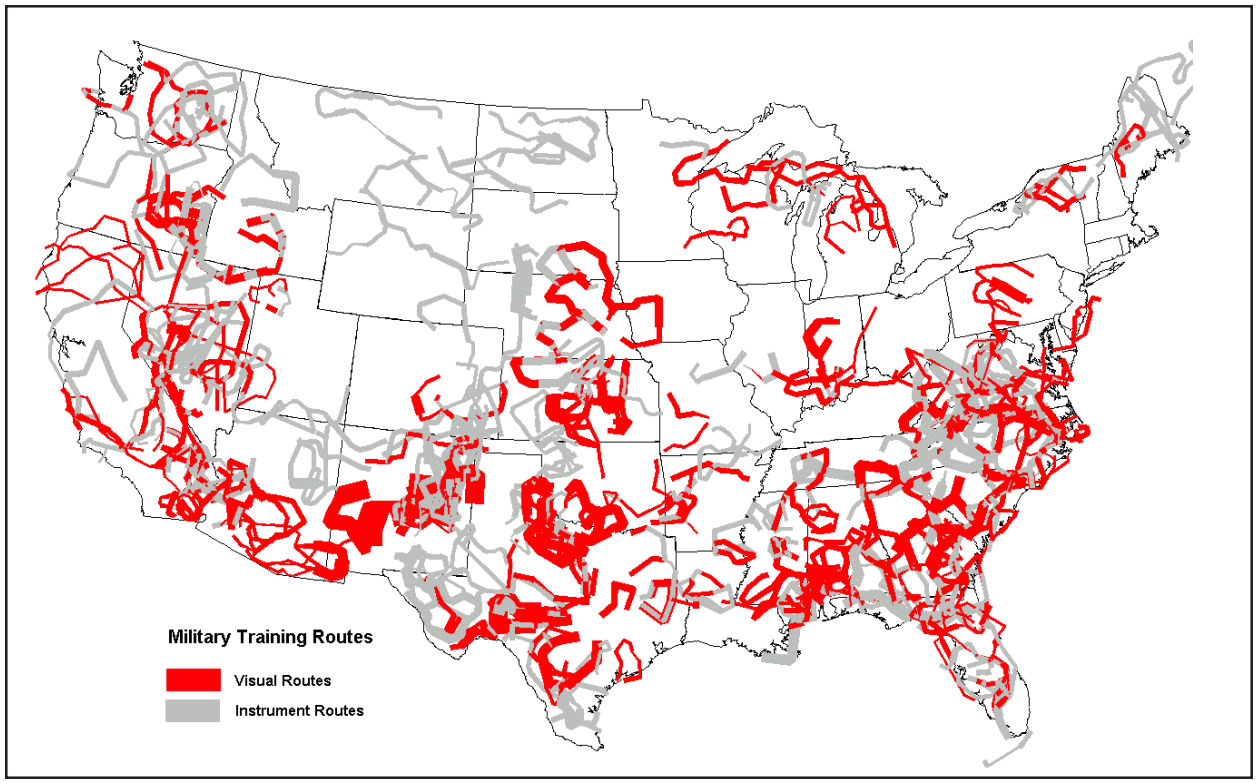
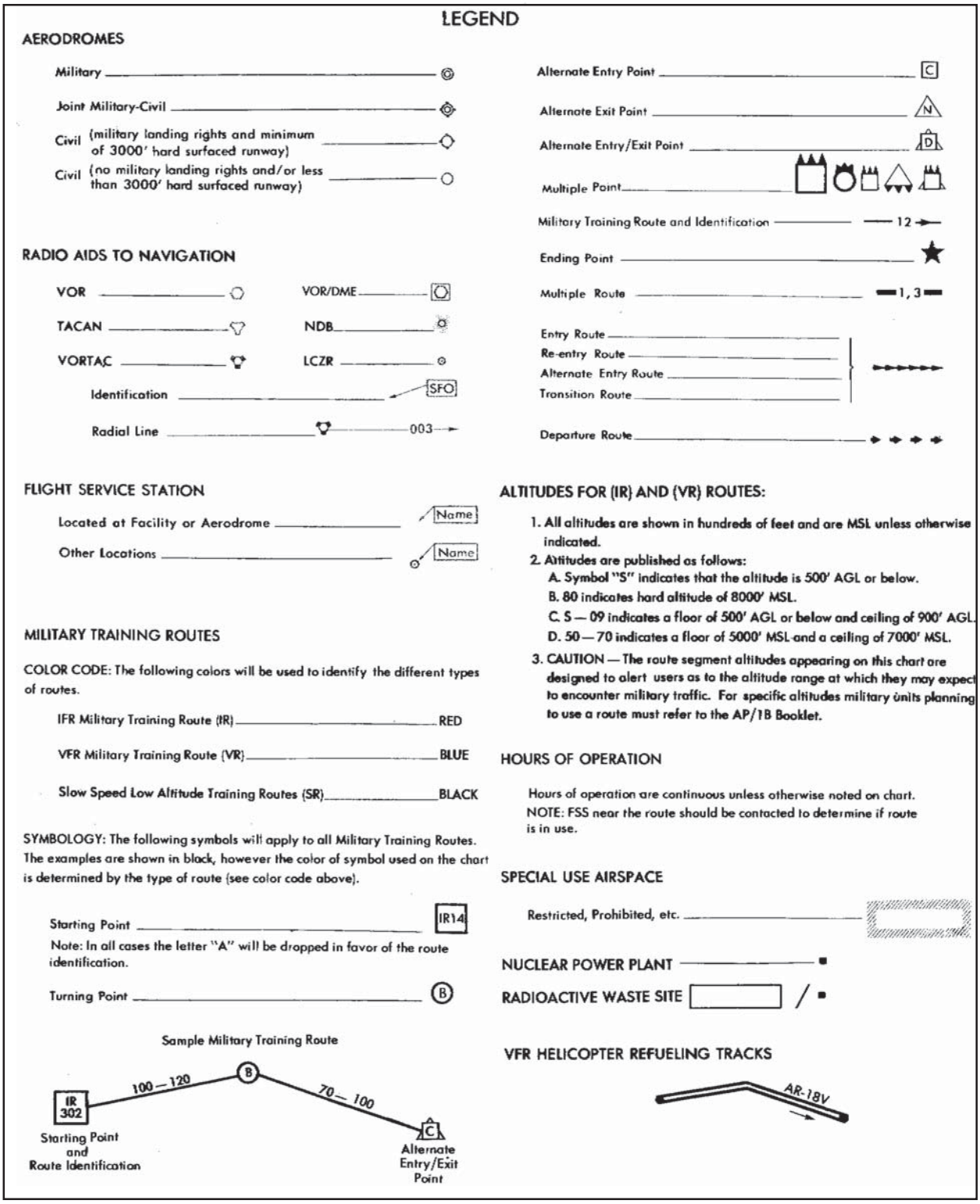


FIGURE 3-32 MTR Number Assignments Chart

Region	MTR Numbers with One or More Segments Above 1,500 Feet AGL	MTR Numbers For All Routes At Or Below 1,500 Feet AGL
Southern	001 thru 099	1001 thru 1099
Southwest	100 thru 199	1100 thru 1199
Western-Pacific	200 thru 299	1200 thru 1299
	980 thru 999	1980 thru 1999
Northwest Mountain	300 thru 499	1300 thru 1499
Central	500 thru 599	1500 thru 1599
Great Lakes	600 thru 699	1600 thru 1699
Eastern	700 thru 799	1700 thru 1799
New England	800 thru 899	1800 thru 1899
Alaska	900 thru 979	1900 thru 1979

FIGURE 3-33 Sample AP1/B Chart Legend



The AP/1B provides a complete description of the MTR's to include the originating/scheduling activity, the hours of operation, the geographical points of each segment, the altitude limitations for each segment, the route width, special operating procedures, and the Flight Service Stations within 100 NM that have current information.

FIGURE 3-34 Sample Elements of a MTR

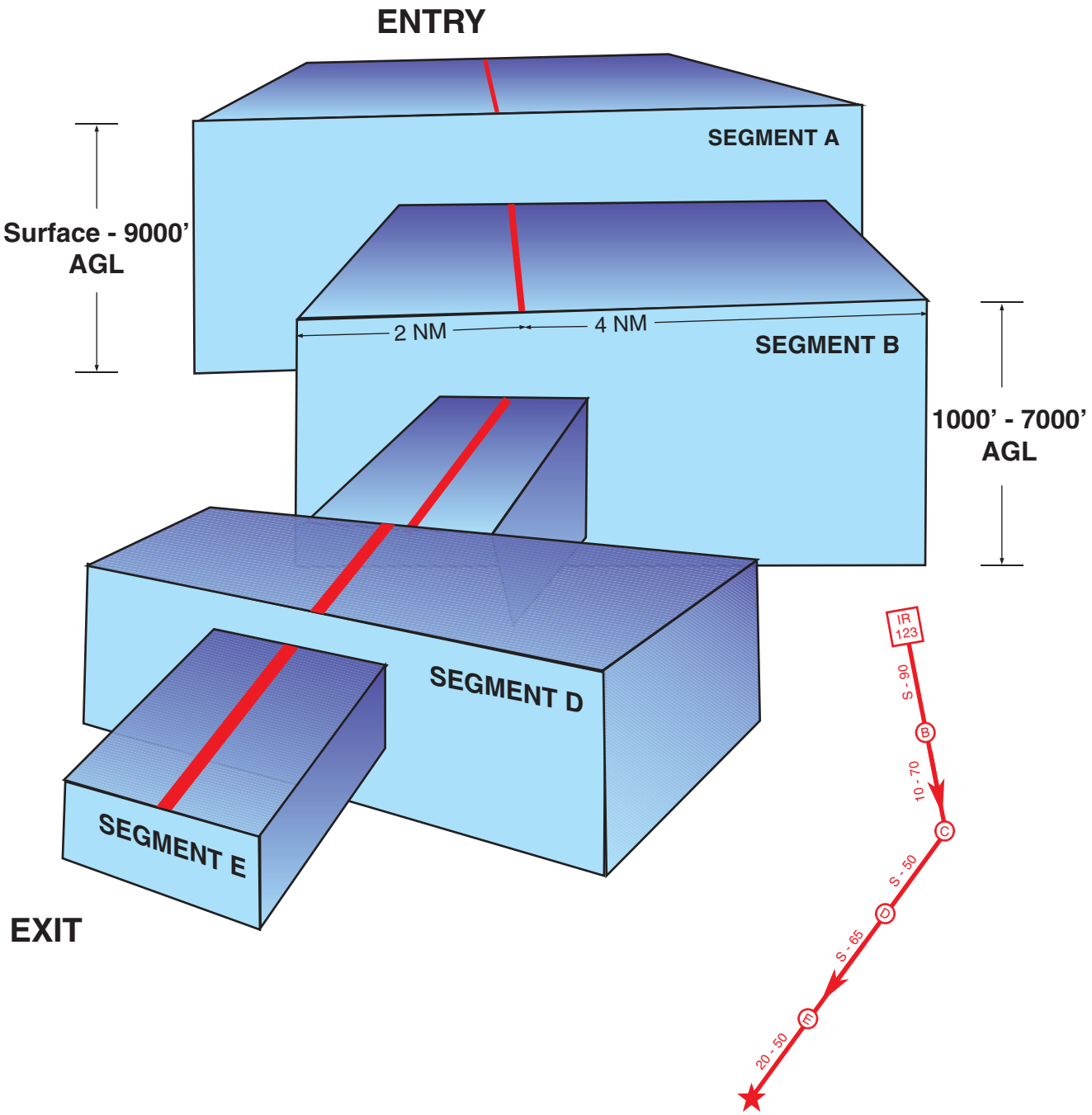
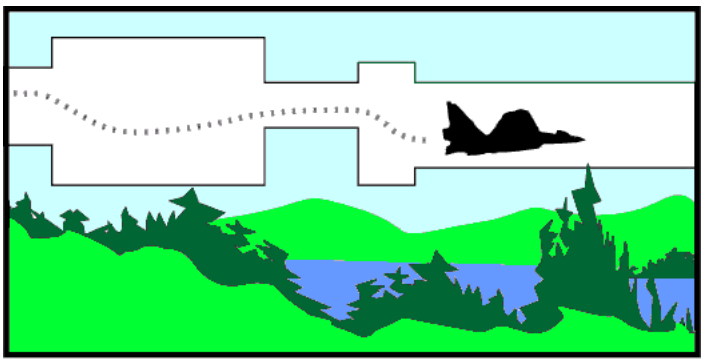


FIGURE 3-35 Side view of MTR flight corridor



Consult the legend (Figure 3-33) in the AP/1B Chart for an explanation of other symbols. Additional symbols will indicate entry/exit points for military aircraft, turning points, departure routes, etc.

In addition to charted route altitudes, additional restrictions or changes in width may be imposed to avoid sensitive areas or other conditions of use. These restrictions are published in the AP/1B under the standard operating procedures (SOPs) for each route.

A. Basic Information About Military Training Routes

- MTR's are depicted on sectionals as a solid gray line and a letter/number identifier.
- Course widths may vary between three NM to 20 NM either side of the gray reference line as depicted on the sectional.
- IR indicates the route is flown under IFR, regardless of weather conditions.
- VR indicates the route is flown under VFR requiring minimum visual meteorological conditions.
- IR or VR routes that include one or more segments above 1,500' AGL are identified by three numbers (i.e. VR 206)
- IR or VR routes with no segment above 1,500' are identified by four numbers (i.e. VR1305)
- Routes are flown one way, however the same route flown in the opposite direction will have a separate distinct number.

B. Corridor Height (Route Floor and Ceiling)

Each route segment of an MTR is allocated a floor and ceiling altitude (see Figure 3-35). The floor may be at the earth's surface or at any altitude above the surface. Route segment altitudes are published in the AP/1B

and are depicted on the AP/1B chart. Figure 3-37 shows IR-346 as displayed on the AP/1B chart that accompanies the AP/1B Handbook.

FIGURE 3-36 Sample Cover of AP/1B

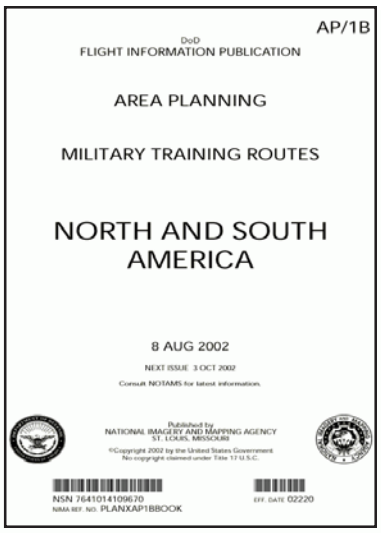


FIGURE 3-37 IR-346 on an AP/1B

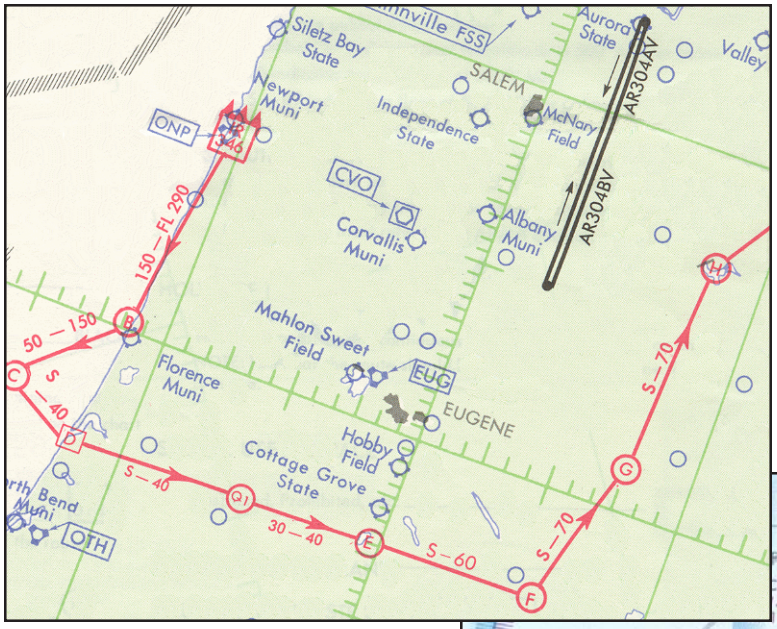
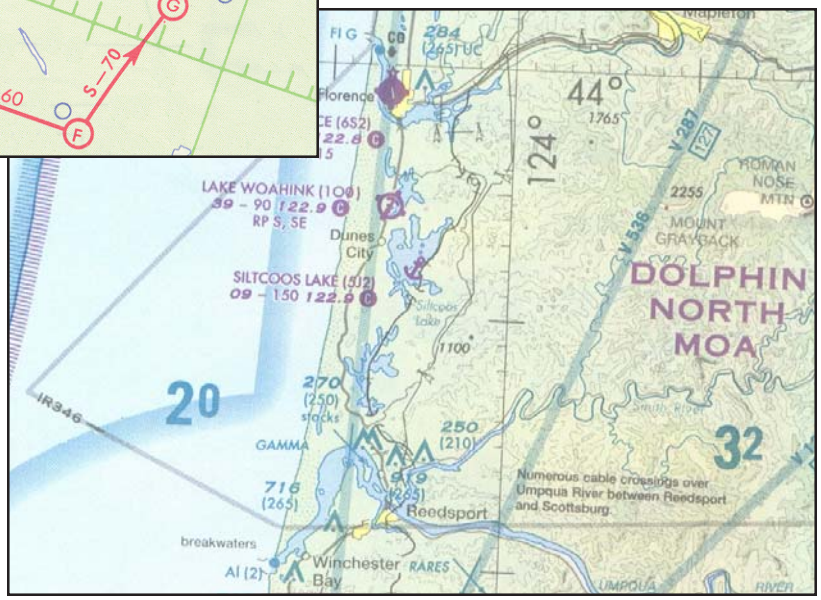


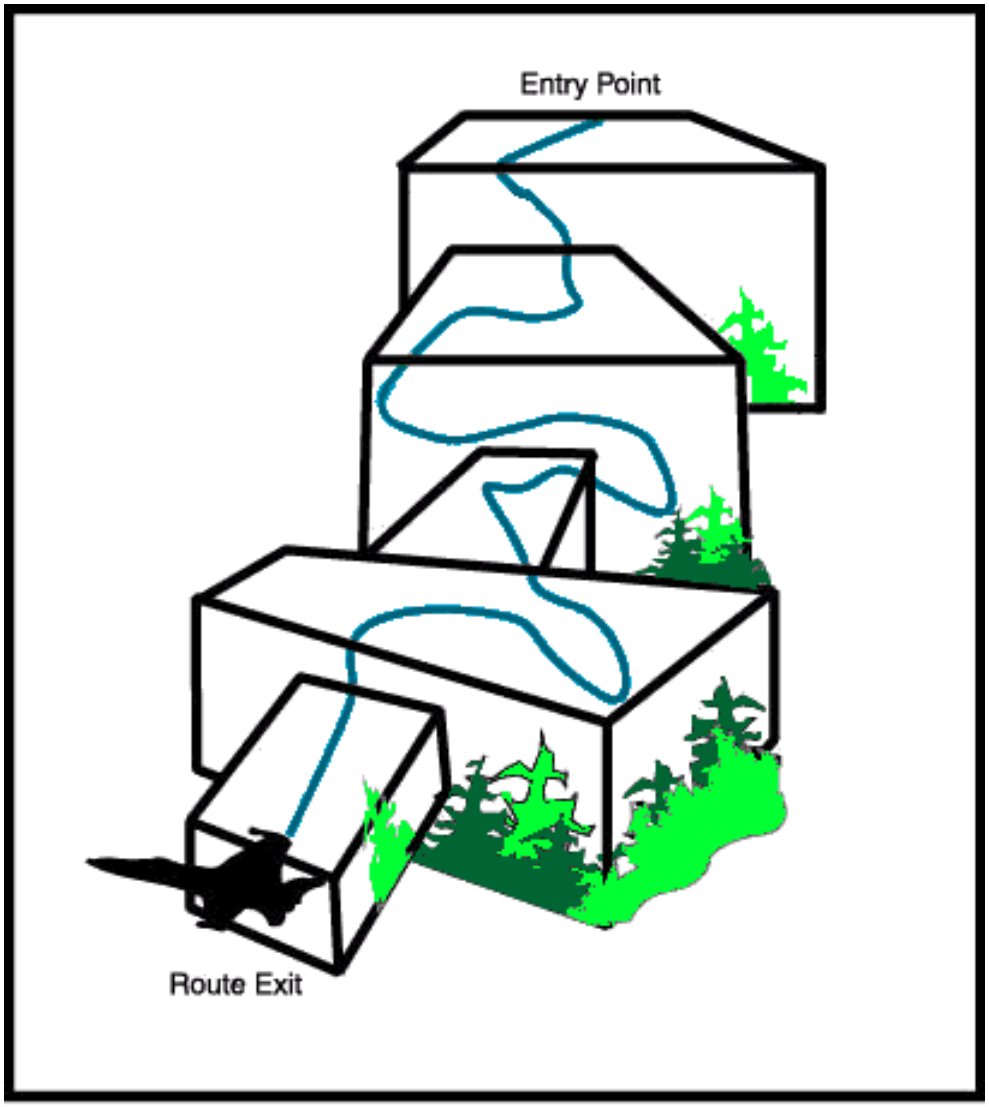
FIGURE 3-38 IR-346 on a Sectional



In reading the AP/1B depiction:

- All altitudes are shown in hundreds of feet.
- The symbol “S” indicates that the altitude is 500' AGL or below and is commonly referred to as “surface.”
- A number, such as “80” indicates hard altitude of 8,000' MSL.
- “S-40” indicates a lower and upper surface separated by a hyphen. For example S-40 indicates a floor of 500' AGL or below (e.g. surface) and a ceiling of 4,000' MSL.
- The numbers “30-40” indicates a floor of 3,000' AGL and a ceiling of 4,000' MSL.
- For MTR descriptions, the floor is generally described in AGL and the ceiling in MSL.

FIGURE 3-39 Illustration of MTR Corridor Widths

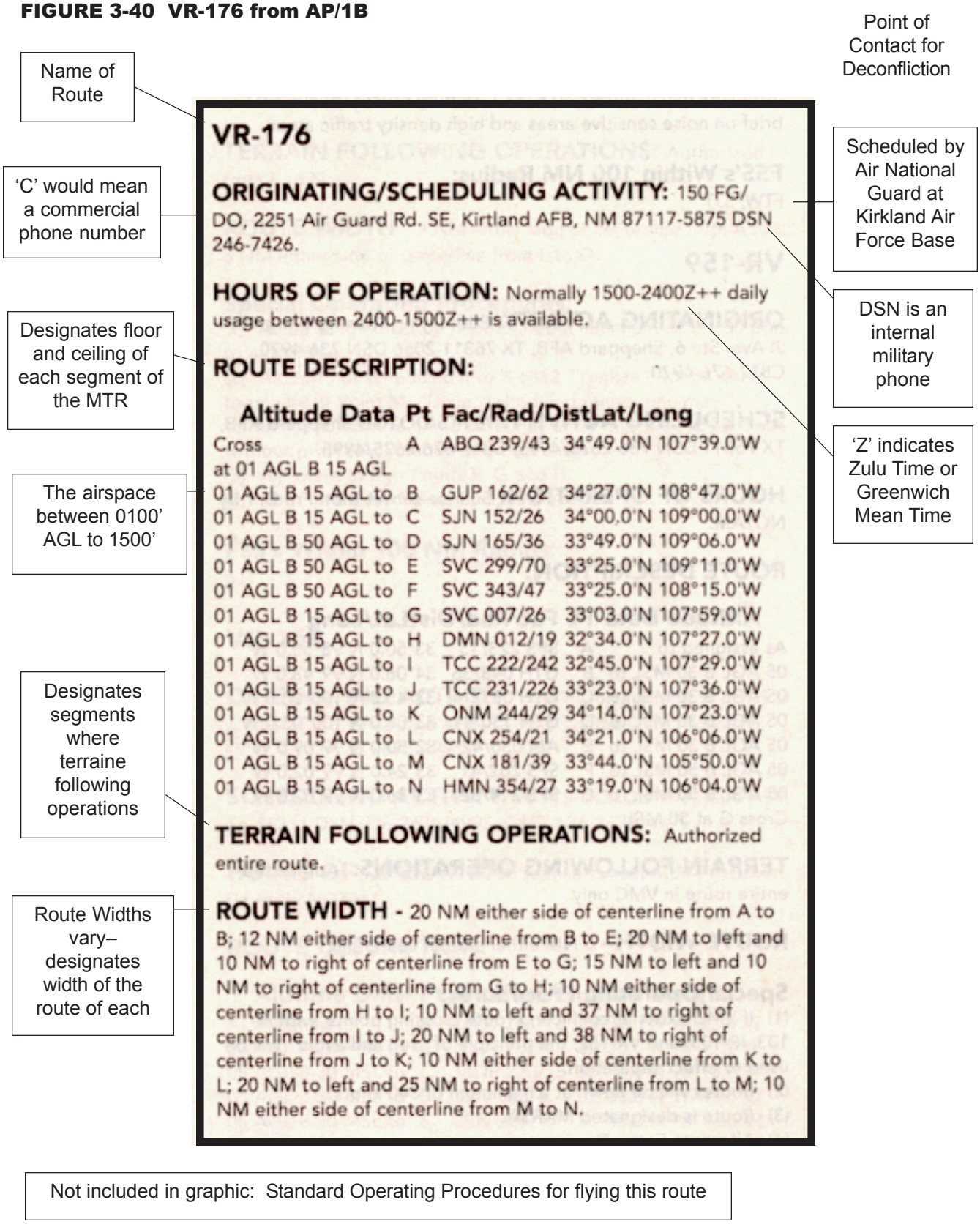


C. Corridor Widths

Lateral boundaries are described by nautical miles (NM) left and right of the route centerline. The “centerline” is the focal point that determines the geographical location of an MTR corridor. It is a reference line that is not always centered. The depiction in Figures 3-34 and 3-35 depicts how an MTR can vary along its routing. Corridor widths and heights may vary significantly. Route widths are published in the AP/1B.

Figure 3-40 displays the AB/1B text description of the route width for VR-176. This particular MTR can be at times 47 miles wide. Note the variation in route width as described.

FIGURE 3-40 VR-176 from AP/1B



Name of Route

'C' would mean a commercial phone number

Designates floor and ceiling of each segment of the MTR

The airspace between 0100' AGL to 1500'

Designates segments where terraine following operations

Route Widths vary– designates width of the route of each

Point of Contact for Deconfliction

Scheduled by Air National Guard at Kirkland Air Force Base

DSN is an internal military phone

'Z' indicates Zulu Time or Greenwich Mean Time

VR-176

ORIGINATING/SCHEDULING ACTIVITY: 150 FG/ DO, 2251 Air Guard Rd. SE, Kirtland AFB, NM 87117-5875 DSN 246-7426.

HOURS OF OPERATION: Normally 1500-2400Z++ daily usage between 2400-1500Z++ is available.

ROUTE DESCRIPTION:

Altitude Data	Pt	Fac/Rad/DistLat/Long
Cross at 01 AGL B 15 AGL	A	ABQ 239/43 34°49.0'N 107°39.0'W
01 AGL B 15 AGL to	B	GUP 162/62 34°27.0'N 108°47.0'W
01 AGL B 15 AGL to	C	SJN 152/26 34°00.0'N 109°00.0'W
01 AGL B 50 AGL to	D	SJN 165/36 33°49.0'N 109°06.0'W
01 AGL B 50 AGL to	E	SVC 299/70 33°25.0'N 109°11.0'W
01 AGL B 50 AGL to	F	SVC 343/47 33°25.0'N 108°15.0'W
01 AGL B 15 AGL to	G	SVC 007/26 33°03.0'N 107°59.0'W
01 AGL B 15 AGL to	H	DMN 012/19 32°34.0'N 107°27.0'W
01 AGL B 15 AGL to	I	TCC 222/242 32°45.0'N 107°29.0'W
01 AGL B 15 AGL to	J	TCC 231/226 33°23.0'N 107°36.0'W
01 AGL B 15 AGL to	K	ONM 244/29 34°14.0'N 107°23.0'W
01 AGL B 15 AGL to	L	CNX 254/21 34°21.0'N 106°06.0'W
01 AGL B 15 AGL to	M	CNX 181/39 33°44.0'N 105°50.0'W
01 AGL B 15 AGL to	N	HMN 354/27 33°19.0'N 106°04.0'W

TERRAIN FOLLOWING OPERATIONS: Authorized entire route.

ROUTE WIDTH - 20 NM either side of centerline from A to B; 12 NM either side of centerline from B to E; 20 NM to left and 10 NM to right of centerline from E to G; 15 NM to left and 10 NM to right of centerline from G to H; 10 NM either side of centerline from H to I; 10 NM to left and 37 NM to right of centerline from I to J; 20 NM to left and 38 NM to right of centerline from J to K; 10 NM either side of centerline from K to L; 20 NM to left and 25 NM to right of centerline from L to M; 10 NM either side of centerline from M to N.

Not included in graphic: Standard Operating Procedures for flying this route

D. Maneuver Areas/LOWAT

An MTR may have a designated segment where DoD aircraft may perform various maneuvers dictated by operational requirements. Aircraft may freely maneuver within the lateral and vertical confines of the MTR segment before resuming flight on the remainder of the route.

There are also designated areas within an MTR that indicate alternate exits and entrances. This accommodates a training mission that might require use of an MOA or an airport.

Low Altitude Air to Air Training (LOWAT) refers to maneuvers within MTR's for the purpose of simulating an aerial attack and defense response. These areas are designated in AP/1B.

E. MTR Coordination

Flight planning should take into account the existence of these routes and the in-flight risks they pose.

If a mission is in the vicinity of an MTR, look at the DoD AP/1B to decide if the route segment altitude will affect the flight plan. **Dispatch organizations should have copies of AP/1B's and accompanying charts.**

Pilots may contact the nearest FSS with position, route of flight and destination. The FSS specialist should have information available to include times of scheduled activity, altitudes in use on each route segment and route width.

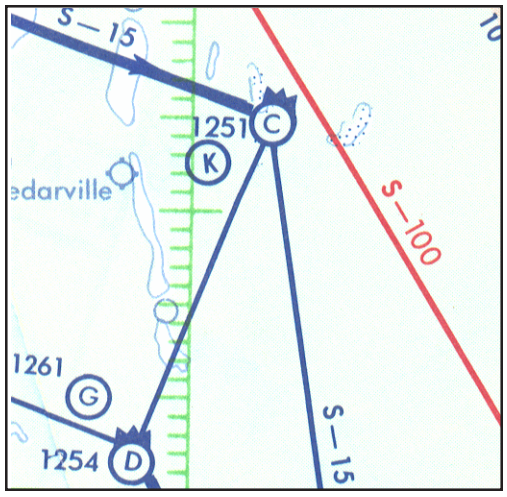
Often the FAA will only have the schedule as received from the military the night before. The FAA can provide a schedule but these schedules have been known to change. Military pilots check in prior to entry on IR-MTR's. However, they are not required to check in with ATC prior to entry of VR-MTR's.

Dispatch should be prepared to call the Scheduling Activity for the MTR during initial attack or when instituting a TFR near SUA or MTRs to advise the military of agency aviation activity. When a non-emergency flight is being planned, dispatch can call the military ahead of time to alert them of activity.

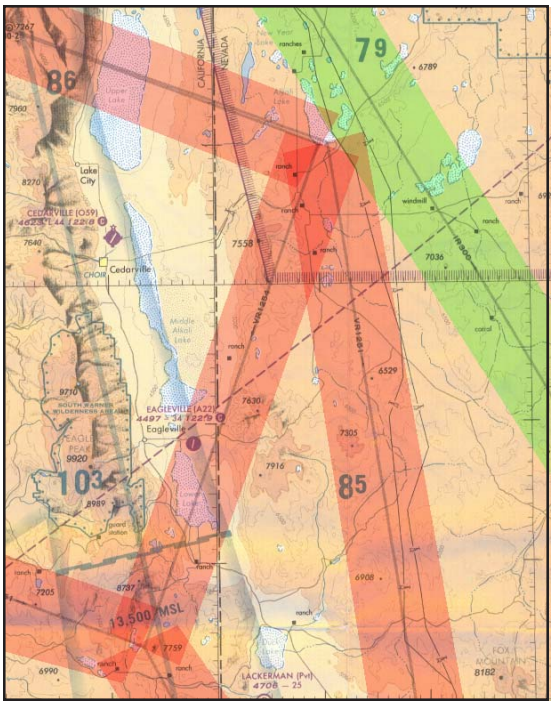
All MTRs must be scheduled through the assigned scheduling activity prior to use. There have been cases of MTR being flown without being scheduled. This is a violation of Federal Aviation Regulations (assuming excessive speed is used). All pilots are reminded that “see and avoid” still applies when flying inside an MTR.

FIGURE 3-41 Various Depictions of an MTR (not for navigational purposes)

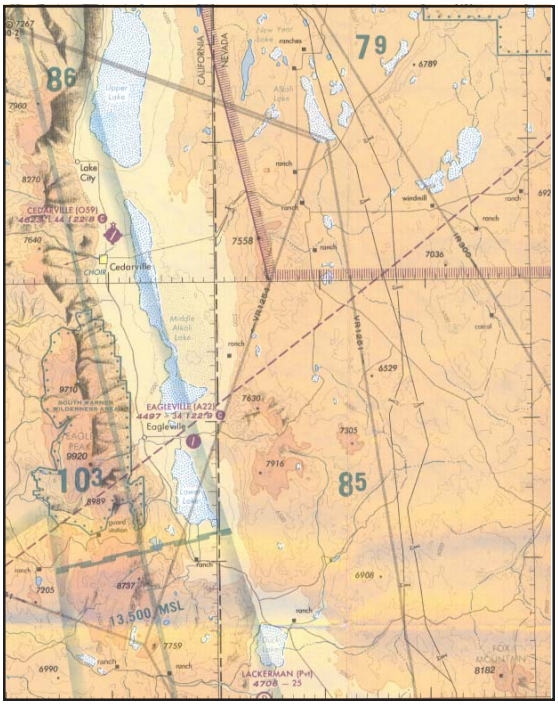
MTR on an AP1/B



Actual MTR Boundaries



MTR on a Sectional



MTR on IAMS

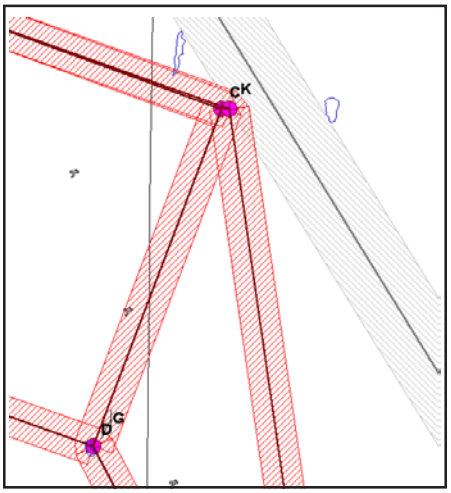
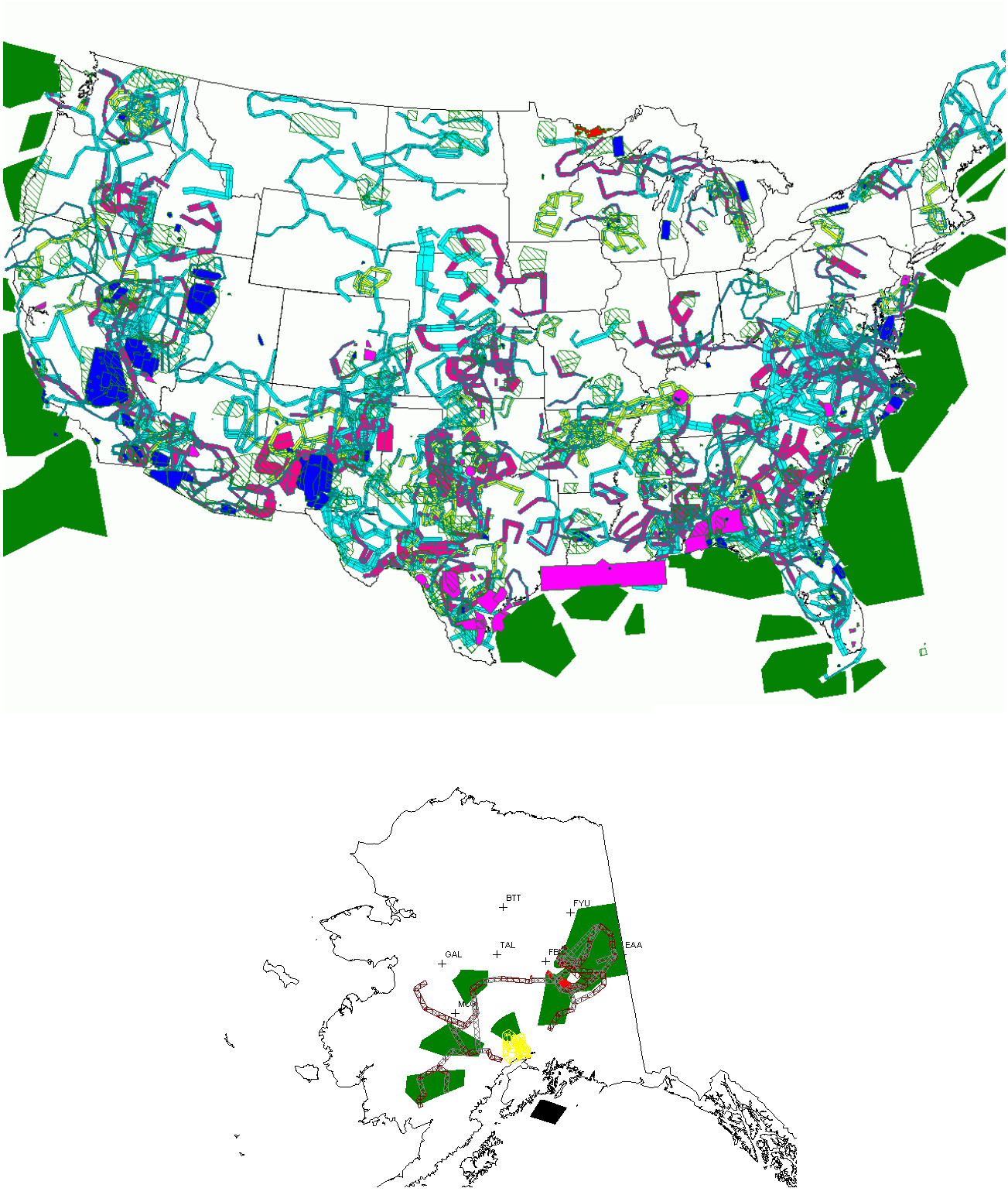


FIGURE 3-42 IAMs/CAHIS Map of SUAs, MTRs and SRs



X. Other Military Airspace Structures

Due to the unique nature of military training operations, training and testing requirements, other airspace for special military use has been developed outside the Special Use Airspace (SUA) program. These are:

- Slow Routes
- Low Altitude Tactical Navigation Areas (LATN)
- Local Flying Areas
- Air Refueling Routes
- Temporary Special Use Airspace (TSUA)
- National Security Areas (NSA)
- Cruise Missile Routes

A. Slow Routes (SR)

Slow speed low altitude training routes are used for military air operations flown from the surface up to 1500' AGL at air speeds of 250 KIA or less. SR-359 is shown in Figure 3-43. Route widths are published in individual route descriptions in the AP/1B and may vary. Slow routes technically are not considered MTRs. High speed aircraft are not allowed to use slow routes. Generally, the routes are utilized by the Air Force. Many of the routes are flown by cargo aircraft, such as C-141s, that use drop zones for military training purposes. There are about 200 Slow Routes in the United States. They are represented on the AP/1B charts and are depicted by a black line. **They are not charted on sectionals.**

FIGURE 3-43 SR-359 from AP/1B

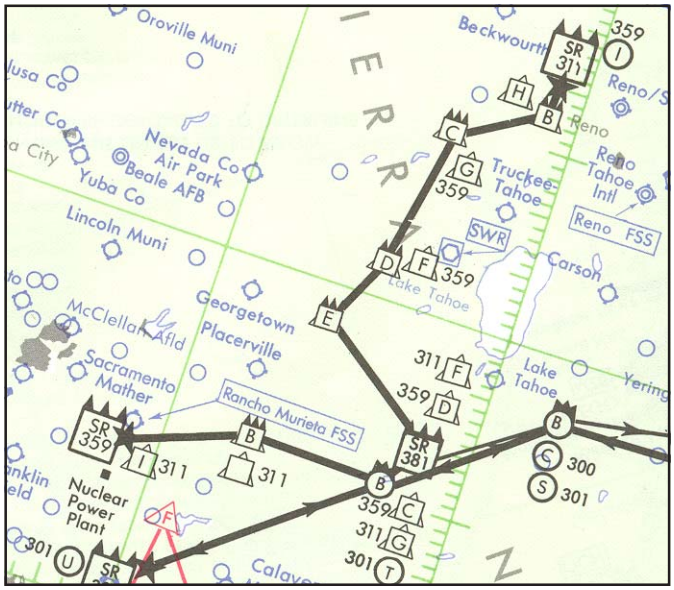


FIGURE 3-44 IAMs/CAHIS Map of MTRs and SRs

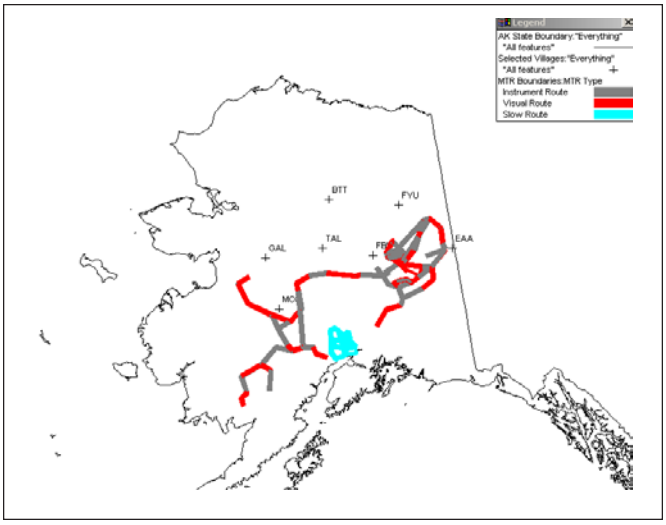


FIGURE 3-45 Slow Route

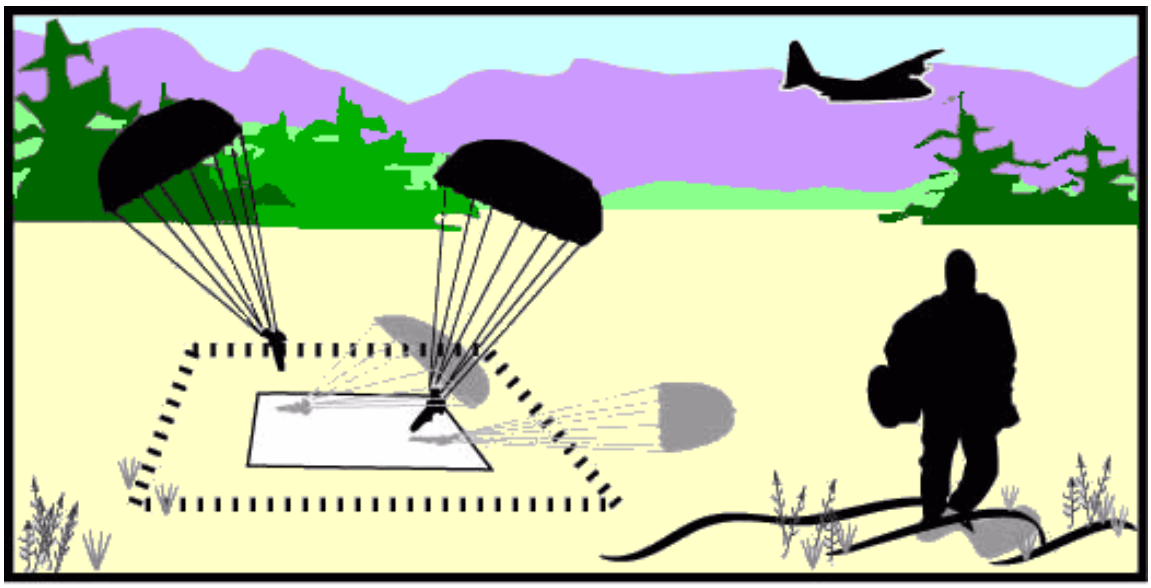
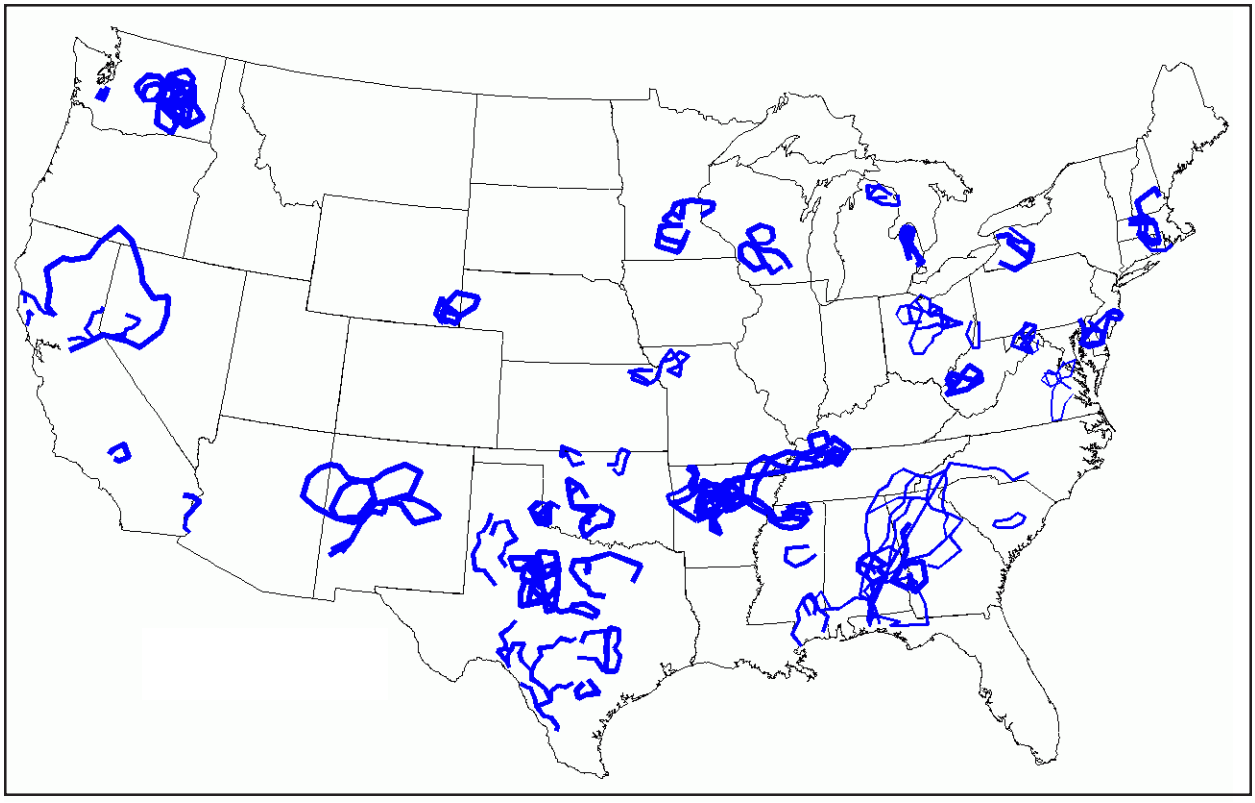


FIGURE 3-46 IAMS/CAHIS Map of Slow Routes

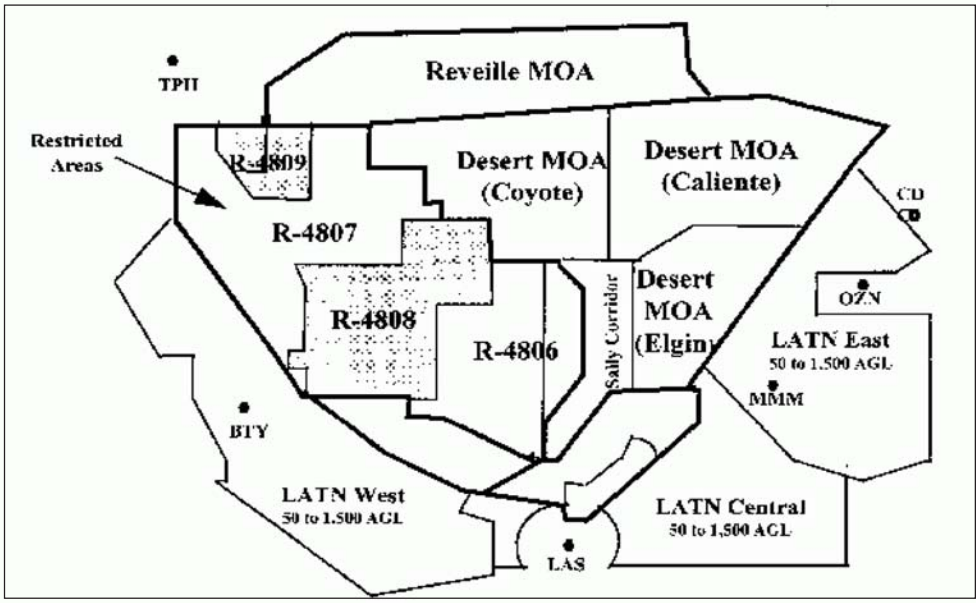


B. Low Altitude Tactical Navigation Areas (LATN)

LATNs are large, clearly defined geographical areas wherein the Air Force practices random tactical navigation that typically ranges from surface to 1,500 feet AGL. These areas are not charted. Current information concerning LATNs is available from local Air Force facilities. These areas are flown at or below 250 KIAS, when multiple aircraft are not flying the same ground track. MOA acrobatic type activity is not appropriate for a LATN area.

Due to the relatively non-hazardous nature of military activity in LATNs and the slow-speed requirement, agency operations should be conducted within standard "see and avoid" parameters.

FIGURE 3-47 Example of LATNs

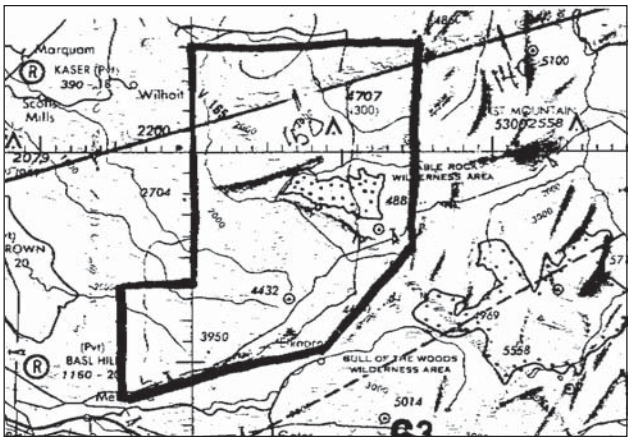


C. Local Flying Areas

Most military facilities develop local flying areas within which they can conduct routine, non-hazardous training activity. These areas are normally developed in conjunction with local FAA controllers and airspace managers and are developed so they will not conflict with other airspace usage.

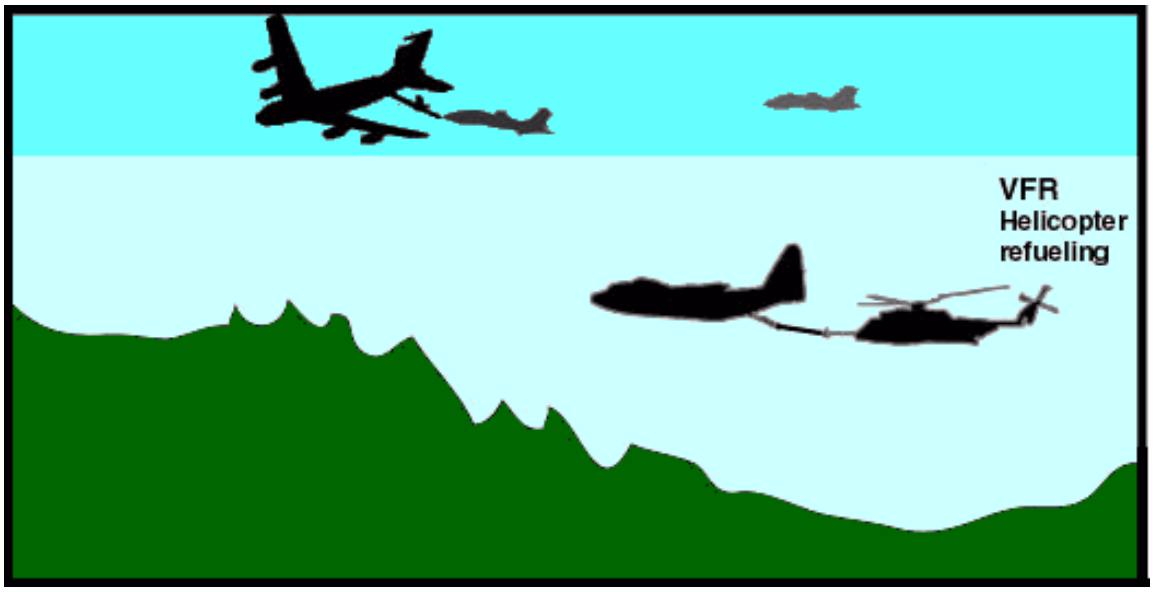
They are locally published and although dissemination of these areas is generally limited to assigned units, the airbase airspace managers will make them available to interested parties. These areas are not depicted on standard published charts or publications.

FIGURE 3-48 Local Flying Area Depiction



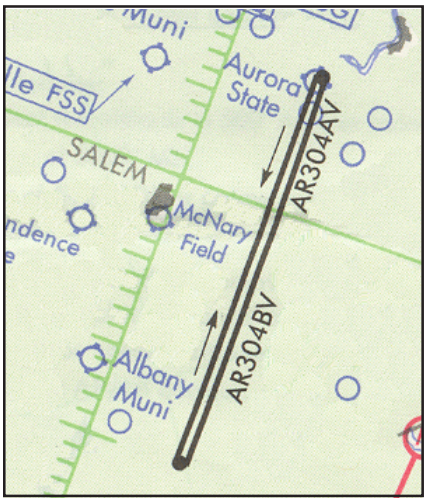
Local Flying Areas may be located by contacting the involved military unit and acquiring their maps. Often only the local people know that an area is frequented by military aircraft. It is wise to check agency aviation hazard maps and ask if the area is frequented by military aircraft, especially if there are no charted SUAs or MTRs in the area.

FIGURE 3-49 Two Types of Aerial Refueling Routes: High Level and VFR Helicopter Refueling Routes



D. Aerial Refueling Routes

FIGURE 3-50 VFR Helicopter Refueling Track from AP/1B



There are over 100 Aerial Refueling Routes utilized by the military over the United States. The majority of them are located at high altitudes that pose no hazard to agency operations. However, there are VFR helicopter refueling tracks at low altitudes that do affect operations at lower altitudes (see Figure 3-49). The information about the VFR refueling tracks is located in Chapter 4 of the AP/1B and are represented on the AP/1B chart by double black lines.

There are four types of Aerial Refueling Tracks:

- Track 2 - 400 miles long
- Anchor 20-50 miles long, holding pattern associated with a MOA or RA.
- Special Anytime, anywhere (e.g. emergency, military exercises)
- LAAR Low Altitude Air Refueling Route (below 3000' AGL)

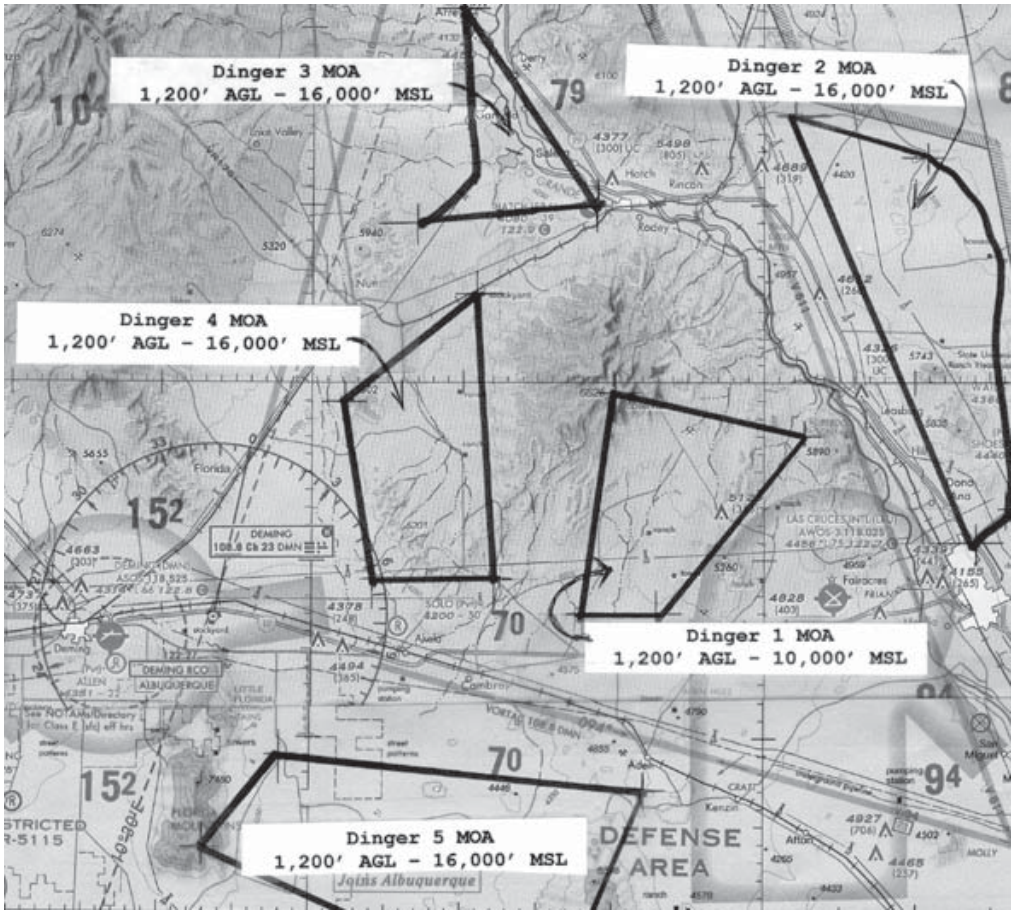
Some VFR refueling routes are designed to be flown at or below 1,500 feet AGL. They are designed to permit aircraft flying the route to avoid

FIGURE 3-51 Helicopter Refueling Route from AP/1B

NUMBER	ARIP	ARCP	NAVIGATION CHECK POINTS	EXIT	CR PLAN	REFUELING ALTITUDES	SCHEDULING UNIT	ASSIGNED ARTCC
AR304AV	BTG VORTAC 170/30 N45°15.00' W122°44.00'	BTG VORTAC 169/36 N45°09.00' W122°44.00'		BTG VORTAC 164/75 N44°30.00' W122°44.00'	a. N/R b. N/R c. N/R d. N/R e. N/R a. Prim Freq 125.8; b. Backup Freq 291.7	03100/05000	939 RQW Portland IAP, OR DSN 638-4722 (C503-335-4722)	Seattle
REMARKS: Tanker aircraft pilots scheduled to operate within VFR Helicopter Refueling Tracks/Anchors shall advise the FSS nearest the entry point, 5 minutes prior to entering and the FSS nearest the exit point, upon exiting. Flight direction North to South. Limited to Air Force Reserve use only. Protected airspace is 4 NM either side of centerline. Track length is 45 NM. Restricted to H-60 and C-130 refueling operations. Air refueling may include multiple tankers and/or receivers. Continuous times of operations. Contact Seattle ARTCC for radar advisories and flight following. Participants will communicate with ATC during refueling operations.							
AR304BV	BTG VORTAC 164/75 N44°30.00' W122°44.00'	BTG VORTAC 164/69 N44°36.00' W122°44.00'		BTG VORTAC 170/30 N45°15.00' W122°44.00'	a. N/R b. N/R c. N/R d. N/R e. N/R a. Prim Freq 125.8; b. Backup Freq 291.7	03100/05000	939 RQW Portland IAP, OR DSN 638-4722 (C503-335-4722)	Seattle
REMARKS: Tanker aircraft pilots scheduled to operate within VFR Helicopter Refueling Tracks/Anchors shall advise the FSS nearest the entry point, 5 minutes prior to entering and the FSS nearest the exit point, upon exiting. Flight direction South to North. Limited to Air Force Reserve use only. Protected airspace is 4 NM either side of centerline. Track length is 45 NM. Restricted to H-60 and C-130 refueling operations. Air refueling may include multiple tankers and/or receivers. Continuous times of operations. Contact Seattle ARTCC for radar advisories and flight following. Participants will communicate with ATC during refueling operations.							

(This chart is for illustration only. Consult current sectional for navigational information.)

FIGURE 3-52 Example of a Temporary MOA Notice (Dinger 1-5 Jan 8-Feb 21, 2003)



charted, uncontrolled airports by three NM or 1,500 feet. The track is normally 50-100 NM long and normally four NM in width either side of a centerline unless otherwise specified.

Aerial refueling may be conducted within SUA assigned altitude. This includes both low altitude (Helicopter and fixed wing) refueling as well as higher altitude tracks. Figures 3-50 and 3-51 depict AP/1B chart references to aerial refueling routes.

E. Temporary Special Use Airspace

The military and the FAA have the ability to create Temporary Military Operations Areas or Temporary Restricted Areas to accommodate the specific needs of a particular military exercise (see Figure 3-52). This information is available via either the NOTAM system or by direct contact with the FAA Regional Headquarters.

Temporary military operating areas are published in the “NOTICES TO AIRMEN” publication. This publication may be purchased on a subscription basis from the Government Printing Office (GPO) in Washington, D.C. (or found at *http://www.faa.gov/ntap*).

F. Cruise Missile Routes

FIGURE 3-53 Cruise Missile Routes

Cruise missile operations are conducted on selected IR Military Training Routes. They may be flown in excess of 250 knots and below 10,000 MSL. Cruise missiles may be accompanied by two chase aircraft escort. The chase aircraft must always maintain the ability to maneuver the missile out of the flight path of conflicting traffic. A high altitude communications aircraft may be used in conjunction with the cruise missile and maintains communication and radar contact with the appropriate ATC facility.

Cruise missile operations are conducted in daylight hours under VFR conditions, with flight visibility of at least five miles, 2,000 feet horizontal and 1,000 feet vertical separation from clouds. Special charting on a sectional designates unmanned aerospace vehicle routes (UAVRS). Two well-known routes are in southern California and Florida. Figure 3-53 depicts a cruise missile corridor.

G. National Security Areas (NSA)

National Security Areas are areas where there is a requirement for increased security (see Figure 3-54). Pilots are requested to voluntarily avoid flying through the depicted NSA. When it is necessary to provide a greater level of security and safety, flights in NSAs may be temporarily prohibited under the provisions of the Federal Aviation Regulation Part 99.7.

NSAs are depicted on aeronautical charts with a broken magenta line. Aircraft are requested to remain clear of these areas. Check NOTAMs for regulatory restrictions.

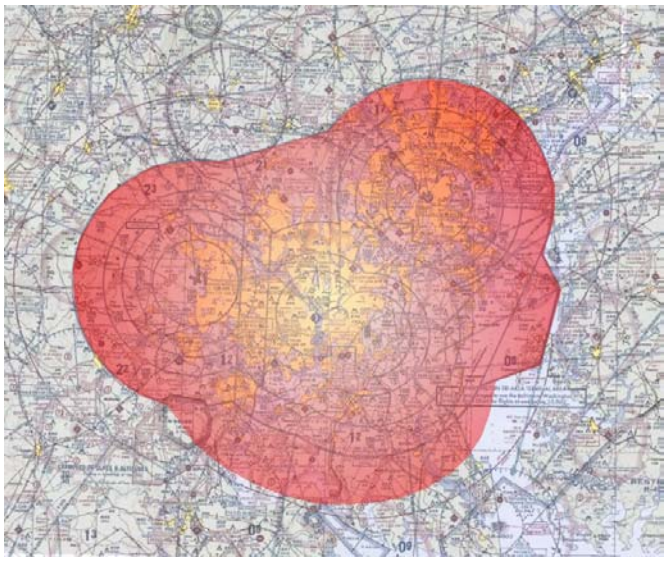
Since the tragedies of September 11, 2001, special security measures have been implemented within the United States. Pilots are advised to avoid the airspace above, or in proximity to, sites such as nuclear power plants, power plants, dams, refineries, industrial complexes, military facilities and other similar facilities. Pilots should not circle as to loiter in the vicinity of such facilities. As always, pilots should check with the FAA for current NOTAMs.

FIGURE 3-54 National Security Area

H. Air Defense Identification Zone (ADIZ)

All aircraft entering domestic U.S. airspace from points outside must provide identification prior to entry. To facilitate early aricraft identification of all aircraft in the vicinity of the U.S. and international airspace boundaries, Air Defense Identification Zones (ADIZ) have been established. Generally for all flights entering an ADIZ the following will occur:

FIGURE 3-55 Example of Washington DC ADIZ



- A flight plan will be filed
- An operating two-way radio is required
- Aircraft will be equipped with an operable radar beacon transponder that has altitude reporting capability

ADIZ are normally located “off shore” or along the U.S. boundaries, however in response to threat levels, ADIZ have been created over Washington DC and New York City.

XI. Special Conservation Areas

A. Environmentally Sensitive Areas

There are areas of airspace in the United States that are considered environmentally sensitive. The physical presence or noise associated with aircraft overflight may conflict with the purpose of environmentally sensitive areas. Examples of these areas include wilderness areas, national parks, areas with threatened and/or endangered species, religious areas, wildlife refuges, Native American areas or primitive areas.

Pilots are voluntarily requested to maintain a minimum altitude of 2,000 feet above the surface of the following: National Parks, Monuments, seashores, lake shores, recreation areas and scenic river ways administered by the NPS, National Wildlife Refuges, Big Game Refuges, Game Ranges and Wildlife Ranges administered by the FWS; wilderness and primitive areas administered by the USFS. References may be found in the Airmens Information Manual (AIM) in 7-4-6. There is also a reference printed on the inside of each Sectional.

This advisory is frequently misunderstood by agency personnel. Unless there is a Special Federal Aviation Regulation (SFAR) over the specific area, the 2,000' minimum requested altitude is an advisory and is not regulatory in nature. The Interagency agreement between National Park Service, Fish and Wildlife Service, Bureau of Land Management and the Federal Aviation Administration is located in Appendix 'K'.

The 2,000-feet advisory is based on "Visual Flight Rules (VFR) Flight Near Noise-Sensitive Areas" (Advisory Circular 91-36c), which defines the surface as the highest terrain within 2,000 feet laterally of the route of flight or the upper most rim of a canyon or valley.

The landing of aircraft is prohibited on lands or waters administered by the National Park Service, U.S. Fish and Wildlife Service, or U.S. Forest Service without authorization from the respective agency. The following, taken from NOAA sectional, are exceptions:

- When forced to land due to an emergency beyond the control of the operator,
- At officially designated landing sites, or
- On approved official business of the Federal Government.

FIGURE 3-56 Sample of Endanger Species and Wilderness Areas on a Sectional

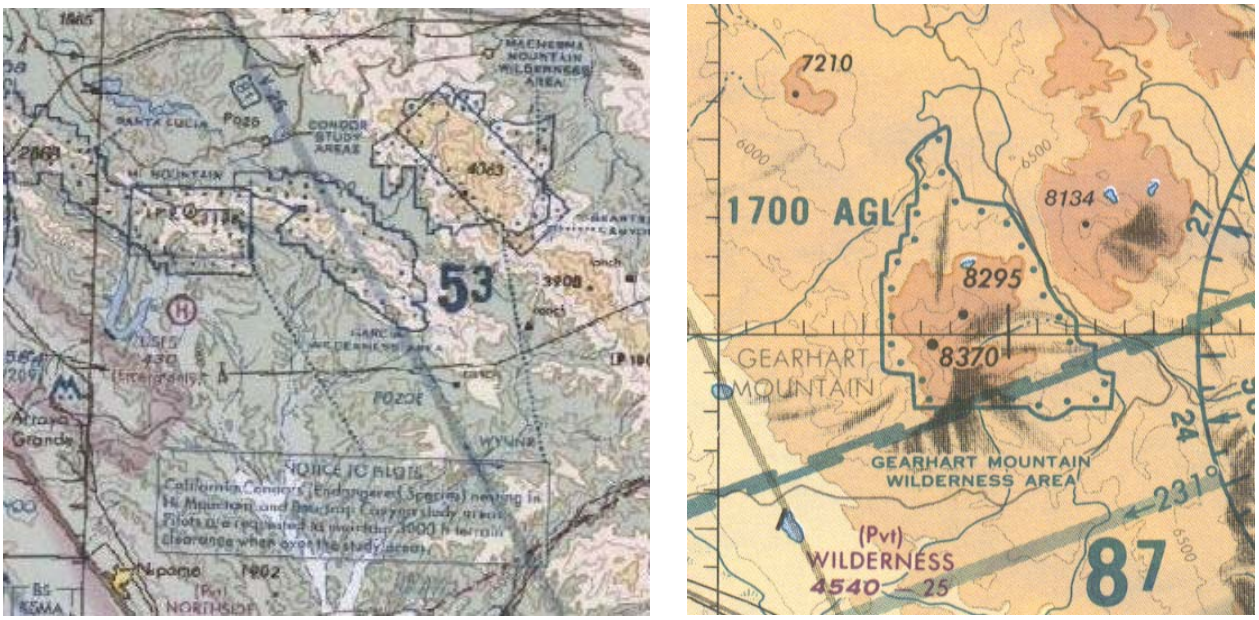


FIGURE 3-57 Sectional Reference Regarding 2000' Advisory

REGULATIONS REGARDING FLIGHTS OVER CHARTED NATIONAL PARK SERVICE AREAS, U.S. FISH AND WILDLIFE SERVICE AREAS, AND U.S. FOREST SERVICE AREAS

The landing of aircraft is prohibited on lands or waters administered by the National Park Service, U.S. Fish and Wildlife Service or U.S. Forest Service without authorization from the respective agency. Exceptions include: 1) when forced to land due to an emergency beyond the control of the operator, 2) at officially designated landing sites, or 3) on approved official business of the Federal Government.

All aircraft are requested to maintain a minimum altitude of 2,000 feet above the surface of the following: National Parks, Monuments, Seashores, Lakeshores, Recreation Areas and Scenic Riverways administered by the National Park Service; National Wildlife Refuges, Big Game Refuges, Game Ranges and Wildlife Ranges administered by the U.S. Fish and Wildlife Service; and Wilderness and Primitive areas administered by the U.S. Forest Service. FAA Advisory Circular (AC) 91-36C, "Visual Flight Rules (VFR) Flight Near Noise-Sensitive Areas," defines the surface as: the highest terrain within 2,000 feet laterally of the route of flight, or the upper-most rim of a canyon or valley.

Federal regulations also prohibit airdrops by parachute or other means of persons, cargo, or objects from aircraft on lands administered by the three agencies without authorization from the respective agency. Exceptions include: 1) emergencies involving the safety of human life, or 2) threat of serious property loss.

Boundary of National Park Service areas. U.S. Fish and Wildlife Service areas and U.S. Forest Service Wilderness and Primitive areas.

B. Air Drops

Federal regulations also prohibit airdrops (by parachute or other means) of persons, cargo, or objects from aircraft on lands administered by the three agencies without authorization from the respective agency. Exceptions include:

- Emergencies involving the safety of human life, or
- Threat of serious property loss.

C. Special Federal Aviation Regulation (SFARs)

Federal statutes prohibit certain types of flight activity and/or provide altitude restrictions over designated National Wildlife Refuges, National Parks, and National Forests. Examples of these designated area are: Boundary Waters Canoe Wilderness Areas, Minnesota; Haleakala National Park, Hawaii; Yosemite National Park, California; and Grand Canyon National Park, Arizona. These areas are represented on sectional charts.

D. Noise Abatement Procedures

Civilian and Department of Defense airfields may have published noise abatement procedures in their Class C-E airspace or transition routes. They may only be published by the local airport manager or noise abatement officer. Concentrated VFR traffic along these routes may result in increased mid-air potential. When operating out of an unfamiliar airport, it is recommended that pilots check with the manager to become familiar with procedures and restrictions.

SUA and MTRs also may impose noise abatement procedures on their users. Check AP/1A, AP/1B or contact the using/scheduling agency for specific information.

XII. Federal Aviation Regulations of the Code of Federal Regulations (14 CFR)

Although most people in the aviation industry understand the informal use of the acronym “FAR” as pertaining to the requirements of Title 14 of the Code of Federal Regulations (14 CFR), it is not correct. The acronym FAR is an abreviation for Federal Acquisition Regulations. The FAA uses CFR when referring to the Code of Regulations. For Title 14, it appears as 14 CFR.

To successfully operate within the NAS it is necessary to have a basic understanding of the regulations and their structure. A complete listing of the regulations would require more room than this guide allows and would include a great deal that is not applicable to needs of the land management agencies. Listed below are sections of the 14 CFR that may be applicable to land management agencies. Complete text may be accessed through a link to the FAA in Appendix B.

A. Part 11 General Rulemaking Procedures

Part 11 prescribes the procedures to be followed in the initiation, administrative processing, issuance and publication of rules, regulations, and FAA orders.

B. Part 71 Airspace, Designation of Class A, Class B, Class C, Class D and Class E Airspace Areas; Airways; Routes; and Reporting Points

Part 71designates the airspace structure including airspace classes, airways; routes; and reporting points.

C. Part 73 Special Use Airspace

Part 73 designates special use airspace and prescribes the requirements of the use of that airspace.

D. Part 77 Objects Affecting Navigable Airspace

Part 77 established standards for determining obstructions in the navigable airspace and sets forth requirements for notice to the FAA Administrator of certain proposed construction or alteration. It provides for aeronautical studies and public hearings to determine the effects of such proposals on the navigable airspace.

E. Part 91 Air Traffic and General Operating Rules

Part 91 prescribes general operating and flight rules governing the operation of aircraft within the United States and governing operation of U.S. registered aircraft outside of the United States. Sub-sections of part 91 that may be of particular importance to land management agencies are:

1. 14 CFR Careless Or Reckless Operation
2. 14 CFR Operating Near Other Aircraft
3. 14 CFR Right Of Way Rules (Except Water Operations)
4. 91.119 Minimum Safe Altitudes

F. Part 93 Special Air Traffic Rules and Airport Traffic Patterns

Part 93 prescribes special air traffic rules and airport traffic patterns.

G. Part 95 IFR Altitudes

Part 95 prescribes altitudes governing the operation of aircraft under IFR on federal airways, jet routes, area navigation low or high routes. It also designates mountainous areas and changeover points.

H. Part 135 Operating Requirements: Commuter and On-demand Operations and Rules Governing Persons on Board Such Aircraft

Part 135 establishes additional operating standards and flight rules for commercial aircraft such as charter services and air tour operators.

I. Part 137 Agriculture Aircraft Operations

Part 137 prescribes rules governing agricultural operations within the United States.

J. Part 157 Notice of Construction, Alteration, Activation and Deactivation of Airports

Part 157 pertains to the Notice requirements for proposals involving construction, alteration, activation and deactivation of civil and joint use (civil-military) airports. It also provides for aeronautical studies to determine the effects of such proposals on the safe and efficient use of airspace.

CHAPTER 4
Airspace Hazards and Conditions

I. Introduction

The purpose of this chapter is to provide an overview of a number of airspace areas that require caution, some of which may not be initially apparent. All of the possible hazards cannot be listed but many circumstances have been included. With knowledge of these situations the construction of hazard maps for aviation agency purposes should be easier.

II. Airspace Hazards

A. Parachute Jump Operations

There are published locations where parachute operations take place. These areas may be found on sectionals, in the Airport/Facility Directory and in FLIP AP/1A. The charted Parachute Jumping Area symbol is a magenta (brown on Helicopter Route Charts) parachute. The published parachute jump descriptions are typically limited to a defined point and may not include a radius or may list a very small landing area. The actual operating area of jump aircraft will normally extend beyond this area. Winds may also take jumpers beyond these areas.

FIGURE 4-1 Two examples of Parachute Jump Operations on sectionals

Prior to flights near or in these areas agency personnel should search for the ATC coordination frequency. Many jump operators also broadcast jump alerts on the common traffic advisory frequency (CTAF) for airports where parachute landings are located. Be aware when operating in proximity to this area for stray jumpers and aircraft.

B. Bird and Animal Strikes

The Wildlife Services (WS) program of the U.S. Department of Agricultures' Animal and Plant Health Inspection Service (APHIS) works closely with the FAA, DoD and the aviation industry to research wildlife areas at airports and to reduce the economic impacts and hazards to aviation caused by wildlife. According to WS, collisions between aircraft and wildlife at airports have risen dramatically in recent years as a result of large population increases in many wildlife species, faster airplanes and the increase in air traffic.

Wildlife Services (WS) researchers and the FAA believe that about 80 percent of wildlife aircraft strikes go unreported. These unreported strikes make detection and management of wildlife hazards much more challenging.

The potential for bird strikes increases during bird migrations in the months of March through April, and August through November. The altitudes of migrating birds vary with winds aloft, weather fronts, terrain elevation, cloud conditions and other environmental variables. About 90 percent of migratory flights occur below 5,000 feet MSL; however, migratory waterfowl have been reported as high as 20,000 feet MSL.

There are four major migratory flyways in North America—Atlantic, Mississippi, Central, and Pacific. A recent Fall Flight Forecast Index expected 105 million migratory waterfowl to use the national airspace from altitudes of less the 100 feet AGL to over 20,000 feet AGL.

FIGURE 4-2 Four Major Migratory Flyways

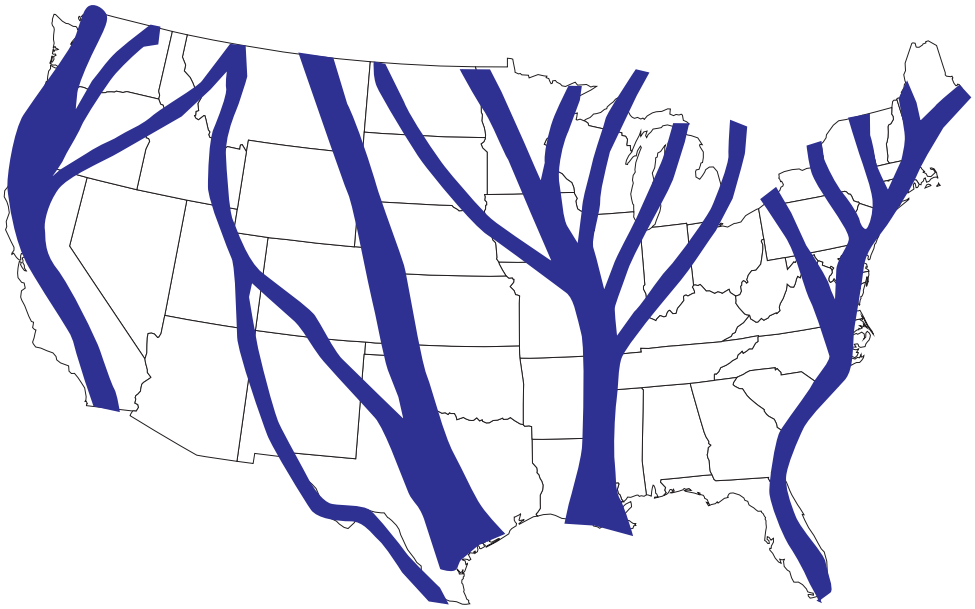
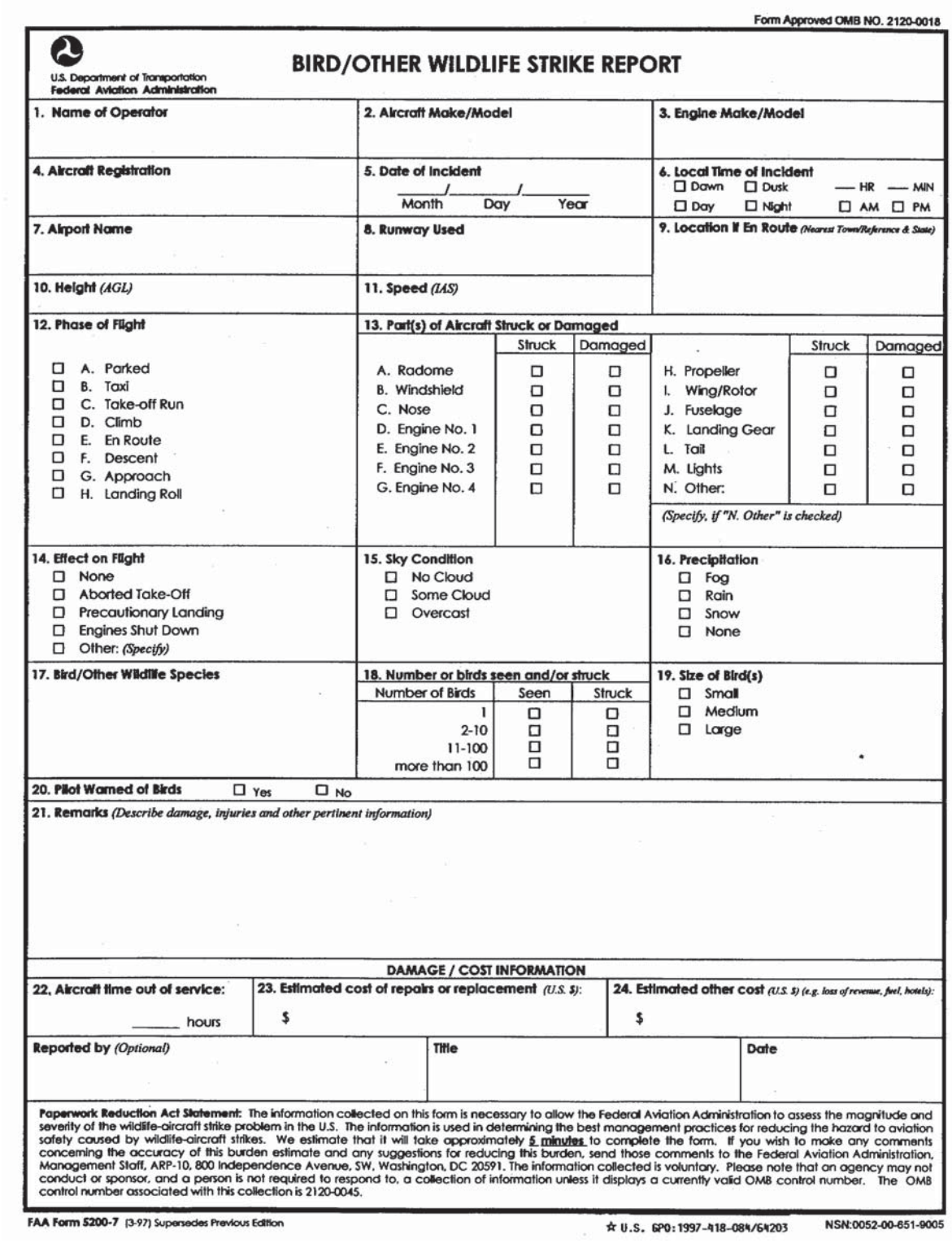


FIGURE 4-3 Bird/Other Wildlife Strike Report



Form Approved OMB NO. 2120-0018

U.S. Department of Transportation
Federal Aviation Administration

BIRD/OTHER WILDLIFE STRIKE REPORT

1. Name of Operator

2. Aircraft Make/Model

3. Engine Make/Model

4. Aircraft Registration

5. Date of Incident ____/____/____ Month Day Year

6. Local Time of Incident ☐ Dawn ☐ Dusk — HR — MIN ☐ Day ☐ Night ☐ AM ☐ PM

7. Airport Name

8. Runway Used

9. Location if En Route *(Nearest Town/Reference & State)*

10. Height *(AGL)*

11. Speed *(IAS)*

12. Phase of Flight

- ☐ A. Parked
- ☐ B. Taxi
- ☐ C. Take-off Run
- ☐ D. Climb
- ☐ E. En Route
- ☐ F. Descent
- ☐ G. Approach
- ☐ H. Landing Roll

13. Part(s) of Aircraft Struck or Damaged

	Struck	Damaged		Struck	Damaged
A. Radome	☐	☐	H. Propeller	☐	☐
B. Windshield	☐	☐	I. Wing/Rotor	☐	☐
C. Nose	☐	☐	J. Fuselage	☐	☐
D. Engine No. 1	☐	☐	K. Landing Gear	☐	☐
E. Engine No. 2	☐	☐	L. Tail	☐	☐
F. Engine No. 3	☐	☐	M. Lights	☐	☐
G. Engine No. 4	☐	☐	N. Other:	☐	☐

(Specify, if "N. Other" is checked)

14. Effect on Flight

- ☐ None
- ☐ Aborted Take-Off
- ☐ Precautionary Landing
- ☐ Engines Shut Down
- ☐ Other: *(Specify)*

15. Sky Condition

- ☐ No Cloud
- ☐ Some Cloud
- ☐ Overcast

16. Precipitation

- ☐ Fog
- ☐ Rain
- ☐ Snow
- ☐ None

17. Bird/Other Wildlife Species

18. Number or birds seen and/or struck

Number of Birds	Seen	Struck
1	☐	☐
2-10	☐	☐
11-100	☐	☐
more than 100	☐	☐

19. Size of Bird(s)

- ☐ Small
- ☐ Medium
- ☐ Large

20. Pilot Warned of Birds ☐ Yes ☐ No

21. Remarks *(Describe damage, injuries and other pertinent information)*

DAMAGE / COST INFORMATION

22. Aircraft time out of service: _____ hours

23. Estimated cost of repairs or replacement *(U.S. $)*: $

24. Estimated other cost *(U.S. $) (e.g. loss of revenue, fuel, hotels)*: $

Reported by *(Optional)*

Title

Date

Paperwork Reduction Act Statement: The information collected on this form is necessary to allow the Federal Aviation Administration to assess the magnitude and severity of the wildlife-aircraft strike problem in the U.S. The information is used in determining the best management practices for reducing the hazard to aviation safety caused by wildlife-aircraft strikes. We estimate that it will take approximately **5 minutes** to complete the form. If you wish to make any comments concerning the accuracy of this burden estimate and any suggestions for reducing this burden, send those comments to the Federal Aviation Administration, Management Staff, ARP-10, 800 Independence Avenue, SW, Washington, DC 20591. The information collected is voluntary. Please note that an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The OMB control number associated with this collection is 2120-0045.

FAA Form 5200-7 (3-97) Supersedes Previous Edition ☆ U.S. GPO: 1997-418-084/64203 NSN:0052-00-651-9005

Pilots are requested to report any bird or other wildlife strike to the FAA using FAA form 5200-7 (Figure 4-3). The data derived from these reports are used to develop standards to mitigate this potential hazard to aircraft and for documentation of necessary habitat control on airports.

Pilots are encouraged by the FAA to use caution and to minimize enroute flying at lower altitudes during migration. Owls, waterfowl, vultures, hawks, egrets, blackbirds and starlings cause the greatest impact to flight operations due to their size, abundance or habit of flying in dense flocks.

Further information and on-line strike reporting may be found at the Airport Wildlife Hazard Mitigation website of the William J. Hughes FAA Technical Center at http://wildlife.pr.erau.edu.

Military records and information may be found at the Bird/Wildlife Aircraft Strike Hazard (BASH) website at *http://afsafety.af.mil/AFSC/bash/home.html*.

C. Unmanned Air Vehicles (UAV) and Remotely Operated Aircraft (ROA)

FAA Handbook 7610.4 identifies an ROA as an un-piloted aircraft (e.g. drone) which is remotely controlled by an external source that is either airborne or on the ground. Until recently, these aircraft were also referred to as UAVs or Remotely Piloted Vehicles (RPVs). UAV is still commonly used, but technically the FAA has officially changed the designation to ROA.

ROAs are no longer strictly military or defense contractor operations. Universities, commercial companies, utility companies, and even law enforcement agencies are looking at or experimenting with uses for ROA.

FIGURE 4-4 Solar Powered UAV Example

Reprinted by permission as per NASA

ROAs are generally operated within the parameters of two types of areas. Those designed to be

controlled solely from ground-based launch sites are usually limited to a defined local area, such as an airport which supports line-of-sight control. Power and equipment capabilities influence the size of this area, unless supplemented by additional control sites. Other ROAs utilize satellite communications and can maneuver over much greater distances and altitudes. These operations may or may not have a piloted chase aircraft.

ROA operations outside Restricted Areas or Warning Areas are required to get FAA approval via a Certificate of Authorization (COA). The application for a COA must address the aircraft's ability to "See and Avoid" via radar, on-board cameras, chase plane control, etc. Agency personnel should contact the FAA Regional Office for further information, and to provide feedback regarding airspace conflicts that may occur.

D. Patrol Aircraft

There could be several types of non-military, low altitude patrol operations conducted by fixed wing or rotary aircraft in your area. Some of these operations may include law enforcement, border patrol flights, utility company surveys of transmission lines and stations, aerial spraying on private or public lands, other agencies'' administrative and support flights (e.g. NASA, DOE, etc.), air rescue and medivac flights. In addition, the Civil Air Patrol may fly MTRs at the request of DoD to check for low level aviation hazards.

Agency personnel should establish contacts with these agencies or companies to deconflict when feasible. At a minimum, knowledge of the type and schedule of the activity is recommended.

E. Ultralights/Gliders/Manned Balloons

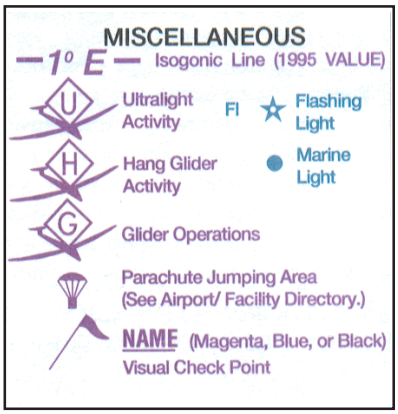
14CFR Part 103 defines ultralights as "vehicles" (not aircraft) that are used or intended to be used for manned operation in the air by a single occupant. In addition to ultralights, and gliders there are three "winged categories"; fixed-wing, flexible wing (powered parachutes and powered paragliders) and weight-shift (a three wheeled airframe called a trike). The main differences in these classifications, besides configuration, are the control systems.

Regardless of the type of control system, all such craft must meet the same 14CFR 103 requirements for weight and operating capabilities to be classified as an ultralight. When these requirements are met, the following 14CFR 103 restrictions apply:

- Use is only for sport and recreation
- Use allowed for daylight operations only
- No operations over congested areas
- Used by single occupant
- Maximum five gallons of fuel
- Yield right-of-way to all aircraft
- Prior permission required for operation in controlled airspace
- Operation prohibited in restricted areas

14CFR Part 103 (ultralight vehicles) currently does not require pilot certification, nor does it require aircraft registration. Many user and industry groups [e.g. United States Ultralight Association (*www.USUA.org*), Aero Sports Connection, Experimental Aircraft Association Ultralights, United States Hang Gliding Association(*www.ushga.org*)] may operate alternative registration and training programs that are designed to enhance the FAA's regulations. Concentrated ultralight vehicle activity is depicted on sectionals (see Figure 4-5).

FIGURE 4-5 Ultralights/ Gliders/Manned Balloons Sectional Map Symbols



Agency personnel planning flights or activities in an one of these areas should be aware of the location and frequency of ultralight and similar activity. Care should be taken to enhance the "see and avoid" capability, as ultralights and manned balloons are not normally equipped with radios. Frequently, ultralight and glider tow operations are in close proximity to small airports, and specific airport operating instructions or preferred operating areas may exist. Additionally, be alert to non-powered glider activity near higher terrain, where wind or "wave" conditions help keep these vehicles aloft. For activity information, contact the FAA, local airports or the organizations listed above.

F. Banners and Unplanned Releases

Depending on the type and complexity of activity over federally managed lands, the possibility of planned or unplanned drops from aircraft or airborne vehicles exists. Banners are towed both for commercial use and for military operations. Normally an area for banner release is pre-designated and deconflicted, but a sudden change in weather conditions, or aircraft control problems, may force a pilot to make an unplanned release. Other types of unplanned releases or drops include tanks or pods, weapons, fuel or external load dumps, and other (towed) items. Any aircraft may experience the problem of a part or piece falling off, which occasionally leads to an emergency situation.

G. Chaff

Chaff are small metallic strips used by the military to interfere with the enemy's radar capacity to lock on or identify an aircraft with radar. Chaff may be released at various altitudes and float slowly down, creating a reflective screen and "hiding" the aircraft's position. Chaff is commonly used for military training but can have a significant effect on FAA radar systems. Approval to use chaff must be coordinated with the FAA.

H. Flares

Flares are devices launched airborne to divert approaching weapons from the target aircraft. Depending on wind and altitude launched, flares can appear to "hang" in the sky or have a slow descent rate. Flares used today by the military are normally self-destructive, meaning they are launched at sufficient altitudes to complete its burn before reaching the ground, leaving no trace except a small metallic tab. Flares are normally restricted to use over military ranges or other approved sites.

Agency personnel should develop a list of points of contact (POC) for coordination of incidents of this nature. Although most of the above discussion relates to military aircraft flights, civilian operators may be involved as well. Contact the FAA, MILREPS, or other personnel for assistance in identifying the type and frequency of these activities.

I. Open Skies Treaty

The Treaty on Open Skies was ratified by the United States Senate in 1994. Signatories to this Treaty include NATO allies and former Warsaw Pact nations. The Treaty is dependent upon complete territorial openness, and permits the use of unarmed observation aircraft equipped with imaging sensors. Under the Terms of this treaty, signatory countries are authorized to operate aircraft over all territories of the visited/observed country (e.g. the United States) under the conditions outlined in the treaty. These conditions permit full access to all United States airspace. Under the terms of the treaty, the Defense Threat Reduction Agency (DTRA) conducts training and operational flights to support the Treaty. Additionally, the State Department has authorized foreign nation overflights that may be conducted in U.S. airspace in preparation for treaty implementation. In all of these preparatory overflights, like official Treaty overflights, all conditions of the Treaty, related to access to airspace and notification procedures are fully exercised.

Treaty provisions state that Open Skies flights take precedence over regular air traffic and allow flights through all Special Use Airspace. Open Sky Treaty aircraft flights will be coordinated through the FAA.

III. Ground-Based Operations

Ground-based operations include moored balloons, kites, unmanned rockets and unmanned free balloons. 14CFR 101 (moored balloons, kites, unmanned rockets and unmanned free balloons) addresses the operating requirements and restrictions for these activities. These operations are usually contained within a specific area, although unmanned rockets and balloons may reach considerable altitudes or trajectories before falling to earth. In both cases, there are specific weight and size limitations imposed to qualify under this regulation. 14CFR 101 operations are admonished to not operate in a manner that creates a hazard to other persons or their property and to not allow an object to be dropped from their platform, if such action creates a hazard to other persons or their property.

A. Moored Balloon and Kites

A moored balloon is defined as any balloon that is moored to the surface of the earth, or an object thereon that has a diameter of more than six feet or a gas capacity of more than 15 cubic feet. An 14CFR 101 regulated kite is any kite that weighs more than five pounds and is intended to be flown at the end of a rope or cable. Operation of a moored balloon or kite between sunrise and sunset requires marking of mooring lines with colored

pennants or streamers. The FAA requires obstruction lighting to serve as a visual warning for operations conducted between sunset and sunrise. Moored balloon or kite operations more than 150 feet above the surface of the earth require at least 24 hours notice for coordination with the FAA ATC facility nearest to the place of intended operation.

Figure 4-6 Example of a Tethered Aerostat Radar System

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The Tethered Aerostat Radar System is a ballon-borne radar system which provides low level radar surveillance data in support of federal agencies involved in the nation's drug interdiction program. The aerostat is a large fabric envelope filled with helium. It can rise to 15,000 feet while tethered by a single cable, which has a maximum breaking strength of 26,000 pounds. Normal operating height is 12,000 feet MSL. The average aerostat is about two times the size of the Goodyear blimp. For security and safety reasons, the airspace around USAF aerostat sites are restricted for a radius of at least two or three statute miles and an altitude up to 15,000 feet.

B. Unmanned Rockets

An unmanned rocket falls within specific weight and material criteria and normally does not include aerial fireworks displays or model rockets (addressed below). Operation of unmanned rockets requires advance coordination with the FAA ATC facility nearest to the place of intended operation.

C. Unmanned Free Balloons

Unmanned free balloons that meet specific payload and load separation criteria are required to comply with 14CFR 101 and will coordinate with the FAA ATC facility nearest to the place of intended operation within six to 24 hours prior to the beginning of the operation. A launch notice to the FAA or military ATC facility nearest to the place of intended operation is also required immediately after balloon launch. Unmanned free balloons may be equipped with trailing antennas or other suspension devices that may require appropriate obstruction markings.

Agency personnel should be aware of these occasional activities. Some weather balloons do not meet 14CFR 101 criteria and thus may not be coordinated with ATC. Identify the responsible operators and establish POCs for shared notifications when appropriate.

D. Model Rockets/Model Aircraft

Local individuals and organizations may be involved in recreational model rocket and model aircraft clubs or events. These operations are sometimes found in proximity to airports (some small airports identify areas for these activities) or other common public areas (e.g. schools or parks). Dry lakebeds and other flattened areas are other ideal sites. Normally though, these areas are too remote for public utilization. Altitudes used can be relatively low (below 1,500 feet AGL) for model aircraft, but some model rocket clubs operate to altitudes in excess of 18,000 feet MSL and may incorporate larger areas.

These activities may not be a problem for agency personnel but it's important to identify sites for potential safety conflicts.

E. Lasers

Outdoor laser demonstrations are light shows or tests that use a laser to amplify or generate light. The special lighting effects produced have made lasers increasingly popular for entertainment and promotional uses. When laser beams are projected or reflected into the navigable airspace, the potential exists for permanent eye damage or other injury to pilots and passengers of aircraft.

Outdoor laser demonstrations are subject to Food and Drug Administration (FDA) regulation. Military and research laser applications may require other controls, safeguards and airspace considerations.

The FDA's laser performance standards divide laser products into five classes. The intensity of even a low power laser beam can be equal to or greater than that of the sun. When a laser beam enters the human eye, its power can be concentrated on a very small area of the retina. This can

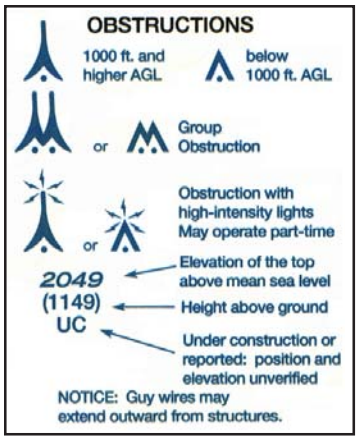
produce harmful effects ranging from temporary flash blindness to permanent blind spots or other eye injury.

Laser manufacturers must provide written notification to the FAA before conducting an outdoor laser demonstration. To enhance safety of flight, laser performances are listed in the US NOTAM system as FDC NOTAMS.

Check NOTAMS before scheduling flights and caution pilots and passengers to approach known laser performance areas with extreme caution.

F. Obstacles, Antenna Farms and Power Lines (www.fcc.gov)

FIGURE 4-7 Symbols From Sectional



14CFR Part 77 and FAA AC 70/7460-2K provide criteria and guidance for FAA evaluation of construction and other man-made obstacles that may affect navigable airspace. This process is used to:

- Recognize potential aeronautical hazards in order to minimize adverse effects
- Revise published data or issue NOTAM to alert pilots to airspace change(s)
- Recommend appropriate marking and lighting to make such objects visible to pilots
- Depict obstacles on aeronautical charts for pilotage and safety

The FAA requires notification and an evaluation of certain obstacles prior to construction. These obstacles will generally meet one or more of the following criteria:

- Greater than 200 feet AGL
- On or near an airport, heliport or sea base
- Obstacle may cause electromagnetic interference

The kinds of objects which fall under this criteria include proposed construction or alteration of:

- Buildings
- Towers
- Roadways
- Overhead communications and transmission lines (including supporting structures)
- Water towers and supporting structures

These obstruction criteria can also include construction equipment or other temporary structures such as:

- Cranes
- Derricks
- Stockpiles of equipment
- Earth moving equipment

Agency personnel should be aware of proposed obstructions within their units and, when needed, provide comment to the FAA facility performing the evaluation. FAA findings from evaluations of proposals are classified as either a “Determination of Hazard to Air Navigation” or a “Determination of No Hazard to Air Navigation”. When the finding indicates a hazard does exist, the FAA may recommend appropriate lighting and/or marking to make the obstacle more visible to pilots.

Agency personnel may contact their FAA Regional headquarters and request being placed on the mailing list to receive “FAA Determinations of Hazards (or No Hazards) to Air Navigation” notifications.

Advisory Circular 70/7460-2K states: *“An FAA determination is a conclusion on the study of a structure’s projected impact on the safe and efficient use of navigable airspace. It should not be construed as an approval or disapproval of the project.”* This means the FAA determination and recommendations are not legally binding on the proponent. This FAA process does not relieve the project proponent of the compliance requirements of other laws, ordinances or regulations. Local government and land use planning authorities may be helpful in focusing on steps that can be taken to minimize adverse affects of proposed actions.

Many structures exist that could significantly affect the safety of flights operating below 2,000 feet AGL. Numerous skeletal structures, such as

radio and television antenna towers, exceed 1,000 feet AGL with some extend higher than 2,000 feet AGL. Most skeletal structures are supported by guy wires, which are hard to see in good weather and are virtually impossible to see in poor weather. These wires can extend up to 1,500 feet horizontally from the structure they support.

Overhead transmission and utility lines often span approaches to runways, natural flyways such as lakes, rivers gorges and canyons. They may also cross other landforms that pilots often follow, such as highways and railroad tracks.

14CFR 77 processes encourage grouping of radio antennas and like structures in "antenna farms". The intent is to group together similar sized obstructions, making them easier to locate and avoid.

In the planning process, agency personnel can encourage companies to bury transmission and utility lines to remove the risk to aviation activities. Where this is not possible, reflective and other visual markers may be recommended to provide increased visibility of the wires.

Pilots operating in these areas should be thoroughly briefed as to potential hazards. Missions should be planned so as to avoid low-level flight in these areas whenever feasible.

Dispatchers and Aviation Managers should maintain current hazard maps and relay this information to affected pilots.

G. Blasting

There are two issues that present a hazard in blasting: flyrock debris and premature detonation. The Department of Defense is concerned that electronic warfare equipment on certain DoD aircraft could initiate a premature explosion of blasting equipment. Blasting operations using non-electric blasting caps (NONEL) are not at risk (e.g. fireline explosives). Operations using electric blasting caps (EBC) are at risk of premature detonation under a variety of circumstances, as described by the Electronic Warfare Committee at the Pentagon.

Permanent blasting are listed in the DoD AP 1/B Publication. However, most agency blasting sites vary, depending on where the mission or project is conducted. Blasting materials can be used for rock blasting, road or fireline construction, hazard trees or snags, burning logging landings, beaver dam removal, wildlife waterholes, trail construction and maintenance, avalanche control, ditches, stumps, fish ladders, general demolition (bridges, foundations, etc.), tree topping, fisheries improvement, backfiring, mine closures, animal removal, seismic work and breaching irrigation dams.

Blasters are encouraged to work with agency dispatchers in order to notify DoD schedulers of blasting sites within Military Training Routes or Special Use Airspace.

Advance notice (24 hours minimum) of planned blasting activity should be forwarded to the appropriate DoD Scheduling Activity for SUA's and MTR's. Information needed includes:

- Latitude/longitude of site or VOR/DME
- Dates and times of blasting activity
- Affected military airspace (MTR segments, etc)
- Agency contact names and phone numbers

III. National Security

After the attacks of September 11th, the United States has enforced many changes in the nations airspace, both temporary and permanent. A new department (Department of Homeland Security) has been formed to cope with the current threats of terrorism and war. The following steps are recommended for coping with the current state of affairs involving our nations airspace.

Know and understand the following:

- National Security and Interception procedures. (AIM Section 6, 5-6-2)
- Be aware of all national security TFR's - Monitor the US NOTAM Website
- Monitor Guard frequency (121.5 MHz) and understanding of intercept procedures
- Be aware of TFR's over major professional or collegiate sporting events or other major open air assemblies
- Be aware of Special TFRs concerning flights over some cities, especially the Washington DC area
- Avoid TFRs or Restricted airspace in the vicinity of the President or Vice President

- Be aware of rules and regulations for operating inand out of Mexico and Canada
- Be aware of rules against circling or loitering over nuclear sites
- Know and understand current NOTAMS
- Graphical and textual depictions of TFRs are available.

Websites to monitor

Homeland Security: *http://www.dhs.gov/dhspublic/index.jsp*
AOPA: *http://www.aopa.org*
Aero-news: *http://www.aero-news.net*
Airspace links to TFRs and Graphical depictions: *http://www.fs.fed.us/r6/fire/aviation/airspace, http://airspace.blm.gov*
FAA: *http://www.faa.gov*
TSA: *http://www.tsa.gov/public/*
US NOTAM Website: *https://www.notams.jcs.mil/* or *https://www.notams.faa.gov/*
HAI: *http://www.rotor.com/*
Customs and Border Protection (CBP): *http://www.cbp.gov/*

A. SCATANA/ESCAT

In the event of a terrorism activity or war, the Federal Government may be involved in invoking a "cold war era" agreement between the FAA, DoD and the Federal Communications Commission (FCC). SCATANA (Security Control of Air Traffic and Navigation Aids) or ESCAT (Emergency Security Control of Air Traffic). Once SCATANA is activated a wartime priority list (WATPL) is established allowing essential personnel and aircraft to use the airspace. SCATANA was originally intended to clear the skies following confirmed warning of attack. It was partially invoked after the tragedies of September 11th (Navigational aids were not disabled.) Under SCATANA, the appropriate authority (FAA or DoD) may authorize flight by granting a Security Control Authorization to the involved ARTCC or agency requesting the clearance. The following missions may be granted authority to fly:

- Organized civil defense missions
- Disaster relief flights
- Agricultural and forest fire flights
- Border Patrol Flights
- Search and Rescue Disaster Assistance (SARDA)

As of May 2003, the FAA and involved agencies are involved in a rewrite of SCATANA. The new agreement will be called "ESCAT".

B. Transportation Security Administration (*www.tsa.gov*)

The September 11th attacks led Congress to enact the Aviation and Transportation Security Act (ATSA). Under ATSA, the responsibility for inspecting persons and property was transferred to the Under Secretary of Transportation for Security, who heads a new agency created by that statute known as the Transportation Security Administration (TSA).

On Feb. 17th 2002 TSA assumed responsibility for inspecting persons and property previously held by aircraft operators. The Under Secretary of Transportation for Security issued rulemaking transferring the FAA rules to title 49 of the Code of Federal Regulations creating the Transportation Security Regulations (TSR).

C. Department of Homeland Security (*www.dhs.gov*)

In the event of a terrorist attack, natural disaster or other large-scale emergency, the Department of Homeland Security will assume primary responsibility for ensuring that emergency response professionals is prepared for any situation. This will entail providing a coordinated, comprehensive federal response to any large-scale crisis and mounting a swift and effective recovery effort. On November 25th, 2002 the President signed the bill creating the new Department of Homeland Security and on January 24th, 2003, the new Department came into existence. The new agency is the result of combining all or part of 22 agencies.

The world has changed since September 11, 2001. Our nation remains at risk to terrorist attacks and will remain at risk for the foreseeable future. The following Threat Conditions each represent an increasing risk of terrorist attacks. Beneath each Threat Condition are some suggested Protective Measures, recognizing that the heads of Federal departments and agencies are responsible for developing and implementing appropriate agency-specific Protective Measures. At this time there are no pre-identified airspace plans related to the threat level. Agency employees should be familiar with their agency security plans and monitor information websites such as *www.faa.gov*.

1. Understanding the Homeland Security Advisory System

Additional information available at *http://www.dhs.gov/dhspublic/theme_home7.jsp*

- **Low Condition (Green)**. This condition is declared when there is a low risk of terrorist attacks.
- **Guarded Condition (Blue)**. This condition is declared when there is a general risk of terrorist attacks.
- **Elevated Condition (Yellow)**. An Elevated Condition is declared when there is a significant risk of terrorist attacks.
- **High Condition (Orange)**. A High Condition is declared when there is a high risk of terrorist attacks.
- **Severe Condition (Red)**. A Severe Condition reflects a severe risk of terrorist attacks.

FIGURE 4-8 Homeland Security Threat Levels

CHAPTER 5
Tools/Skills

I. Introduction

There are many tools for assistance in airspace coordination. This section will be presented in four categories:

- Charts and Publications
- DoD Publications
- Technology
- Airspace Coordination Skills

Certain skills are necessary for airspace coordination. Airspace coordination requires the ability to plot latitudes and longitudes; VOR/DME's and map reading skills, plotting and interpretation.

II. Charts and Sectionals

Agency personnel need certain information to assess the degree of complexity of the airspace overlying local public lands. This information is available from a variety of sources. Some of these sources contain duplicate information; another may be the sole source of a particular piece of information. It is important to obtain and have access to various sources to ensure that the local airspace "picture" is complete. Ordering information is available in Appendix C.

An aeronautical chart is a map used in air navigation containing all or part of the following: topographic features, obstructions, navigation aids, navigation routes, designated airspace and airports. There are a variety of charts available including:

<u>VFR Charts</u>

- Sectional Aeronautical Charts (Sectionals)
- Terminal Area Charts (TAC)
- World Aeronautical Charts (WAC)
- Helicopter Route Charts

IFR Charts

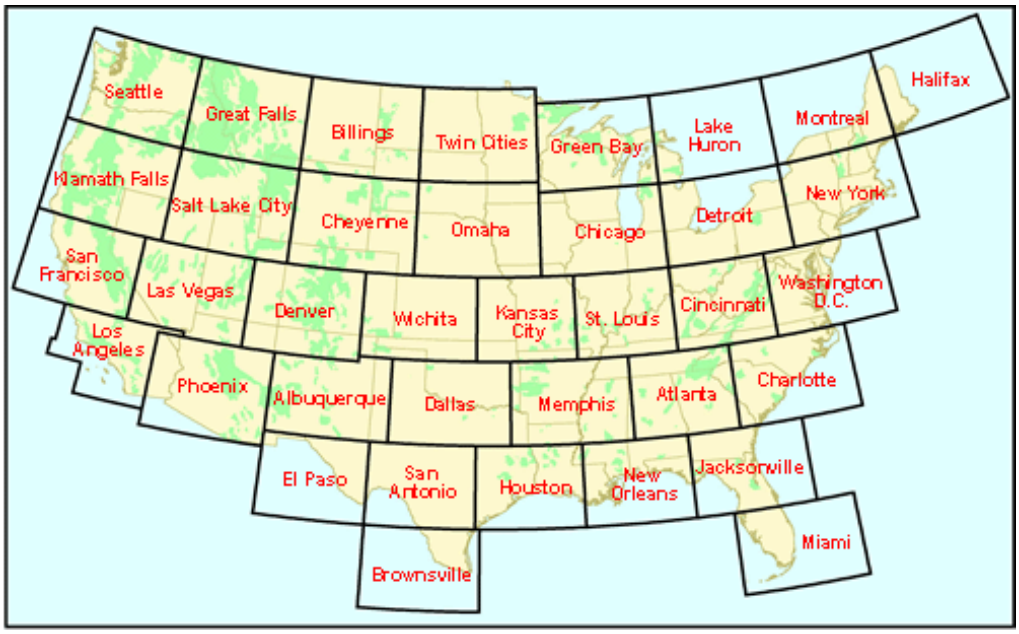
- En Route Low Altitude Contiguous U.S.
- En Route High Altitude Contiguous U.S.
- Alaska Charts
- Pacific Charts

Each office with responsibility for scheduling, dispatching or requesting aircraft should maintain current Sectional Aeronautical Charts (Sectionals) in a location where the Aircraft Dispatcher or Aviation Manager has immediate access to them. Areas of military operations (MOAs, MTRs, etc.) should be highlighted.

A. Sectional Aeronautical Charts

Sectionals are designed for visual navigation of slow or medium speed aircraft. Topographic information consists of contour lines, shaded relief, drainage patterns and an extensive selection of visual checkpoints and landmarks used for flight under VFR. These charts also include cities and towns, roads, railroads, and other distinct landmarks. Aeronautical information includes visual and radio aids for navigation, airports, controlled airspace, restricted areas, obstructions and related areas.

FIGURE 5-1 Sectional Geographic Boundaries



Sectionals are generally revised every six months. If sectionals are used as basis for a posted hazard map they need to be updated promptly. Sectionals may be purchased at local airport Fixed Wing Base Operators (FBOs) or through aviation specialty stores. Subscriptions are also available from the FAA. Ordering information is available in Appendix C.

Sectionals are on a 1:500,000 scale (1 inch = 6.86 Nautical miles). They cover the entire United States and are separated into geographic sections by place names (Phoenix, Billings, etc.). Sectionals contain the most complete information available in one document for visual flight navigation; however, the user is cautioned that not all information is portrayed. The following information is depicted:

- Airport and permanent heliport locations and data
- Radio aids to navigation and communication
- VORs such as VORTACs and VOR-DMEs

FIGURE 5-2 Mapping Sources Information

Information Provided From Various Mapping Sources

Information Provided		Sectional Chart	AP1A Hdbk	AP1B Chart	AP1B Hdbk	IAMS/ CAHIS
MTRs	Route Centerline	Yes	N/A	Yes	Yes	Yes
	Route Width	No	N/A	No	Yes	Yes
	Route Altitudes	No	N/A	Yes	Yes	Yes
	Scheduling Activity	No	N/A	No	Yes	Yes
	Originating Activity	No	N/A	No	Yes	Yes
SR	Slow Routes	No	N/A	Yes	Yes	Yes
SUA	Airspace Lateral Boundaries	Yes	Yes	N/A	N/A	Yes
	Airspace Vertical Boundaries	Yes	Yes	N/A	N/A	Yes
	Controlling Agency	Yes	Yes	N/A	N/A	Yes
	Using Agency	No	Yes	N/A	N/A	No
	Scheduling Agency	No	Yes	N/A	N/A	Yes
CFA	Controlled Firing Areas	No	No	N/A	N/A	No
LATN	Low Altitude Tactical Navigation	No	No	N/A	N/A	No
AR	Aerial Refueling Routes (Low Level)	No	No	Yes	Yes	No

- Obstructions (not all are shown; those shown are predominantly >200 feet AGL).
- Topographic information
- Special conservation areas such as federal wilderness areas and wildlife refuges
- Airport traffic service and airspace information
  - Control zones
  - Transition areas
  - Special air traffic rules
  - Low-altitude federal airways
  - Mode C areas (altitude reporting system used in air traffic control)
  - National Security Areas
  - Military Training Routes (MTRs); centerline only; most but not all routes depicted
  - Special Use Airspace (MOAs, RAs, etc.); margin notes detail the location, time of use, altitudes used, and the controlling agency of each SUA

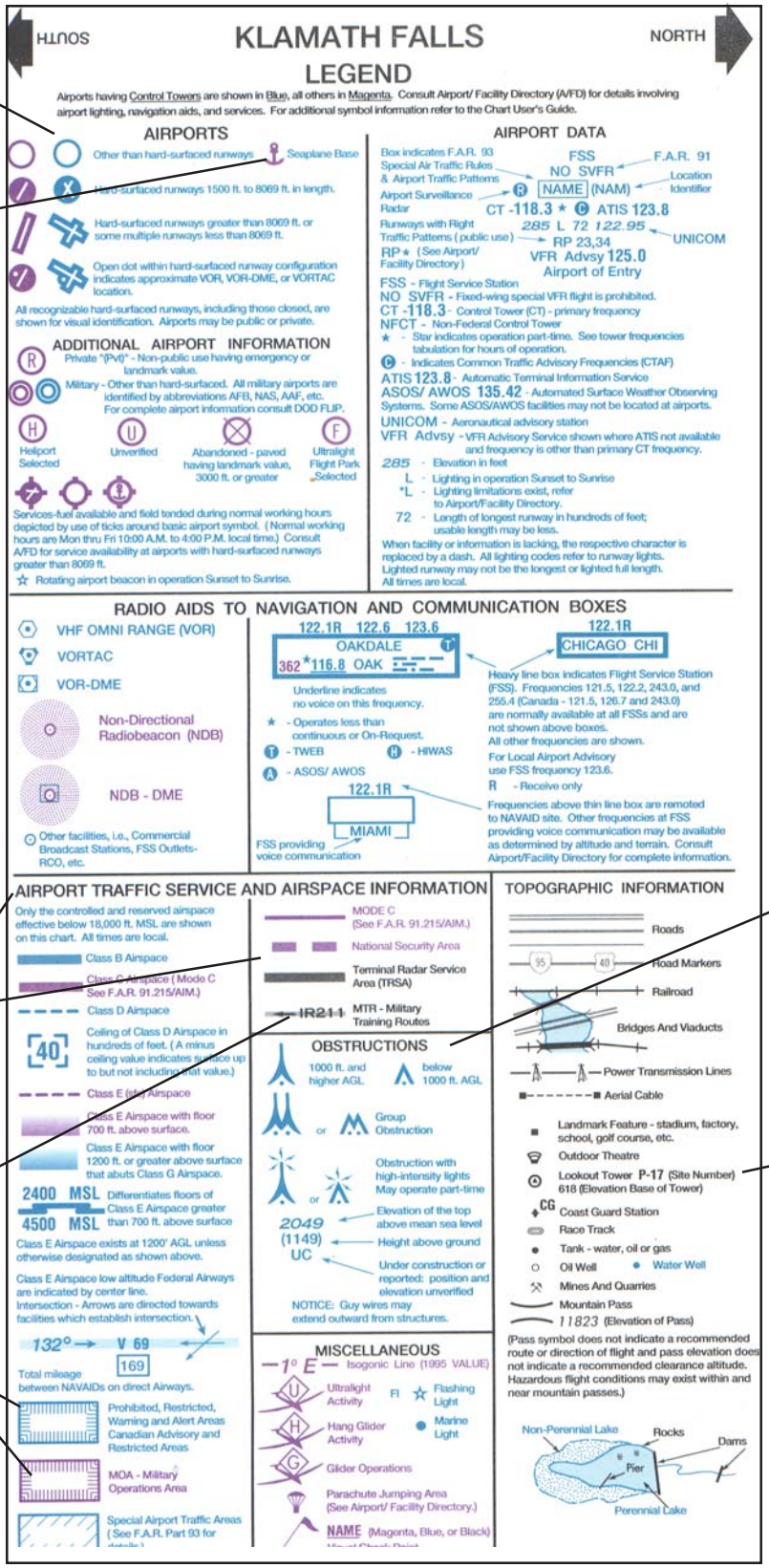
B. Helicopter Route Charts

Helicopter Route Charts are graphic portrayals of discrete and/or common use helicopter routes and/or operating zones located in high-density traffic areas. Their purpose is to facilitate helicopter pilot access into, egress from or operation within a charted area. They generally will include associated altitude or flight ceiling information to facilitate avoidance of IFR traffic and pilot adherence to minimum safe altitude requirements. The charts provide an expanded, and in some cases unique, ground reference symbols to improve visual navigation.

C. World Aeronautical Charts (WACs)

World Aeronautical Charts are a standard series of charts covering land areas of the world at a size and scale convenient for navigation by moderate speed aircraft. Topographic information includes populated areas, principal roads and distinctive landmarks. They are scaled at 1:1,000,000 (1 inch=13.7 NM). WACs do not depict all Special-Use Airspace or any Military Training Routes.

FIGURE 5-3 Overview of Basic Airspace Symbology on a Sectional



Airports & Helibase Symbology

Float Planes

Navigation Aids for Plotting Bearing & Distance

Airspace Symbols

MTRs

SUA

Towers & Obstructions

Note: Lookout Tower

NOTE: Detailed info on all chart symbology can be found in the Aeronautical Chart Users Guide. Ordering info is located in Appendix G.

D. Enroute Low Altitude Charts

Enroute Low Altitude Charts provide aeronautical information for enroute instrument navigation (IFR) below 18,000 feet MSL. They are revised every 56 days. Chart information includes airways, limits of controlled airspace, minimum enroute and obstruction clearance altitudes, airway distances, reporting points, Restricted Areas and related data.

E. Enroute High Altitude Charts

Enroute High Altitude Charts provide aeronautical information for enroute instrument navigation (IFR) above 18,000 feet MSL. They are revised every 56 days. Chart information includes jet routes, identification and frequencies of radio aids, selected airports, distances, time zones, Special Use Airspace and related information.

III. DoD Publications

The National Imagery and Mapping Agency (NIMA) publishes DoD Flight Information Publications (FLIP), and has the overall responsibility for the management and distribution of all DoD navigational charts and publications. These publications consist of books and charts, some of which are valuable tools to resource and aviation managers in determining the location of Military Training Routes, Slow Routes, Aerial Refueling Routes, etc. **All of the documents are available online at *https://164.214.2.62/products/digitalaero/index*. Ordering information is located in Appendix C**. The publications include the following:

A. Flight Information Publications Program (FLIP)

FLIP uses the concept that there are basically three separate phases of flight: planning, enroute operations and terminal operations. The FLIP planning document is intended primarily for use in ground planning at military facility base operations offices. It is arranged into four sections: General Planning, Area Planning, Special Use Airspace and Military Training Routes (North and South America).

1. General Planning (GP)

This publication contains general information on all FLIPs, terms and abbreviations, explanation of the divisions of United States Airspace, flight plans and codes, common worldwide pilot proce-

dures, International Civil Aviation Organization (ICAO) procedures, operations over the high seas and aviation weather codes. This book is published every 32 weeks.

2. Area Planning (AP/1)

This publication contains planning and procedure information for a specific region or geographic area and is published every 24 weeks.

3. Military Area Planning AP/1A Handbook

The publication contains specific information (e.g. phone numbers) concerning each area of Special Use Airspace, including all Prohibited, Restricted, Danger, Warning and Alert Areas listed by country. Military Operations and known Parachute Jumping Areas are also listed. Lateral and vertical boundary descriptions are limited to RAs, WAs and AAs. MOA data is limited to Scheduling Agency. The AP/1A is updated every six months.

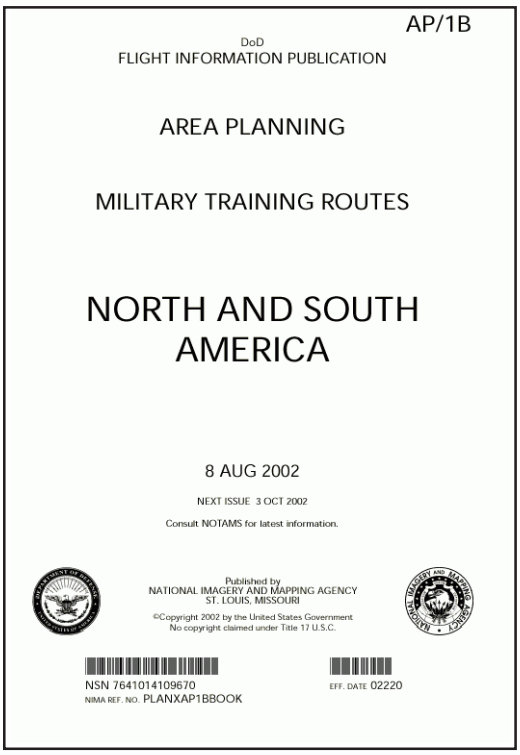
Note that SUA is also depicted on Sectionals but the Scheduling Agency with whom critical coordination must occur is NOT listed. Since the Scheduling and Using Agencies ARE indicated in the AP/1A, this publication is a useful tool for deconfliction of airspace, or for preparing airspace agreements.

4. Military Area Planning AP/1B Charts and Handbooks

The AP1/B contains information relative to military routes, including:

- IFR Military Training Routes (IR)
- VFR Military Training Routes (VR)
- Slow Routes (SR)
- Refueling Tracks/Anchors/VFR
- Helicopter Aerial Refueling Tracks (AR)
- Avoidance Locations (nuclear power plants)

FIGURE 5-4 AP/1B Cover


AP/1B

DoD
FLIGHT INFORMATION PUBLICATION

AREA PLANNING

MILITARY TRAINING ROUTES

NORTH AND SOUTH AMERICA

8 AUG 2002

NEXT ISSUE 3 OCT 2002

Consult NOTAMS for latest information.

Published by
NATIONAL IMAGERY AND MAPPING AGENCY
ST. LOUIS, MISSOURI

NSN 7641014109670
NIMA REF. NO. PLANXAP1BBOOK

EFF. DATE 02220

A series of four charts are issued covering the United States.

The AP/1B Handbook provides specific information on each IR, VR and SR route (e.g. width and height of all points along the route, turning points, Scheduling Activity, phone numbers), plus any unusual information pertaining to that route.

Scheduling activity phone numbers may be either Defense Switched Network (DSN) or commercial (or both). If a route only lists a DSN number, agency personnel will have to pursue obtaining a commercial number. One suggestion is to call information for the military unit and obtain the local base number. The scheduling activity can usually be reached by switching the last four digits of the commercial information number with the last four digits of the DSN number.

Agency personnel need to preplan by listing commercial numbers in their mobilization guide or other aviation plan. The AP/1B Handbook is the most complete source of information on Military Training Routes. Due to map scale, not all routes listed in the Handbook appear on the Charts.

If a unit does not have access to the IAMS program via the Internet, the most effective way to determine route location and parameters is to use Sectionals in conjunction with the AP/1B Handbook and Charts.

Each Office with responsibility for scheduling, dispatching or requesting agency aircraft should maintain a current copy of the AP/1B Chart and Handbook in a location where the Aircraft Dispatcher or Aviation Manager has immediate access to it. The book and charts are published every 56 days.

5. Flight Information Handbook

The Flight Information Handbook is a DoD publication. It contains aeronautical information which is required by DoD aircraft in flight and is not subject to frequent change. Sections include information on emergency procedures, FLIP and NOTAM abbreviations and codes, national and international flight data and procedures, meteorological information, conversion tables and standard time signals.

IV. Other Publications

A. Federal Aviation Regulations Publication

Federal Aviation Regulations are the Title 14 part of the Code of Federal Regulations (CFRs), and may be listed as 14 CFR, Aeronautics and Space. Agency personnel should be familiar with Part 91, which includes regulations affecting the National Airspace System (NAS). The FAA publishes the regulations to make them readily accessible to the aviation community. One source is the Government Printing Office (by subscription). Notices of Proposed Rule Making (NPRM) are sent to subscribers when regulatory changes are being considered. Another source is via the Internet, at *www.faa.gov*. The CFRs, also available on-line, can be found at *www.access.gpo.gov/nara/cfr/cfr-table-search.html*.

NPRM notices may also be accessed at the Federal Register website at *www.regulations.gov*.

B. Aeronautical Information Manual (AIM)

The Airman's Information Manual (AIM) is designed to provide the aviation community with basic flight and ATC procedures for use in the National Airspace System. It contains a wealth of data related to ATC functions. Information parallels the U.S. Aeronautical Information Publication (AIP) that is distributed internationally. The AIM is available from various commercial sources.

The AIM has information of a relatively permanent nature, such as descriptions of aeronautical lighting and airport visual aids, descriptions of various navigation aids with proper use procedures, procedures for obtaining weather, preflight and in-flight services, arrival, departure and enroute procedures, emergency procedures and a pilot/controller glossary.

C. Airport/Facilities Directory (A/FD)

The Airport/Facilities Directory, designed to be used with sectional charts, contains information on airports, communications, navigation aids, parachute jumping areas, controlled firing areas, major updates to sectionals, and other information essential to navigation through the airspace. The FAA's National Flight Data Center compiles and maintains data for this Directory. It is compiled in seven volumes, by geographical areas, and is available by subscription or may be purchased from aviation specialty stores.

D. Notices to Airmen Publication (*www.faa.gov/NTAP*)

This is a publication by the FAA containing Notices to Airmen (NOTAMs) that are considered essential to the safety of flight. It includes current Flight Data Center (FDC) NOTAMs that are regulatory in nature and are issued to establish restrictions to flight, such as temporary Military Operations Areas (MOAs), or to amend charts or published information. This publication is issued every 28 days and is available by subscription from the Superintendent of Documents or from the internet.

NOTE: FDC NOTAMs for Temporary Flight Restrictions (TFRs) are not published in the Notices to Airmen Publication.

E. Advisory Circulars (*http://www.faa.gov/regulatory advisory/ac_index.htm*)

The FAA issues Advisory Circulars to inform the aviation public of non-regulatory material of interest. They either explain the actual regulation or provide additional information to aid in compliance with regulations. Advisory Circulars are numbered to correspond with 14 CFR.

F. Aeronautical Chart Users' Guide

This Guide is designed to be used as a teaching tool, a reference document and as an introduction to the wealth of information provided on the sectional charts and publications. It includes explanations for both VFR and IFR terminology and symbols. It depicts (in color) all the symbols used throughout various aeronautical charts. Agency personnel will find this to be a valuable educational or reference tool. Copies may be purchased from local FBOs or from aviation specialty stores. Ordering information is listed in Appendix C.

V. Technology

FIGURE 5-5 HAI Safety Poster

Reprinted with permission of United States Aviation Underwriter Inc.

"See and Avoid" is the basic principle of VFR flight and collision prevention. In the early days of aviation, all airspace was uncontrolled. There were few aircraft and none had the equipment necessary to fly through clouds. Traffic density was low and aircraft flew slowly compared to today. It was generally agreed that if aircraft remained clear of clouds and had at least one mile of visibility, then pilots could see other aircraft, obstructions and terrain in time to avoid a collision. With the advent of faster and increased numbers of aircraft, and new technologies (e.g. Instrument Flight (IFR) capabilities), systems were developed and continue to evolve to manage the increasingly complex airspace.

A. Traffic Collision Avoidance System (TCAS)

TCAS is a midair collision avoidance system. TCAS equipment on board an aircraft operates an Airborne Secondary Surveillance Radar (ASSR) by interrogating the transponders of other aircraft on the same interrogation and reply frequencies.

A display in the aircraft alerts the pilot and provides the pilot with the heading and altitude of other aircraft equipped with ASSR transponders. Software advances are providing pilots with avoidance maneuvers both vertically and horizontally. When a nearby aircraft is detected, the TCAS computer sounds a warning using synthesized speech.

B. Direct User Access Terminal (DUAT)

This FAA sponsored system was implemented in 1990 and provides automated flight weather information and flight plan filing directly from a home or office computer. The FAA provides flight data information to two DUAT contractors who maintain internet site connections. DUAT is a tool that provides access to Notices To Airmen (NOTAMS). You must have a pilots license to log on to DUAT.

C. Global Positioning System (GPS)

The Global Positioning System is a navigation system consisting of satellites that transmit precise time and position information to anywhere on the globe. The GPS constellation consists of multiple satellites orbiting the earth in six fixed planes. Each satellite orbits the earth twice a day at an altitude of 10,800 nautical miles. This system is unaffected by weather.

GPS was developed and deployed by the U.S. Department of Defense primarily to provide continuous, world wide positioning and navigation data to U.S. and allied military forces around the globe. GPS has broad civilian and commercial applications including navigation, surveying, exploration and tracking.

One area of concern for agency personnel is the confusion over Datums when using GPS for positioning reporting. A datum refers to a set of measurements made on the ellipsoid model of the earth measuring horizontal positions on the earth's surface. There are a variety of datums in use for ground based applications which include NAD 83 (North American Datum 1983) and NAD 27. (NAD 27 is based upon Clarke 1866 ellipsoid model.) In March, 1989, the Council of International Civil Aviation (ICAO) accepted a recommendation from its Special Committee on Future Air Navigation Systems (FANS/4) which adopted WGS 84 (World Geodetic System 1984) as the international standard datum for Aviation positioning. The difference between datums can cause a difference in accuracy of positions. Additional information on GPS is available at *http://gps.faa.gov*.

GPS OUTAGES: Notams are now available for GPS Outages at *http://www.navcen.uscg.gov/gps/status_and_outage_info.htm*. Subscriptions are also available for outage notices. The US Coast Guard is planning an aviation NOTAM application with the US NOTAM office.

Agency personnel need to remember that various GPS units could be referring to different Datums. Note that ground based applications use a different datum than aviation based GPS units.

D. Transponder Codes/Code 1255

Transponder codes are a system of tracking used by the FAA. A computer located in the FAA's Air Route Traffic Control Center (ARTCC) will assign a transponder code to an aircraft. There are some transponder codes that

are reserved, such as the code 1200; which is reserved for VFR aircraft not in contact with an ATC.

In 1997, the FAA designated the transponder code 1255 for national use in aircraft firefighting operations. The purpose of this special code is to enable enroute and terminal radar service facilities to identify aircraft engaged in tactical fire suppression missions and if necessary, separate them from nonparticipating aircraft such as news media and transient aircraft. The letter designating the code states:

> *"Beginning July 17th, 1997, on a national basis, aircraft engaged in, or traveling to, fire fighting operations are approved to use a special beacon code, 1255. The code 1255 may be used by aircraft that are not in contact with air traffic control. Air traffic controllers have been briefed that the code would be equivalent to using the flashing lights and sirens on a fire engine. In other words, aircraft flying from Georgia to Colorado to help fight a fire would not use a squawk of 1255.* [Note: This is because the pilot is flying from point-to-point under ATC.] *The 1255 code will increase controller awareness of the firefighting mission, but will not assure any priority air traffic control services. If needed, special services should be requested from air traffic control. At that time subject to the controller's discretion, the 1255 code may be retained or another beacon code may be assigned.*"

This transponder code is not intended for use during reconnaissance, ferrying, VIP, transport or other non-tactical flights. It is not to be used for repositioning aircraft or during cross-country flights. It is specifically for flights that are tactical in nature and are actively involved in wildfire suppression efforts. See Appendix G for original letter.

E. The Initial Attack Management System (IAMS) Program (aka IAMs/ CAHIS)

In 1988, representatives from several Federal agencies began to study how the benefits of the USFS Computer Aided Navigation (CAN) program could be applied to the BLM Initial Attack Management System (IAMS). The CAN program was upgraded into CAHIS (Computer Aided Hazard Identification System). IAMS was a networked computerized system package of multiple applications designed to help managers more effectively dispatch initial attack resources to incident sites. BLM added CAHIS into the aviation portion of IAMS and referred to it as IAMS-MAPs. The network application was discontinued and many of the programs have been developed as stand alone applications. The airspace deconfliction

program is now a stand alone system available from the internet and is often called both IAMS or CAHIS or sometimes simply IAMS/CAHIS.

The IAMS/CAHIS program locates Military Training Routes and Special Use Airspace and identifies VORs, helibases, airtanker bases and other support locations. The program provides an accurate display for visual reference and analysis. The program's formats can be modified to suit specific needs and the customized information can be saved. A map can be printed out for aviation personnel and used as a permanent record.

The aviation portion of IAMS/CAHIS graphically displays selected geographic areas at various scales. Overlays containing specific information about that area can be added or removed. In addition, attributes can be changed for each overlay selected, much like a Geographic Information System (GIS) product.

The IAMS/CAHIS program has many overlays available, including:

Aviation Overlays

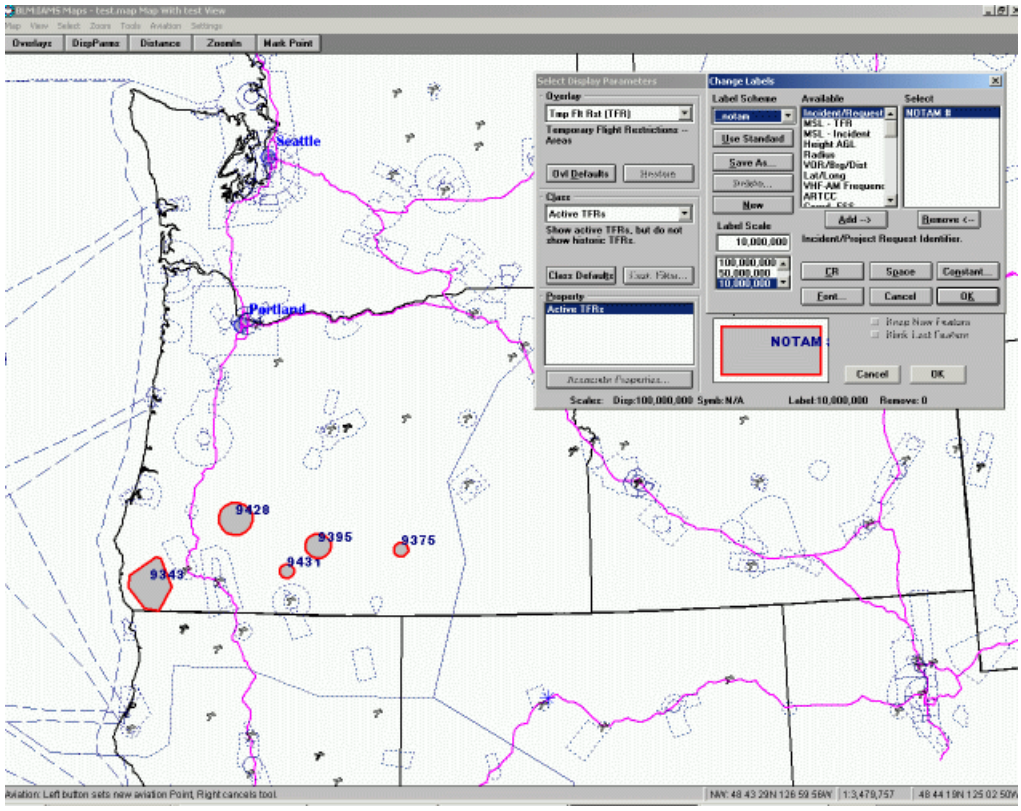
- Airports/airbases
- Airspace boundaries (ARTCC)
- Military Training Routes (boundaries, center lines and turning points)
- Navigation aids (VORs and VORTACs)
- Special Use Airspace
- Temporary Flight Restrictions

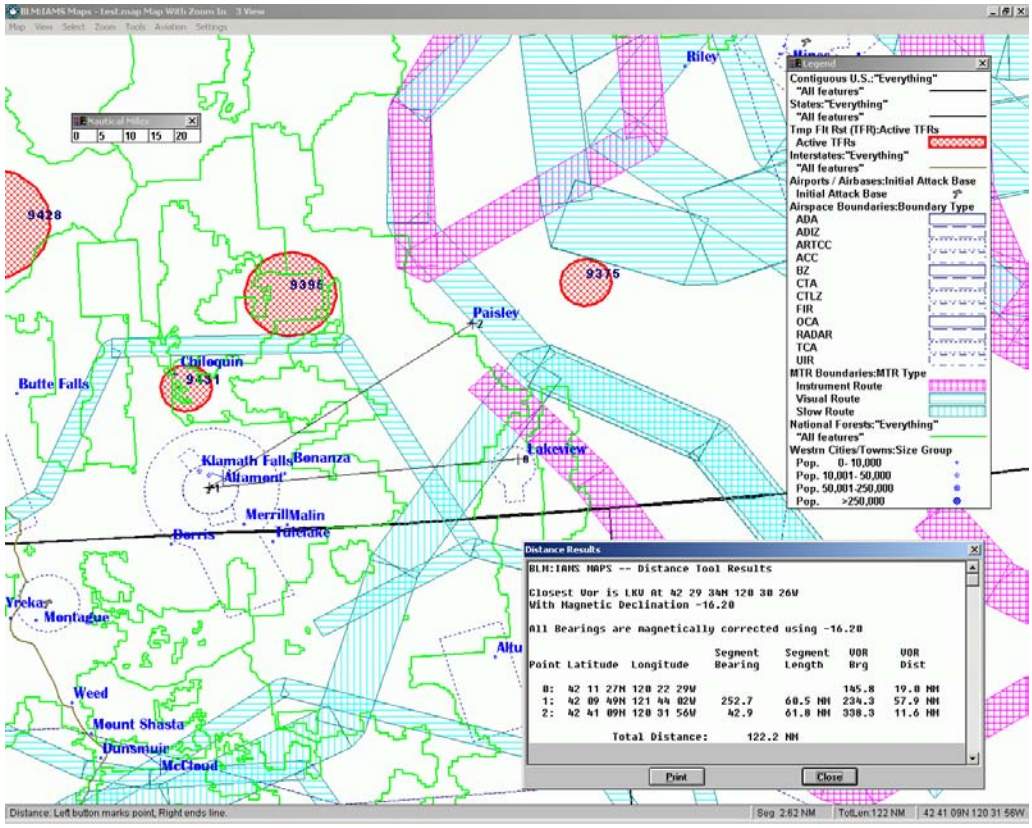
Non-Aviation Overlays

- States
- Counties
- Roads
- Interstate highways
- Rivers
- Lakes
- Administrative boundaries
- Railroads

The program is beneficial to both dispatchers and aviation personnel. Rather than the time consuming and error prone method of manually converting a fire from township, range and section to latitude/longitude, looking up VOR/DMEs and plotting fire locations, IAMS/CAHIS automates this task. The basis of IAMS/CAHIS is information from the FAA and the DOD AP/1B FLIP book. The AP/1B is available via Internet, and is updated in 28 and 56 day cycles. The user is notified if they are using out-

FIGURE 5-6 Two Representations of What IAMS/CAHIS Can Display





dated information when old data is flagged with red letters that identifies the date the data expires, which in turn prompts the user to down load new data.

The system may be used by anyone, in any situation (emergency or not). IAMS/CAHIS has become an important aviation safety tool. It serves the vital purpose of providing accurate, quick and easily accessible information to pilots, dispatchers, ground crews, the FAA, military installations and other agencies.

IAMS/CAHIS software may be downloaded from the Internet. The user needs to maintain the program by downloading updates on a 26-day cycle. The program and updates are available at *www.nifc.blm.gov* (click on aviation). It includes airbase updates (every 28 days), military updates (every 56 days) and the current IAMS/CAHIS user guide. Feedback from users of IAMS/CAHIS will help to further develop, customize and enhance the system. Users are encouraged to provide feedback and ideas to their agency aviation managers.

VI. Airspace Coordination Skills

When directing pilots to a location, or understanding their reports of location, some basic knowledge of aeronautical terminology is needed. To help dispatchers and other non-pilots develop practical skills and understand the common references used by the aviation community, a number of explanations are provided.

A. Position, Direction, Heading and Distance

The term *position* refers to an identifiable location on earth or a point within a human designed system of artificial coordinates. A position may be in reference to a known geographical landmark, in relation to an Air Traffic Control Navigational Aid (NAVAID) facility, or in reference to lines drawn on a map (latitudes and longitudes).

A compass *direction* (e.g. east, west) is the position of one point or object in relation to another, without regard to distance.

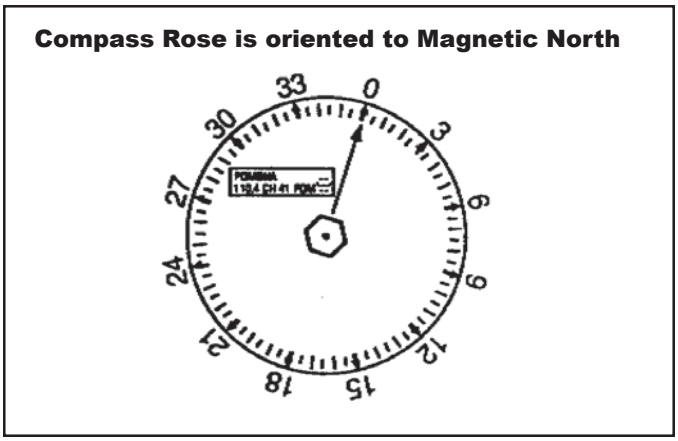
A *heading* (also known as a *bearing*) differs from a compass direction in that it describes the angle (in degrees) from the longitudinal axis of an aircraft to a reference line such as magnetic north.

Distance is the spatial separation between two points, without regard to direction. The customary units are nautical or statute miles, or kilometers.

The "mile" used in navigation is the international nautical mile (6,076 feet), which is approximately 15% longer than the customary statute mile used in land travel (5,280 feet).

B. Compasses

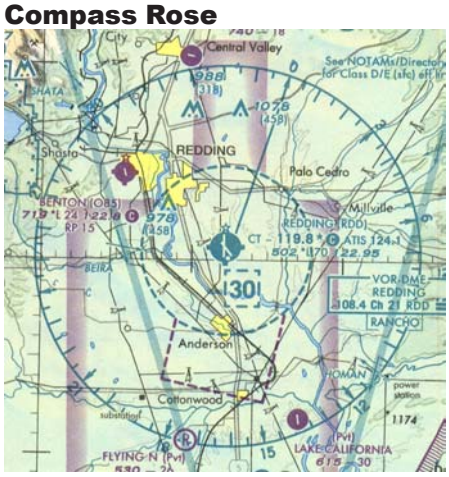
FIGURE 5-7 Compass Rose



Compasses are used to determine headings and directions. The simplest compass references use the cardinal point system of north, east, south and west. Intermediate points can be described (e.g. northeast or southwest), or subdivided again for even greater accuracy (e.g. north-northwest). The use of compass points to describe direction is relative to the point of reference. For example, a location as east of a prominent peak, it's understood that the starting point is the known peak and travel is in an easterly direction.

When the compass is divided into a 360-degree circle, each of the four major quadrants (e.g. north to east) becomes 90 degrees. Beginning at zero degrees (north), and proceeding clockwise, points are marked at even intervals until north is once again reached. At this point north serves as the ending point of 360 degrees. Using this system, direction can now be stated as a degree (e.g. east is 90 degrees, south is 180 degrees, west is 270 degrees), enabling even greater precision in navigation.

FIGURE 5-8 Sectional Compass Rose



C. Compass Declination

When using a compass remember that when the needle points north, it's actually using the magnetic force of the earth to find the northern magnetized pole, commonly referred to as *magnetic north*. Whereas *true north* is a map direction

toward the geographical North Pole, *magnetic north* is the compass direction toward the magnetic North Pole somewhere north of Hudson Bay.

The angle between magnetic north and true north is called the *variation* or *declination.* True north and magnetic north coincide along only one line in North America; it runs off the east coast of Florida, through Savannah, Georgia and Lake Michigan, to the magnetic North Pole. At any point between this line and the Pacific Ocean, the compass needle points east of true north and is read as "xx degrees east declination"; at any point between the line and the Atlantic Ocean, the needle points west of true north and is read as "xx degrees west declination".

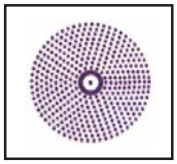
Consult sectional charts or the Airport Facility Directory for the declination for a desired area or NAVAID. Not accounting for the difference between a map's true north and a compass' magnetic north can complicate navigation, and may throw an aircraft off course.

D. Air Navigational Aids (NAVAIDs)

Various types of NAVAIDs are used today within the NAS. The following provides a brief description of those commonly used for navigation.

1. Non-Directional Radio Beacon (NDB)

FIGURE 5-9
NDB Symbol



The Non-Directional Radio Beacon (NDB) is a homing-type NAVAID used for en-route navigation and airport approach. This land-based facility provides a signal in all directions and the pilot "homes in" by keeping the noise of the aircraft pointed towards the sending location. NDBs are used with Airborne Direction-Finding (ADF) equipment that senses and directs the pilot with bearing information. Direction is indicated as a magnetic or relative *bearing* to the longitudinal axis of the aircraft. **NDB should not be used when plotting or describing a TFR.**

2. Omnidirectional NAVAIDs

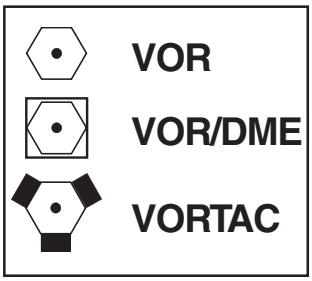
Omnidirectional NAVAIDs were designed for more specific bearing information that does not require flying toward the facility. They use 360 courses (like the 360 degrees of a compass) which are known as *radials,* and the number assigned gives the aircraft's relative bearing from the NAVAID facility. The facilities have the advantage of not being affected by weather and other factors common to interference of the NDB/ADF. The basic types of omni facilities are

the Very High Frequency Omnidirectional Range (VOR), the VOR/DME (distance measuring equipment), the Tactical Air Navigation (TACAN) system, and the combined VOR/TACAN.

When dealing with positions based on Omnidirectional NAVAIDs equipment, keep in mind these are limited to line of site/reception. Additionally, facilities are classified by power which affects usable range for reliable navigation. These classifications are terminals (T), low altitude (L) or high altitude (H). When calculating a navaid fix using charts or computer programs, compare the navaids classification to the calculated distance to determine if this reference is appropriate.

a. VOR

FIGURE 5-10
VOR Symbols



Sectionals have three symbols for VORs: VOR, VORTAC and VOR/DME. There is no difference between the three types of stations if you are using them for plotting on a sectional.

VOR operates in the Very High Frequency (VHF) radio band and is the primary omnidirectional facility used by public and private aircraft. Each VOR station transmits a signal that is identifiable as 360 radials (or lines) of position that are oriented in relation to magnetic north. A compass rose aligned with magnetic north is placed at each VOR site on Sectional charts.

b. VOR/DME

Some VOR sites are equipped with a DME feature that measures distance from the aircraft to the DME equipment. This combined position information is also referred to as “radial/DME”. For the DME equipment to measure distance from every aircraft it needs corresponding equipment on board the aircraft that it can communicate with. The aircraft’s equipment is called an interrogator, because it sends out signals that seek distance information. The ground equipment, called a transponder, accepts the signals, calculates distance based on transmission times, then sends back the distance information to the aircraft.

c. TVOR

A TVOR is an airport terminal VOR. A low powered VOR located at or near an airport and used as an approach aid. **A TVOR should not be used when plotting or describing a TFR location.**

d. TACAN

TACAN facilities broadcast NAVAID information on Ultra High Frequencies (UHF), which are primarily used by the military. Unlike the VOR that needs the separate DME equipment for distance information, TACAN equipment is integrated for azimuth and DME. TACAN also uses the interrogator and transponder to communicate over paired frequencies to exchange information. At some sites in the NAS, collocated TACAN and VOR facilities (using the DME off the TACAN) are called VORTACs. Although differences do exist in operation of the VOR versus TACAN, the resulting information is basically the same. The advantage of collocating TACAN and VOR stations is that civilian pilots can use the distance-measuring feature of the TACAN with the direction indications of the VOR.

E. Using VOR/DME (Bearing/Distance)

There are 360 degrees of radials represented by a VOR station. The radials are the measured magnetic direction from the station and are depicted with a compass rose on aeronautical navigation charts (Sectionals, WAC, Etc.)

The 0 degree radial points directly toward magnetic north. The 90-degree radial is 90 degrees clockwise around the compass rose from magnetic north and points to a direction of magnetic east. Like a compass rose, radials always emanate from the station and not from the aircraft.

VOR's can be used for many purposes. The most important purpose for the dispatch organization is to determine a position location relative to the VOR. VOR/DME's are used in submitting TFRs to the FAA.

FIGURE 5-11 Manually Plotting Bearing and Distance

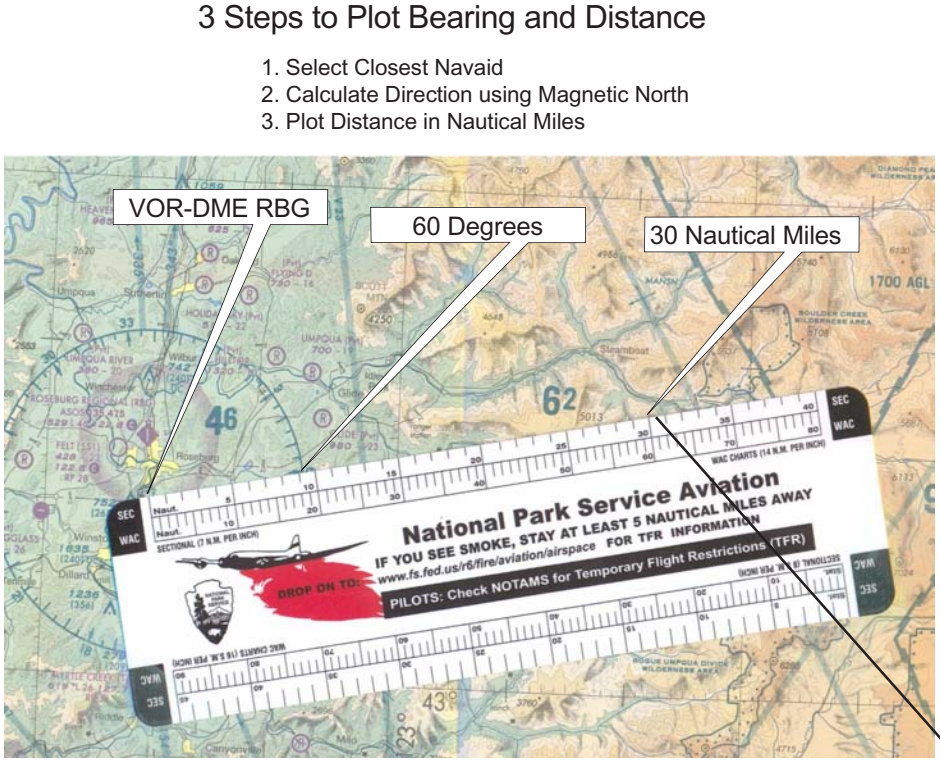
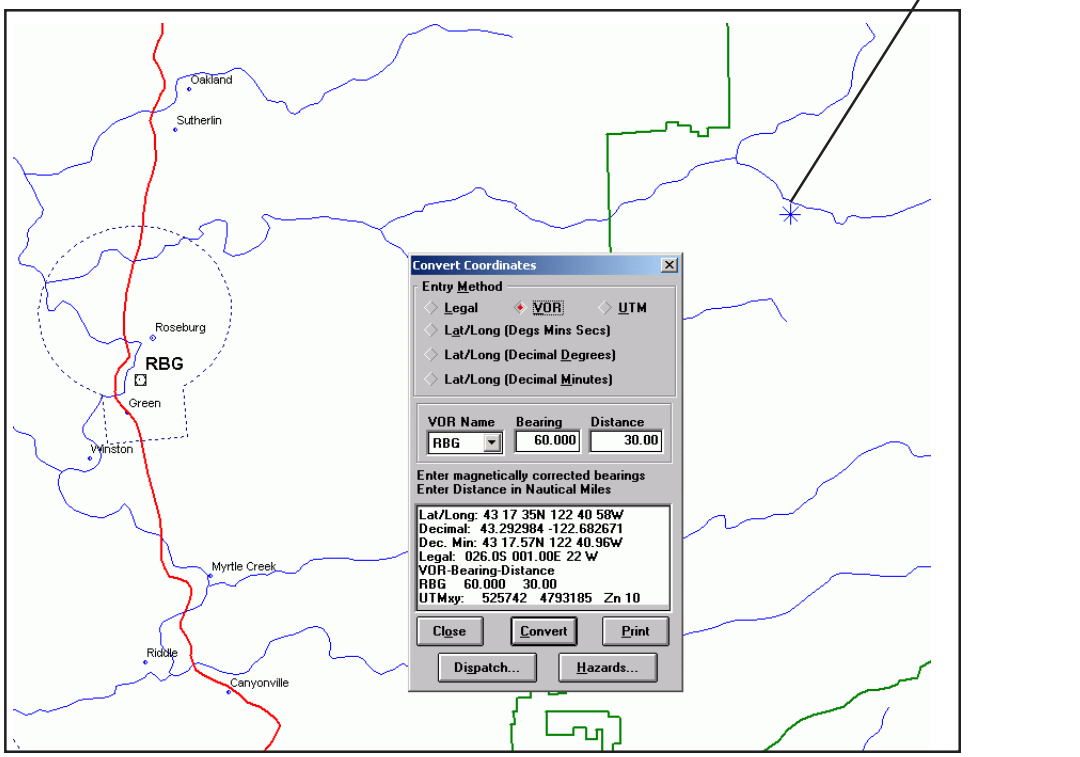
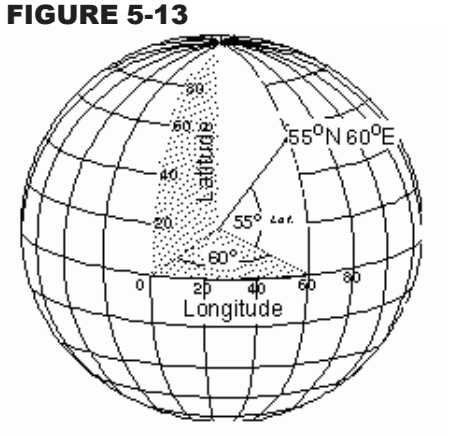


FIGURE 5-12 Using IAMS/CAHIS to Plot Bearing and Distance



F. Latitudes and Longitudes

FIGURE 5-13



Positions are determined in reference to map lines. On a globe there are *parallels of latitude (east-west)* or *meridians of longitude (north-south)*, represented by the lines which go completely around the world. Related to a map/chart depiction of an area, these lines are simply referred to as latitudes or longitudes. The maps will show these lines as flat and labeled in terms of degree with subunits expressed in minutes and seconds.

1. Latitude

Latitude is the angular measurement of a location expressed in degrees north and south of the equator. Latitudes run from 0 degrees at the equator to 90 degrees north (N) or 90 degrees south (S) at the respective poles.

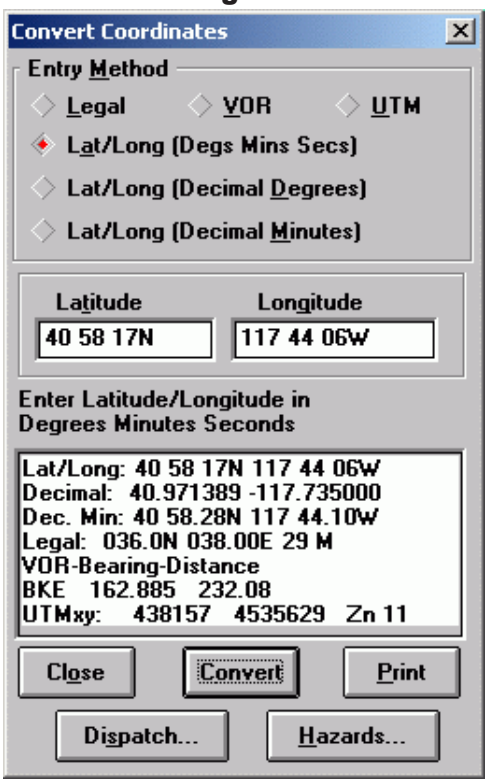
2. Longitude

Longitude is the angular measurement of a location east or west of the prime meridian. All lines of longitude run through both poles. To set a place of reference, the line which passes through Greenwich, England was selected as the prime or Greenwich meridian. Longitudes run from 0 degrees at the prime meridian to 180 degrees east (E) or west (W), halfway around the globe.

3. Units of Measure

Degrees and minutes are units of measurement for latitudes and longitudes. A degree will always be depicted on a map but because of the convergence of lines to the poles, the corresponding mileage/metric value differs. Latitudes are equal-distant from each other (also called parallels) and each degree is equivalent to 69 statute miles (111 km or 60 nm). Because meridians converge at the poles, the length of a degree can vary from 69 miles at the equator to 0 miles at the poles.

FIGURE 5-14 IAMS/CAHIS Conversion Program



To determine a location in smaller than degree units, minutes are used to subdivide each degree into 60 units. Each minute can be further subdivided into 60 units called seconds. When writing a location in terms of latitude and longitude, list the degree 2 or 3 digit number followed by a small circle similar to a footnote character (°), then minutes (2 digits) followed by a single apostrophe (‘), and then seconds (2 digits) followed by a quotation mark (“). The latitude value is always listed first, followed by it’s direction (N or S) from the equator and then the longitude value, followed by it’s direction (E or W) from Greenwich.

Sometimes a different description using a decimal fraction of a value is used. When using this method, remember that each tenth of a value (degrees, minutes or seconds) should be multiplied times 6 to get the value at the next lower sub-unit.

The IAMS/CAHIS program has a useful tool for converting coordinates. For example, Winnemucca, Nevada, can be displayed in the following formats:

Degrees, Minutes, Seconds: 40°58’17”N, 117°44’06”W
Decimal, Degrees: 40.971389, -117.735000
Decimal, Minutes: 40 58.28N, 117 44.10W

The US NOTAM office will only accept TFR requests in a Degrees, Minutes, Seconds format. An internal memo within the FAA states the following:

“Effective immediately insure that all NOTAMs containing latitude and longitude information utilize Degrees, Minutes, Seconds and includes a reference to North latitude (N) and West longitude (W). If seconds are not available, add two zeros for the second spaces. Do not include spaces, commas, dashes or any other symbols. The standardized format shall be: ddmmssN/dddmmssW.”

For example, the above reference to Winnemucca, Nevada, would be: 405817N/1174406W.

FIGURE 5-15 Six Steps to Plotting Latitude and Longitudes

Six Steps to Plotting Latitude and Longitudes

1. Look at a map and identify the latitude lines–look for labeled value. Remember if moving north of the equator the numbers will get larger as you go north. The opposite would be true if one is south of the equator, the numbers increase southbound there.

2. Next find a line that runs perpendicular through the latitude line, this is the longitude line. Looking north on the map, find hashmarks along the longitude line, dividing the area to the next crossing (not labeled) latitude line into three groups of ten, making up 30 minutes. Each hashmark above the latitude will be distinct and the hashmarks between the units of ten will be smaller. Within each ten hashmarks, the midpoint (at 5) will stick out a little further to make it easier to read. This makes it easier to read the value at a glance versus counting up each of the hashmarks from the latitude line. Be careful to not get confused counting in reference from the midpoint (30') between lines of latitude–using a highlighter to mark the values of lines to keep track is helpful.

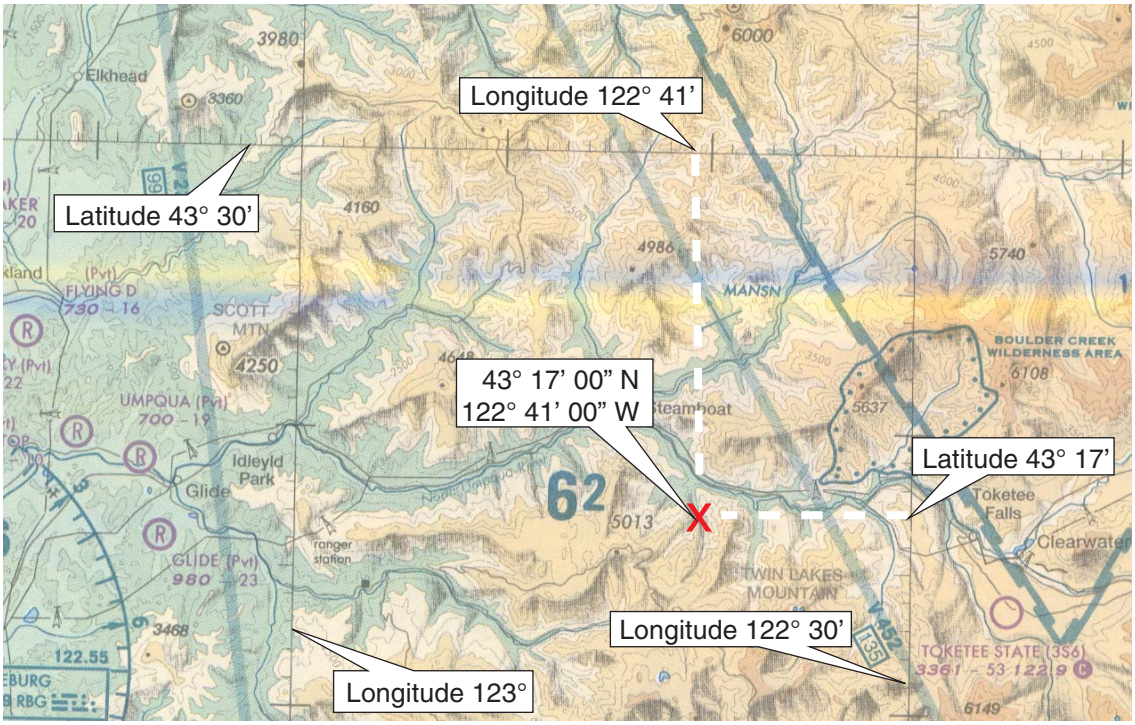
3. Most aviation maps will easily depict the degrees and minutes values but not the seconds. It really depends on the scale.

4. After plotting the latitude, keep that reference while you look for the longitude. A simple way is to use a straightedge (you can use a sheet of paper with a clean, straight end)) to follow along that point or else pencil a faint line.

5. Do the same steps 1–3, only this time look at lines of longitude. The values will increase moving westbound and decrease moving eastbound from Greenwich. Find the degrees by marked references and then use the hashmarks along the closest latitude line to count minutes. Identify where the north south line runs into the line of latitude and that's the location point. When accomplished one can get used to doing this and be able to eyeball a map, knowing the degrees for latitude and longitude and break it down from there. Again, the scale of the map will make it easier or harder.

6. If you know the location and need to plot the lat/long (also called coordinates), it's a similar process. Find the closest labeled reference line and work from there. It may be harder to read the lines on busy map backgrounds, like on some Sectionals, use pencil marks or rulers/papers to keep place until you get the coordinates. Write the final position with latitude first followed by direction from equator (US will always be N) and then latitude followed by direction from Greenwich, England (US will always be W).

FIGURE 5-16 Understanding Latitudes and Longitudes



G. Coordinated Universal Time (UTC) (Formerly known as Greenwich Mean Time or Zulu)

In communicating with DoD or FAA agencies, reference may be made to Greenwich Mean Time (GMT), also called Coordinated Universal Time (UTC) or "Zulu" time. However, by International agreement the term UTC is recommended and the terms GMT and Zulu are discouraged.

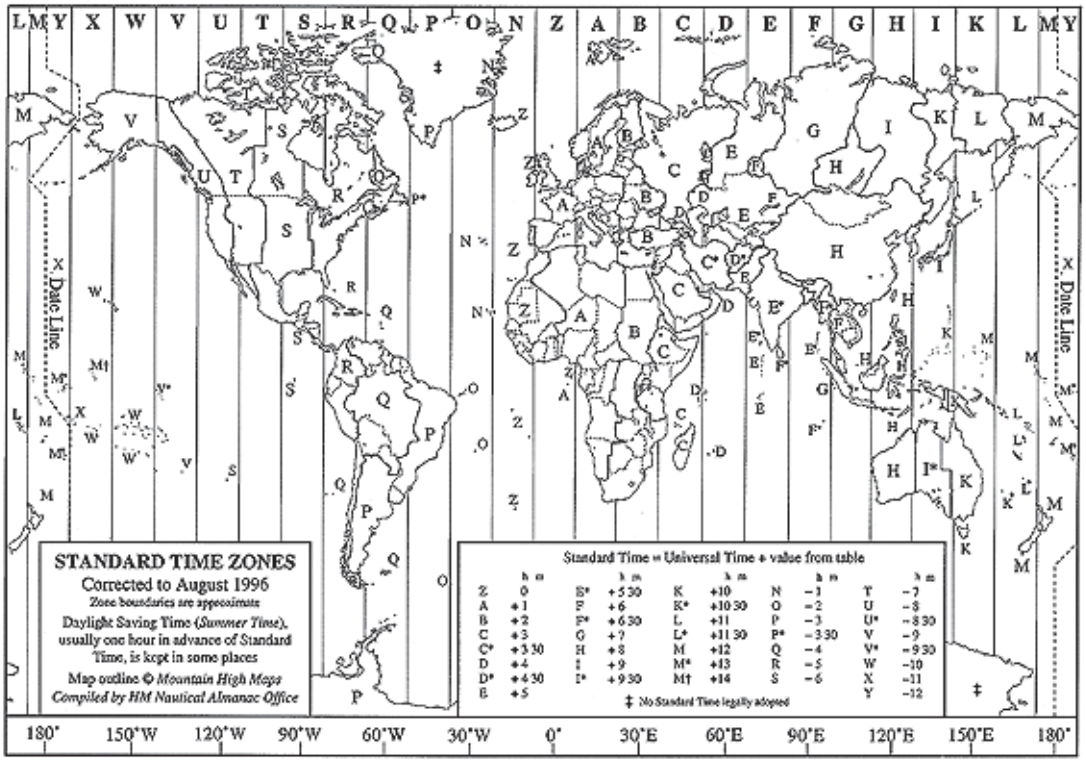
The world is divided into 24 time zones. For easy reference, a letter of the alphabet has been assigned to each time zone. Greenwich, England was selected as the prime meridian for standardized reference and a single time reference was created to be used throughout the world. From Greenwich, England, the earth is divided into twenty four bands fifteen degrees apart. Each band (or 15 degree section) represents one hour difference from the zero meridian at Greenwich; subtract to the west and add to the east to arrive at local time. Greenwich, England, is located in Zone 'Z' hence the common name "Zulu" time was created.

If you are in a zone that uses daylight savings time, to convert from local time, you'd need to subtract an hour when clocks are set ahead and then return to the normal calculation when clocks are set back.

The ATC system (worldwide) uses this standard to calculate actual flight time when crossing time zones results in artificially adding or subtracting hours. By using a standard, one can know the actual time differences without regard to these changes. The military and many pilots use this standard for similar reasons. When working with flight operations, especially in areas where the time zone changes, agency personnel will probably deal with these references. A conversion chart is located at *https//hurricanes/noaa.gov/zulu-utc.html*.

Agency personnel working with military schedulers should communicate in the UTC time frame. It is helpful to have a separate clock set to UTC time. When not using UTC, add the word "local" after time designations.

FIGURE 5-17 UTC Time Zones



VII. Additional Airspace Deconfliction Tools

A. Airspace Videos

There are two videos available for agency personnel usage.

1. Aviators and Wildfire

This is a six minute video developed by the USFS (Coconino NF) that is aimed at general aviation. It discusses the need to stay away from TFR areas.

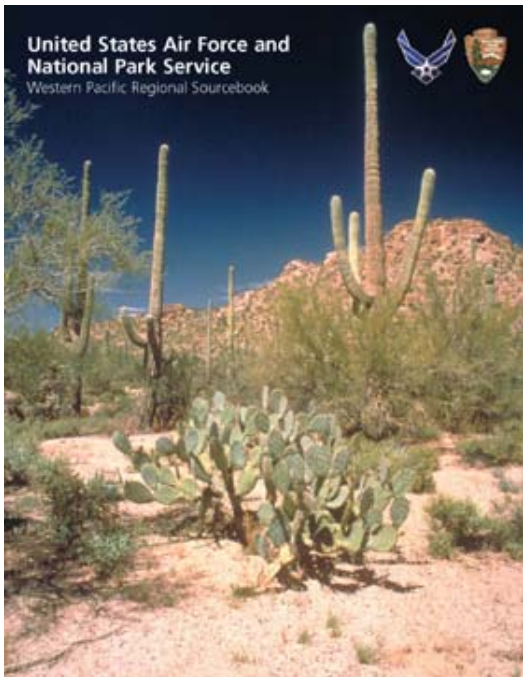
2. Flying in Special Use Airspace

This 14 minute training video from the FAA discusses Special Use Airspace and Temporary Flight Restrictoins. It may be useful for training agency personnel as well.

B. National Park Service and the US Air Force Western Pacific Sourcebook

The USAF and the NPS have published the first of a series of airspace "Sourcebooks" for geographical regions of the United States. The sourcebooks are designed to share information about airspace users and appropriate NPS units. The objectives of the sourcebooks are to foster communication and promote the building of relationships between USAF airspace managers and NPS park managers. The sourcebooks are a wealth of local airspace information and is recommended reading for any agency personnel involved in airspace coordination. The Western Pacific Regional Sourcebook is available at *www.afranges.net/sourcebook.html*.

FIGURE 5-18 Sourcebook Cover



C. Posters

Several outstanding posters exist for outreach to both DoD and general aviation with a “stay away, stay alive” message regarding TFR avoidance. Units may also choose to prepare smaller posters for posting at local airports to display current TFR information.

Figures 5-3 through 5-7 are examples of these awareness posters.

FIGURE 5-19 Example of a Customized Poster

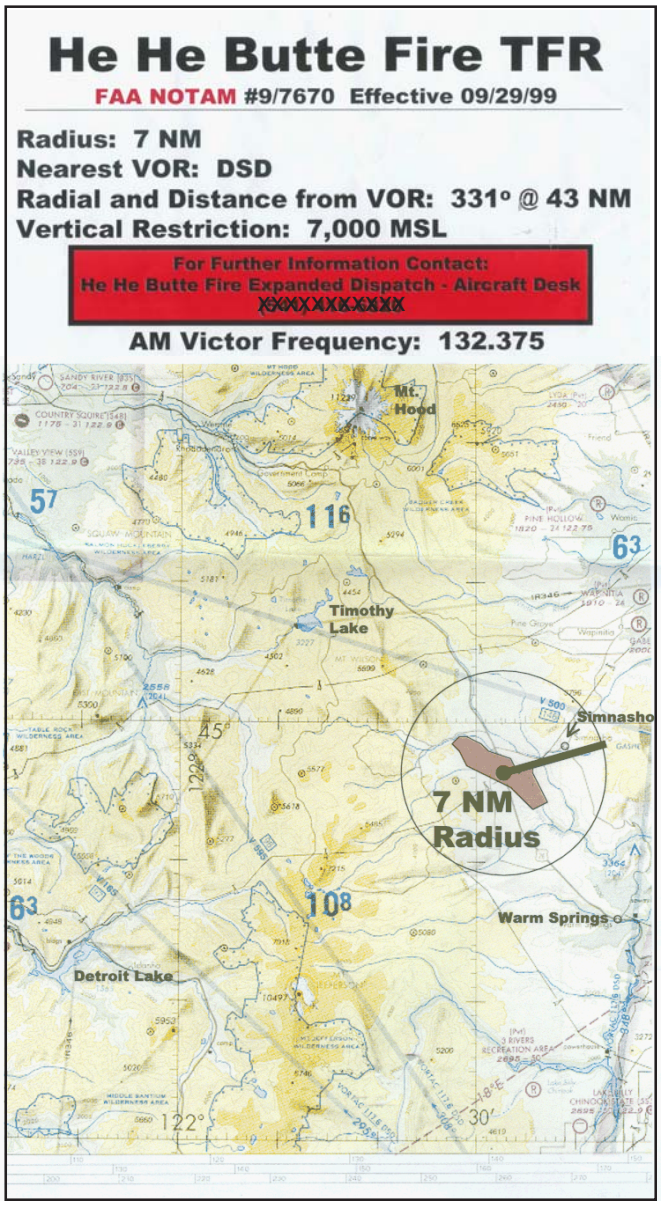


FIGURE 5-20 Example of a Customized Poster

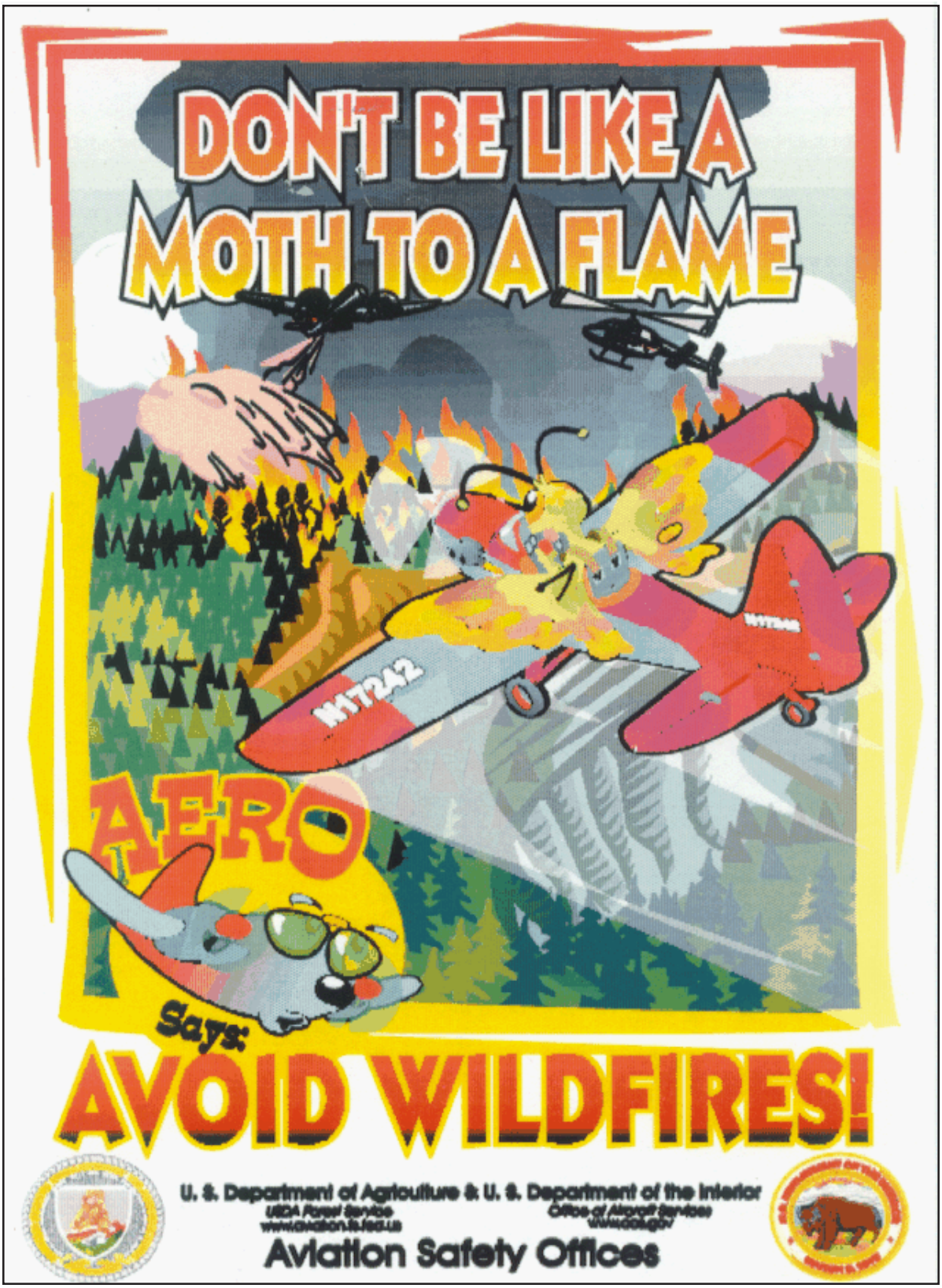


FIGURE 5-21 Example of a Customized Poster

FIGURE 5-22 Example of 8x11 Poster Mailed to Airports

GENERAL AVIATION ADVISORY

Due to the current number of wildfires in the Western United States, pilots are advised to FLY SAFELY CLEAR OF FIRES.

Many Temporary Flight Restrictions (TFR's) (14 CFR 91.137) are currently in effect. Not all wildland fires have TFR's in place, but all constitute a hazardous environment to aviators. Aerial firefighting operations may be taking place on any fire, whether or not a NOTAM has been issued.

Firefighting hazards include but are not limited to the following:

- Reduced visibility with marginal VFR conditions.
- Turbulence from convection currents.
- Hazardous airspace with firefighting helicopters, large low-flying aircraft in unusual flight patterns.
- Temporary control towers at previously uncontrolled airports.

If a fire is spotted stay clear and contact your FSS with a location report.

Agencies involved in firefighting will continue their efforts to minimize the impacts upon the General Aviation community, but they need your cooperation in order to provide for Firefighter and public safety.

Please visit: **www.fs.fed.us/r6/fire/aviation/airspace**

Interagency Airspace Coordination 2002

FIGURE 5-23 Example of Local Airspace Deconfliction Poster

FLY CLEAR
of WILDFIRES and SMOKE
for your safety and the safety of the aerial firefighters

- **Do not approach to investigate.**
- **Do not risk a violation.**
- **Report suspicious smoke to nearest flight service station.**
- **Airspace surrounding a wildfire may be restricted. (FAR 91.137)**
- **Restrictions vary with the size of the incident.**
- **Even a single smoke could have aerial firefighters already on site.**

Your local Division of Forestry

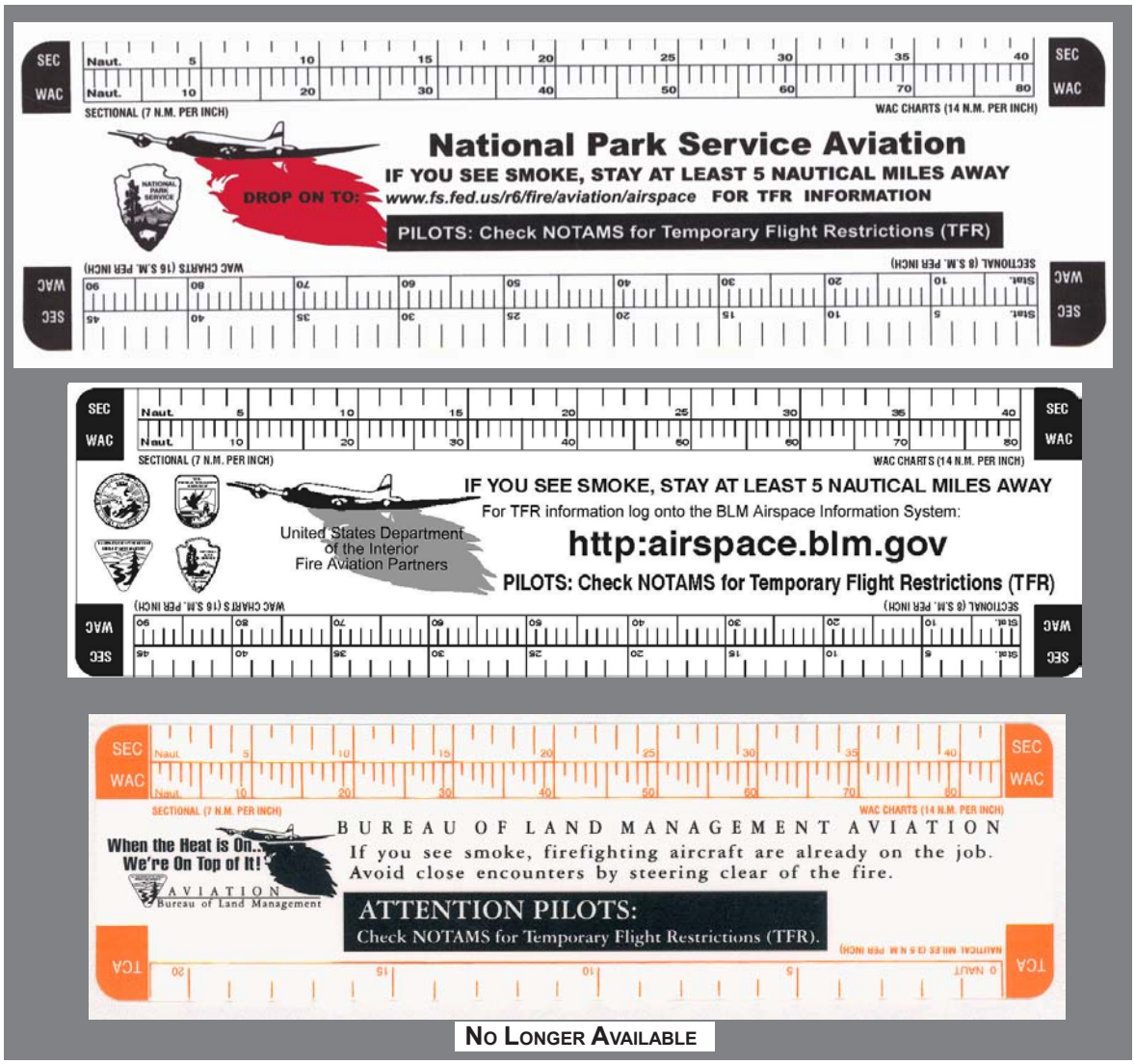
Field Unit _____

Phone No. _____

For additional information visit www.fl-dof.com
Florida Department of Agriculture and Consumer Services
BOB CRAWFORD, Commissioner

FIGURE 5-24 Example of Airspace Deconfliction Tools (printed in Business Card Format)

FIGURE 5-25 Airspace Training Rulers (do not use for navigational purposes)



NO LONGER AVAILABLE

CHAPTER 6
Temporary Flight Restrictions and Advisory NOTAMS

I. Introduction

In order to enhance safety during an incident or project, the FAA may be requested to issue a Notification to Airmen (NOTAM) to pilots; these could be either a Temporary Flight Restriction (TFR) or a NOTAM (L) or NOTAM (D). In addition to the NOTAM process, agency personnel contact military facilities and or other agency aviation units to request deconfliction of the involved airspace.

Deconfliction is a process that involves the separation of land management agency and other types of aircraft that may pose a flight hazard. This process is frequently used by local dispatch to inform military units of activity whether emergency or planned. This deconfliction is negotiable unless a TFR is involved. Local dispatch may also use deconfliction information to notify other agency aircraft of an evolving situation that requires deconfliction for safety. See Chapter 7 for additional Airspace Deconfliction information.

A TFR applies to an area of airspace (defined both laterally and vertically) that has been temporarily or partially closed to non-participatory aircraft for a specified period of time. Flight restrictions may be requested in response to the aviation safety need for separation of aircraft for disaster or incident activities.

This chapter describes the types of conditions under which the FAA may impose temporary flight restrictions. It also explains the FAA authority to issue a TFR NOTAM and lists the types of responsible agencies/offices from which the FAA will accept requests to establish TFRs.

The Code of Federal Regulations (14 CFR) is explicit as to what operations are prohibited, restricted or allowed in a temporary flight restriction area. Pilots are responsible to comply with 14 CFR sections 91.137, 91.138, 91.141, 91.143, 91.144, 91.145 and 99.7 when conducting a flight in an area where a TFR is in effect, and should check appropriate NOTAMs during flight planning.

II. Notices to Airmen (NOTAMs)

NOTAMs are one of the FAA's methods of distributing information to pilots. When changes occur so rapidly that time does not permit issuance on a chart or in an appropriate publication, they are published as NOTAMs. They may contain information (recent changes or not publicized elsewhere) concerning the establishment, condition of, or change in, any component (facility, service, procedure or hazard) of the National Airspace System. NOTAMs may be regulatory (restrictive) or advisory (informational) in nature. NOTAM information is classified into six categories: NOTAM(D), NOTAM(L), Class II NOTAMs, FDC NOTAMs, Pointer NOTAMs and Military NOTAMs. Many NOTAMs are abbreviated. The NOTAM approved contractions are listed in Appendix 5 of the FAA Order Notices to Airmen 7930.2H located at *http://ww2.faa.gov/atpubs*.

A. Advisory NOTAMs

1. NOTAM (D)

NOTAM (D) information **is advisory in nature and is not restrictive.** The "D" pertains to the kind of dissemination method used by the FAA; in this case it would be a "wide" dissemination**.** A NOTAM (D) advertises changes to the NAS that would clause a pilot to rearrange or reconsider the flight. They pertain to enroute navigation aids, civil public use landing areas listed in the Airport/Facility Directory (AFD) and aeronautical data that are related to Instrument Flight Rules (IFR) operations. They are disseminated to all navigational facilities within the NAS, and all public use airports, seaplane bases and heliports listed in the Airport/Facility Directory.

Example NOTAM(D) Situations:

- NAVAID outages and restrictions
- Airport closures and commissioning
- Runway restrictions
- Communications
- Changes in ATC service

2. NOTAM (L)

NOTAM (L) information **is advisory in nature and is not restrictive.** The "L" pertains to the kind of dissemination method used by the FAA; in this case it would be "local" dissemination**.** A NOTAM (L) may

include such information as taxiway closures, personnel or equipment near or crossing runways, airport rotating beacon outages and airport lighting aids. NOTAM (L) information is not attached to the hourly weather reports. A separate file of local NOTAMs is maintained at each Flight Service Station (FSS) for facilities in their area. NOTAM (L) information for other FSS areas must be specifically requested directly from the applicable FSS.

Example NOTAM(L) Situations:

- Conditions affecting taxiways
- Non-essential lighting
- Short (usually less than one hour) service outages
- Deer on the runway

In some cases a NOTAM (L) or NOTAM (D) may be appropriate. Judgment should be used in determining the need. Often a FSS will institute a NOTAM(L) while waiting to receive a TFR from the NFDC.

There are projects or incidents that do not meet TFR criteria, but need FSS assistance in dissemination to non-participating aircraft. For example, there may be no need to close or restrict the involved airspace, but it is prudent to notify general aviation or military aircraft of a potential conflict or traffic. Items that fit this definition may include prescribed burns, blasting, training exercises, resource projects or obstructions.

a. Ordering Procedures for an Advisory NOTAM (NOTAM (L) or NOTAM (D))

- The dispatcher or aviation manager should submit the request to the FSS. A TFR Request Form may be used for this purpose, but should be clearly marked NOTAM(L) or Advisory request. Copy to the GACC if appropriate.

- Furnish the information to the FSS and, as appropriate, to the military, via phone. It is also strongly recommended that copies be faxed to offices involved. A hard copy often clarifies any information relayed verbally. If faxed, requests must be followed up by verbal confirmation.

- The FSS will issue an Advisory NOTAM. When a NOTAM (L) is required, this is usually processed immediately.

FIGURE 6-1 Actual NOTAM Examples

Actual NOTAM Examples (NOT FOR NAVIGATIONAL PURPOSES):

NOTAM(D)s

raw:
!OGD 04/003 OGD 3/21 CLSD WEF 0304141400-0311302359

translated:
Ogden UT (Ogden-Hinckley) [OGD]: April NOTAM #3
3/21 closed will be effective April 14th, 2003 at 08:00 AM MDT (0304141400) - November 30th, 2003 at 05:59 PM MDT (0311302359)

raw:
!SJC 05/003 SJC TOWER 146 (80 AGL) .82 SE LGTS OTS TIL 0305142350

translated:
San Jose CA (Norman Y. Mineta San Jose International) [SJC]: May NOTAM #3
Tower 146 (80 above ground level). 82 southeast lights out of service until May 14th, 2003 at 04:50 PM MDT (0305142350)

NOTAM-L's:

raw:
PUC 18 RUN UP AREA CLOSED

translated:
Price (Carbon County) Airport Runway 18 run-up area closed.

raw:
VEL 25 REIL OTS

translated:
Vernal (Uintah County) Airport runway 25 runway end identifier lights out of service

Pointer NOTAM:

raw:
! ACT 12/045 ACT SEE FDC 02/8989 ZFW 91.141 points users to read FDC NOTAM 2.8989

- Modifications and cancellations of an Advisory NOTAM require coordination with the affected FSS, GACC, and military units. When changes are approved, FSS will issue a corrected Advisory NOTAM.

- Cancel the Advisory NOTAM by contacting the FSS. Document and close out agency paperwork as appropriate.

3. Pointer NOTAMs

Issued by a flight service station to highlight or point out another NOTAM; such as FDC NOTAMs. This type of NOTAM will assist users in cross-referencing important information that may not be found under an airport or NAVAID identifier. For example, a Flight Service Station might issue a pointer NOTAM for a TFR in it's area.

4. Military NOTAMs

NOTAMs pertaining to U.S. Air Force, Army, Marine, and Navy navigational aids/airports that are part of the NAS.

5. Class II (Published) NOTAMs

NOTAMs which are known sufficiently in advance, and are expected to remain in effect for some time, are published every four weeks, which is available through subscription at the Government Printing Office or on the internet at *www.faa.gov*.

6. FDC NOTAM

FDC NOTAM information is regulatory and is often restrictive. On those occasions when it becomes necessary to disseminate regulatory information, the National Flight Data Center (NFDC) in Washington, D.C. will issue FDC NOTAMs. These are legal regulations, but may also contain information such as amendments to published Instrument Approach Procedures (IAPs) , Sectional Charts and the National Airspace System. The US NOTAM Office transmits them to the appropriate FSS and ARTCCs. Note that the FDC NOTAM **may be a TFR or other information such as a laser show location.**

Intrusions into a TFR without proper authorization can lead to an enforcement action. Post 9/11 security TFR intrusions can lead to interception, force down or a "shoot down" by military aircraft.

III. Nine Types of TFRs

There are nine kinds of TFRs. Three are issued under 14 CFR 91.137 sub-paragraphs (a)(1), (a)(2) and (a)(3). The rest are under 14 CFR 91.138, 91.141, 91.143, 91.144, 91.145 and 99.7. The type of TFR established varies according to the need.

A. 14 CFR 91.137(a)(1) TFR in the Vicinity of Disaster/Hazard Areas

The intent of TFRs issued under this paragraph is to protect persons and property on the surface or in the air from an existing or imminent hazard associated with an incident on the surface, when the presence of low flying aircraft would magnify, alter, spread or compound that hazard. This is the **most restrictive** of TFRs and is rarely issued for wildland fire incidents. It is more commonly used for the following:

- Toxic gas leaks, spills or fumes from flammable agents
- Volcanic eruptions
- Nuclear accidents or incidents
- Hijacking incidents
- Aircraft accident sites (at the discretion of the FAA)

No person may operate an aircraft within the TFR unless that aircraft is participating in the hazard relief activities and is being operated under the direction of the official in charge of on scene emergency response activities.

91.137(a)(1) TFRs may be recommended or requested by military major command headquarters, regional directors of the Office of Emergency Planning, Civil Defense State Directors, State Governors or other similar authority.

Example of a 91.137 (a) 1 TFR (NOT FOR NAVIGATIONAL PURPOSES)

2/9559 - CO.. FLIGHT RESTRICTIONS PUEBLO, CO EFFECTIVE IMMEDIATELY UNTIL FURTHER NOTICE. PURSUANT TO TITLE 14 CFR SECTION 91.137A(1) TEMPORARY FLIGHT RESTRICTIONS ARE IN EFFECT DUE TO NATIONAL SECURITY ARE NOT AUTHORIZED WITHIN A 3 NAUTICAL MILES RADIUS OF 381840N/1042051W OR THE PUEBLO /PUB/ VORTAC 063 DEGREE RADIAL AT 04 NAUTICAL MILES AT AND BELOW 3000 FEET AGL TO PROVIDE FOR A SAFE ENVIRONMENT FOR DOD OPERATIONS. DENVER AFSS /DEN/ 720-873-XXXX IS THE FAA COORDINATION FACILITY. NOTE: UNLESS AUTHORIZED BY ATC FOR PURPOSES OF CONDUCTING ARRIVAL/DEPARTURE OPERATIONS. WIE UNTIL UFN

B. 14 CFR 91.137(a)(3)

The intent of TFRs issued under this section is to prevent unsafe congestion of sightseeing aircraft above an incident or event that generates a high degree of public interest. This type of TFR has been granted in the past for activities such as spray projects, wild horse round ups and prescribed burns, but rarely issued post 9/11.

TFR's may be recommended or requested under this FAR by any of those listed above or by State, county or city government entities. A TFR under the conditions of 91.137 (a)(3) will be issued by the direction of the Regional Air Traffic Division Manager having oversight of the airspace concerned.

Under this type of TFR entry for non-participating aircraft is similar to 91.137 (a)(2). Participating aircraft may be carrying incident, event or law enforcement officials.

1. Airport Traffic

An airport is not closed by a TFR. Operations are allowed if they are conducted directly to or from an airport within the area, if VFR flight above or around the area is impractical due to weather or terrain conditions, and if the flight is not conducted for the purpose of observing the incident or event.

2. IFR Traffic

Aircraft operating under an ATC approved IFR flight plan are allowed into the TFR.

3. Incident, Event or Law Enforcement

Aircraft are allowed inside the TFR if they are carrying incident, event or law enforcement personnel. Note that no parameters are set requiring prior notification.

4. Media

Media are allowed inside this type of TFR if the aircraft is carrying properly accredited news representatives and a flight plan is filed with the appropriate FSS or ATC facility specified in the NOTAM prior to entering the area.

C. 14 CFR Section 91.138 TFR in National Disaster Areas in the State of Hawaii

The intent of TFRs issued under this section is, for humanitarian reasons, to protect persons or property on the surface within declared national disaster areas in the State of Hawaii.

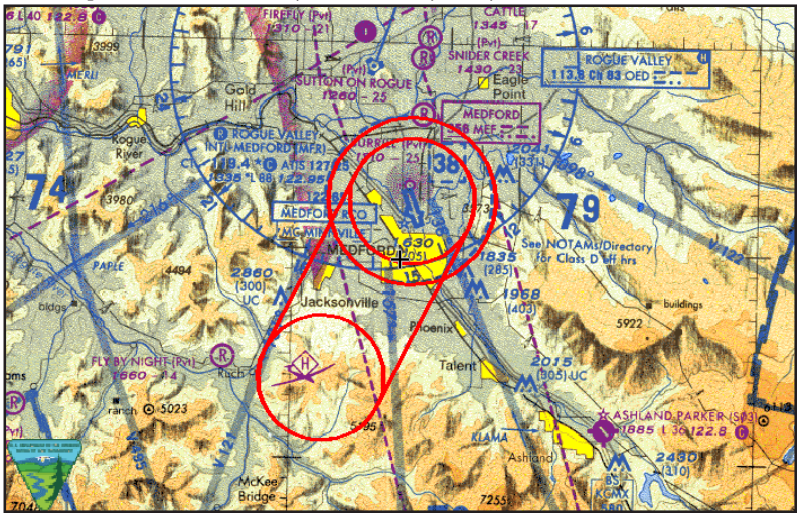
D. 14 CFR Section 91.141 Flight Restrictions in the Proximity of the President and Other Parties

The intent of TFRs issued under this section is to protect the President, Vice President or other public figures. It is sometimes put into effect during Presidential or other public figure's appearance at large wildland fires. Considerable coordination is required if fire suppression aviation activity is to continue during the visit.

Example of a 91.141 TFR (NOT FOR NAVIGATIONAL PURPOSES)

3/3310 - MD.. FLIGHT RESTRICTIONS HAGERSTOWN/THURMONT, MD. MAY 1-31, 2003 LOCAL. PURSUANT TO TITLE 14, SECTION 91.141 OF THE CODE OF FEDERAL REGULATIONS, AIRCRAFT FLIGHT OPERATIONS ARE PROHIBITED WITHIN THE FOLLOWING AREA UNLESS OTHERWISE AUTHORIZED BY ATC. NOTE: MILITARY AIRCRAFT PARTICIPATING IN THE P-40 FIGHTER CAP AND WASHINGTON DULLES (IAD) ARRIVALS ON OR SOUTH OF THE MRB 065R ARE EXEMPT FROM THIS RESTRICTION. 5.0 NMR AT OR BLW 12500 FEET MSL OF 393853N/0772800W OR THE FDK351014.8 FROM 0305011010 UTC (0610 LOCAL 05/01/03) UNTIL 0306010359 UTC (2359 LOCAL 05/31/03). WIE UNTIL UFN

FIGURE 6-2 Example of a Presidential TFR During the Squire Peak Fire, Medford, OR, 2002



E. 14 CFR Section 91.143 Flight Limitations in the Proximity of Space Flight Operations

The intent of TFRs issued under this section is to provide a safe environment for space agency operations. It is frequently used in Florida, California and New Mexico.

F. 14 CFR Section 91.144 Temporary Restriction on Flight Operations During Abnormally High Barometric Pressure Conditions

The intent for TFRs issued under this section is to protect flight during abnormally high barometric pressure conditions that exceed or will exceed 31 inches of mercury.

G. 14 CFR Section 91.145 Management of Aircraft Operations in the Vicinity of Aerial Demonstrations and Major Sporting Events

The intent for TFRs issued under this section is to protect persons or property on the surface or in the air, to maintain air safety and efficiency, or to prevent the unsafe congestion of aircraft in the vicinity of an aerial demonstration or major sporting event. Events may include Air Shows involving the Blue Angels, Thunderbirds, Golden Nights, Olympics, Rosebowl, the Indianapolis 500 Race, Baseball's All Star Game, etc.

Example of a 91.145 TFR (NOT FOR NAVIGATIONAL PURPOSES)

3/3736 - NC.. FLIGHT RESTRICTIONS POPE AFB, NC. DUE TO AERIAL DEMONSTRATIONS BY THE U.S. AIR FORCE THUNDERBIRDS AND OTHER DEMONSTRATION TEAMS. EFFECTIVE 0305222000 UTC (MAY 22 AT 1600 LOCAL) UNTIL 0305222130 UTC (MAY 22 AT 1730 LOCAL), 0305231800 UTC (MAY 23 AT 1400 LOCAL) UNTIL 0305232130 UTC (MAY 23 AT 1730 LOCAL), 0305241500 UTC (MAY 24 AT 1100 LOCAL) UNTIL 0305242230 UTC (MAY 24 AT 1830 LOCAL), AND 0305251500 UTC (MAY 25 AT 1100 LOCAL) UNTIL 0305252230 UTC (MAY 25 AT 1830 LOCAL). PURSUANT TO 14 CFR SECTION 91.145, MANAGEMENT OF AIRCRAFT OPERATIONS IN THE VICINITY OF AERIAL DEMONSTRATIONS AND MAJOR SPORTING EVENTS, AIRCRAFT FLIGHT OPERATIONS ARE PROHIBITED WITHIN A 5 NAUTICAL MILE RADIUS OF 351015N/0790052W FAYETTEVILLE (FAY) VOR/DME 328 DEGREE RADIAL AT 13 NAUTICAL MILES AT AND BELOW 15000 FEET AGL UNLESS AUTHORIZED BY ATC. CRAIG JUDD 910-394-xxxx IS THE POINT OF CONTACT. RALEIGH /RDU/ AFSS 919-840-xxxx IS THE FAA COORDINATION FACILITY. WIE UNTIL UFN

H. 14 CFR Section 99.7 Special Security Instructions

After the September 11th tragedies, TFRs have been issued by the FAA citing 14 CFR 99.7 Special Security Instructions, which states "each person operating an aircraft in an ADIZ or Defense Area shall, in addition to the applicable rules of this part, comply with special security instructions issued by the administration in the interest of national security and that are consistent with agreements between the FAA and the DoD."

Example of a 99.7 TFR (NOT FOR NAVIGATIONAL PURPOSES)

3/1655 - ...SPECIAL NOTICE... FLIGHT RESTRICTIONS. EFFECTIVE IMMEDIATELY UNTIL FURTHER NOTICE, PURSUANT TO 14 CFR SECTION 99.7, SPECIAL SECURITY INSTRUCTIONS, PILOTS CONDUCTING FLIGHT OPERATIONS WITHIN THE TERRITORIAL AIRSPACE OF THE U.S. ARE ADVISED TO AVOID THE AIRSPACE ABOVE OR IN PROXIMITY TO ALL NUCLEAR POWER PLANTS. PILOTS SHOULD NOT CIRCLE OR LOITER IN THE VICINITY OF SUCH FACILITIES. PILOTS WHO DO SO CAN EXPECT TO BE INTERVIEWED BY LAW ENFORCEMENT PERSONNEL AT THEIR DESTINATION AIRPORT AND THE PILOT'S NAME MAY BE ADDED TO THE TRANSPORTATION SECURITY ADMINISTRATION (TSA) INCIDENT REPORTING SYSTEM. WIE UNTIL UFN

I. 14 CFR 91.137(a)(2) TFR in the Vicinity of Disaster/Hazard Areas

The intent of TFRs issued under this paragraph is to provide a safe environment for the operation of disaster relief aircraft. This is the most common of TFRs for land management agencies that contend with wildland fires. It includes but is not limited to:

- Wildland fires which are being fought with the assistance of aviation resources
- Aircraft relief activities following a disaster (earthquake, tidal wave, flood, hurricane, etc.)
- Aircraft accident sites

Example of a 91.137(a)(2) TFR (NOT FOR NAVIGATIONAL PURPOSES)

3/3890 - AZ.. FLIGHT RESTRICTION, SEDONA, AZ. EFFECTIVE IMMEDIATELY UNTIL FURTHER NOTICE. PURSUANT TO 14 CFR SECTION 91.137A(2) TEMPORARY FLIGHT RESTRICTIONS ARE IN EFFECT WITHIN A 5 NAUTICAL MILE RADIUS OF THE 345713N/1115117W AND THE FLAGSTAFF /FLG/ VORTAC 205 DEGREE RADIAL AT 14.6 NAUTICAL MILES AT AND BELOW 10,000 FT MSL TO PROVIDE A SAFE ENVIRONMENT FOR FIRE FIGHTING AIRCRAFT OPERATIONS. U.S. FOREST SERVICE, 505-842-xxxx, IS IN CHARGE OF THE ON SCENE EMERGENCY RESPONSE ACTIVITIES. PRESCOTT /PRC/ AFSS, 928-778-xxxx, IS THE FAA COORDINATION FACILITY. WIE UNTIL UFN

TFR's may be recommended or requested under this regulation by:

- Military commanders serving as regional or area search and rescue coordinators.
- Military commanders directing or coordinating air operations associated with disaster relief.
- Civil authorities directing or coordinating organized relief air operations. This includes representatives of the Federal Emergency Management Agency, US Forest Service, Bureau of Land Management, other Department of the Interior agencies and State aeronautical agencies.

The authority for agency personnel to request a TFR for land management activity or emergencies is found in 91.137 (a)(2). TFRs are normally ordered through the dispatch ordering process or channels. Dispatchers maintain the request on an aircraft resource order form that allows the TFR to be tracked, documented and closed.

91.137 (a)(2) is the TFR most commonly used for disaster relief incidents. It is important that disaster relief officials understand that certain aircraft **ARE ALLOWED INSIDE THE TFR** that may not be participating aircraft in the disaster relief. The following five categories of aircraft are allowed entry into a 91.137 (a)(2) TFR:

1. Participating Aircraft

Aircraft participating in hazard relief activities and are being operated under the direction of the official in charge of the on scene emergency response activity. These may include helicopters, air tankers, air attack and lead planes, smokejumper and infrared aircraft.

The following agency aircraft may not be assigned to the incident and may be considered intruders. Entry may be requested by following agency procedures.

- Transiting air tankers or other agency aircraft enroute to a different fire
- Released aircraft transiting from one fire to another
- Agency VIP flights that have not been prearranged with dispatch and air operations
- Recon, spray, resource, pest or mapping aircraft on normal agency business

2. Law Enforcement

Under this type of TFR, law enforcement officials are allowed into the TFR area. There is no caveat that requires prior notification or communication during their flight. Agency personnel are strongly recommended to coordinate frequency sharing and TFR information with local law enforcement agencies that may utilize aircraft.

3. IFR Traffic

The FAA has the right to route aircraft operating under ATC approved IFR flight plans through this kind of TFR. This may occur if the TFR is located inside the approach and departure airspace for an airport.

4. Airport Traffic

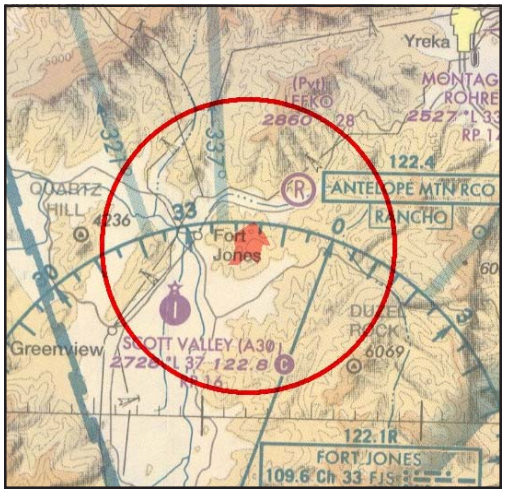
TFRs do not close airports. When an airport is within or adjacent to this kind of TFR, VFR traffic is still allowed inside the TFR if the flight operation is conducted directly to or from that airport, or if VFR flight above or around the area is impractical due to weather or terrain conditions.

Notification is given to the FSS or ATC facility that is specified in the TFR. The TFR states that flight operations should not hamper or endanger relief activities, and that flights in or out of the airport should not be conducted for the purpose of observing the disaster.

An "airport" refers any airport **charted** on a sectional. A seaplane base must be charted and have clearly defined seaplane lanes identified at its location.

When a large TFR is established, it has been known for non-participating aircraft to legally fly from one airport to another inside the TFR. Disaster relief aviation operations in the vicinity of an airport require careful coordination and a heightened awareness of See and Avoid.

FIGURE 6-3 Example of a TFR Over an Airport



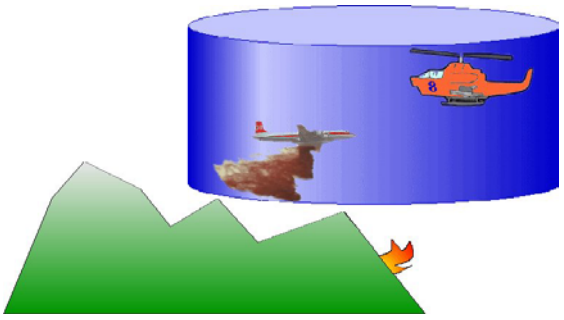
5. Media

Media access to this type of TFR may be the most misunderstood aspect of aircraft allowed into a TFR. According to 91.137 (a)(2), the following circumstances apply to media entry:

- The aircraft is carrying properly accredited news representatives.
- Prior to entering the TFR, a flight plan is filed by the media aircraft with the appropriate FAA or ATC facility specified in the TFR NOTAM.
- The operation is conducted above the altitude used by the disaster relief aircraft, unless otherwise authorized by the official in charge of on-scene emergency response activities (i.e. the Air Tactical Group Supervisor).

This last item has caused the most discussion and inconsistencies in procedure. The FAA interpretation is that media aircraft are allowed inside a TFR as long as they maintain an altitude above disaster relief aircraft. If the disaster relief aircraft happen to be on the ground, then the media has been known to fly at any altitude within the TFR.

FIGURE 6-4 Depiction of Media Entry into TFR



No parameters are set that require communication by the media with either dispatch or the disaster relief officials in charge prior to flight. Air Tactical Group Supervisors are reminded that if the media have met the above criteria, they are allowed inside the TFR area. Air Tactical Group Supervisors have the right to allow the media to fly at lower altitudes when it can be safety accomplished, but do not have the authority to remove the media from the TFR if they have met the criteria stated in 91.137(a)(2).

Agency personnel are strongly recommended to hold pre-season meetings with local media that use aviation resources. Meetings should cover frequencies, TFR procedures, dispatch contact numbers, basic Incident Command System structure, local hazards and any other local concerns.

K. Agency TFR Requests

Agency TFR requests are usually identified by one of two means:

1. Field Generated Need

A TFR or advisory NOTAM request may be submitted to the local unit dispatch office, GACC or aviation manager by the incident commander or project manager (or an authorized representative such as the Air Tactical Group Supervisor or other on-scene personnel).

2. Dispatch or Aviation Manager Generated Need

A TFR or advisory NOTAM request may be identified by the unit dispatcher or aviation manager.

FIGURE 6-5 Ten Criteria for Determining the Need for a TFR

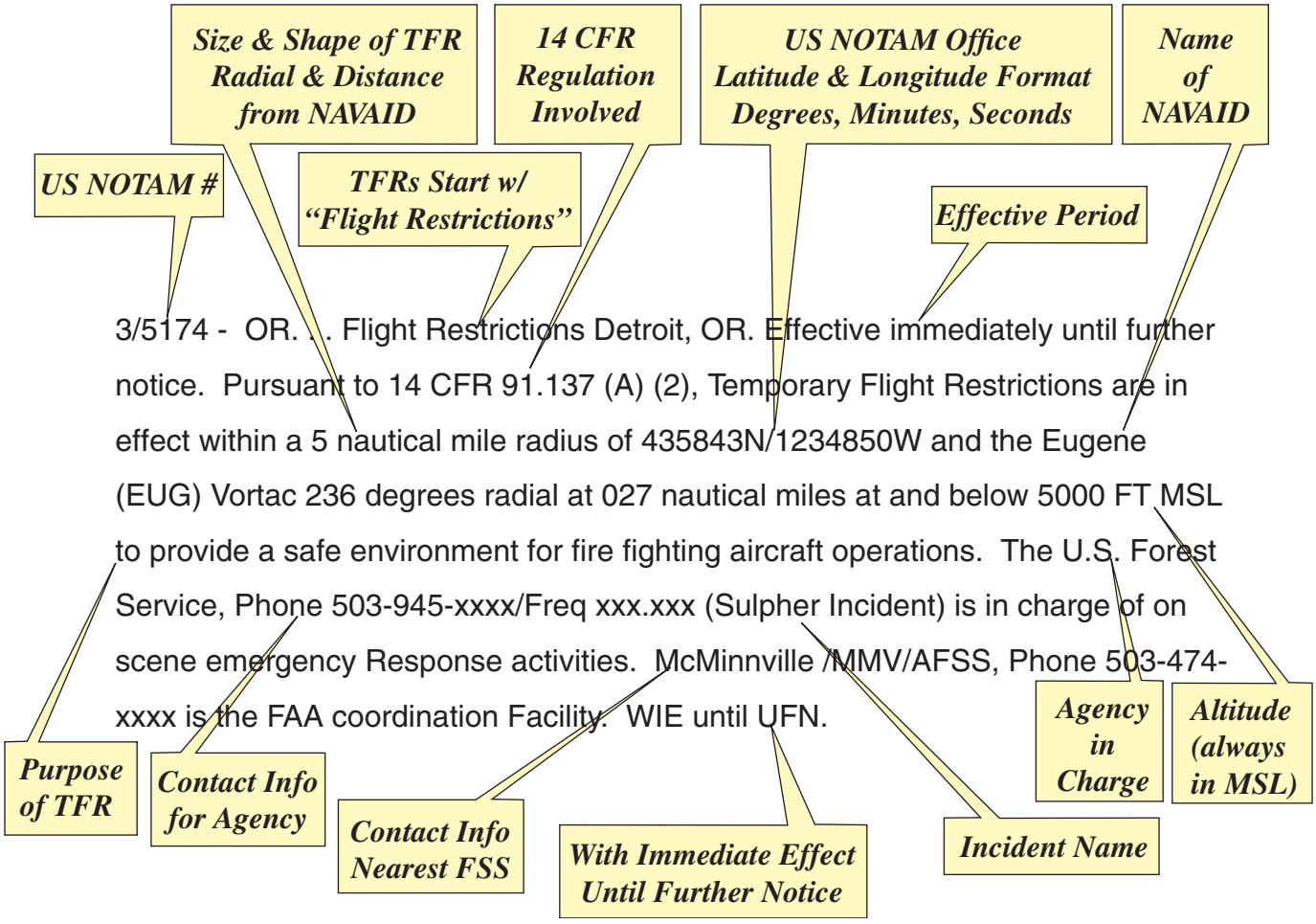
Ten Criteria for Determining the Need for a TFR

TFRs should not be an automatic response for every dispatch involving aircraft. Considerable thought should go into to the determination of need for a TFR. A risk assessment should be done that takes into account the following criteria:

- Type and number of aircraft operations (air tactical, air tanker, helicopter, smoke jumper, etc) occurring within the incident and their aeronautical requirements (orbit dimensions, both vertically and horizontally).
- Entry and exit points and routes for disaster relief aircraft.
- Multiple incidents in close proximity.
- When the extent and complexity of the operation creates a hazard to non participating aircraft.
- Extended operations (3+ hours) are anticipated.
- Operations are in the vicinity of high-density aircraft traffic.
- Incident is expected to attract sightseeing aircraft.
- Operations are conducted near or in the dimensions of a MTR, VFR Helicopter Aerial Refueling routes, Slow Routes, or SUA.
- Incident is conducted in or near a Victor Flyway.
- “See and Avoid” capability is reduced or compromised.

FIGURE 6-6 Anatomy of a TFR NOTAM

3/5174 - OR. . . Flight Restrictions Detroit, OR. Effective immediately until further notice. Pursuant to 14 CFR 91.137 (A) (2), Temporary Flight Restrictions are in effect within a 5 nautical mile radius of 435843N/1234850W and the Eugene (EUG) Vortac 236 degrees radial at 027 nautical miles at and below 5000 FT MSL to provide a safe environment for fire fighting aircraft operations. The U.S. Forest Service, Phone 503-945-xxxx/Freq xxx.xxx (Sulpher Incident) is in charge of on scene emergency Response activities. McMinnville /MMV/ AFSS, Phone 503-474-xxxx is the FAA coordination Facility. WIE until UFN.



IV. Dimensions Of A TFR

A. Standard Dimensions

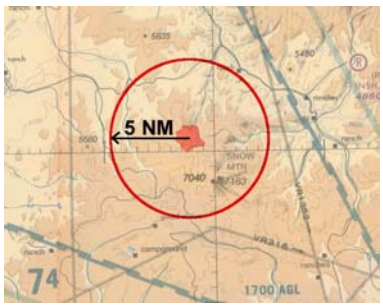
The guidance for a TFR is 5 nm radius and 2000' above the highest point or 2,000' above the highest operating aircraft on the incident. However, each incident needs to tailor a TFR to fit their needs if a standard TFR is not appropriate.

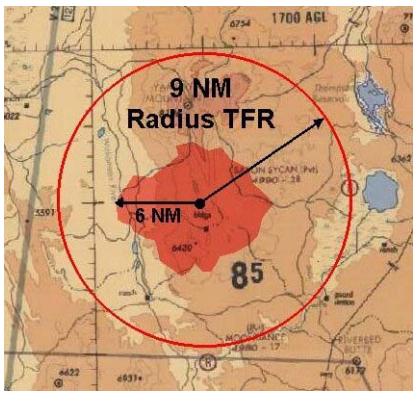
The standard dimensions for requesting a TFR are as follows:

1. Lateral Dimension

Defined as that airspace extending five (5) nautical miles from the center point of the area affected by the disaster. Lateral dimensions can be adjusted for larger incidents; adjust for the least amount deemed necessary. See Figure 6-5.

FIGURE 6-7 Circular TFRs



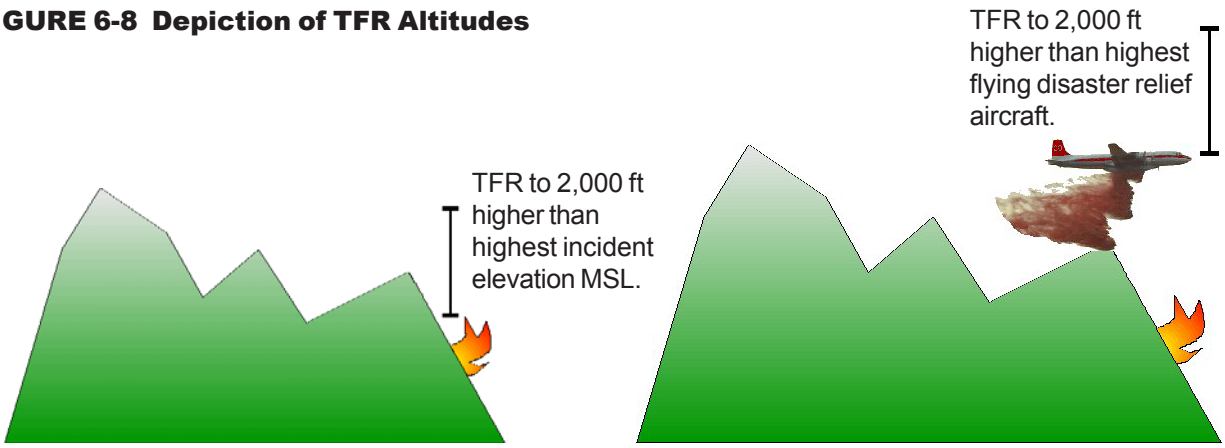


2. Vertical Dimension–Altitude

Defined as that airspace extending up to an elevation of 2,000 feet above the highest terrain of the disaster area or above the operating altitude of participating aircraft within the lateral dimension. See Figure 6-6.

Sizes and shapes may vary due to the nature of the incident. The most frequently requested shape is circular with a center point identified. It is possible to request a non- circular shape from the FAA if the TFR

FIGURE 6-8 Depiction of TFR Altitudes



risk assessment shows that it is necessary for the safety of involved aircraft. Keep the shape simple in order to assist in the distribution of the NOTAM to pilots. **Latitude and longitude points and VOR/DME will be required for the anchor points of the non-circular TFR.**

The altitude of the TFR ceiling is given to the FAA in relation to mean sea level (MSL). The NOTAM will be issued by the FAA as MSL so that the reference to ceiling height is uniform. Altitude described in terms of distance above ground level (AGL) is unacceptable, as it compromises the safety of aircraft operations. It does not take into account terrain changes, differences in flight altitudes of various aircraft on the incident, or the presence of smoke and its impact on visibility.

If a greater altitude restriction is necessary this may impact FAA airways. Including the local ARTCC or FSS in the TFR planning process can help eliminate such problems.

Rarely, the FAA may not grant the dimensions of the TFR requested by the agency. If the size specified is denied, contact the agency, State or Regional Aviation Manager or Airspace Coordinator immediately. Relay issues to the appropriate agency and incident personnel and ask the FAA to help mitigate the size and shape of the TFR.

B. Factors Which May Affect the Size and Shape of the TFR

It is recommended that initially the standard TFR (5 nautical mile (NM) radius, 2000' above highest terrain) be established. However, there are a number of factors to take into account when determining the size of a TFR, including our responsibility not to affect more airspace than necessary. TFRs may be smaller or larger than the suggested standard or they may be non-circular. The following are factors that may affect the size and shape of the TFR:

1. Type and number of aircraft operating within the incident and their orbiting and maneuvering requirements.

2. Aircraft entry and exit points and routes.

3. General aviation, military, VFR airways, airports or other aircraft operations in the geographic area.

4. Size and rate of spread of the incident.

5. Locations of incident supporting resources. Helibases, staging areas, dip sites, retardant bases.

6. MTR, SUA, Slow Routes, Aerial Refueling Routes within or near the TFR area.

7. Multiple incidents in close proximity should use a combined TFR to reduce the impact on the NAS. Do not overlap TFR's on top of each other. Coordinate with other agencies if appropriate.

8. There are situations in which a standard circular horizontal dimension might be altered. For example, Terrain features such as a ridge line where the airspace on the side of the ridge opposite the incident does not need to be restricted; this should be considered especially when MTRs are involved.

9. The location of a helibase outside a TFR is a consideration for the size and shape of a TFR. The TFR is designed for placement over a specific disaster area and frequently a helibase could be many miles away from the actual disaster. In this case, the FAA has recommended placing a NOTAM (L) or a NOTAM (D) over the helibase and advise pilots to remember to practice "See and Avoid". If there are SUA or MTRs between the helibase and the incident, notify the military about the TFR and helibase and request voluntary deconfliction for the airspace not inside the TFR.

V. Ordering Procedures for TFR

After the need has been identified, recommended processes for requesting a TFR and notifying military units and local personnel are described below.

Follow procedures as established by your agency. General guidelines for a risk assessment are contained in this chapter. Generally a dispatcher or aviation manager (at the GACC or unit level) should submit the request to the ARTCC.

The TFR Request Form (Figure 6-15) and Check List (Figure 6-14) are normally used to document and submit this information. Complete information is necessary for documentation and meeting the FAAs needs. The TFR request is documented and maintained on agency records such as a Resource Order form. The TFR Request Form is normally attached to the Resource Order with all other documentation. The TFR Request Form is also located in the National Mobilization Guide in Chapter 20.

Ensure that the following information has been completed:

- Resource Order and Aircraft Request Number
- Requesting person's name and phone number
- VOR, bearing/distance and matching latitude/longitude information
- VHF-AM air-to-air contact frequency
- Radius in nautical miles(NM)
- Highest base altitude and TFR ceiling altitude

A. Setting Up the TFR

1. Plot the center point of the TFR using the latitude and longitude on a sectional. Ensure the bearing and distance from the nearest VOR on the TFR request matches the point plotted using latitude and longitude on the sectional. Confirm latitude and longitude if using a computer-aided program such as IAMs.

The US NOTAM office will only accept TFR requests in a Degrees, Minutes, Seconds format. An internal memo within the FAA states the following:

"Effective immediately insure that all NOTAMs containing latitude and longitude information utilize Degrees, Minutes, Seconds and includes a reference to North latitude (N) and West longitude (W). If seconds are not available, add two zeros for the second spaces. Do not include spaces, commas, dashes or any other symbols. The standardized format shall be: ddmmssN/dddmmssW."

2. Review the TFR and draw it on the sectional using the radius expressed in nautical miles. Check for airports, Class B or Class C airspace, Class D, MTRs, SUA inside the proposed TFR.

FIGURE 6-9 Example of a MOA with a TFR

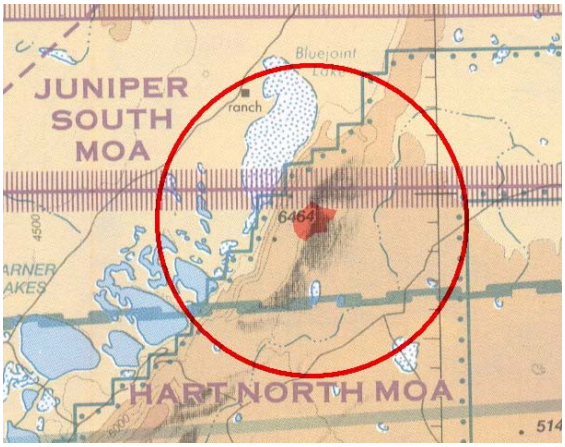


FIGURE 6-10 Example of a TFR Impacting Controlled Airspace

3. Telephone Number

- Use a 24-hour contact number (not a toll-free number) that will be in service after the incident has concluded. This number will also be the point of contact for other agencies, media, etc., regarding the TFR.
- Do NOT use an expanded dispatch or a daytime-only phone number.
- Do NOT use internal three or four letter codes on the TFR Request Form (Requesting Unit, etc.) as the FAA does not know what the codes refer to.

4. TFR Description

- Use a local or nearby VOR when describing the incident using a VOR bearing and distance.
- Calculate from the closest NAV/AID. Do not use NDB (Non-Directional Beacons) or T-VORs.
- Latitudes and longitudes must match bearing and distance descriptions.

- The FAA requires that latitude/longitude information for TFRs be provided in degrees, minutes and seconds, including reference to north latitude and west longitude. If seconds information is not available, add two zeros to the description.

- Do not use spaces, commas or other symbols in the description.

- Example: ddmmssN/dddmmssW or 450700N/1177005W.

- Wildfire TFRs are in place 24 hours a day as per the FAA Airspace Rules and Regulations. Do NOT open TFRs for night time use by other users.

5. Polygons: TFR Shape

- On the TFR Request Form, there are two choices, a standard round TFR or a polygon—Do NOT complete both choices.

- The usual TFR is a circle and it's rare to have a box, rectangle, or a polygon.

- When requesting a polygon TFR, you must submit both the latitude/longitude and bearing/distance information. If a polygon TFR is requested, the corner points must be listed in a clockwise sequence around the requested TFR to avoid "bow tie" depictions.

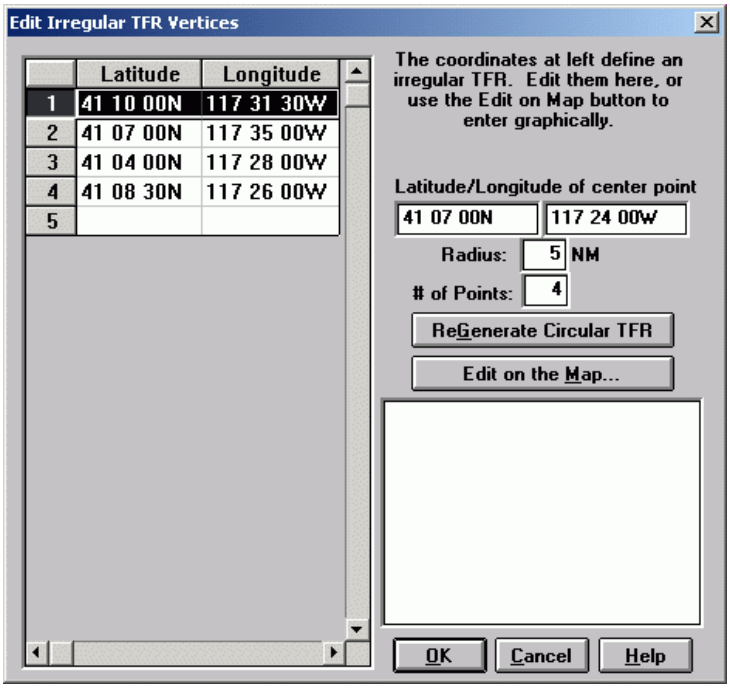


FIGURE 6-11 Using IAMS/ CAHIS to Create a Non-Circular TFR

Example of a Polygon TFR - Biscuit Fire, Summmer of 2003 (NOT FOR NAVIGATIONAL PURPOSES)

2/9926 – OR.. Flight Restrictions Gold Beach, OR. Effective immediately until further notice. Pursuant to 14 CFR 91.137A (2), Temporary Flight Restrictions are in effect from 423900N/1235300W (OED 267 044) to 423837N/1234840W (OED 267 041) to 421730N/1233700W (OED 233 033) to 420000N/1234730W (OED 217 049) to 420116N/1240125W (OED 224 056) to 421600N/1241730W (OED 242 062) to 422430N/1241730W (OED 249 061) to 423900N/1235300W (OED 267 044) at and below 8,000 ft MSL to provide a safe environment for fire fighting aircraft operations. US Forest Service, phone 541-471-xxxx./Freqs 134.825 W of 123570W/134.225 E of 1235730W, is in charge of on scene emergency response activities. McMinnville / MMV/ AFSS, Phone 503-474-xxxx is the FAA coordination facility. WIE until UFN.

FIGURE 6-12 Bow-Tie TFR Resulting From Coordinates Out of Sequence

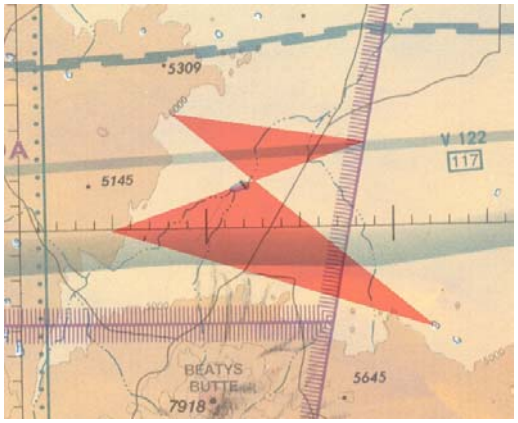
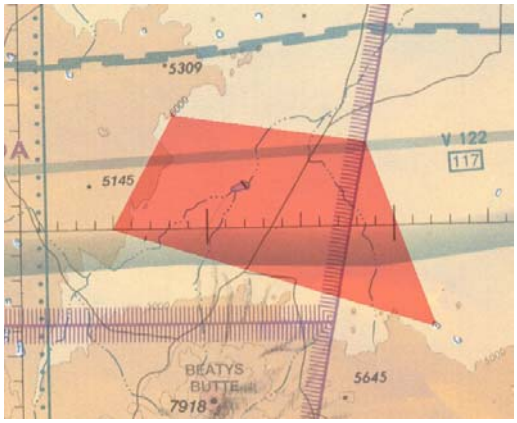


FIGURE 6-13 TFR Coordinates in Clockwise Sequence



6. Getting the Incident Name in the TFR

If you elect to use the IAMS/CAHIS, ROSS or other customized forms, include the following sentence that has been approved by the FAA:

"The _____ (Agency Name)/_____(Incident Name) at _____ (24 hour Phone number – no Toll Free Numbers), _____ (VHF AM Air/Air Frequency) is in charge of the on scene emergency response activities. TFR is to provide a safe environment for fire fighting aircraft operations, effectively immediately, until further notice, 24 hours/day."

FIGURE 6-14 Overlapping TFRs

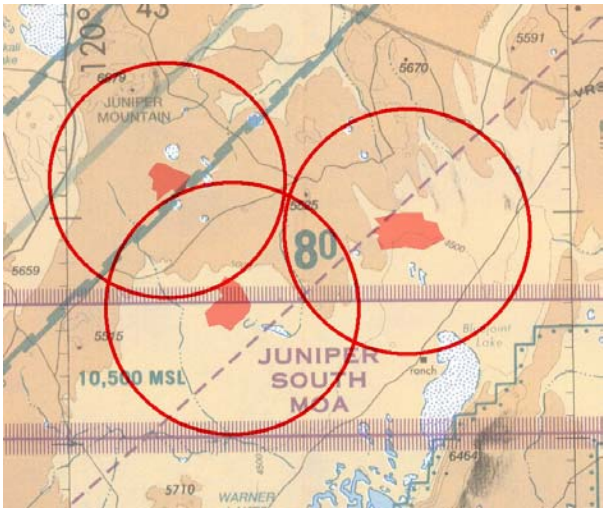
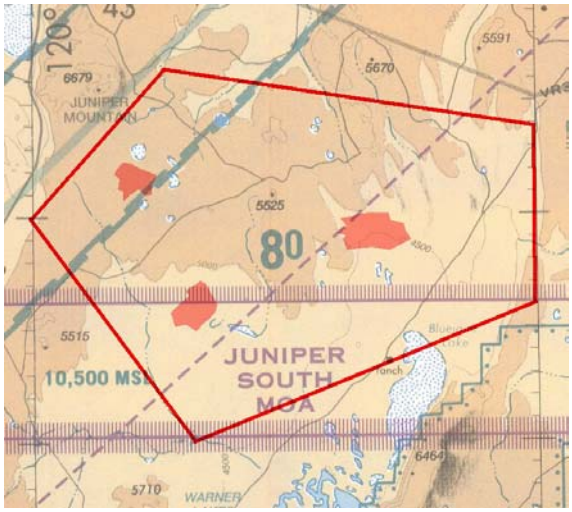


FIGURE 6-15 Solution to Overlapping TFRs



7. MSL Altitude Only

- Altitude must be given to the FAA as MSL. A rule of thumb is that the "top" of the TFR is 2,000' above the highest elevation on the incident or 2,000' above the highest flying aircraft on the incident. Note – Some areas and IAMS/CAHIS uses 3,000' as a standard.

- Convert to MSL so that it gives the TFR a "hard top." Coordinate with the Air Tactical FS, ASM or lead plane to make this decision.

8. Frequency

- Add the VHF-AM air-to-air frequency to your TFR request and ask that the FAA publish the frequency.

- Monitor your TFR and keep the FAA notified if the frequency changes. Should the frequency change, cancel the TFR and issue a new one.

B. Sharing the Information

1. Relay information on identified airspace hazards or concerns to pilots and or on-scene aviation personnel. Ensure that radio frequencies are known to enable communications over an incident.

2. If neighboring agencies are impacted, coordinate TFR order with them. Share frequencies. Determine if requested TFR will affect current TFRs already in place. Combine if necessary. **Do not overlap TFRs**.

   If MTRs are impacted, call the DoD Scheduling Activity and determine status ("hot") and their schedule for the remainder of the day. Relay MTR status immediately to all incident air crews. Inform DoD of intent to request TFR.

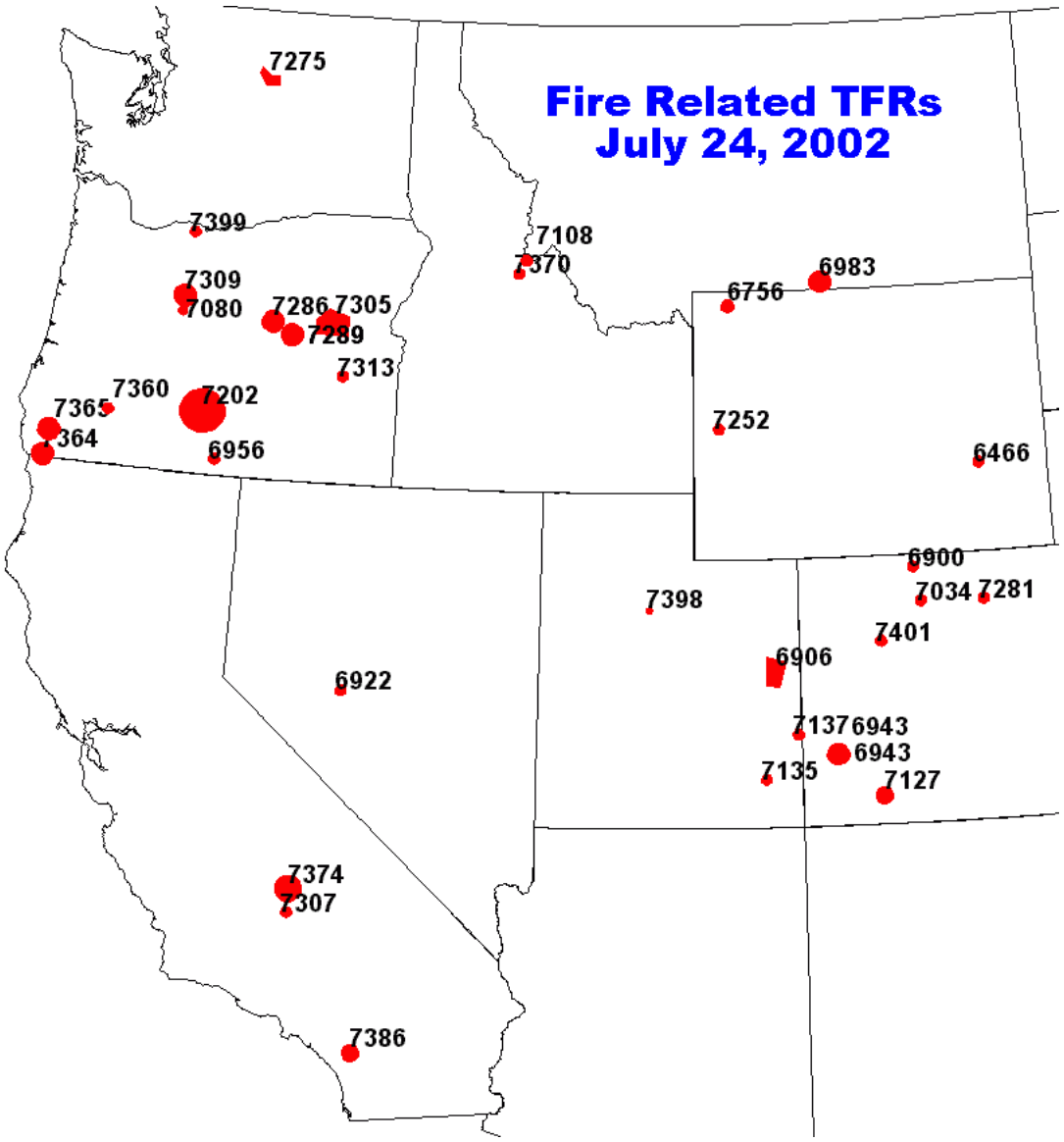
   If a SUA is impacted, consult agreements between military and land management agency if such an agreement is in place. If no agreement is in place, consult with ARTCC and/or Scheduling Agency for procedures to deconflict airspace.

A TFR is as restrictive to military flights as to any other non-participating aircraft. It is strongly recommended when TFRs are located near or in SUA and/or MTRs, notifications to affected military units be made prior to the request for a TFR from the FAA ARTCC. Military aircraft already airborne when a TFR is requested may not be in communication with the notified facilities. Do not assume the TFR is deconflicted without verification that military aircraft have been cleared from the affected airspace.

   If an airport is impacted, notify the incident Air Operations Branch Director (AOBD). TFR's do not close an airport and VFR traffic is allowed inside a 91.137(a)(2) TFR to and from an airport. Coordinate with AOBD and airport manager for ingress/egress or closure (worse case scenario).

3. Brief local and non local initial attack and other participating aircraft on procedures for entering airspace (Initial points of contact for entry, etc). For further information, see Chapter 7, Airspace Deconfliction, and the Interagency Air Tactical Supervisors Guide.

FIGURE 6-16 Example of a Complex Fire Season Resulting in Sharing TFR Information Between Agencies



C. FAA Procedures

1. Furnish the TFR information to the ARTCC and, as appropriate, to the military, via phone. It is also strongly recommended that copies be faxed to offices involved. A hard copy often clarifies any information relayed verbally. If faxed, requests must be followed up by verbal confirmation.

2. The ARTCC sends the TFR request to US NOTAM Office who in turn approves and issues the NOTAM to FSS. Because of processing time, the NOTAM is not normally published for at least two hours. The agency should consider requesting from the FSS an FSS issuance of an advisory NOTAM concerning the activity until such time as they receive the official TFR.

3. Verify the TFR was published as requested through the US NOTAM Website at *https:/www.notams.jcs.mil* or *https:/www.notams.faa.gov* (these are mirrored websites). Document the NOTAM number on the resource order and TFR request form. If the approved TFR differs, contact the ARTCC to resolve the difference. It could be a typographical error that needs correction. Final approval, with any changes, will be passed to all affected personnel.

C. Maintenance

1. Maintain contact with FAA and DoD daily to ensure that TFR and requested deconfliction is still in effect.

2. Coordinate modification with on scene personnel and determine size or shape as the incident or project size changes. When the project has changed size or shape of airspace, the TFR NOTAM is cancelled and a new NOTAM is issued for the revised TFR. Modifications to a TFR require coordination with the affected ARTCC, FSS, GACC, and military units. Follow the steps listed above and document on the resource order that the TFR has been replaced by a new TFR. Repeat as necessary.

Be Sure To:

- Follow agency procedures for contacting the FAA when the TFR frequencies change. The FAA will cancel the current TFR and issue a new TFR with the correct frequency.
- Notify involved aircraft, agency and neighboring agencies of frequency changes.
- Do NOT Use TFRs for Burned Area Emergency Rehabilitation (BAER) projects. They do not qualify under 91.137(a)(2)

D. Modify/Cancellation

1. When the incident no longer requires protected airspace, the TFR is canceled. Modifications and cancellations to a TFR require coordination with the affected ARTCC, FSS, GACC, and military units. Be sure to notify all involved DoD units that the TFR has been cancelled.

2. If problems are encountered, document on a SAFECOM and follow agency procedures. If airspace becomes unsafe, it is the responsibility of the individual who is aware of the hazard to ensure operations are temporarily suspended until the conflict is resolved. See Chapter 8, Airspace Conflicts, for further information.

VI. Notification Process

As part of the deconfliction process, agency personnel need to notify both military and agency involved aircraft who may be in or near the identified TFR. Additional deconfliction information contines in Chapter 7, Airspace Deconfliction.

A. Military Notifications of a TFR

1. Notify the appropriate military facility of the TFR or need to deconflict an area. This may be the scheduling agency (SUA) or scheduling activity (MTRs) or the identified military Points of Contact (POCs).

2. In some cases this contact may be an advisory but, when addressed by MOU or other agreements, the purpose may be to request deconfliction of military flight operations in the affected area, through closed routes or otherwise restricted military operations.

3. Once the TFR or notification/deconfliction has been coordinated, the individual responsible for the restriction should, on a daily or more frequent basis, check and update this information with all affected military units.

4. Information to provide includes but is not limited to:

   - Agency flight operations including TFRs and other activity that may affect flight safety located in or near an MTR or SUA
   - Flights to and from an air tanker base (known as “load and return” or “round robin”) where the air tanker base may not be inside the TFR

- Routes of ingress and egress
- Frequencies, type and number of aircraft involved

5. For non-time critical operations, the military unit may schedule/ deconflict land management agency aircraft into the MTR/SUA area using normal scheduling procedures. For time critical operations, military pilots are briefed or otherwise contacted. The military should be requested to notify the requesting agency when all military aircraft have been confirmed clear of the area.

B. Agency Notifications of a TFR

It is imperative that agency personnel keep agency aircraft flight operations aware of TFR or other flight advisories. Local real time advisories of TFR or flight operations and of other activity affecting airspace should be forwarded to agency pilots, managers, and/or ground personnel involved in aviation (i.e. smokejumper, air tanker and helibases).

C. Briefings

Notification to local pilots and personnel is necessary to insure TFR, advisory NOTAMs, and other information affecting airspace is provided in real time.

Morning and evening briefings should included current TFR areas, recent near mid air collisions, hazards and obstacles related to airspace. For further briefing information, refer to Chapter 7, Airspace Deconflictions.

FIGURE 6-17 Basic TFR Checklist

12 Step Basic Checklist for Implementing a TFR

Basic Checklist For Implementing TFRs					
Incident: _____		By:_____		Date: __/__/__	
	Action	**To**	**From**	**Date**	**Time**
1	Determine need for TFR and/or deconfliction by the military.				
2	Plot incident or project locations using maps and/or computer system; Determine Hazards if special-use airspace or military training routes involved, perform steps 6 and/or 7 prior to steps 4-5.				
3	Complete resource order with Interagency Request Form for TFR and document contacts requesting deconfliction of airspace with DoD.				
4	Contact FAA ARTCC with request for TFR; request call-back with confirmation.				
5	Inform FAA FSS of request made to ARTCC. Request advisory NOTAM if necessary.				
6	If Special-Use Airspace (MOAs, RAs, etc.) involved, contact Military Scheduling Agency and request deconfliction of airspace until TFR granted by FAA				
7	If MTR(s) involved, contact Military Scheduling Activity and request deconfliction of airspace until TFR granted by FAA.				
8	Relay copy of TFR request to GACC if appropriate.				
9	Relay status of TFR and airspace to all aircraft and Incident Commander, and if appropriate, activity status of SUA and MTRs.				
10	Document call-back confirmations received on the "Interagency Request for Temporary Flight Restriction" and document DoD contacts.				
11	Check TFR Status Daily with the incident, FAA and DoD.				
12	Amend and Cancel when necessary				

FIGURE 6-18 TFR Request Form

INTERAGENCY REQUEST FOR TEMPORARY FLIGHT RESTRICTION

(TFR request must be phoned in as per FAA. This form may also be FAXed to provide documentation.)

RESOURCE ORDER NUMBER: Request #: A -	DATE: TIME:
TO: FAA ARTCC _____ FAA PERSON CONTACTED: _____ FAA PHONE:_____ FAX:_____	FROM: DISPATCH OFFICE _____ PERSON REQUESTING TFR: _____ 24 HR. PHONE (No Toll Free #s) _____

❑ Check if this TFR is a replacement. If so, NOTAM # of TFR being replaced. _____
(Existing TFRs can not be changed, only cancelled and replaced.)

Geographic Location of Incident (nearest town, state) _____

Location (Circular TFR) List nearest NAVAID (distance should be less than 50 NM) - do not use NDB or T-VOR.				
VOR ID	RADIAL (Degrees)	DISTANCE (NM)	LAT/LONG of Center Point (use US NOTAM OFFICE FORMAT ddmmssN/dddmmssW)	RADIUS (NM) (5 NM is standard)
			N/ W	

OR (Polygon TFRs should be rare and only used if circular shape is not adequate.)

Location (Polygon TFR) (List perimeter points in clockwise order) List nearest NAVAID (distance < 50 NM) - do not use NDB or T-VOR.									
Point #	VOR ID (XXX)	Radial (Degrees)	Distance (NM)	Lat/Long ddmmssN/dddmmssW	Point #	VOR ID (XXX)	Radial (Degrees)	Distance (NM)	Lat/Long ddmmssN/dddmmssW
1				N/ W	5				N/ W
2				N/ W	6				N/ W
3				N/ W	7				N/ W
4				N/ W	8				N/ W

Altitude restrictions: _____ FEET MSL (do not use AGL – Standard is 2000' above highest terrain point)

The _____/_____ at _____ , _____
Agency Name / Incident Name / 24 Hr. Phone # (No Toll Free #s) / VHF-AM Air/Air Frequency
is in charge of on scene emergency response activities. TFR to provide a safe environment for fire fighting aircraft operations; effective immediately, until further notice, 24 hrs/day.

The requested TFR affects the following Special-Use Airspace:					
The requested TFR affects the Military Training Routes listed below:					
Route	SCHEDULING ACTIVITY	SEGMENT(S)	Route	SCHEDULING ACTIVITY	SEGMENT(S)

IMPORTANT NOTE TO FAA: If the TFR affects SUA and/or MTR(s), we request NOTAM distribution to all military bases involved, to the Coordinating Flight Service Station, and, for MTRs, to the Flight Service Station and Air Route Traffic Control Center with responsibility for the airspace at the route entry point(s).

NOTAM # _____ ISSUED AT _____ (Time) On _____/_____ (Date)

Date/Time TFR Cancelled: _____ By: _____

Rev.09-07-02

FIGURE 6-19 How to Access TFRs

HOW TO ACCESS TFRS FROM THE US NOTAM OFFICE

1) TFRs are issued by the US NOTAM Office as a FDC NOTAM. Go to https://www.notams.jcs.mil or https://www.notams.faa.gov (note the "s" after the http). These sites are on secure servers and are identical (mirror) sites. You may have to click several times through a security process.

2) If you wish to pull all TFRs in the nation, click on ARTCC TFRs.

3) If you wish to pull specific TFRs for a geographical region, type in the 4 -letter ICAO designator for the Center in your region. In the left hand box, enter the 4-letter ICAO identifier for the airspace involved. (See identifiers below). You may enter multiple ARTCCs by separating the identifiers with either a comma or a space. (NOTE - FDC NOTAMs are associated with the ARTCC that requested the TFR).

KZSE - Seattle	KZME - Memphis	KZJX - Jacksonville
KZOA - Oakland	KZKC - Kansas City	KZMA - Miami
KZLA - Los Angeles	KZMP - Minneapolis	KZTL - Atlanta
KZLC - Salt Lake City	KZAU - Chicago	KZID - Indianapolis
KZDV - Denver	KZOB - Cleveland	PAZA - Anchorage
KZAB - Albuquerque	KZNY - New York	PHZH - Honolulu
KZFW - Ft. Worth	KZBW - Boston	
KZHU – Houston	KZDC - Washington DC	

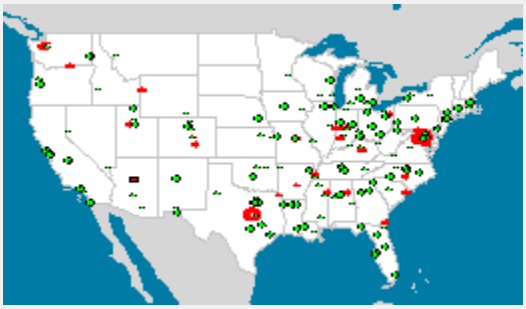
4) Click on "View NOTAMS." You will be able to scroll down and read (and print) your TFR NOTAM. Look for the FDC number of your NOTAM (for example 0/5271).

5) Corrections, changes, and questions MUST be made through your local ARTCC. Do not call the US NOTAM office. There are also other methods of reading your NOTAMS (through DUATs and the BLM airspace system for example). The FAA is also planning to launch a TFR graphical depiction website in the near future.

6) Note - TFR websites are not approved for flight navigation. Pilots must continue to use established agency procedures (e.g., FAA flight plans, etc.) for flight navigation.

VII. BLM Airspace Information System

BLM Airspace Information System http://airspace.blm.gov



Welcome to the Bureau of Land Management's Airspace Information Website. The BLM has now made available to **all aviators** and **fire staff** interactive current WAC, Sectional, and GNC Aviation Charts plotted with graphical TFR information to help pilots avoid inadvertent violation of Restricted Airspace due to fire fighting operations and other national airspace restrictions. The BLM National Aviation Office understands the importance for pilots to be aware and visualize graphically Temporary Flight Restrictions that are issued because of the low-level, dense operations of aircraft in a fire zone. Although it is the legal requirement of a pilot to rely on text based NOTAMS issued from the FAA, many times they are difficult to understand, and even more difficult to understand the extent of the flight restriction.

This site will operate year round offering graphical updates automatically every thirty minutes, 24 hours a day, 7 days a week. In the interest of accuracy and to eliminate problems, the site will be updated and reviewed by a person a minimum of twice daily (7am and 1pm Mountain), 7 days a week through out the entire year and twice daily on business days throughout the rest of the year. TFR's will generally be updated much more frequently then the twice a day minimum.

By clicking on the buttons on the left, all aviators can access Temporary Flight Restrictions due to fire fighting operations, as well as other National Temporary Flight Restrictions. **Red** areas indicate Temporary Flight Restrictions. One can list all of the restrictions by state, or by clicking on the **Red** zones on a national map. **Green** zones are used for blanket Stadium TFRs and  symbols are used to depict Nuclear Sites. Each of these symbols can also be clicked for details. The map is interactive and can be zoomed in or out, and various layers can be toggled on or off like airports, airways, etc. The information can be displayed and easily printed as a sectional or wac chart.

The flight planning section is reserved for BLM Aviation and those designated to use it. It contains extensive Flight Planning features and can be used to plan possible route, hazard and obstruction conflicts within the airspace system. The BLM National Aviation Office at the National Interagency Fire Center, Boise, ID, issues BLM logins.

If you have questions or need further information, feel free to contact Ben Hinkle at the BLM National Aviation Office by emailing Ben_Hinkle@nifc.blm.gov or by phone at 208-387-5184.

Main Menu

Airspace Information System Home - By clicking the left mouse button here 

you will be taken to the BLM Airspace Information System Home page. If at any time you want to go back to the home page to see a bit of information on what the site is about, just click here.

TFRs by State – By clicking this button 

you will be taken to a page that allows you to view a list of all TFRs that have been issued by the FAA (see disclaimer). The TFRs, issued in NOTAMs, are arranged alphabetically by state and ordered by number for each state. You can scroll down the page to find the NOTAM you are searching for, or just to see if there are any NOTAMs issued for a particular state.
Each NOTAM includes two methods for viewing the TFR. First, you can click on the state identifier (i.e. AZ, for Arizona) and it will show the entire state with any TFRs that are in effect. The default chart will be a Vector chart. WAC and Sectional charts are available by selecting the coinciding radio button. Using the zoom feature to the right of the map, you can zoom in or out on the map to varying extents based on the properties of the selected chart. Click the "minus" sign to zoom out one level. Click the "plus" sign to zoom in one level. You can click on any of the bars in between to zoom multiple levels at once. The other method of viewing the TFR from the TFRs by State list is to click the "Locate On Map" button in the lower left corner of the NOTAM. This will take you to a similar page as before, except the map is centered on the TFR and zoomed in to frame the TFR. You can use the same zoom features and chart selection options as with the first method of viewing TFRs.

Below the map, you can see the text of the NOTAM along with a table of information about what is contained within the TFR. The symbols on the left side of the table will tell you the type of point that is listed. If you are unsure what the symbol is, just hold your mouse over it and a name will appear. In the center of the table you will see a description of the point. Click on the button to re-center the map at this point. Click on the  for more information about the point. To the right of the map are symbols of the continental United States, Alaska, and the Hawaiian Islands. Clicking on any of these symbols will take you to a Vector map showing all of the TFRs for that region. WAC and Sectional maps are selectable, but will not show the entire region. More information can be found in the TFR Map section of the online tutorial.

TFR Map – Clicking on this button 

will show you a Vector map of the continental United States, with all current TFRs shown as red outlined regions. You can click on the symbols to the right of the map for Alaska and the Hawaiian Islands and see a similar Vector map for those regions as well. There are several options that appear below the map. These include Stadiums and Nuclear Sites referenced in the blanket NOTAMs, as well as Airports, Navaids, Airways, SUAS, Airspace, Military Training and Aerial Refueling zones, all of which can be selected and shown on the Vector map. Be sure to click on the Redraw button to display any options you have checked. Other than Stadiums and Nuclear Sites, these options are not available for the WAC and Sectional maps if selected.
You can re-center the map by clicking anywhere in the viewing area. You can also re-center the map by selecting the type of point you want to enter from the dropdown menu below the map and then entering the name of the point in the provided space, then clicking the "Find" button. The map can also be "bumped" in any direction by clicking the arrows at the corners of the map screen. By clicking on a TFR, the map will center on that TFR and bring up information about it below.

TFR Search – Clicking on this button TFR Search will take you to a search page that allows you to specify a location on the map. Using the drop-down menu, you will be given a choice between City/State, TFR #, Fix/Waypoint, Zip Code, Navaid, Lat/Lon, Airport, Airport@city, and RNAV. Just select the type of point you want to search for and enter the information for that point in the box. The map will automaticly re-center on the point you specified. If there is more than one point for the identifier you chose, a drop-down menu will appear "Choose One" and will give you whatever choices are available. Once you make your selection, the map will center on that point. If there are any TFRs in that region, you will see the NOTAMs and any airport or other information listed below.

Flight Planning – Clicking on this button Flight Planning will take you to AeroPlanner.com, the BLM's official online flight planning service. AeroPlanner.com provides pilots the best planning tools and data available on the Internet. View and download all NOS sectional charts, query FAA navigation databases, plot routes based on airports and navaids, print TripTicks, store log information, and much, much more. And it's all online!

BLM Login – Click this button BLM Admin to enter your BLM login information. BLM members will be able to select from a wider variety of chart types to view TFRs and can resize the map for greater detail and coverage. Contact the BLM National Aviation Office at the National Interagency Fire Center, Boise, ID by emailing Ben_Hinkle@nifc.blm.gov or call 208-387-5184.

Download Shapefile *(if applicable)* – BLM members who are logged in can click this button Download Shapefile to download the shapefile of the image for printing.

Top Menu

BLM Home – Clicking this button BLM Home takes you to the BLM home page, http://www.blm.gov/nhp/index.htm

BLM Fire and Aviation – Clicking this button BLM Fire and Aviation takes you to the BLM Office of Fire and Aviation home page, http://www.fire.blm.gov/

Wildland Fire Info – Clicking this button Wildland Fire Info takes you to the BLM and NIFC Wildland Fire Management Information home page, http://www.nifc.blm.gov/nsdu/index.html

Online Tutorial – Clicking this button Online Tutorial takes you to the online tutorial, giving you information on how to navigate and use the site.

Links – Clicking this button Links takes you to a page with various links related to the BLM and aviation services.

Search – Clicking on this button Search takes you to a page that allows you to search all of the BLM's external sites for more information.

Contact – Clicking this button Contact will show you contact information for various BLM personnel.

CHAPTER 7
Airspace Deconfliction

I. Introduction

Studies of midair collisions have revealed some interesting and surprising information. According to Air Safety Foundation, a sub-group of the Aircraft Owner's and Pilot's Association (AOPA) and the National Transportation Safety Board (NTSB), nearly all midair collisions occur during daylight hours, in visual flight rules (VFR) conditions with visibility of at least three miles, and involve aircraft flying in areas where a concentrated number of aircraft normally operate, such as around airports, emergency operations and other areas of high traffic congestion. In the end it comes down to a failure of the "See and Avoid" system but there usually are a number of factors leading up and contributing to this failure. Agency personnel can take a number of steps to reduce the risk of a midair collision.

The US Air Force has an airspace program known as MidAir Collision Avoidance (MACA). The objective of a MACA program is to prevent airspace conflicts through improvement of airspace coordination procedures. Agency personnel involved in airspace deconfliction employ a program similar to MACA that enhances communications, quality of information, and situational awareness among dispatchers, coordination centers, pilots, aircrews, aerial supervisors, air tanker and air attack base managers and ground-based personnel.

Several agency guides identify airspace procedures and policies for federal firefighting agencies (i.e. the Interagency Air Tactical Supervisor and Lead Plane Operations Guides). The procedural information in these Guides is relevant to all issues regarding airspace coordination. These guides are referenced where appropriate.

II. Airspace Deconfliction

The word 'deconflict' is not in the dictionary. The prefix means "to free from" (e.g. decontaminate) or to remove (e.g. debug, declassify). Airspace deconfliction is a term used to describe the process of reducing the risk of a near mid air collision or TFR intrusion by sharing information regarding flight activity with DoD military units, general aviation and other agency aviation programs. Airspace deconfliction can occur for both emergency and non-emergency aviation activities.

The act of deconflicting airspace often centers around “courtesy phone calls” which are calls placed by a dispatcher to inform another party (DoD, etc) of aviation activity. The contacts are considered “courtesy calls” because the FAA manages the nations airspace and the FAA will issue the appropriate NOTAMS and make notification when appropriate.

The role of a “courtesy phone call” can be critical for providing deconfliction information to an Air Tactical Group Supervisor or other airborne incident personnel. For example, when an incident occurs on a MTR, dispatch can call the either the FAA ARTCC or FAA FSS to see if the route is “hot.” The FSS generally has a schedule received the evening before from the DoD Scheduling Activity for the MTR. Many times the schedule is out dated due to changes on the schedule. When Dispatch places a courtesy call to the DoD Scheduling Activity, they can usually find out not only if the route is “hot” but how many aircraft are scheduled on the route for the rest of the day. This information can then be relayed to the field. This valuable information can be crucial in avoiding a mid air collision. DoD will usually participate in deconfliction procedures especially if notified that a TFR will be going into place.

Deconflicting airspace can occur for a variety of missions ranging from blasting activity, reconnaissance flights, aerial photography, etc. In the case of non emergency activities, the Department of Defense may choose to voluntarily deconflict involved airspace in order to reduce the risk of a mid air collision. See and Avoid principles will always apply.

Agency personnel should be aware of their agency guidelines regarding the radius of airspace to be deconflicted. The location and types of airspace involved will influence the scope of airspace deconfliction. Agency guidelines should also spell out deconfliction applications for end product contracts.

A. Boundary Issues

When resources are being dispatched by more than one unit or agency to an incident along a common boundary, special care should be taken to ensure safe separation and communication. Airspace boundary plans should be developed in areas where this occurs. Boundary plans often focus on an 10 mile wide “neutral air” corridor for mutual or exchanged initial attack areas or zones. Agencies conducting flight activity within the boundary corridor implements notification procedures to adjoining agencies and cooperators. Examples of aviation operations include fire reconnaissance, fire suppression missions, special aviation projects, resource management flights, helicopter logging, etc.

The following exerpt is from the Idaho and Pacific Northwest Boundary Plans:

> "Aerial operations on, or adjacent to, agency/cooperator boundaries and areas where a neighboring agency/cooperator provides fire suppression on lands administered by the adjoining agency/cooperator ("mutual aid", "shared", or "exchanged" initial attack areas or zones) require increased management and coordination. The requirement for increased management and coordination is due to the possibility of two or more agency/cooperators conducting simultaneous, uncoordinated aviation operations within those areas that would unknowingly put the responding aerial resources within close proximity to one another, placing aircraft and crews at risk. The purpose of this plan is to identify such boundaries and initial attack zones and provide a means of communication, coordination and airspace deconfliction within those areas."

B. DoD Airspace Deconfliction Direction

NIMA publishes DoD Flight Information Publications (FLIP) which consists of various books and charts (Reference Chapter 5 Tools/Skills). The AP/1 contains direction to DoD flight crews regarding "forest fire season". The following quote is from the AP/1, Chapter 3, Flight Hazards.

FLIGHT HAZARDS

FOREST FIRE SEASON - Many Military Training Routes (MTRs) traverse areas of mountainous forest and range lands. Flight crews must be alert for fire suppression activities using aircraft during the fire season. In many cases a NOTAM designating a temporary flight restriction area will be in effect for such areas when a fire exists. All aircrews should be extremely alert for such areas whether designated or not and avoid such areas by at least 5 NM.

Typical fire seasons for various regions are as follows:

NE US - March, April, May
SE US - March, April, May, September, October, November
ARIZONA/NEW MEXICO - April, May, June, July, September, October, November
CALIFORNIA - May, June, July, August, September, October, November, December
COLORADO/WYOMING - May, June, July, August
N. DAKOTA - May, June, July, August
UTAH/NEVADA/IDAHO - June, July, August, September
MONTANA - June, July, August, September
OREGON/WASHINGTON - June, July, August, September, October

C. Airspace deconfliction tools

1. Airspace Briefings

Standard morning briefings at all airbases, both on and off incident, and dispatch offices should include airspace information. Newly arrived aircraft from other geographic areas should be briefed by whatever means available (radio, phone or on the ground) prior to its first operational period regarding airspace issues. Feedback on the days operation should be obtained from aerial firefighters, pilots and dispatchers. Corrective actions for problems identified during debriefings should be taken prior to the next operational period.

The following briefing components are recommended at a minimum. Briefings on airspace and associated issues are not intended to replace standard briefing formats such as those found in agency or interagency guides (i.e. Interagency Helicopter Operations Guide's Daily Briefing/Debriefing Checklist), but to provide more comprehensive information to pilots and aircrews.

- General airspace situation locally, statewide, and nationally
- Review of problems or conflicts encountered to date, and their resolution
- Safety issues and alerts
- Maps of statewide TFRs along with incident or area specific maps as needed
- Table listing TFR impacts on military or other flight activities
- Incident or area-specific airspace procedures
- FTAs in effect
- Frequency lists
- Incident Management Team Air Operations organization contact list
- Known hazards (i.e. logging cables, transmission or other suspended lines, other aircraft operations, etc.)

2. Distribution

Awareness of airspace coordination and communications information is critical to the DoD, FAA, agency personnel and both participating and non-participating pilots. This information should be distributed statewide to all that have a "need to know".

Information destinations include but are not limited to:

- Air Attack and Air Tanker Bases
- Helibases with contract or agency-owned helicopters
- Dispatch centers and GACCs
- Expanded Dispatch-Aircraft desks
- Incident Air Operations Branch Directors
- Neighboring agencies
- Agency Aviation Safety Officers
- FSS and ARTCCs
- DoD SUA Scheduling Agencies
- DoD MTR Scheduling Activities

Field Airspace Coordinators assigned to complex incidents should refer to Chapter 2 - Roles and Responsibilities for an outline of reporting responsibilities.

III. Airspace Operating Guidelines

Incident aviation operations are often conducted under extremely adverse flight conditions. Congested areas, reduced visibility, adverse weather and mountainous terrain all add to the complexity of operations.

Situations and complexities dictate the level of supervision required to safely and effectively conduct aerial operations. Aerial supervision may be provided by Air Tactical Group Supervisor (ATGS), Lead Plane, ASM1 (Aerial Supervision Modules), ATCO (Air Tanker Coordinator, or HELCO (Helicopter Coordinator). Dispatchers and Air Tanker Base Managers, in consultation with aerial supervisors, provide for ensuring that policies are applied and limitations are not exceeded.

There are several guides (Interagency Air Tactical Supervisor's Guide and Interagency Lead Plane Operations Guide) that specifically outline procedures for ingress to and egress from a TFR by assigned aircraft. The following addresses aircraft NOT assigned to the incident:

A. Unassigned Aircraft are Flying Near, Transiting or Entering Incident Airspace

This situation is a source of many airspace conflicts. Pilots and aircrew members of non-incident aircraft need to be aware of potential conflicts. Dispatch offices can provide information regarding TFRs and Initial Attack activity in the area of the non-participating aircraft.

1. Incidents with a TFR

It is important that pilots and aerial supervisors of aircraft not assigned to the incident realize that they are non-participating aircraft under FAR 91.137 (a)(2) and fall under the same requirements as general aviation and commercial aircraft. All pilots are responsible for being aware of TFRs. Pilots are responsible for remaining clear of the TFRs unless granted permission to enter or transit the airspace by the aerial supervisor in charge.

An attempt to cross the TFR area without proper authorization will be documented on a SAFECOM and will lead to enforcement action.

Even if flying outside the TFR, a courtesy contact will not only enhance safety but also avoid needless follow-up of a perceived intrusion.

2. Incidents without a TFR

For aircraft not assigned to an incident, a basic aviation safety procedure is for the pilot to avoid the incident airspace until some form of contact with the aerial supervisor on-scene can be made. This is commonly achieved via communication with the unit dispatching the aircraft or the unit with jurisdiction on the incident. Another option is to make initial contact on Air Guard or VHF-AM 122.925.

B. Ingress and Egress of Incident Aircraft Flying Near, Transiting or Entering Incident Airspace

Standard tactical procedures should be followed as specified in interagency guides such as the Air Tactical Supervisor's and Lead Plane Operations Guides. Operational modifications and enhancements should be implemented as necessary for each situation or phase of the incident. The key is to maintain safety by adherence to standard procedures yet allow the aerial supervisor the flexibility that may be needed to effectively utilize incident aircraft.

1. Fire Traffic Area (FTA)

The FTA was developed by aerial firefighting personnel to provide a standardized initial attack airspace structure to enhance air traffic separation over wildfire (or all risk) incidents. The structure and communications requirements are patterned after Class D airspace

with some specific differences. The structure emphasizes established communications, received and understood clearances, and compliance with the clearances. The intent is that an aircraft will NOT enter the FTA until it receives a clearance.

Agency personnel involved with a FTA should read Chapter 5 (Mission Sequence and Procedures) of the Interagency Air Tactical Supervisors Guide. Detailed information is provided about ingress, egress and operating procedures.

The FTA utilizes a five NM radius from the incident latitude and longitude. Five NM is the minimum radius, although a radius greater may be used to adapt to unique incident demands. The upper most limit of the FTA can flex vertically depending on operational requirements of participating incident aircraft.

There is an "initial Contact ring" established on a 12 NM radius from the incident latitude and longitude. There is a "NOCOM ring" or holding ring established on a 7 NM radius from the incident latitude and longitude. If no communications (hence the coined term "NOCOM" are established, the aircraft will hold at 7 NM and not penetrate the FTA any further. The NOCOM holding options include a 7 NM option or a quadrant option.

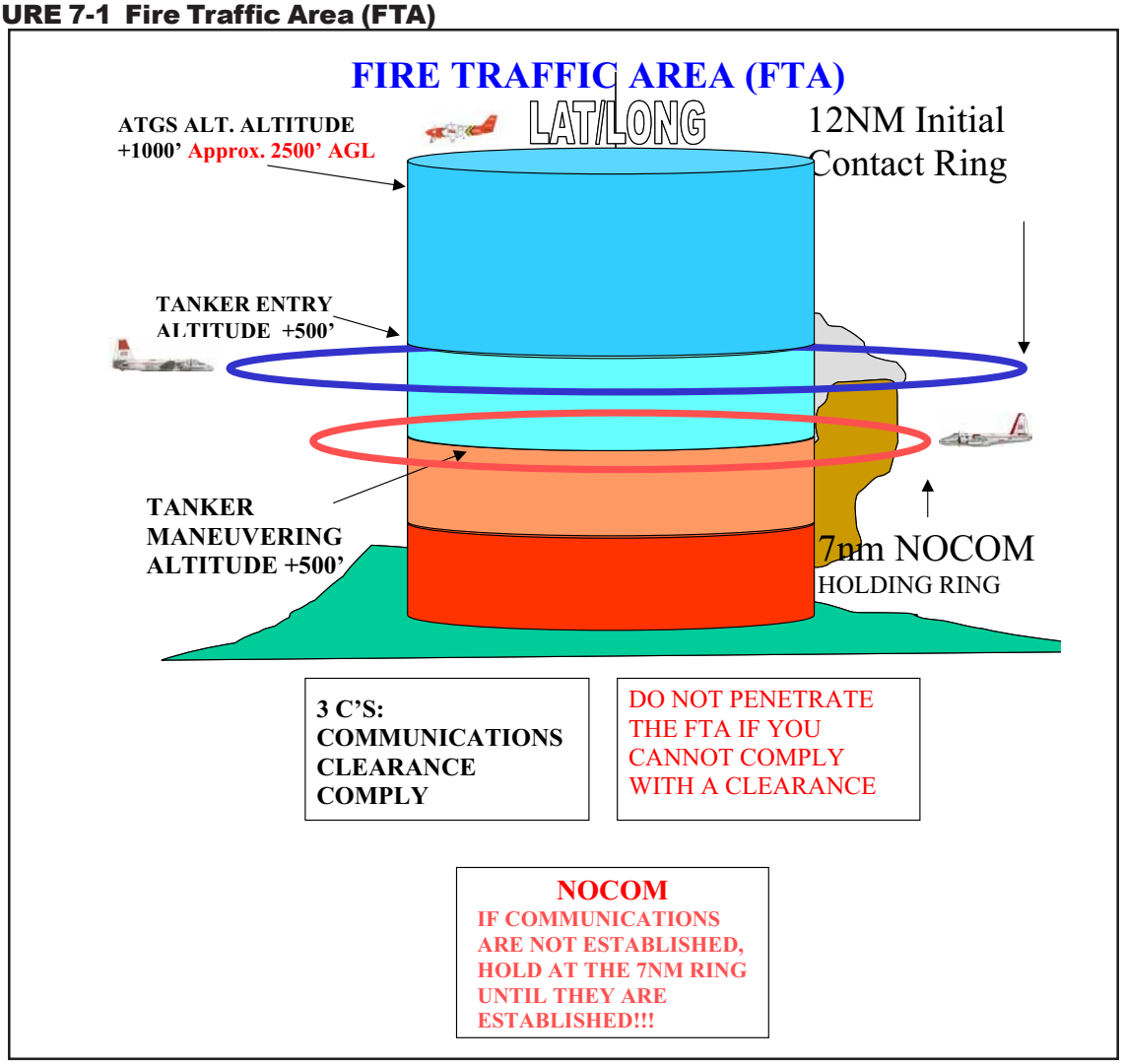
The FTA concept provides for arriving aircraft to be at the assigned altitude given by the Air Tactical Group Supervisor or Lead Plane prior to penetrating the FTA. For a standard shape FTA, the penetration point would be 5 NM from the incident.

Large incidents often will have airspace requirements and TFR's that exceed the dimensions of a standard FTA. In this case, Initial Points (IP's) are used in conjunction with transition routes to and from the incident. An IP is a physical location based on geographic or coordinate reference such as a latitude/longitude. Unless otherwise directed, arriving aircraft will reference the IP for initial communications and NOCOM procedures.

2. Egress From The Incident

The aerial supervisor may establish flight routes and/or reporting points for egress from the incident. These points and routes may

FIGURE 7-1 Fire Traffic Area (FTA)



become necessary due to poor visibility, proximity to adjacent incidents, heavy air traffic or for other reasons.

3. Flight Routes to/from an Incident (Outside an FTA)

Routes should be implemented when conditions warrant. Short-term conditions may include poor visibility or numerous aircraft flying to and from multiple incidents in close proximity. Longer-term flight routes should be a joint decision by aerial supervisors, pilots, base managers and incident Air Operations personnel. Pilot feedback is critical on this issue. These routes should be communicated to dispatch and/or the Expanded Dispatch - Aircraft desk. Local FAA or temporary tower personnel should be consulted and advised as well.

4. Before an FTA is Established

If coordinates (such as latitude/longitude) are given to aircraft to use to navigate to an incident location, especially at the initial attack and aerial mobilization phases when aerial supervision may not yet be in place, the possibility exists that aircraft may arrive at an incident at the same time, place or altitude. Though it is ultimately the responsibility of the pilots to "See and Avoid", it is critical that dispatchers and others establish and clearly communicate the details concerning flight routes, arrival/departure times and altitudes to pilots, other dispatchers and aircrews.

5. Aviation Operations in Congested Areas

This can be a confusing term. It is often referred to as "Congested Airspace" which has no formal airspace definition by the FAA. A congested "area" is an operational area of airspace which requires additional precautions and procedures in which to conduct low-level flight operations. Under 14 CFR 91.119, the FAA establishes that "no person may operate an aircraft below the following altitudes over a congested area of a city, town, or settlement, or over any open air assembly of persons.

US Forest Service – Operations on national forest lands and other agency lands protected by the USFS under cooperative fire protection agreements require that all aircraft conduct air operations under the FAA Grant of Exemption No. 392 from 14 CFR 91.119 (Minimum Safe Altitudes).

Other Agency Operations – Aircraft flying on incidents under other agency jurisdictions should consult their agency policies and 14 CFR 137.

IV. Frequency Management

Tactical aircraft frequencies are referred to as air-to-air and air-to-ground frequencies. They are assigned for use by participating aircraft for tactical operations over an incident.

The use of tactical aircraft frequencies combined with the appropriate level of aerial supervision can provide the necessary separation and positive control of participating aircraft operating within the airspace over an incident.

Utilization and management of tactical aircraft frequencies by participating aircraft is an important component of the MACA program. Communication and frequency issues are often cited in Airspace SAFECOMs.

A. Basic Frequency Information

1. UHF Frequency (Ultra High Frequency)

These frequencies span 406.000 to 470.000 MHz and have good short and intermediate range carrying characteristics. These frequencies are most frequently utilized for Command-Tactical operations (initial and extended attack incidents). Unit work channels, some air-to-air and air-to-ground operations, and transmit aqnd receive channels for many repeaters.

2. VHF-AM Frequency (Very High Frequency-Amplitude Modulation)

These frequencies span 118.000 to 135.975 MHz and have good short and moderate intermediate range carrying charcteristics. These frequencies are controlled by the FAA because they are used almost exclusively for aircraft air-to-air and air-to-ground operations. Although some private aircraft have FM capabilities, all aircraft are required to have AM capabilities.

3. VHF-FM Frequency (Very High Frequency-Frequency Modulation)

These frequencies span 150.000 to 173.975 MHz and have good short and intermediate range carrying characteristics. These frequencies are most frequently utilized for Command-Tactical operations (initial and extended attack incidents) unit work channels, some air-to-air and air-to-ground operations, and transmit and receive channels for many repeaters.

4. Victor Frequency

Victor is the phonetic representation for the letter V. When dealing with frequencies it generally represents VHF-AM frequencies.

B. Air-to-Air Frequencies

Air-to-air frequencies are typically assigned in the VHF-AM band between 118.000 and 135.975. Aerial supervisors use these frequencies over an incident for initial check-in of all aircraft, for airspace coordination and for providing operational direction and instructions to tactical aircraft.

Some geographic areas conduct air-to-air communications on a limited number of FM frequencies.

C. Air-to-Air AM Initial Attack Frequencies

These frequencies are issued annually by the FAA for the express purpose of incident air-to-air communications. These frequencies are given to the National Incident Interagency Comjmunications Division (NIICD) and then provided to all of the western Geographic Coordinations Centers (except Alaska). The Coordination Centers are given the authority (see National Interagency Mobilization Guide, Section 23.4.3, paragraph 2) to administer these frequencies for their Area dispatch jurisdictions Initial Attack needs. Each Geographic Area has been split into Initial Attack zones that are generally split along highways, railroads, major divides, drainages, state and/or Geographic Area boundaries. This is for ease of local dispatch offices to issue the appropriate frequency to aircraft for the appropriate zones. Pilots generally understand that this is the frequency to tie into for safe approach to a fire location. The pilot in charge of air operations (air tactical group supervisor, lead plane pilot or "primary pilot) would normally have a map of the adjoining zones and if the incident were near the edge of a zone, they would initially check the adjoining frequency to determine if any other aircraft are operating in proximity to their incident. This should limit the "confliction" safety concerns of the pilot in charge of air operations.

D. Air-to-Ground Frequencies

Air-to-ground frequencies are typically assigned in the VHF-FM band between 150.000 and 173.975. These frequencies are used for communications with ground forces and the tactical aircraft. The aerial supervisor can discuss tactics and target acquisition with ground forces, and tactical aircraft can also communicate directly with the ground personnel who are requesting the specific missions. Sometimes an FM frequency is used.

E. Flight Following Frequencies

Flight following frequencies are assigned for the purpose of tracking position and heading of aircraft from a base of operations or departure point to an incident. This is a positive method of communication, usually conducted at 15-minute intervals, which is initiated by the originating dispatch office. Flight following continues until the aircraft makes a transition to the incident's, aerial supervisor's or the next dispatch office's frequency.

Flight following of aircraft by position and heading allows for a more rapid response and narrows the search area should an emergency situation occur that requires search and rescue procedures be activated.

Some dispatch offices conduct flight following on local agency frequencies. Ground resources and others users may be sharing this frequency for logistical and other uses. Aircraft should be given priority when flight following is being conducted on these local frequencies.

F. National Flight Following - 168.650 (Air Net)

Many dispatch offices have the National Flight Following frequency available in their radio systems. This frequency is important for tracking aircraft traveling long distances.

National Flight Following should be used by aircraft for position reporting only, and all other tactical and operational communications should be conducted on other frequencies. When all dispatch locations have this frequency, an aircraft will be able to monitor a single channel to complete flight following instead of attempting to dial in many local primary frequencies along the way.

G. National Air Guard - 168.625

This frequency is dedicated for **emergency** communications for aviation. This channel is for brief use in attempting to provide an open channel monitored by all agency aircraft and many dispatch locations for immediate safety concerns. Guard is not to be used for flight following, initial call-up and other non-safety related communications unless all other viable frequencies have been attempted.

H. AirTanker Base Frequency 123.975

Designated as 123.975, this nationwide frequency is used for communications between an airtanker base and tactical aircraft being supported by the airtanker base. The primary information that will be conveyed over this channel are requests for retardant, fuel, parking instructions and flight following information when the airtanker base has been given that responsibility by a dispatch organization.

I. Frequency Plans

Many geographic areas annually assign tactical aircraft frequencies that are designated for initial attack use only. These are usually depicted graphically on maps as contiguous polygon-shaped "zones" of airspace based on administrative or physical boundaries, and describe the respective air-ti-air and air-to-ground frequencies assigned for each zone.

Dispatch offices utilize these plans to assign the appropriate frequencies for aircraft responding to initial attack incidents.

J. Frequencies on Large Incidents

When an Incident Management Team (IMT) is assigned to an incident, air-to-air and air-to-ground tactical aircraft frequencies are ordered to replace local frequencies for that specific incident. These frequencies are used for the duration of the incident, and are then released when incident air operations cease.

Large incident frequencies are ordered through dispatch channels and are assigned by the National Interagency Fire Center (NIFC). Latitude and longitude coordinates must be provided so that NIFC can coordinate frequency assignments between adjacent or multiple incidents.

K. Complex Airspace and Frequency Management

When airspace and multiple incident complexity reaches a level where existing aircraft frequency and communication plans are inadequate, an airspace coordinator may be assigned to coordinate airspace issues with a communications unit leader or a frequency coordinator for a specific area.

Examples of this type of complexity may be heavy initial attack activity in close proximity to multiple large incidents, multiple TFR's in place, and aircraft responding from bases located in several different geographic areas. The 1999 Nevada response plan, 1998 Florida Response plan and the 1998 Montana/Idaho response plan are all examples of this situation.

V. Airspace Readiness and Training

An important component of a MACA program is readiness and training. Airspace coordination is severely hampered by incorrect phone numbers and out-of-date maps.The following is a list of seven items to assist airspace coordination preparedness.

FIGURE 7-2 Seven Steps to Airspace Preparedness

Seven Steps to Airspace Preparedness

1. Maps Updated and Available?

- Sectionals
- Aircraft Hazard Maps
- Computer Aided Maps (IAMS/CAHIS)

2. Publications Current and Accessible?

- AP1/B Book and Charts
- FAR/AIM
- AFD
- AP1/A Handbook
- Interagency Airspace Coordination Guide

3. Current Contact Phone Lists?

- Scheduling Agencies/Activities for SUA/MTRs
- FAA contacts

4. Airspace Identified for Geographical Area?

5. Airspace Agreements Established and Current?

6. Forms Accessible?

- Current TFR Request Form
- Check lists
- Temporary Tower Request Form

7. Appropriate Agency Personnel Trained?

- Able to Plot Bearing/Distance
- Latitude/Longitude Mapping
- Airspace Coordination

VI. Additional Airspace Deconfliction Opportunities

Many opportunities exist to create an airspace coordination program prior to the need to deconflict airspace. Relationships should be established between dispatch, the FAA and DoD personnel who interact in airspace coordination roles. The following outreach possibilities enhance airspace coordination in a positive and proactive manner.

A. Site Visits

Site visits between dispatch organizations and DoD Scheduling Activity offices, Scheduling Agencies and ARTCCs are invaluable in understanding FAA and DoD airspace deconfliction procedures. Likewise, inviting DoD and FAA personnel to a dispatch center provides for cross training and increased understanding of agency procedures.

Fly-ins or air shows are opportunities for agency personnel to share information about airspace coordination procedures. This is an outstanding method of reaching out to general aviation pilots to discuss wildland fire-related TFR areas.

B. Airspace Agreements

As discussed in Chapter 12, Airspace Agreements provide a useful tool for standardization of interagency airspace coordination procedures.

CHAPTER 8
Airspace Conflicts

I. Introduction

Federal Aviation Regulations establish a safe environment for all aircraft operating within the National Airspace System (NAS). It is imperative that users have an understanding of the regulations applicable to the airspace in which flights are being conducted. These requirements should be understood and adhered to by all pilots. Conflicts often occur in which aircraft are observed operating outside of established regulations. The FAA investigates aircraft incidents, collects and analyzes aircraft incident reports in order to provide a source of accident prevention information as required by Federal Aviation Administration Orders (FAAO 8020.11).

The land management agencies, as users of the NAS, have a responsibility to identify and report incidents to assist in the resolution of airspace conflicts. When a conflict or incident occurs, it may indicate a significant aviation safety hazard. Reports should be clear, concise and factual.

Primary reports of airspace safety incidents are done through the respective agency mishap, incident or Safety Communication (SAFECOM) reporting system. The agency Aviation Safety Manager or Airspace Coordinator may determine whether the incident warrants official submission to the FAA for investigation.

II. Defining or Reporting Situations of Unsafe Aircraft Operations

A. Near Midair Collision (NMAC)

A Near Midair Collision is defined in the Airman's Information Manual (AIM page 7-6-3) as "an incident associated with the operation of an aircraft in which the possibility of collision occurs as a result of proximity of **less than 500 feet to another aircraft**, or a report is received from a pilot or a flight crew member stating that a **collision hazard existed** between two or more aircraft".

FIGURE 8-1 Example of a Near Mid Air

The Air Force refers to their Near Midair incidents as Hazardous Air Traffic Reports (HATRs); the Army uses Operational Hazard Reports (OHRs). The Navy and Marine Corps facilities use the term NMAC.

A NMAC is not the same as a Pilot Deviation. However, some incidents, such as a TFR intrusion, may require that both types of reports be filed.

B. Pilot Deviation Reports

Pilot Deviation Reports are used to document other incidents that are violations of the Federal Aviation Regulations and create an unsafe situation. The following are types of incidents that are treated by the FAA as a Pilot Deviation.

1. Operation of an aircraft in a careless or reckless manner (14CFR 91.13)

2. Airplanes flying below 500' AGL unless in sparsely populated areas or over water (14CFR 91.119)

3. TFR intrusions (14CFR 91.137), which are occurrences of non-participating aircraft entering a TFR without permission (with exceptions for law enforcement flights, airport traffic, IFR traffic and accredited media)

4. Flight operations in restricted/prohibited areas (14CFR 91.133)

5. Non-compliance with standard or acceptable airport operations (14CFR 91.127)

6. Aircraft not operating within the parameters of their special-use airspace, e.g. Military Operating Areas (MOAs), Restricted Areas (RAs) or Military Training Routes (MTRs) (14CFR 91.117, FAAO 7610.4)

7. Although not a report to the FAA, non-compliance with joint-use scheduling as outlined in Memorandums of Understanding (MOUs), Letters of Agreement (LOAs), or Operations Plans should be reported to the appropriate Military Representatives (MILREPs) or other coordinating military representative(s)

III. NMAC Reporting

The primary purpose of the NMAC Reporting Program is to provide information that will enhance the safety and efficiency of the National Airspace System. Data ob-

tained from NMAC reports are used by the FAA to improve the quality of FAA services to users and to develop programs, policies and procedures aimed at the reduction of NMAC occurrences.

All NMAC reports are thoroughly investigated by Flight Standards District Offices (FSDOs) in coordination with Air Traffic Control (ATC) facilities. Data from these investigations are transmitted to FAA Headquarters in Washington, DC, where they are compiled and analyzed, and where safety programs and recommendations are developed.

Notification should be made immediately or as soon as possible after any unsafe incident occurs. Whenever possible, the written report should be received by the responsible FSDO within 15 (calendar) days to ensure all FAA flight records are available. Normally ATC records used to identify aircraft (e.g. flight plans, flight strips, radar and radio tapes) are only kept for 15 days. Late submission of a report may result in limiting the FSDOs ability to complete the investigation.

IV. Aircraft Identification

Usually the first step of reporting an unsafe aircraft situation is to identify the involved aircraft. The FAA and/or DoD, as applicable, need a positive identification of the aircraft involved to perform a complete investigation of an airspace incident. Although the aircraft registration number is the best method of obtaining positive identification, often the aircraft is moving too fast to read the identification numbers. Military aircraft normally have some markings but generally the speeds flown by jets will make these almost impossible to read.

Document as much information as available (e.g. direction of flight, altitude, etc.) and relay as soon as possible to the Agency Dispatcher or Aviation Manager. The more information provided by the observer, the greater the likelihood that identification can be obtained**,** resulting in a successful investigation.

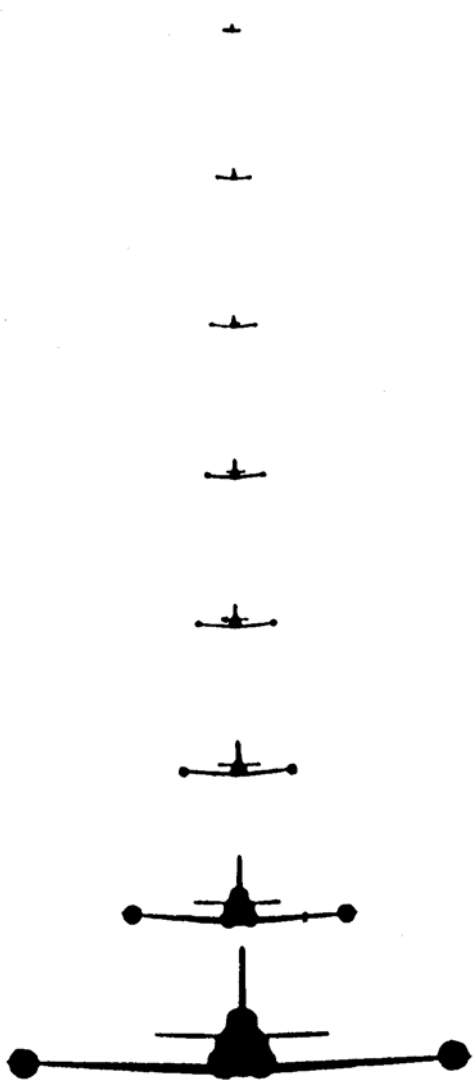
A. Aircraft Incident Observation Checklist

The Aircraft Incident Observation Checklist (Figure 8-3) is provided as an aid to agency personnel in the gathering of incident information.

This Checklist assists personnel in describing an aircraft so that it may be identified. It can be used by an observer to fill in information, or by off-site personnel to ask questions and develop a description.

Incorrect aircraft identification may hamper the FAA or military's ability to determine the actual aircraft involved in the incident. Unless this identifica-

DISTANCE	SECONDS at: 600 MPH	360 MPH
10 miles	60	100
6 miles	36	60
5 miles	30	50
4 miles	24	40
3 miles	18	30
2 miles	12	20
1 mile	6	10
½ mile	3	5



CRITICAL SECONDS

Move back 12 feet from the illustration. From that position the silhouettes represents a T-33 aircraft as it would appear to you from the distances indicated in the on the left. The time required to cover these distances is given in seconds for *combined speeds*.

The blocks on the lower left mark the danger area for the speeds quoted. This danger area is based on the reaction times shown below.

see object	0.1
recognize a/c	1.0
become aware of collision course	5.0
decision to turn left or right	4.0
muscular reaction	0.4
aircraft lag time	2.0
TOTAL	**12.5**

RECOGNITION AND REACTION TIMES
FROM US NAVY AVIATION SAFETY BULLETIN

FIGURE 8-2 Near Midair Collision Analysis

FIGURE 8-3 Near Midair Checklist

AIRCRAFT INCIDENT OBSERVATION CHECKLIST

Location: _____ By: _____ Date: ___/___/___

GENERAL

- ❑ Date and time of the incident _____
- ❑ Type of incident: NMAC, TFR Intrusion or other (include description of events)

  _____

  _____

  _____
- ❑ Weather conditions _____
- ❑ Incident location _____
- ❑ Altitude(s) and direction of flight _____

TYPE AIRCRAFT

- ❑ Jet (number and locationof intakes) _____
- ❑ Prop (number and location of propellers) _____
- ❑ Helicopter (number and location of rotors) _____
- ❑ Other (i.e. balloon, ultralight, hang glider, etc.) _____
- ❑ Unknown

ADDITIONAL DESCRIPTION

- ❑ Readable markings and side numbers _____

  _____
- ❑ Color scheme _____
- ❑ High wing versus low wing (refers to wing placementon main body) _____
- ❑ Landing gear (wheels): retractable or fixed gear (usually gear visible in-flight is fixed)
- ❑ Number of Tails _____
- ❑ Other distinctive configuration _____

  _____

  _____

  _____

OTHER COMMENTS

tion is without doubt, encourage reporting personnel to provide generic descriptions to substitute or supplement the checklist information.

B. Aircraft Profile Identification Guide

Use of an aircraft profile identification guide can assist in swiftly identifying the type of aircraft. Many published guides are available at local bookstores.

C. Radar Identification

Real-time aircraft identification from FAA radar facilities is possible only if the occurrence is reported immediately, and the FAA is tracking the aircraft. The Dispatcher or Aviation Manager should contact the local Air Route Traffic Control Center (ARTCC) or Terminal Radar Approach Control (TRACON) and explain the nature of the incident, along with all available information from the observation report. Request identification of the aircraft involved and include this information in the written report. (NOTE: In some areas ARTCC radar coverage may be limited to higher altitudes and TRACONs should be contacted for information on low altitude traffic).

Even if the conflict is immediately reported, standard conflict reporting processes to the FSDO should be followed. The report should be processed through the FSDO by the agency Aviation Safety Manager or Airspace Coordinator.

V. Agency Reporting and Documentation Requirements

All incidents involving aircraft shall be reported and recorded as a SAFECOM or other appropriate mishap or incident report, in accordance with agency policy and reporting procedures. The Aircraft Conflicts Action Checklist (Figure 8-4) is designed to assist in processing SAFECOMs.

A. Initial Response/Action

The initial report should be recorded by the aircraft passenger, pilot, crew or ground observer on a SAFECOM**,** detailing pertinent information that will support the agency notice to the FAA. SAFECOM submissions may be made through either the USFS (*www.fs.fed.us/r6/fire/av_safety*) or through DOI (*www.oas.gov*). The future combined website (currently under construction) will be *www.safecom.gov*.

1. Upon receipt of an initial airspace conflict report, the Unit Dispatcher or Aviation Officer should immediately contact the FAA ARTCC/ TRACON and request a positive identification of the aircraft involved.

2. When possible, immediate reports should be forwarded to the FAA within 15 minutes of the incident.

3. If the occurrence involves a military aircraft and there is the potential for a recurrence, immediately contact the military airspace scheduling activity responsible for flight in the area of operations. If necessary cease all agency aviation activities until the safety issue is resolved.

4. With aircraft operating at different speeds, it's possible that all pilots involved may not see a close call between two or more aircraft. Feedback to DoD is important to bring this to their attention.

B. Formal Reporting

1. NMAC Reports

An FAA Near Midair Collision (NMAC) report should be submitted for all incidents that meet the definition. The pilot of the aircraft reporting the incident should complete Blocks A-E on the NMAC form.

It is the responsibility of the pilot and/or flight crew to determine whether a Near Midair Collision situation actually occurred and, if so, to initiate an NMAC report. For the initial report, the pilot/crew should notify the nearest Air Traffic facility on the ATC frequency while airborne, or by phone immediately after landing.

2. Pilot Deviation Reports

Any authorized personnel using information from ground and/or airborne observers may make reports of Federal Aviation Regulation deviations and other unsafe operations.

Items to be reported are as follows:

a. Date, time (UTC), location and altitude of the occurrence.

b. Location of the incident in relation to the nearest navigation fix or ATC facility.

c. Identification and type of reporting aircraft, destination, name and home base of pilot.

d. Identification and type of other aircraft. If known, include aircraft departure or arrival point and name and home base of pilot.

e. Type of flight plans and station altimeter setting used.

f. Detailed weather conditions at altitude or flight level.

g. Approximate courses of aircraft involved; indicate if either aircraft were climbing or descending.

The following three items are also reported for NMAC:

a. Reported separation in distance at first sighting, proximity at closest point horizontally and vertically, and length of time in sight prior to evasive action.

b. Degree of evasive action taken, if any (by either aircraft, if possible).

c. Injuries, if any.

An agency SAFECOM Report, with NMAC documentation, should be sent to identified agency submission points. Concurrently with standard agency incident/hazard reporting procedures, the State, Area or Regional Aviation Manager should process instances of airspace conflicts through the local FAA FSDO, with a courtesy copy to the FAA Regional Headquarters Quality Assurance Office.

If an NTAP (defined by ARTCC as a ”radar documentation of flight”) is required, the Aviation Safety Manager will need to submit a Freedom of Information Act (FOIA) request to the FAA Regional Headquarters Quality Assurance Office. The request must be made as soon as possible after the incident as the NTAP information is perishable.

The Aviation Safety Manager should submit the communication as a formal report, requesting that the FAA conduct an investigation. At the time of the report, make it known that follow-up and feedback is desired on the progress and eventual outcome of the FAA’s investigation.

C. FAA Investigation

1. The FAA office responsible for the investigation and reporting of NMACs and Pilot Deviations will be the FSDO in whose area the incident occurred.

2. FAAO 8020.11 defines FAA investigation responsibilities. The FSDO investigator will categorize NMAC cases as one of the following:

   a. Critical - a situation in which collision avoidance was due to chance rather than a pilot's actions. Less than 100 feet of aircraft separation is considered critical.

   b. Potential - a situation that would probably have resulted in a collision if no action had been taken by either pilot. Less than 500 feet of aircraft separation is usually required in this case.

   c. No Hazard - a situation in which direction and altitude have made a Midair collision improbable, regardless of evasive actions (FAAO 8020.11).

3. The FAA, in response to it's investigation, may choose to interview the pilot, crew members, on scene personnel, dispatcher, etc. Documentation of the incident is essential to the investigation.

D. Follow Through

The need for follow through on all airspace issues is critical to both investigation and resolution of past occurrences and the prevention and avoidance of future situations.

1. If military aircraft were involved, contact the military airspace scheduling activity and inform them of actions taken with the ARTCC and FSDO. Contact should also be made with the appropriate MILREP at FAA Regional Office Headquarters.

2. If warranted, contact the National Aviation Safety Manager and Airspace Coordinators and provide a copy of the SAFECOM.

3. It is important that these issues be resolved in the interest of preventing future occurrences. For that reason the Aviation Manager should periodically check with the FSDO to determine the status (i.e., continuation, closure) of the investigation.

FIGURE 8-4 Airspace Conflict Checklist

AIRSPACE CONFLICTS ACTION CHECKLIST
(ALWAYS FOLLOW AGENCY PROCEDURES)

SUGGESTED STEPS TO BE TAKEN IF:

THERE IS AN INTRUSION WITHIN A TFR

- ❑ Have contact provide as much information as possible (Use Aircraft Observation Report) for more information.
- ❑ Contact local ARTCC and report intrusion to Area Manager immediately. Fax Aircraft Observation Report or Intrusion Report to FAA.
- ❑ If DoD aircraft are involved, contact the following:
  If a MTR is located within the TFR: Contact the Scheduling Activity listed in the AP1/B (or use CAHIS/IAMS for phone number)
  If a MOU/SUA is located within the TFR: Contact the Scheduling Authority (Consult Sectional for identification of Scheduling Authority–many times it is the local ARTCC)
  If you do not have access to an AP1/B, CAHIS/IAMs/CAN or a Sectional, contact your local ARTCC for assistance in identifying the scheduling office.
- ❑ Explain the situation to both the FAA and, if necessary, DoD. Provide NOTAM information for TFR. Ask if any further flights are scheduled within the area. Discuss safety issues and renew efforts to deconflict airspace. Document all conversations.
- ❑ If safety is compromised, shut down operations until airspace is safe to work within. Do NOT use intimidation or risky flying to try to encourage aircraft to leave the area. Pull out of the area if safety is compromised.
- ❑ Obtain documentation and file SAFECOMs.

THERE IS A NEAR MID AIR COLLISION (NMAC) INVOLVING:
NOTE: FOR ALL NMACs REFER PILOT TO FAA IF THEY WISH TO FILE A NMAC REPORT.

AGENCY AIRCRAFT AND AGENCY AIRCRAFT

- ❑ Shut down operations if safety is compromised.
- ❑ Obtain documentation and file SAFECOM. Provide additional witness reports, radio logs, etc., if needed.
- ❑ Discuss airspace procedures, TFRs, etc., during pilots' briefings (and debriefings). Be sure that TFR information is shared with local agencies and other cooperating agencies involved in incident.

AGENCY AIRCRAFT AND DOD AIRCRAFT

- ❑ Obtain as much information as possible.
- ❑ Contact Local ARTCC and report incident to Area Manager. Fax documentation to FAA. Discuss contacting schedulers for MTRs, SUAs and MOAs.
- ❑ Contact Scheduling Activities (MTRs/SRs) and Scheduling Authorities (SUAs/MOAs) and provide information about intrusion. Inquire about scheduling activity. Discuss deconfliction request and TFR. Consider also contacting Air Force regarding local LATNs.
- ❑ File SAFECOM through agency procedures.
- ❑ Notify MILRep at FAA Regional Headquarters. MILReps will investigate all DoD related TFR intrusions or Near Mid Air Collisions. Provide complete documentation.
- ❑ Courtesy copy to FAA FSDO. FSDO will refer investigation to DoD.

AGENCY AIRCRAFT AND GENERAL AVIATION AIRCRAFT

- ❑ Obtain as much information as possible.
- ❑ Contact ARTCC (Area Manager) with information. Ask if the FAA can identify the aircraft on their radar scopes.
- ❑ File SAFECOM through agency procedures.
- ❑ Provide information to FAA FSDA. FSDO will assign investigator to follow through.
- ❑ Check local airports to see if aircraft can be identified. Do not "educate" the pilot--the FAA will handle that.

AGENCY AIRCRAFT AND BIRDS OR WILDLIFE

- ❑ File SAFECOM
- ❑ See Chapter 4--and file Bird report with FAA.

VI. NASA Voluntary Aviation Safety Reporting

The FAA has established a voluntary Aviation Safety Reporting Program designed to stimulate the free and unrestricted flow of information concerning deficiencies and discrepancies in the aviation system. This program utilizes the National Aeronautics and Space Administration (NASA) to act as an independent third party to receive and analyze reports submitted under the program. This program is described in Advisory Circular AC 00-46, Aviation Safety Reporting Program. This is a positive program intended to ensure the safest possible system by identifying and correcting unsafe conditions before they lead to accidents. The primary objective of the program is to obtain information to evaluate and enhance the safety and efficiency of the present system.

This cooperative safety reporting program invites pilots, controllers, flight attendants, maintenance personnel, other users of the airspace system, or any other person, to file written reports of actual or potential discrepancies and deficiencies involving the safety of aviation operations.

The operations covered by the program include departure, en route, approach, and landing operations and procedures, Air Traffic Control procedures and equipment, crew and Air Traffic Control communications, aircraft cabin operations, aircraft movement on the airport, Near Midair Collisions, aircraft maintenance and record keeping, and airport conditions or services.

The report should give the date, time, location, persons and aircraft involved (if applicable), nature of the event, and all pertinent details.

To ensure receipt of this information, the program provides for the waiver of certain disciplinary actions against persons, including pilots and air traffic controllers, who file timely written reports concerning potentially unsafe incidents. To be considered timely, reports must be delivered or postmarked within 10 days of the incident unless that period is extended for good cause. Reports should be submitted on NASA ARC Forms 277B, which are available free of charge, postage prepaid, at FAA Flight Standards District Offices and Flight Service Stations, and from NASA, ASRS, PO Box 189, Moffet Field, CA 94035. Further information is available at *http://asrs.arc.nasa.gov*.

VII. NASA and FAA Forms

The following pages consist of these NASA and FAA forms:

A. Form NASA ARC 277B (January 1994)
B. FAA Form 8020-17 - Preliminary Pilot Deviation Report
C. FAA Form 8020-21 - Preliminary Near Midair Collision Report
D. FAA Form 8020-15 - Investigation of Near Midair Collision Incident

FIGURE 8-5 Form NASA ARC 277B (January 1994), Page 1

DO NOT REPORT AIRCRAFT ACCIDENTS AND CRIMINAL ACTIVITIES ON THIS FORM.
ACCIDENTS AND CRIMINAL ACTIVITIES ARE NOT INCLUDED IN THE ASRS PROGRAM AND SHOULD NOT BE SUBMITTED TO NASA.
ALL IDENTITIES CONTAINED IN THIS REPORT WILL BE REMOVED TO ASSURE COMPLETE REPORTER ANONYMITY.

(SPACE BELOW RESERVED FOR ASRS DATE/TIME STAMP)

IDENTIFICATION STRIP: Please fill in all blanks to ensure return of strip.
NO RECORD WILL BE KEPT OF YOUR IDENTITY. This section will be returned to you.

TELEPHONE NUMBERS where we may reach you for further details of this occurrence:

HOME Area _____ No. _____ Hours _____

WORK Area _____ No. _____ Hours _____

NAME _____

ADDRESS/PO BOX _____

_____

CITY _____ STATE _____ ZIP _____

TYPE OF EVENT/SITUATION _____

_____

DATE OF OCCURRENCE _____

LOCAL TIME (24 hr. clock) _____

PLEASE FILL IN APPROPRIATE SPACES AND CHECK ALL ITEMS WHICH APPLY TO THIS EVENT OR SITUATION.

REPORTER

- ☐ Captain
- ☐ First Officer
  - ☐ pilot flying
  - ☐ pilot not flying
- ☐ Other Crewmember
- ☐ _____

FLYING TIME

total _____ hrs.

last 90 days _____ hrs.

time in type _____ hrs.

CERTIFICATES/RATINGS

- ☐ student
- ☐ commercial
- ☐ instrument
- ☐ multiengine
- ☐ _____
- ☐ private
- ☐ ATP
- ☐ CFI
- ☐ F/E

ATC EXPERIENCE

- ☐ FPL ☐ Developmental
- radar _____ yrs.
- non-radar _____ yrs.
- supervisory _____ yrs.
- military _____ yrs.

AIRSPACE

- ☐ Class A (PCA)
- ☐ Class B (TCA)
- ☐ Class C (ARSA)
- ☐ Class D (Control Zone/ATA)
- ☐ Class E (General Controlled)
- ☐ Class G (Uncontrolled)
- ☐ Special Use Airspace
- ☐ airway/route _____
- ☐ unknown/other _____
- _____
- _____
- _____

WEATHER

- ☐ VMC ☐ ice
- ☐ IMC ☐ snow
- ☐ mixed ☐ turbulence
- ☐ marginal ☐ tstorm
- ☐ rain ☐ windshear
- ☐ fog ☐ _____

LIGHT/VISIBILITY

- ☐ daylight ☐ night
- ☐ dawn ☐ dusk
- ceiling _____ feet
- visibility _____ miles
- RVR _____ feet

ATC/ADVISORY SERV.

- ☐ local ☐ center
- ☐ ground ☐ FSS
- ☐ apch ☐ UNICOM
- ☐ dep ☐ CTAF
- Name of ATC Facility: _____

	AIRCRAFT 1	AIRCRAFT 2
Type of Aircraft (Make/Model)	(Your Aircraft) _____ ☐ EFIS ☐ FMS/FMC	(Other Aircraft) _____ ☐ EFIS ☐ FMS/FMC
Operator	☐ air carrier ☐ military ☐ corporate ☐ commuter ☐ private ☐ other _____	☐ air carrier ☐ military ☐ corporate ☐ commuter ☐ private ☐ other _____
Mission	☐ passenger ☐ training ☐ business ☐ cargo ☐ pleasure ☐ unk/other_____	☐ passenger ☐ training ☐ business ☐ cargo ☐ pleasure ☐ unk/other_____
Flight plan	☐ VFR ☐ SVFR ☐ none ☐ IFR ☐ DVFR ☐ unknown	☐ VFR ☐ SVFR ☐ none ☐ IFR ☐ DVFR ☐ unknown
Flight phases at time of occurrence	☐ taxi ☐ cruise ☐ landing ☐ takeoff ☐ descent ☐ missed apch/GAR ☐ climb ☐ approach ☐ other _____	☐ taxi ☐ cruise ☐ landing ☐ takeoff ☐ descent ☐ missed apch/GAR ☐ climb ☐ approach ☐ other _____
Control status	☐ visual apch ☐ on vector ☐ on SID/STAR ☐ controlled ☐ none ☐ unknown ☐ no radio ☐ radar advisories	☐ visual apch ☐ on vector ☐ on SID/STAR ☐ controlled ☐ none ☐ unknown ☐ no radio ☐ radar advisories

If more than two aircraft were involved, please describe the additional aircraft in the "Describe Event/Situation" section.

LOCATION

Altitude _____ ☐ MSL ☐ AGL

Distance and radial from airport, NAVAID, or other fix _____

_____

Nearest City/State _____

CONFLICTS

Estimated miss distance in feet: horiz _____ vert _____

Was evasive action taken? ☐ Yes ☐ No

Was TCAS a factor? ☐ TA ☐ RA ☐ No

Did GPWS activate? ☐ Yes ☐ No

NASA ARC 277B (January 1994) GENERAL FORM Page 1 of 2

FIGURE 8-6 Form NASA ARC 277B (January 1994), Page 2

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

NASA has established an Aviation Safety Reporting System (ASRS) to identify issues in the aviation system which need to be addressed. The program of which this system is a part is described in detail in FAA Advisory Circular 00-46D. Your assistance in informing us about such issues is essential to the success of the program. Please fill out this form as completely as possible, enclose in an sealed envelope, affix proper postage, and and send it directly to us.

The information you provide on the identity strip will be used only if NASA determines that it is necessary to contact you for further information. THIS IDENTITY STRIP WILL BE RETURNED DIRECTLY TO YOU. The return of the identity strip assures your anonymity.

AVIATION SAFETY REPORTING SYSTEM

Section 91.25 of the Federal Aviation Regulations (14 CFR 91.25) prohibits reports filed with NASA from being used for FAA enforcement purposes. This report will not be made available to the FAA for civil penalty or certificate actions for violations of the Federal Air Regulations. Your identity strip, stamped by NASA, is proof that you have submitted a report to the Aviation Safety Reporting System. We can only return the strip to you, however, if you have provided a mailing address. Equally important, we can often obtain additional useful information if our safety analysts can talk with you directly by telephone. For this reason, we have requested telephone numbers where we may reach you.

Thank you for your contribution to aviation safety.

NOTE: AIRCRAFT ACCIDENTS SHOULD NOT BE REPORTED ON THIS FORM. SUCH EVENTS SHOULD BE FILED WITH THE NATIONAL TRANSPORTATION SAFETY BOARD AS REQUIRED BY NTSB Regulation 830.5 (49CFR830.5).

Please fold both pages (and additional pages if required), enclose in a sealed, stamped envelope, and mail to:

NASA AVIATION SAFETY REPORTING SYSTEM
POST OFFICE BOX 189
MOFFETT FIELD, CALIFORNIA 94035-0189

DESCRIBE EVENT/SITUATION

Keeping in mind the topics shown below, discuss those which you feel are relevant and anything else you think is important. Include what you believe really caused the problem, and what can be done to prevent a recurrence, or correct the situation. (USE ADDITIONAL PAPER IF NEEDED)

CHAIN OF EVENTS
- How the problem arose
- How it was discovered
- Contributing factors
- Corrective actions

Page 2 of 2

HUMAN PERFORMANCE CONSIDERATIONS
- Perceptions, judgments, decisions
- Actions or inactions
- Factors affecting the quality of human performance

FIGURE 8-7 FAA Form 8020-17 - Page 1

PRELIMINARY PILOT DEVIATION REPORT

Incident Report Number: P

Complete and distribute according to instructions on page 3. Complete items I to 9 and 27 to 33 for all deviations; if surface deviation, also complete items 10 to 14; if air deviation, also complete items 15 to 26. Complete the form by hand or typewriter.

1. Date, Time, and Location of Deviation

A. Date (Coordinated Universal Time-UTC) M M D D Y Y

B. UTC Time

C. Local Time

D. Nearest City or Town and State

2. Pilot Information (*complete or mark box*) ☐ All Information Unknown

A. Name and Address

Name (first, middle, last)

Address

City State or Country Zip

B. Daytime Telephone Number

C. Pilot Certificate No. (or enter "MILITARY")

3. Deviation First Detected by (*mark one*):

A. ☐ Error Detection Program (EDP)
B. ☐ Radar Observation (excludes EDP)
C. ☐ Visual Observation (tower)
D. ☐ AFSS or FSS
E. ☐ Public, Including Pilots
F. ☐ Other, Specify

4. Aircraft Information (*complete or mark box*): ☐ All Information Unknown

A. Registration (N) No.

B. Flight No. or Call Sign (if applicable)

C. Make

D. Model

5. Type of Operation at Time of Deviation (*mark one*):

A. ☐ U.S. Air Carrier (14 CFR 121 or 125)
B. ☐ Foreign Air Carrier (I 4 CFR 129)
C. ☐ Commuter (I 4 CFR 13 5)
D. ☐ Air Taxi (14 CFR 135)
E. ☐ General Aviation (I 4 CFR 9 1)
F. ☐ Public (*governmental*)
G. ☐ U.S. Military, (*Specify Service*)
H. ☐ Unknown
I. ☐ Other, *Specify*

6. Type of Flight Rules at Time of Deviation (*mark one*):

A. ☐ Instrument Flight Rules (IFR)
B. ☐ Visual Flight Rules (VFR)
C. ☐ Special VFR
D. ☐ Defense VFR
E. ☐ Unknown

7. Phase(s) of Flight When Deviation Occurred (*mark appropriate boxes*):

A. ☐ Taxi
B. ☐ Takeoff
C. ☐ Climb
D. ☐ Level Flight or Cruise
E. ☐ Turning or Maneuvering
F. ☐ Descent
G. ☐ Approach
H. ☐ Landing
I. ☐ Unknown
J. ☐ Other, *Specify*:

8. Number of Aircraft Involved (*provide data on any aircraft not listed in item 4*):

A. ☐ One
B. ☐ Two
C. ☐ Three
D. ☐ Four or More
E. ☐ Unknown

	Aircraft N No.	Flight No. or Call Sign (*if applicable*)	Make	Model
F.				
G.				
H.				
I.				

9. Type of Deviation(s) (*mark appropriate boxes*):

A. ☐ Surface (*complete* items 10 to 14 and 27 to 33)
B. ☐ Air (*complete Items 15 to 33*)

10. Type of Control at Surface Deviation Location (*mark one*):

A. ☐ Operating Control Tower
B. ☐ Nonoperating Control Tower
C. ☐ None, Nontowered Public Airport
D. ☐ None, Private Airport
E. ☐ Unknown

11. Airport ID at Surface Deviation Location:

12. Surface Deviation Type(s) (*mark appropriate boxes*):

A. ☐ Takeoff Without Clearance
B. ☐ Takeoff on Wrong Runway or Taxiway
C. ☐ Landed Without Clearance
D. ☐ Landed or Takeoff Below Weather Minimums
E. ☐ Landed on Wrong Runway, Taxiway, or Airport
F. ☐ Entered Runway or Taxiway Without Clearance
G. ☐ Careless or Reckless Aircraft Operation
H. ☐ Did Not Close Flight Plan
I. ☐ Other, *Specify*

13. Loss of Separation With (*mark appropriate boxes*):

A. ☐ Ground Vehicle
B. ☐ Personne
C. ☐ Another Aircraft, on Ground
D. ☐ Another Aircraft, in Air
E. ☐ Obstruction
F. ☐ Not Applicable
G. ☐ Unknown

14. Closest Proximity Was (*mark one*):

A. ☐ Under 100 Feet
B. ☐ 100-499 Feet
C. ☐ 500-1,000 Feet
D. ☐ Over 1,000 Feet
E. ☐ Not Applicable
F. ☐ Unknown

If Surface Deviation Only Skip to Item 27

15. Location in Traffic Pattern During Deviation (*mark one*):

A. ☐ Upwind
B. ☐ Crosswind
C. ☐ Entry or Downwind Leg
D. ☐ Base Leg
E. ☐ Final Approach
F. ☐ Departure Leg or Exit
G. ☐ Not in Traffic Pattern
H. ☐ Unknown
I. ☐ Other, *Specify*

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FIGURE 8-8 FAA Form 8020-17 - Page 2

16. Aircraft Altitude When Deviation Detected:
A. ☐☐☐, ☐☐☐☐ Feet msl
B. ☐ Unknown

17. Transponder (*mark one*):
A. ☐ Operating, With Altitude Reporting
B. ☐ Operating, without Altitude Reporting
C. ☐ Not Functioning (*broken or off*)
D. ☐ No Transponder
E. ☐ Unknown

18. Was the Aircraft Equipped with TCAS?:
A. (1) ☐ Yes (2) ☐ No (3) ☐ Unknown
B. If Yes, Was TCAS Operating During Deviation?
(1) ☐ Yes (2) ☐ No (3) ☐ Unknown
C. If Yes, Was TCAS Involved in Deviation?
(1) ☐ Yes (2) ☐ No (3) ☐ Unknown
D. If Yes, Describe Involvement: _____

19. Fix or Facility Nearest Deviation (*complete one*):
A. ☐☐☐☐ VOR, TACAN, or NDB ID
B. ☐☐☐☐☐ Airport ID
C. ☐☐☐☐☐☐ Airway Intersection ID
D. ☐ Oceanic Airspace or Area Navigation (GPS, Loran, etc.)

20. Deviation Location in Respect to Item 19 (*complete A&B or C&D*):
A. ☐☐☐☐ Miles (nautical)
B. ☐☐☐☐ Degrees (magnetic)
For Oceanic Airspace and Area Navigation Only:
C. ☐☐' ☐☐' Latitude
D. ☐☐☐' ☐☐' Longitude

21. Operational Control Area of Aircraft (*mark a maximum of three*):
A. ☐ Class A Airspace
B. ☐ Class B Airspace
C. ☐ Class C Airspace
D. ☐ Class D Airspace
E. ☐ Class E Airspace
F. ☐ Class G Airspace
G. ☐ Special Use Airspace, *Specify* _____
H. ☐ Within Terminal Radar Service Area
I. ☐ Towered Airport
J. ☐ Non towered Airport
K. ☐ Unknown
L. ☐ Other, *Specify* _____

22. Location ID of Facility(ies) Providing Air Traffic Service During Deviation (*complete appropriate boxes*)
A. ☐☐☐☐ ARTCC
B. ☐☐☐☐ TRACON
C. ☐☐☐☐ RAPCON, RATCT, or ARAC
D. ☐☐☐☐ ATCT
E. ☐☐☐☐ AFSS or FSS
F. ☐ None
G. ☐ Unknown
H. ☐ Other, Specify _____

23. Preliminary Information Indicates the Air Deviation Type Was (*mark appropriate boxes*):
A. ☐ ATC Altitude Clearance Deviation
B. ☐ ATC Course Clearance Deviation
C. ☐ Airspeed Clearance Violation
D. ☐ Airspace Clearance Violation
E. ☐ Flying VFR when IFR Required
F. ☐ Pilot Unqualified for Aircraft or Conditions
G. ☐ Required Aircraft Equipment Not Operating
H. ☐ Careless or Reckless Aircraft Operation
I. ☐ Unauthorized Low level Flying
J. ☐ Missed Compulsory Reporting Point
K. ☐ Noncompliance with Other Regulations (specify FAR numbers (2)):
(1) ☐☐☐☐.☐☐☐☐ (☐☐) (2) ☐☐☐☐.☐☐☐☐ (☐☐)

24. Preliminary Information Indicates the Airspace Violation Was of (*mark one*):
A. ☐ Class A Airspace
B. ☐ Class B Airspace
C. ☐ Class C Airspace
D. ☐ Class D Airspace
E. ☐ Class E Airspace
F. ☐ Special Use Airspace, *Specify* _____
G. ☐ None
H. ☐ Unknown
I. ☐ Other, *Specify* _____

25. If ATC Altitude or Course Clearance Deviation, Maximum Deviation Was:
☐ No Clearance Deviation
A. ☐☐☐, ☐☐☐☐ Feet, Vertical or ☐ Unknown
B. ☐☐☐, ☐☐☐☐ Feet, Horizontal
or ☐☐☐, ☐☐☐ Miles (nautical), Horizontal or ☐ Unknown

26. If There Was Loss of Separation, Closest Proximity Was:
☐ No Loss of Separation
A. ☐☐☐, ☐☐☐☐ Feet, Vertical or ☐ Unknown
B. ☐☐☐, ☐☐☐☐ Feet, Horizontal
or ☐☐☐, ☐☐☐ Miles (nautical), Horizontal or ☐ Unknown
C. ☐☐☐ Minutes Longitudinal or ☐ Unknown

27. Other Reports Files or To Be Filed (mark appropriate boxes and complete):
A. ☐ Incident Report (FAA Form 8020-1 1), *Specify No(s).* _____
B. ☐ Preliminary Near Midair Collision Report (FAA Form 8020-2 1), *Specify No(s).* _____
C. ☐ Preliminary Operational Error/Deviation Report (FAA Form 7210-2), *Specify No(s).* _____
D. ☐ Other (including TCAS), *Specify* _____
E. ☐ None

28. Brief Description of Deviation and Comments:

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FIGURE 8-9 FAA Form 8020-17 - Page 3

PRELIMINARY
PILOT DEVIATION REPORT

Incident Report Number: P

28. Brief Description of Deviation and Comments (*continued*):

29. Attachments (*specify, e.g., pilot statement or flight progress strip, or mark box*): ☐ No Attachments

30. Reporting Office:
A. [A] FAA Region
B. Location ID
C. Telephone No.

31. Name of Individual Completing Form:
Type or Print

32. Facility Manager Approving Form:
A. Signature
B. Name
Type or Print
C. Date M M D D Y Y

33. Report Distributed to:
A. [A] FAA Region Flight Standards ID
B. Others, *Specify*

INSTRUCTIONS

I. General

The incident report number and Items 1, 4, 6, 16, and 28 of FAA Form 8020- 17 must be completed and the information transmitted or arrangements made to transmit it in numerical order within 3 hours of the detection of a pilot deviation by: (1) telephone, facsimile, or in accordance with a regional agreement to the FSDO with jurisdiction over the area in which the pilot deviation occurred; and (2) by National Airspace Data Interchange Network (NADIN) message using immediate (DD) precedence to FAA headquarters and others. If the pilot deviation is significant, the above information should be communicated immediately by telephone to FAA headquarters. The remainder of the form must be completed and mailed by first class mail within 10 calendar days of the pilot deviation. The definition of a pilot deviation and instructions on distribution of FAA Form 8020-17 are in FAA Order 8020.11, "Aircraft Accident and Incident Notification, Investigation, and Reporting."

If a pilot deviation resulted in a near midair collision, FAA Form 8020-17 and FAA Form 8020-21, "Preliminary Near Midair Collision Report," both must be completed and distributed. Assign the two reports different incident report numbers.

Complete Items I to 9 and 27 to 33 for all deviations; if surface deviation, also complete Items I 0 to 14; if air deviation, also complete Items 15 to 26. If the categories given are inadequate, complete "Other, Specify." Provide comments in Item 28, not the margins. Sign and date the form (Item 32) before distribution.

II. Incident Report Number

Each facility completing FAA Form 8020-17 is responsible for assigning a unique 12-character number to each reported pilot deviation. The first character is P, for Pilot Deviation. The second and third characters are the abbreviation of the FAA region in which the deviation occurred:

AL - Alaskan
CE - Central
EA - Eastern
GL - Great Lakes
WP- Western-Pacific
NE - New England
NM - Northwest Mountain
SO - Southern
SW - Southwest

The fourth character identifies the type of facility completing the form:

C - ARTCC
F - AFSS or FSS
Z - FSDO or Other
R - TRACON
T - ATCT

For combined TRACON and ATCT operations, use the character for the TRACON or ATCT reporting the pilot deviation.

The fifth through seventh characters are the facility location identifier (see FAA Order 7350.6), e.g., **ZNY**; or FSDO ID, e.g., **025**. The eighth and ninth characters are the calendar year in which the incident occurred, e.g., **03** for 2003.

The last three characters are the sequential incident report number for the year, by reporting facility and type of incident (e.g., pilot deviations would be numbered **001 to 999** in 2003 at a given facility).

III. Abbreviations

The following abbreviations are used:

AFSS	- Automated Flight Service Station
ARAC	- Army Radar Approach Control
ARTCC	- Air Route Traffic Control Center
ATCT	- Airport Traffic Control Tower
CFR	- Code of Federal Regulations
FSDO	- Flight Standards District Office
FS	- Flight Service Station
GPS	- Global Positioning System
HATR	- Hazardous Air Traffic Report
MSL	- Mean Sea Level
NDB	- Nondirectional Beacon
RAPCON	- Radar Approach Control
RATCF	- Radar Air Traffic Control Facility
TACAN	- Tactical Air Navigation
WAS	- Traffic Alert and Collision Avoidance System
TRACON	- Terminal Radar Approach Control
VOR	- Very High Frequency Omni directional Range Station

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FIGURE 8-10 FAA Form 8020-21 - Page 1

PRELIMINARY
NEAR MIDAIR COLLISION REPORT

Incident Report Number: N

Complete and distribute according to instructions on page 3. Complete all items. "Rptg" refers to the aircraft that reports the near midair collision (NMAC) first; "Other" refers to the other aircraft. Complete the form by hand or typewriter.

1. Date, Time, and Location of NMAC:
Date (Coordinated Universal Time-UTC)
A. ☐☐☐☐☐☐☐☐ (M M D D Y Y Y Y)
UTC Time B. ☐☐☐☐ Local Time C. ☐☐☐☐
D. Nearest City or Town and State _____

2. Fix or Facility Nearest NMAC *(complete one)*:
A. ☐☐☐ VOR, TACAN, or NDB ID
B. ☐☐☐☐ Airport ID
C. ☐☐☐☐☐ Airway Intersection ID
D. ☐ Oceanic Airspace or Area Navigation (GPS, Loran, etc.)

3. NMAC Location in Respect to Item 2 *(complete A&B or C&D)*
A. ☐☐☐ Miles (nautical)
B. ☐☐☐ Degrees (magnetic)
For Oceanic Airspace or Area Navigation
C. ☐☐° ☐☐′ Latitude
D. ☐☐☐° ☐☐′ Longitude

4. Reporting Aircraft ("Rptg") Information:
A. Pilot Name and Address
Name (first, middle, last)
Address
City State or Country ZIP
B. Pilot Home Base _____
C. Pilot Daytime Telephone No. ☐☐☐ - ☐☐☐ - ☐☐☐☐
D. Pilot Certificate No. (or enter "MILITARY") ☐☐☐☐☐☐☐☐☐☐
E. Aircraft Registration (N) No. ☐☐☐☐☐☐
F. Flight No. or Call Sign (if applicable) _____
G. Aircraft Make _____
H. Aircraft Model _____

5. Other Aircraft ("Other") Information *(complete or mark Box)*: ☐ All Inormation Unknown
A. Pilot Name and Address
Name (first, middle, last)
Address
City State or Country ZIP
B. Pilot Home Base _____
C. Pilot Daytime Telephone No. ☐☐☐ - ☐☐☐ - ☐☐☐☐
D. Pilot Certificate No. (or enter "MILITARY") ☐☐☐☐☐☐☐☐☐☐
E. Aircraft Registration (N) No. ☐☐☐☐☐☐
F. Flight No. or Call Sign (if applicable) _____
G. Aircraft Make _____
H. Aircraft Model _____
I. Did Pilot Report NMAC?
(1) ☐ Yes (2) ☐ No (3) ☐ Unknown

6. Type of Operation during NMAC *(mark one per aircraft)*:

	Rptg	Other	
A.	☐	☐	U.S. Air Carrier (14 CFR 121 or 125)
B.	☐	☐	Foreign Air Carrier (14 CFR 129)
C.	☐	☐	Commuter (14 CFR 135)
D.	☐	☐	Air Taxi (14 CFR 135)
E.	☐	☐	General Aviation (14 CFR 91)
F.	☐	☐	Public (governmental)
G.	☐	☐	U.S. Military, Specify Service _____
H.	☐	☐	Unknown
I.	☐	☐	Other, Specify _____

7. Type of Flight Rules During NMAC *(mark one per aircraft)*:

	Rptg	Other	
A.	☐	☐	Instrument Flight Rules (IFR)
B.	☐	☐	Visual Flight Rules (VFR)
C.	☐	☐	Special VFR
D.	☐	☐	Defense VFR
E.	☐	☐	Unknown

8. Phases of Flight During NMAC *(mark appropriate boxes)*:

	Rptg	Other	
A.	☐	☐	Takeoff
B.	☐	☐	Climb
C.	☐	☐	Level Flight or Cruise
D.	☐	☐	Turning or
E.	☐	☐	Descent
F.	☐	☐	Approach
G.	☐	☐	Landing
H.	☐	☐	Unknown
I.	☐	☐	Other, Specify _____

9. Location in Traffic Pattern During NMAC *(mark one per aircraft)*:

	Rptg	Other	
A.	☐	☐	Upwind Leg
B.	☐	☐	Crosswind Leg
C.	☐	☐	Downwind Leg
D.	☐	☐	Base Leg
E.	☐	☐	Final Approach
F.	☐	☐	Departure Leg or Exit
G.	☐	☐	Not in Traffic Pattern
H.	☐	☐	Unknown
I.	☐	☐	Other, Specify _____

10. Aircraft Altitude During NMAC:
A. Rptg ☐☐☐, ☐☐☐ Feet msl or ☐ Unknown
B. Other ☐☐☐, ☐☐☐ Feet msl or ☐ Unknown

11. Approximate Aircraft Heading Before NMAC:
A. Rptg ☐☐☐ Degrees (magnetic) or ☐ Unknown
B. Other ☐☐☐ Degrees (magnetic) or ☐ Unknown

12. Transponder *(mark one per aircraft)*:

	Rptg	Other	
A.	☐	☐	Operating, With Altitude Reporting
B.	☐	☐	Operating, Without Reporting
C.	☐	☐	Not Functioning (broken or off)
D.	☐	☐	No Transponder
E.	☐	☐	Unknown

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FIGURE 8-11 FAA Form 8020-21 - Page 2

13. TCAS Status:

	Rptg Ye	Rptg No	Rptg Unk	Other Ye	Other No	Other Unk
A. Was the aircraft Equipped with TCAS?	☐	☐	☐	☐	☐	☐
B. If Yes, Was TCAS Operating during NMAC?	☐	☐	☐	☐	☐	☐
C. If Yes, Was TCS Involved in NMAC?	☐	☐	☐	☐	☐	☐

D. If Yes, Describe Involvement _____

14. Evasive Action(s) Taken *(mark appropriate boxes)*:

	Rptg	Other			Rptg	Other	
A.	☐	☐	Right Turn	G.	☐	☐	Accelerate
B.	☐	☐	Left Turn	H.	☐	☐	None
C.	☐	☐	Climb	I.	☐	☐	Unknown
D.	☐	☐	Descend	J.	☐	☐	Other, Specify
E.	☐	☐	Level Off				
F.	☐	☐	Decelerate				

15. Time Aircraft in Sight Before Closest Separation:

A. Rptg ⌊___⌋ Seconds or ☐ Unknown

B. Other ⌊___⌋ Seconds or ☐ Unknown

16. Closest Proximity:

A. ⌊__⌋, ⌊____⌋ Feet, Vertical
or ☐ Unknown

B. ⌊__⌋, ⌊____⌋ Feet, Horizontal
or
⌊__⌋ . ⌊__⌋ Miles (nautical), Horizontal
or ☐ Unknown

C. ⌊__⌋ Minutes, Longitudinal
or ☐ Unknown

17. Operational Control Area of Reporting Aircraft During NMAC *(mark a maximum of three)*:

A. ☐ Class A Airspace
B. ☐ Class B Airspace
C. ☐ Class C Airspace
D. ☐ Class D Airspace
E. ☐ Class E Airspace
F. ☐ Class G Airspace
G. ☐ Special Use Airspace, Specify _____
H. ☐ Within Terminal Radar Service Area
I. ☐ Towered Airport
J. ☐ Nontowered Airport
K. ☐ Unknown
L. ☐ Other, Specify _____

18. Location ID of Facility(ies) Providing Air Traffic Service During NMAC *(complete appropriate boxes)*:

	Rptg	Other	
A.	⌊____⌋	⌊____⌋	ARTCC
B.	⌊____⌋	⌊____⌋	TRACON
C.	⌊____⌋	⌊____⌋	RAPCON, RATCF, or ARAC
D.	⌊____⌋	⌊____⌋	ATCT
E.	⌊____⌋	⌊____⌋	AFSS or FSS
F.	☐	☐	None
G.	☐	☐	Unknown
H.	☐	☐	Other, Specify

19. Immediately Before NMAC, Air Traffic Control *(mark appropriate boxes)*:

	Rptg	Other	
A.	☐	☐	Experienced Radar Outage or Other Problems
B.	☐	☐	Experienced Communication Outage or Other Problems
C.	☐	☐	Observed Traffic in Vicinity of Aircraft
D.	☐	☐	Issued a Traffic Advisory
E.	☐	☐	Issued a Safety Alert
F.	☐	☐	Not in Contact with Aircraft
G.	☐	☐	Unknown
H.	☐	☐	None of the Above

20. Other Report(s) Filed or To Be Filed by Air Traffic *(mark appropriate boxes and complete; list HATR's, etc., under Item 22)*:

A. ☐ Incident Report (FAA Form 8020-11), Specify No(s). _____
B. ☐ Preliminary Pilot Deviation Report (FAA Form 8020-17), Specify No(s). _____
C. ☐ Preliminary Operational Error/Deviation Report (FAA Form 7210-2.1), Specify No(s). _____
D. ☐ Other (including TCAS), Specify _____
E. ☐ None

21. Brief Description of NMAC and Comments *(comments optional)*:

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FIGURE 8-12 FAA Form 8020-21 - Page 3

PRELIMINARY
NEAR MIDAIR COLLISION REPORT
(Continued)

Incident Report Number: N

22. Attachments *(specify, e.g., pilot statement or flight progress strip, or mark box)*: ☐ No Attachments

23. Reporting Facility:
A. [A] FAA Region
B. [ ] Location ID
C. [ ] - [ ] - [ ] Telephone No.

24. Name of Individual Completing Form:
Type or Print

25. Facility Manger Approving Form:
A. Signature
B. Name (Type or Print)
C. Date [ ] M M D D Y Y Y Y

26. Report Distributed to:
A. FAA Region [A] Flight Standards ID [ ]
B. Others, Specify

INSTRUCTIONS

I. General

The incident report number and Items 1, 2, 3, 4E and/or F, 4G, 5E and/or F, 5G, 7, 10, and 21 of FAA Form 8020-21 must be completed and the information transmitted or arrangements made to transmit it in numerical order within 12 hours of the NMAC notification by: (1) telephone, facsimile, or in accordance with a regional agreement to the FSDO with jurisdiction over the area in which the pilot deviation occurred, and (2) by National Airspace Data Interchange Network (NADIN) message using immediate (DD) precedence to FAA Headquarters and others. If the NMAC is significant, the above information should be communicated immediately by telephone to FAA Headquarters. The remainder of the form must be completed and mailed by first class mail within 10 calendar days of the notification of a NMAC. The definition of a NMAC and instructions on distribution of FAA 8020-21 are in FAA Order 8020.11, "Aircraft Accident and Incident Notification, Investigation, and Reporting."

If both aircraft involved in the NMAC report the event, designate the first reporting aircraft as "Rptg" and the second as "Other." If more than two aircraft are involved (except for formations when one form should be completed for the entire formation), complete an additional form(s) and assign the form(s) the same incident report number as the primary form. Report the number of forms and which form is primary in Item 21.

Complete all items. If the categories given are inadequate, complete "Other, Specify." If data for both the reporting and other aircraft appear under "Other, Specify," provide the reporting aircraft data first, followed by the other aircraft data. Provide comments in Item 21, not in the margins. Sign and date the form (Item 25) before distribution.

II. Incident Report Number

Each facility completing FAA Form 8020-21 is responsible for assigning a unique 12-character number to each reported NMAC. The first character is **N,** for NMAC. The second and third characters are the abbreviation of the FAA region in which the incident occurred.

AL - Alaskan
CE - Central
EA - Eastern
GL - Great Lakes
NE - New England
NM - Northwest Mountain
SO - Southern
SW - Southwest
WP - Western-Pacific

The fourth character identifies the type of facility completing the form:

C - ARTCC
F - AFSS or FSS
R - TRACON
T - ATCT
Z - FSDO or Other

For combined TRACON and ATCT operations, use the character for the TRACON or ATCT notified of the NMAC.

The fifth through seventh characters are the facility location identifier (see FAA Order 7350.6), e.g., **ZNY**, or FSDO ID, e.g., **025**. The eighth and ninth characters are the calendar year in which the incident occurred, e.g., **95** for 1995.

The last three characters are the sequential incident report number for the year, by reporting facility and type of incident (e.g., NMAC's would be numbered 001 to 999 in 1995 at a given facility).

III. Abbreviations

The following abbreviations are used:

AFSS	-	Automated Flight Service Station
ARAC	-	Army Radar Approach Control
ARTCC	-	Air Route Traffic Control Center
ATCT	-	Air Traffic Control Tower
CFR	-	Code of Federal Regulations
FSDO	-	Flight Standards District Office
FSS	-	Flight Service Station
GPS	-	Global Positioning System
HATR	-	Hazardous Air Traffic Report
msl	-	Mean Sea Level
NDB	-	Nondirectional Beacon
RAPCON	-	Radar Approach Control
RATCF	-	Radar Air Traffic control Facility
TACAN	-	Tactical Air Navigation
TCAS	-	Traffic Alert and Collision Avoidance System
TRACON	-	Terminal Radar Approach Control
VOR	-	Very High Frequency Omnidirectional Range Station

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FIGURE 8-13 FAA Form 8020-15 - Page 1

INVESTIGATION OF NEAR MIDAIR COLLISION REPORT

Incident Report Number: N

Complete and distribute within 90 days of a reported near midair collision (NMAC) according to instructions on page 3. Complete all items. "Rptg" refers to the aircraft that reports the NMAC first; "Other" refers to the other aircraft. Use the same incident report number as on the corresponding FAA Form 8020-21, "Preliminary Near Midair Collision Report." Any corrections to FAA Form 8020-21 should be reported in Item 22 of this form. Complete the form by hand or typewriter.

1. Date,Time, and Location of NMAC:

A. Date (Coordinated Universal Time - UTC)
M M D D Y Y Y Y

B. UTC Time

C. Local Time

D. Nearest City or Town and State

2. Reporting Aircraft ("Rptg") Information:

A. Pilot Name (First, middle, last)

B. Pilot Total Flight Time ____ hrs.

C. Pilot Time in Make and Model ____ hrs.

D. Operator Name and Address

Full Name

Address

City State or Country ZIP

3. Other Aircraft ("Other") Information *(complete or mark box)*:

☐ All information unknown

A. Pilot Name (First, middle, last)

B. Pilot Total Flight Time ____ hrs.

C. Pilot Time in Make and ____ hrs.

D. Operator Name and

Full Name

Address

City State ZIP

4. Aircraft Information:

A. Registration (N) No.
Rptg
Other

B. Flight No. or Call Sign (if applicable)
Rptg
Other

C. Make
Rptg
Other

D. Model
Rptg
Other

E. Aircraft Type *(mark one per aircraft)*:

	Rptg	Other	
(1)	☐	☐	Single Engine Land
(2)	☐	☐	Multiengine Land
(3)	☐	☐	Single Engine Sea
(4)	☐	☐	Multiengine Sea
(5)	☐	☐	Rotorcraft
(6)	☐	☐	Other, Specify

5. Pilots' Certificates *(mark appropriate box)*:

	Rptg	Other	
A.	☐	☐	Student
B.	☐	☐	Recreational
C.	☐	☐	Private
D.	☐	☐	Commercial
E.	☐	☐	Airline Transport
F.	☐	☐	Flight Instructor
G.	☐	☐	Military
H.	☐	☐	Foreign Pilot
I.	☐	☐	None
J.	☐	☐	Unknown
K.	☐	☐	Other, Specify

6. Pilots' Ratings *(mark appropriate boxes)*:

	Rptg	Other	
A.	☐	☐	Single Engine Land
B.	☐	☐	Multiengine Land
C.	☐	☐	Single Engine Sea
D.	☐	☐	Multiengine Sea
E.	☐	☐	Rotorcraft
F.	☐	☐	Glider
G.	☐	☐	Lighter-than-air
H.	☐	☐	None
I.	☐	☐	Unknown
J.	☐	☐	Other, Specify

7. Pilots' Instrument Ratings *(mark one per aircraft)*:

	Rptg	Other	
A.	☐	☐	Current
B.	☐	☐	Not Current
C.	☐	☐	None
D.	☐	☐	Unknown

8. Flight Condition(s) During NMAC *(mark appropriate boxes)*:

A.	☐ Dawn	G.	☐ Precipitation
B.	☐ Bright Day	H.	☐ Thunderstorm
C.	☐ Glaring Sun	I.	☐ Turbulence
D.	☐ Dusk	J.	☐ Haze
E.	☐ Bright Night	K.	☐ Fog
F.	☐ Black Night	L.	☐ Icing
		M.	☐ Unknown

N. ☐ Other, Specify

9. Weather During NMAC *(mark one)*:

A. ☐ Visual Meteorological Conditions
B. ☐ Marginal VMC
C. ☐ Instrument Meteorological Conditions
D. ☐ Unknown
E. ☐ Other, Specify

10. Sky Cover at Flight Altitude During NMAC *(mark one)*:

A. ☐ Clear
B. ☐ Scattered
C. ☐ Broken
D. ☐ Overcast
E. ☐ Unknown

11. Visibility at Flight Altitude During NMAC in ☐ Nautical or ☐ Statute Miles *(mark one)*:

A. ☐ Less than 1 Mile
B. ☐ 1 to 3 Miles
C. ☐ More than 3, but less than 5 Miles
D. ☐ 5 or More Miles
E. ☐ Unknown

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FIGURE 8-14 FAA Form 8020-15 - Page 2

12. Indicated Airspeed Immediately Before NMAC:

Unknown

A. Rptg ____ knots ☐

B. Other ____ knots ☐

13. Aircraft Orientation at Closest Proximity *(mark appropriate boxes to indicate position of apposing aircraft as viewed by pilots)*:

	Rptg Pilot	Other Pilot			Rptg Pilot	Other Pilot	
A.	☐	☐	Above	F.	☐	☐	Behind
B.	☐	☐	Below	G.	☐	☐	Head On
C.	☐	☐	Right	H.	☐	☐	Overtaking, Straight Behind
D.	☐	☐	Left	I.	☐	☐	Overtaking, Convergence Angle
E.	☐	☐	In Front	J.	☐	☐	Unknown

14. Was There an Air Traffic Control (ATC) Operational Error or Deviation? *(mark one)*:

A. ☐ Yes, Specify Report No(s). _____

B. ☐ No

C. ☐ Unknown

15. Weather Contributed to NMAC (*check appropriate boxes*):

	Rptg	Other	
A.	☐	☐	Pilot Received Inaccurate Weather Data
B.	☐	☐	Avoidance of Weather
C.	☐	☐	Flying Visual Flight Rules (VFR) in Instrument Conditions
D.	☐	☐	Unknown
E.	☐	☐	Other, Specify _____
F.	☐	☐	None of the Above, Weather Not a Factor

16. Aircraft Equipment Malfunction(s) Contributed to NMAC *(mark appropriate boxes)*:

	Rptg	Other	
A.	☐	☐	Communication
B.	☐	☐	Transponder
C.	☐	☐	Navigation, Excluding Autopilot
D.	☐	☐	Autopilot
E.	☐	☐	Altimeter
F.	☐	☐	Unknown
G.	☐	☐	Other, Specify _____
H.	☐	☐	None of the Above, Equipment Malfunction Not a Factor

17. Investigation Indicates the Pilot Lacked or Had Inadequate Knowledge or Experience With *(mark appropriate boxes)* :

	Rptg	Other	
A.	☐	☐	Aircraft
B.	☐	☐	Avionics
C.	☐	☐	ATC Procedures
D.	☐	☐	ATC Terminology or Phraseology
E.	☐	☐	English Language
F.	☐	☐	Preflight Planning
G.	☐	☐	Crew Coordination
H.	☐	☐	Weather
I.	☐	☐	Airport
J.	☐	☐	Current Charts and Approach Plates
K.	☐	☐	Unknown
L.	☐	☐	Other, Specify _____
M.	☐	☐	None of the Above

18. Investigation Indicates the Pilot Was *(mark appropriate boxes)*:

	Rptg	Other	
A.	☐	☐	Overworked
B.	☐	☐	Distracted Specify _____
C.	☐	☐	Fatigued
D.	☐	☐	Actively Scanning
E.	☐	☐	Not Actively Scanning
F.	☐	☐	Unable to Locate Traffic, Even With Traffic Advisory
G.	☐	☐	Disoriented or Lost
H.	☐	☐	Sick, Specify _____
I.	☐	☐	Not Following ATC Instructions, Specify _____
J.	☐	☐	Operating in Class A, B, C, or D Airspace Without Required Communication or Authorization
K.	☐	☐	Operating with Transponder Off
L.	☐	☐	Responding to TCAS Resolution Advisory
M.	☐	☐	Unknown
N.	☐	☐	Other, Specify _____
O.	☐	☐	None of the Above

19. Air Traffic Control *(mark appropriate boxes)* :

	Rptg	Other	
A.	☐	☐	Did Not Alert Pilot to Other Aircraft in Timely Manner
B.	☐	☐	Did Not Observe Aircraft
C.	☐	☐	Did Not Coordinate Properly Between Controllers
D.	☐	☐	Unknown
E.	☐	☐	Other, Specify _____
F.	☐	☐	None of the Above

20. Was There a Pilot Deviation? *(mark one per aircraft)*:

	Rptg	Other	
A.	☐	☐	Yes, Specify Report No.(s).

P ____

P ____

B. ☐ ☐ No

C. ☐ ☐ Other, Specify _____

21. Pilot Statements (*check one per aircraft*) :

	Rptg	Other	
A.	☐	☐	Received
B.	☐	☐	Requested, But Declined
C.	☐	☐	Requested, Not Received
D.	☐	☐	Not Requested
E.		☐	Aircraft Unknown

22. Corrections and Additions to FAA Form 8020-21 *(specify item number and new information or mark box)*: ☐ FAA Form 8020-21 is complete and accurate.

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FIGURE 8-15 FAA Form 8020-15 - Page 3

INVESTIGATION OF NEAR MIDAIR COLLISION REPORT (Continued)

Incident Report Number: N

23. Description of NMAC and Comments with Recommendations, if any:

24. Incident Evaluation *(mark A, B, or C; see FAA Order 8020.11A, Paragraph 272 for criteria)*:

A. ☐ Critical
B. ☐ Potential
C. ☐ No Hazard

☐ Mark box and explain in item 23 if different or additional criteria used.

25. Attachment(s):

A. ☐ Original FAA Form 8020-21
B. ☐ Others, Specify _____

26. Investigating Facility:

A. [A] FAA Region
B. [ ] ID (e.g., 25)
C. [ ] - [ ] - [ ] Telephone No.

27. Inspector Completing Form:

A. Signature _____
B. Name _____ Type or Print
C. Date [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] M M D D Y Y Y Y

28. Report Distributed to:

A.
B. Others _____

INSTRUCTIONS

The FAA Form 8020-15 must be completed within 90 days of the notification of a NMAC on FAA Form 8020-21, "Preliminary Near Midair Collision Report." The FAA Form 8020-15 must be assigned the same incident report number as the corresponding FAA Form 8020-21. Instructions on distribution of FAA Form 8020-15 are in FAA Order 8020.11, "Aircraft Accident and Incident Notification, Investigation, and Reporting."

If both aircraft involved in the NMAC report the event, designate the first reporting aircraft as "Rptg" and the second as "Other." If more than two aircraft are involved (except for formations, when one form should be completed for the entire formation), complete an additional form(s) and assign the form(s) the same incident report number used on the FAA Form 8020-21. Report the number of forms and which form is the primary form in Item 23.

The inspector completing the FAA Form 8020-15 is responsible for ensuring that all information reported on FAA Form 8020-21 is complete and accurate. If any information on FAA Form 8020-21 is found to be incomplete or inaccurate, the inspector must provide additions or corrections to that information in Item 22.

Complete all items. If the categories given are inadequate, complete "Other, Specify." If data for both the reporting and other aircraft appear under "Other, Specify," provide the reporting aircraft data first, followed by the other aircraft data. Provide comments in Item 23, not the margins. Sign and date the form (Item 27) before distribution.

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CHAPTER 9
NEPA and Airspace

I. Background

The National Environmental Policy Act (NEPA) is the nation's charter for the protection of the environment. It requires all federal agencies to analyze the potential impacts of all proposed actions on the human and natural environments. Public involvement is required in the planning process and concerns raised by the public must be addressed prior to federal agencies reaching a decision on any proposed action.

Broad guidelines for implementing NEPA have been established by the President's Council on Environmental Quality (CEQ). The DoD and each land management agency have developed additional detailed internal guidelines and policies for complying with the requirements of NEPA. Agency personnel must refer to these guidelines for further instructions. In addition, the FAA has established processes for ensuring that proposals affecting aviation adequately consider all the aeronautical concerns of the users of the nation's airspace.

II. Airspace Proposals

Airspace related proposals would be generated by one of two sources. Should the proposal originate with one of the military branches, DoD will function as the lead agency and the FAA will act as the cooperating agency. In this role the FAA will represent the collective interests of the civilian sector, which may include other federal agencies. Should an airspace proposal originate in the civilian sector and potentially impact the military then the roles are reversed with the FAA serving as lead agency and DoD acting as the cooperating agency. The lead agency is responsible for developing the preliminary airspace proposal and for managing the NEPA compliance process including assuring appropriate notice to the public, user groups and other agencies. The military representative (MILREP) located at FAA headquarters serves as the key facilitator between the military, the FAA and affected land management agencies.

III. NEPA Planning Requirements

There are four broad levels of planning action required to comply with NEPA requirements. Most actions will require compliance with only one level although it is not unusual for issues to be identified in one level that escalates the process to another level.

A. Emergency Procedures

Emergencies requiring immediate response may be managed without meeting NEPA requirements initially. Agencies are limited to the minimum actions needed to reasonably mitigate the emergency and once the immediate emergency is controlled, more detailed planning requirements of NEPA must be met. With the exception of a Temporary Flight Restriction, airspace related actions would normally not fall within the emergency category. The nature of the emergency and the basis for the decision to bypass the NEPA process must be documented in writing and made part of the respective agency files.

B. Categorical Exclusion

Some levels may be categorically excluded (CATEX) from additional NEPA consideration. These actions are specifically identified in each agency's regulations and generally consist of routine and repetitive federal actions that do not normally represent a significant impact upon the human or natural environment. A finding of categorical exclusion must be documented in writing, specifically noting which exclusion has been applied. Airspace management actions proposed by land management agencies generally do not fall within a categorical exclusion. Department of Defense categorical exclusions are somewhat different from those available to the land management agencies, and airspace proposals generated by DoD are more likely to have been granted a categorical exclusion.

C. Environment Assessment

Environmental Assessment (EA), applies to those actions which are not subject to the categorical exclusion but which are not initially thought to be of sufficient magnitude as to constitute a "significant federal action." These actions are evaluated in a process that identifies the areas of the environment that are likely to be impacted by the proposed federal action, the probable consequences of the impacts, and proposed mitigating actions. Environmental Assessments require review by other agencies as well as the

public, and can take several months to prepare. In some cases NEPA compliance prepared for another action, such as a resource management plan, may be applicable to a newly proposed action and can be utilized to keep the review at the EA level rather than requiring the more detailed Environmental Impact Statement (EIS) process. It may be appropriate to evaluate relatively minor proposed airspace actions through the EA process.

Every EA must lead to a finding of no si gnificant impact (FONSI), a decision to prepare an environmental impact statement (EIS), or a decision not to move forward on the proposal.

D. Environmental Impact Statement

The fourth and most detailed level of review is the Environmental Impact Statement. This is required for any proposed action deemed to have significant issues or be a major federal action. An EIS involves detailed assessment of the environmental impacts and extensive public involvement. This is a lengthy and expensive process; agency personnel should seek internal agency guidance before initiating the process. Most proposals to establish a long-term airspace use will require an EIS.

IV. Role of the Land Management Agency

Regardless of whether the proposed action is generated by the military, or on behalf of civilians, agency personnel must become immediately involved. Long before the more formal stages of the NEPA process begins, scoping is initiated by the lead agency in which the proposed action is defined, likely impacts are listed and potentially affected entities are identified. It is critical that issues affecting land management agencies be identified and discussed at the scoping stage. In some cases the concerns can be mitigated at this time, or the proposal can be altered to resolve a potential problem. Even if there is no resolution, raising issues at this early stage allows for a more reasoned discussion during the formal process. In order for this involvement to occur agency personnel must be active in local and regional airspace organizations and must have established relations with military and FAA counterparts.

Land management agencies are responsible for providing detailed information as to which resources may be impacted and what the impacts are projected to be. The identified impacts must be supported by established natural or social science information.

V. FAA Circularization Process

The FAA Circularization Process is used by the FAA to specifically identify aviation concerns regarding a proposed action, and is initiated after the NEPA process is completed. Circular notices provide a detailed description of the proposal including charts that will help interested persons or organizations in preparing comments. The FAA sends the circular to individuals/organizations on its circularization lists which include all known interested persons and groups such as MILREPs, national and local offices of aviation organizations, local flight schools, local airport owners, aviation managers, fixed base operators, local air taxi and charter flight offices, and other government agencies.

This process is designed to deal solely with the aeronautical aspects of the proposed action. Resource related concerns must be addressed in the NEPA process rather than in the circularization process. Comments relating to non-aeronautical issues will not be considered during the FAA Circularization Process.

It is impossible to identify all potential issues that agency administrators must address in reviewing airspace proposals; however, items such as the following should be considered:

A. What lays under the airspace:

   1. Helibases, helispots, airstrips or other aviation facilities?
   2. Proposed or designated wilderness?

B. Do agency aircraft currently operate in the affected airspace?

C. Does the proposal involve hazardous materials (HAZMAT)?

D. Will additional ground facilities be required to support the proposed action?

E. What are the noise and visual impacts of the proposal?

F. Are the proposal impacts diurnal or seasonal in nature?

G. Will the proposal:

   1. Impact the agency's ability to conduct missions such as law enforcement, wildland fire management, search & rescue, recon, detection or wildlife management?
   2. Affect existing interagency agreements or require new agreements?
   3. Alter existing aviation impacts upon natural or cultural resources?

4. Impact existing or proposed recreational activities?
5. Impact existing communication systems?
6. Increase or decrease the traffic over the agency's lands?
7. Change the type or mixture of aircraft presently operating in the airspace?

VI. Agency Involvement

Agency personnel are encouraged to establish working relations with their counterparts in other civilian and military agencies. Open lines of communication will assure timely notification of proposals and assure appropriate agencies are involved. The FAA maintains a mailing list for sending written notice of airspace proposals. The military and other civilian organizations maintain similar mailing lists.

Agency personnel should also participate in the Regional Airspace and Range Council Meetings (see Chapter 2, section V). Other sources of information on proposals include legal notices in area newspapers, newsletters from aviation organizations such as the Aircraft Owners and Pilots Association (*www.aopa.org*) or land management support organizations such as the National Parks and Conservation Association (NPCA). Additional sources of information in recent years relate to the growing number of aviation sites on the Internet such as the Aviation Magazine and News Service known as AVWeb (*www.avweb.com*).

CHAPTER 10
Providing a Local Airspace Program

I. Introduction

The wide variety of airspace arrays and local interagency relationships across the nation pose unique coordination challenges; no one method or timeline fits all situations. While selected airspace arrays or flight operations may be conducive to coordination through a committee process, others may be more appropriately handled with one-on-one coordination.

Effective interagency coordination at the local level consistently focuses the affected agency's airspace user and management's technical expertise on the cooperative resolution of aviation and environmental issues. Regardless of the level of formality established to achieve interagency coordination a consistent, organized approach creates the greatest potential for all parties to develop mutual respect and understanding of agency mandates, which in turn fosters team building and balanced resolution of issues.

Aviation and airspace managers are the key communication links between all airspace users and agency managers. As part of that link, airspace managers facilitate interagency communication so all parties involved may better understand and cooperatively resolve issues of mutual concern. Effective interagency coordination starts with thorough and timely internal dialogue between airspace users and managers. With user priorities clearly understood by aviation and airspace managers, interagency coordination processes can be initiated. Military representatives (MILREPS), military airspace managers, resource agency aviation managers, and unit managers typically form the core of interagency teams. A wide variety of tools are available to facilitate dialogue and issue resolution.

Interagency tools that have proven effective in assisting the coordination efforts include:

- Informal agreements
- Airspace Agreements
- TFRs
- Advisory NOTAMS
- Temporary Towers
- Educational tools
- Site visits
- Videos/Publications
- Checklists
- Crash/Search Rescue Guide
- Critical Airspace Contacts phone list
- Standardized/customized forms
- Training, exercises, classes
- Brochures

II. Airspace Analysis

There are several methods that can be used to analyze airspace use, identify potential future conflicts, and/or determine the make up of interagency coordination teams.

A. Land Ownership/Use Patterns

Land ownership provides an indication of the number of potential partners who may be involved in the development of Airspace Agreements that should alleviate past and future potential airspace conflicts. Activities associated with specific resources should be coordinated with resource specialists as well as administrative contracting (e.g. service or job contracts). Each source is a valuable asset in developing a complete evaluation.

An example of this evaluation process would be a review of a land ownership map to determine agency ownership and significant management uses such as seismic exploration, wild horse collection or aerial seeding. Airspace "ownership" and users could then be overlaid (e.g. using GIS systems) to determine impacts and potential conflicts. Additional aviation information as identified above could then be added to present a fairly complete picture of the specific geographic area in which airspace conflict might occur.

B. Trend Analysis

Unit Aviation Managers, in concert with their respective Aviation Safety Officer, should review historical aviation uses and determine future potential. This evaluation will identify conflict areas that may exist between land management needs and current airspace parameters.

Sources for this analysis may include historical files of flight scheduling forms and project air safety plans, contract files, use/cost data, resource survey project files, and SAFECOMs. This analysis should include military as well as civilian sources.

Agencies with contiguous borders should coordinate with each other. The intent is to capture a complete historical overlay of aviation use. This information, coupled with mapping information, will provide a base for primary determinations of airspace conflict.

C. Risk Management

Historical review of aviation problems (incident/hazard and accident reports) provides a trend analysis of patterns that may be contributing to operational problems. Trends identified through SAFECOM reporting systems provide the basis for risk management decisions concerning specific and long-term agency aviation projects. Risk reduction, which may involve implementation of Airspace Agreements, can be accomplished by following the processes and procedures contained in this Guide and by coordinating training programs, etc.

III. Natural and Cultural Resource Issues

Within agency programs, there may be additional impacts to natural or cultural resources. Agency representatives involved in airspace coordination should be aware of potential noise and vibration induced impacts associated with overflights of these resources. Follow agency guidelines as appropriate. These resources may include:

- Migratory bird routes
- Historical artifacts
- Tribal ceremonies (e.g. vision quests)
- Wildlife breeding, resting and wintering areas
- Recreational (e.g. wilderness)

IV. Airspace Activities

There are many recurring or non-disaster operations that can and will affect the airspace, but do not need a TFR nor meet the criteria for a TFR. Not all of these operations will use aircraft, but their operations could impact aircraft or aircraft could impact the project.

The project location, duration, timing, size or area, altitudes, hazards and many other factors must be considered. These factors and others will influence who needs to be contacted, when to make contacts and how to contact the required entities.

Selected ground operations also affect airspace. Logging operations that use the high lead method could place cables in a location that could be within an MTR or other area that has or may have aerial use, such as hang gliders, sailplanes, a student practice area or approach and departure paths to an airport.

Another example of a ground activity affecting aerial activity is blasting. Further information regarding blasting activity is in Chapter 4, Airspace Hazards. Advance notice of at least 24 hours prior to planned blasting activity should be forwarded to the appropriate MTR or SUA scheduler.

Aerial activities such as a large spray project, aerial seeding, photography, monitoring resources, prescribed fire, VIP flights, research flights, wildlife and horse/burro flights, require thorough and timely coordination with affected agencies. Early coordination minimizes conflicts with military activities which may be scheduled months in advance.

There are three kinds of airspace activities to prepare for:

- Scheduled airspace activity – an airspace activity that is being planned for a specific time and date(s)
- Recurring airspace activity – a day-to-day, on going activity
- Time critical airspace activity – an emergency event such as wildland fire, Search and Rescue (SAR), etc.

A. Scheduled Airspace Activities

There are scheduled airspace activities that are planned in advance. Contact should be made with the appropriate military units to initiate coordination between agency contacts and the military airspace managers. If conditions warrant, a an Airspace Agreement would facilitate cooperation and coordination between the agency and military unit. Contacting the local Flight Service Station (FSS) or other local FAA facilities for information and assistance is also helpful.

Examples of events that may require preplanned airspace coordination are as follows:

- Aerial spray projects
- Aerial photo projects
- Movie flights
- Balloon gatherings
- Recon Flights
- Prescribed fire flights
- Dignitary/VIP flights
- Helicopter logging
- Military exercises
- Aerial seeding
- Hang gliding competitions
- Research flights
- Wildlife flights
- Telemetry flights
- Mitigation monitoring flights
- Blasting
- Horse and burro management flights

B. Recurring Airspace Activities

These are events that are on going, day-to-day activities. Risk mitigation factors could include sharing maps of planned flights with DoD Scheduling Activities or Scheduling Agencies. Many agency events happen that are recurring. Such as a time limited project (e.g. 14 flights in the same area in a two week period) or a planned daily event such as aerial detection. The following do not necessarily require the deconfliction of airspace, nor do they normally require the closure of involved airspace. FAA and DoD reports have stated that if two aircraft are aware of each other's presence, the risk of a Mid-air Collision can be reduced. In many cases, DoD will voluntarily deconflict the involved airspace (e.g. via scheduling changes), but are not required to do so unless there is a TFR established.

The following are examples of recurring events:

- Detection flights
- Hang gliding
- Migratory Bird Routes
- High lead cable/tower logging
- Air tour operations

C. Time Critical (Emergency) Airspace Activities

These are events that require immediate response and coordination. In these situations, prioritization and timing are essential. A proven tactic for emergency response is pre-planning; it ensures that a unit or individual is prepared to deal with the given situation. Previous sections in this Guide have dealt with long range planning for scheduled events. An unscheduled event requires a different approach. Preparedness for events such as Temporary Flight Restrictions, Temporary Towers, Near Mid-airs and intrusions enable units to respond in a standardized, coordinated way that is designed to ensure success. Units are encouraged to periodically test their emergency responses to confirm that they know "who to call" and "when to call" when reacting to time critical situations.

The following are examples of time critical events:

- NOTAM TFR coordination
- Wildfire aviation activities
- Search and rescue
- Near Mid-air Collisions
- Law enforcement activities
- Unsafe aircraft activities
- Intrusions
- Border incursions

The following are some factors that should be considered when coordinating an airspace activity or event requiring a time critical response. Consulting the following list of factors is critical. The list is not all-inclusive but can be used as a guide. It will aid in determining who needs to be contacted, as well as when and how the contact is to be made.

- Who is the approving authority and what has been approved?
- What is the location and geographic boundaries of the project?
- What is the projected timeframe or when did event happen?
- How complex is the project?
- Is media interest expected?
- What are the notification procedures? Chain of command?
- Are processes and/or mitigation measures already in place?
- Is a temporary tower, TFR and/or Advisory NOTAM needed?
- Was there an intrusion? (Ref. Chapter 8, Airspace Conflicts)
- Are airports, SUAs or MTRs affected?
- What are the known airspace hazards?
- Are communications and frequency plans in place?
- What other aircraft have been dispatched and are enroute?

When an unplanned event occurs, the appropriate response may be time critical. In some cases, it will trigger initiation of a pre-arranged operating procedure that applies to that event (e.g. wildfires, search and rescue, some law enforcement and media activities). Checklists, written plans and guides are developed and used to determine appropriate responses, and are customized to local units as needed.

In other cases an event may occur that compromises safety, but little immediate action beyond suspending aviation operations may be possible. The user of this Guide may be more involved with documenting and reporting the incident, and may be requested to provide additional information as an investigation or other external action is taken.

Local coordination agreements with military units may provide an informal process for reporting and investigating incidents involving military aircraft. These procedures may be used to supplement a formal FAA reporting process. However, it is the agency's responsibility to determine what level of report is appropriate, and to forward this information in a timely manner.

V. Airspace Actions or Proposals

There are many factors to consider when dealing with airspace actions or proposals that may impact an agency or its operations. Actions and proposals may include:

- Special use permits
- Air tour proposals
- Environmental proposals
- Reviewing/creating Air Tanker Bases or Helibases
- Campground/wilderness proposals
- Reviewing/creating retardant abort sites

The following factors should be considered when evaluating an airspace proposal, for both long term and recurring events. The list is not all-inclusive, but can be used as a guide, and will influence who needs to be contacted as well as when and how the contact is to be made.

- Status of airspace (MTR, SUA, etc.)
- The effect the proposal has on other airspace
- Any hazards present (cables, etc.)
- Hazards/conflicts to airspace as a result of this proposal
- Airports and their limitations
- Weather considerations
- Type and number of aircraft involved, speed and altitude of operation
- Type of load (internal or external)

- Location and geographic boundaries of the project
- Timeframes associated with the project
- NEPA considerations (Ref. Chapter 9)
- Land ownership of the land the project will be associated with, adjacent ownerships
- Land use allocations and zoning categories
- Existing agreements or the need for additional agreements
- Level of public participation anticipated, summary of public input
- FAA Circularization process

- Status of other scheduled events
- Approval authorities, including State agencies
- Communications plan (internal and external)
- Coordination needs (internal and external)
- Agency processes and requirements
- Mitigation measures needed or in place
- Any political issues- internal or external

VI. DoD Training Exercises & Local Airspace Coordination

This section focuses on coordinating military readiness training exercises within special use airspace over agency lands.

Military readiness training exercises are the key link between routine day-to-day readiness and demanding theater/worldwide contingency operations. Readiness training exercises simulate contingency operations and enable the military to develop and validate operational concepts. Exercises also ensure that military units are properly trained and capable of fulfilling their mission(s).

Since readiness exercises are more intense and complex than routine training, more in-depth planning and coordination within the military, as well as with potentially affected resource management agencies, is required. This level of coordination enhances flight safety and reduces potential environmental impacts to resources within the designated exercise area.

The relationship between the military and natural resource management agencies is important for this type of coordination effort, as each possesses environmental stewardship roles and responsibilities unique to their agency. Military airspace managers are the key link between military exercise planners and the natural resource agency managers and aviation coordinators. Military airspace managers facilitate interagency communication so all parties involved may better understand and jointly resolve issues raised as a result of readiness exercises.

A. Pre-Exercise Planning

Pre-Exercise Planning allows each resource agency potentially affected by the exercise to first view it from a broad organizational perspective. Timely, properly targeted interagency coordination of an exercise often precludes the late identification of issue(s) by resource agency leadership or key field level personnel. Late inputs can unnecessarily harm interagency relationships and disrupt completed technical level planning or military exercise planning conference processes.

Coordination between military airspace managers, exercise planners and resource agencies should include the following:

1. DoD Exercise Points of Contact/Resource Agency Contacts
    a. Names
    b. Telephone and fax numbers
    c. Addresses
    d. E-Mail addresses

2. Airspace
   a. Dates and times
   b. Special Use Airspace
   c. Military Training Routes

3. Aircraft
   a. Types
   b. Estimated numbers

4. Activities
   a. Estimates of proportion of flight activities that will be:
      - Low altitude
      - Supersonic
   b. Chaff and flares

5. Potential resource agency environmental or aeronautical concerns

6. Concept plan and technical level coordination with resource agencies

CHAPTER 11
Temporary Towers and Airport Closures

I. Introduction

Airspace coordination with other users of the National Airspace System is essential. Sometimes there may be a need within an incident operation, either at uncontrolled airports or at helibases, to obtain professional air traffic control services from the FAA by ordering a Temporary Tower.

Current agreements with the FAA only provide for certified and trained Air Traffic Controllers as requested for emergencies. Controllers must be currently licensed and certified. No provisions have been implemented between the FAA and the Department of Defense for agencies to utilize Department of Defense Air Traffic Controllers or Towers.

Privately based (e.g. retired controllers or contractors) with contract proposals to provide air traffic control services for agency incidents should be referred to the FAA. As per the FAA, land management agencies should not contract with private individuals to provide air traffic control service. Private individuals or companies are welcome to contract with the FAA. The FAA remains our nation's airspace manager and has agreed to provide us temporary tower services on an as needed basis.

II. Airport Operations and Closures

There are numerous operational guides that address flight operations at an airport. These should be consulted when setting up airport operations.

THE PRESENCE OF A TFR OVER AN AIRPORT DOES NOT CLOSE THE AIRPORT. (REF. CH. 6 "AIRPORT TRAFFIC" SECTION)

The proximity of an incident to an airport, or the volume of aviation activity generated at an airport by an incident may necessitate the closure of an airport. VFR airport traffic is allowed inside a TFR for ingress or egress (ref. TFR 91.137 (a) 2).

An airport can only be closed by its "owner", which may be a private citizen, a municipality, State or other entity. Airport closure is a highly sensitive issue. Aviation safety or other valid concerns should be described in the request for closure. Requests to close an airport is usually implemented by contacting the local airport authority or airport manager.

Airport owners are required to close an airport for the protection of users if hazardous conditions, including construction activities, cannot be mitigated through physical marking and the use of NOTAMs. Airports may also be closed for aeronautical events such as airshows, fly-ins and aviation conventions. However, the closure should be well publicized in advance and the appropriate NOTAMs must be issued.

Phone numbers for airport management may be listed in various sources, such as the Airport Directory or from the FAA. An alternative source for this information would be the local FAA or State Aeronautical Division. Management of airports on agency land (e.g. USFS back country airstrips) should be carefully researched. In some cases, even though the airstrip is located on agency land, it might be leased to the State. In that case, the State Aeronautical Division would be considered the owner or manager and would have to be consulted for closure.

III. Determination of Need for Temporary Towers

Agency aviation management, prior to ordering a Temporary Tower, should validate the need. This should be a joint decision between the Incident Management Team, FAA and the local Unit Aviation Officer. Airport managers, pilots and aircraft managers should also be consulted.

FIGURE 11-1 West Yellowstone Temporary Tower, 1988

A risk assessment should be completed as part of the risk management process used to analyze the necessity of ordering a Temporary Tower. One such assessment can be found in Chapter 3 of the Interagency Helicopter Operations Guide (IHOG).

FAA Temporary Towers should be activated when conditions are such that positive aircraft control will enhance safety. Situations that increase the hazards to both participating and non-participating aircraft may include:

- Operations being conducted from, or in proximity to, an uncontrolled airport; or,
- A high volume of aircraft traffic anticipated in close proximity to each other; or,

- A high frequency of non-incident aircraft using common airspace; or,
- Special events being conducted adjacent to the incident or at the airport where incident aircraft are operating; or,
- Visibility conditions such that flight operations would be enhanced through use of certified controllers; or,
- Risk assessment of involved airspace indicates the need for Air Traffic Control.

IV. Tower Ordering/Set-Up Process

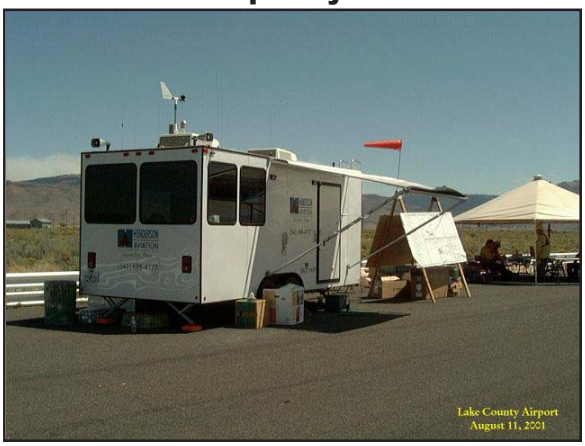
Temporary Tower is not by definition a structure; it is usually two FAA people, who may or may not arrive with the equipment (including radios) they need to operate. The incident should plan to order support equipment and radios through established ordering channels. Shelter from the elements should be provided for FAA personnel to reduce fatigue and improve safety conditions while they are working. Vendors offering well equipped helibase or airbase operations trailers should be considered.

A. Dispatch submits a resource order through their appropriate channels for an FAA Tower as an "A" (Aircraft) request, identifying date and time, location and projected operational periods (e.g. sunrise to sunset). Consult the National Mobilization Guide or Figure 11-3 for the Temporary Tower form.

B. The FAA will be responsible for staffing appropriately to meet the request and handle any internal requirements. They will rotate controllers as determined by their schedule and union requirements.

C. The local Unit Aviation Officer is responsible for providing a thorough briefing to the FAA controllers; the controllers should participate in the daily briefings with pilots and other aviation personnel. Refer to Chapter 7, section IIc, Airspace Briefings.

FIGURE 11-2 Example of a Trailer Rented for a Temporary Tower



D. If an Incident Management Team is in place, the Incident Air Operations Branch Director should prepare a briefing on the tower facility and include details in the ICS 220 Air Operations Summary.

E. Ensure adequate radio kit(s) are available for use. The 720-channel VHF-AM radio is required, and a VHF-FM radio is occasionally needed. (Note that some helibase/airbase operations trailers come with complete radio packages).

F. Request that the FAA issues a NOTAM (Notice to Airmen) that informs the public of the change in status of an airport or helibase from uncontrolled to controlled airspace, and that identifies the radio frequency for contact with the Tower. Once the frequencies and hours of operation of the Temporary Tower are established, this information needs to be disseminated to appropriate dispatch and aviation personnel including airtanker and helibases.

G. Since the FAA does not always have the support equipment necessary to establish a temporary tower, the incident should order support equipment through established ordering channels. Shelter from the FAA should be provided for FAA personnel to reduce fatigue and improve safety conditions while they are working. Vendors offering well equipped Helibase or Airbase trailers are an option to be considered.

H. Figures 11-4 and 11-5 are Temporary Tower Checklists for Start-Up and Emergency Procedures.

FIGURE 11-3 Temporary Tower Request Form

TEMPORARY TOWER REQUEST FORM

(Note - this form should be used in conjunction with the checklists that follow in this guide.)
Please attach this form to the Resource Order and forward both forms to the appropriate FAA Regional Operations Center (ROC), through established ordering channels.

I. GENERAL INFORMATION:

Incident Name _____ Management/Fiscal Code _____
Resource Order Number _____ Request Number _____ Date _____

II. POINTS OF CONTACT

	Name/Agency	Telephone
Ordering Unit	_____	_____
Air Ops/Air Support	_____	_____
Local or Expanded Dispatch	_____	_____
Geographic Area Coordination Ctr	_____	_____
National Interagency Coordination Ctr	_____	_____
FAA POC at ROC	_____	_____

Name / Phone Number of Airport Owner / Operator _____
Has the Airport Owner been notified? YES NO
Requested Operational Hours: _____
Estimated Length of Duration: _____

III. SUPPORT INFORMATION

Closest City/Town _____ State _____
Where is the proposed location of the temporary tower (Select one or explain):
Airport Name & FAA Code _____ Helibase _____
Incident Command Post _____
Other _____

Is a facility available on site for use as a tower (Select one or explain)?
FBO Site/Room rental/etc _____ Rental Trailer _____
Facility to be built on site _____ Other _____
Conditions to expect for overnight at site: Camp _____ Hotel _____

Is a vehicle (Gov't or rental) available for tower personnel? YES NO
Please attach detailed driving directions to the reporting site
Note Road closures, hazardous conditions, easiest route of travel, etc

IV. EQUIPMENT SURVEY: Refer to the checklist that follows in this guide.

What equipment do you currently have (radios, etc) for use by tower personnel?

What equipment do you need? (radios, etc)

Have you completed an inventory of equipment?

FIGURE 11-4 Temporary Tower Checklist, Page 1

TEMPORARY TOWER CHECKLIST START-UP & EMERGENCY PROCEDURES **Page 1 of 2**

Location: _____ By: _____ Date: ___/___/___

The following should be provided to FAA personnel before travel to their assignment:

- ❑ Travel directions. Give specific location or address of expanded dispatch for resource order check-in.
- ❑ Specific Location of Incident Command Post and airbase (fixed- and rotary-wing).
- ❑ Expanded Dispatch/Initial Attack Dispatch points of contact and phone numbers.
- ❑ Points of Contact as appropriate: Local Unit Aviation Officer, Air Operations Branch Director and/or Air Support Group Supervisor, Helibase Manager.
- ❑ Conditions to expect. Consider the following: camp or hotel quarters, weather conditions, roads, helibase or airbase operations and meals.

Upon FAA's arrival, provide the following general knowledge for assignment:

- ❑ Check-in protocol.
- ❑ Lodging arrangements (how to get a hotel room), or how to obtain a sleeping bag, tent, etc. Minimize primitive conditions to mitigate fatigue for controllers. This is a safety and controller union issue.
- ❑ How the controllers are to order supplies for the tower, eating arrangements, etc. (e.g. through ASGS).
- ❑ Introduction to basic ICS, chain of command and flow structure: expanded dispatch and initial attack dispatch, unit aviation offider, air operations branch director, air support group supervisor, air tactical group supervisor, helibase manager, air tanker base manager.
- ❑ Unit and incident(s) communications plans, shift plans
- ❑ Demobilization or rotation protocol (FAA home unit and union rules will determine FAA personnel rotation).
- ❑ Transportation upon arrival, during assignment, rotation out and demobilization.
- ❑ Terminology (e.g. "What is a probeye?" "What is a ping pong ball machine?" "What is a fire shelter?")

Before tower is operational, air operations should:

- ❑ Provide FAA controllers personnel with a familiarization flight of the local area to help them understand the local area as pilots see it. Scope of this flight will vary depending upon whether controller are being used as tower control or area-wide flight following. Visit all aircraft operating facilities (helibase and fixed-wing bases) if possible. It is very advantageous to have the air tactical group supervisor conduct the familiarization trips.

FIGURE 11-5 Temporary Tower Checklist, Page 2

TEMPORARY TOWER CHECKLIST START-UP & EMERGENCY PROCEDURES **Page 2 of 2**

Location:_____ By: _____ Date: ___/___/___

Upon completion of the flight, a briefing should be held between the tower operators, the air operations branch director, the air tactical group supervisor, the air support group supervisor, the helibase manager and/or air tanker base manager, the fixed base operator, incident pilots and any local pilots continuing to operate from the airport or helibase. At this briefing, use their expertise to discuss the following:

- ❑ Site selection for towers.
  - Does a facility exist (deactivated tower, building, etc.)?
  - Could you use a rental trailer?
  - Does the facility have a good field or view for taxi, takeoff and approach?
- ❑ Examine existing helibase/airport procedures. If necessary, amend procedures temporarily to meet objectives. Consider:
  - Inbound/outbound flight paths, altitudes and reporting points.
  - Air traffic patterns to, from and around the incident.
  - Ground taxi patterns and departure sequence for helicopters and airplanes.
  - Communication procedures.
  - Procedure for obtaining frequency assignments (FAA and/or ATGS)
- ❑ Establish tower hours (Coordinate with supervisor or controller in charge).
- ❑ FAA rotation and duty day limitations.
- ❑ Ensure that the controllers do the following:
  - Issue NOTAM that tower is operational
  - Notify agencies that tower is operational
- ❑ Discuss fire survival (e.g., fire shelters, overrun of base or camp, etc.)
- ❑ Identify distractions and eliminate noise and heat.
- ❑ Discuss:
  - Empty weight and loaded weight for runways
  - Restrictions on runways
  - Aircraft performance and characteristics–weight
  - Procedures if your TFR overlaps the airport or helibase
  - The role of FAA if you have an intruder within your TFR
  - Air tanker needs
  - Local Airport Contacts
  - Noise abatement procedures
  - Other TFRs in the area
  - Procedure for TFR modification

- ❑ Upon shutdown, be sure to:
  - Plan close to tower in advance
    NOTE: FAA needs lead time for tower closure procedures to be put in effect
  - Close out NOTAM
  - Notify Units throughout agencies of tower closure
  - Close out aircraft resource order for temporary tower

V. Temporary Tower Supply List

The following list of items may be of value for tower operations. The number, size, type and maintenance supplies (e.g. batteries) needed should also be determined.

Check with the Air Operations Branch Director and the FAA controllers before ordering. Some items may not be necessary.

FIGURE 11-6 Temporary Tower Checklist for Supplies, Page 1

TEMPORARY TOWER CHECKLIST **SUPPLIES** **Page 1 of 1**

Location: _____ By: _____ Date: ___/___/___

- ❑ Anemometer
- ❑ Compass
- ❑ Binoculars
- ❑ Traffic Counter
- ❑ Wind and Alt Inst
- ❑ Temperature Instrument
- ❑ Light Gun–battery powered
- ❑ Wind Sock
- ❑ Clocks 24 hour–1 for local, 1 for (UTC) Zulu
- ❑ Goggles (if needed)
- ❑ Writing Table
- ❑ Roof/Sun cover
- ❑ Chairs
- ❑ Basic Office Supplies (pads, pens, pencils, tape, stamper, scissors, etc.)
- ❑ Generator (if needed)
- ❑ Extension Cord (if needed)

- ❑ Radios–main and battery back-up (edo-air)
- ❑ VHF radios
- ❑ Telephones (cellular or regular)
- ❑ UHF radios

- ❑ FAA 7230-10 Position Log
- ❑ FAA 7230-4 Daily Log
- ❑ ICS Unit Logs

- ❑ Bottled water/Water cooler
- ❑ Lights/Lamps
- ❑ Fans
- ❑ Flashlights
- ❑ Fire extinguisher
- ❑ Radio AM/FM

- ❑ Plotters
- ❑ Navigational Charts & Sectionals
- ❑ Forest maps
- ❑ State aeronautical chart
- ❑ Fire maps
- ❑ Airport diagram
- ❑ AFD Airport Facility Directory
- ❑ US Terminal Procedures (for approach plates)

NOTE: Consider ordering NFES 4300 which has SOME material that could be used as an FAA portable control tower. This kit is a portable battery operated VHF-AM aircraft base station consisting of a 760 Channel AM radio. If this kit is to be used as an FAA Temporary Tower, the resource order MUST be placed by the incident COML.

CHAPTER 12
Airspace Agreements

I. Introduction

When Special Use Airspace (SUA), Military Training Routes (MTR), Slow Routes (SR), and/or Low Altitude Tactical Navigation (LATN) Areas are located over lands within an agency's jurisdiction or within their area of normal flight operations (fire or nonfire), the agency should consider instituting an agreement with the appropriate DoD entity.

An airspace agreement will have a name depending on its purpose. The FAA and DoD frequently enter into LOAs (Letters of Agreement) which specify airspace responsibilities. Other agencies utilize MOUs (Memorandums of Understanding) and IAs (Interagency Agreements) to facilitate cooperation between agencies. Agency Aviation Managers should work closely with their Agency Agreement Specialists to ascertain they are following specific agency protocol for agreements and utilizing the proper instrument for the purpose.

Airspace agreements are usually nonmonetary and establish protocol for emergency and non-emergency contacts.

It is prudent that all agencies be a party to a common airspace agreement with the DoD when land management or wildland firefighting agencies share or overlap boundaries within jurisdictions that underlie DoD managed or assigned airspace. Use and coordination with DoD Military Representatives, as well as the appropriate agency Aviation Managers, is highly recommended.

The agreement should be signed by the appropriate level of authority within the land management agency (consult with agency procurement office and/or agreement specialist). The commander of a military unit is the responsible agent in these documents. Though others within the unit may be identified for particular tasks, the commander is the signatory. If that person doesn't agree to support the agreement, none of the units assigned to the commander will be bound to execute its terms.

Airspace agreements provide local level leadership a tool within the interagency cooperative process to define protocols that consistently address recurring activities, coordination of time critical responses and resolving unforeseen issues of mutual concern.

In addition to establishing procedural protocol for deconflicting airspace or coordinating TFRs, the airspace agreement identifies each agencies specific responsibilities. This is particularly important in providing continuity when either local level resource management agency or DOD leadership changes. This Guide provides a wide array of cooperative methods and processes for local leadership to tailor agreements in order to meet their specific area's interagency challenges. Airspace agreements should sufficiently define responsibilities, methods, procedures and local points of contact (POCs).

Specific protocols contained in the agreements could affect tactical air crews (i.e. Air Tankers, Lead Planes, Air Tacticals, SEATs, and or Helicopter crews). Local Aviation Managers should ensure that Air Bases where these resources are likely to be deployed from are given a copy of the agreement and that air crews are briefed.

Agency Personnel should be aware that several agencies specify mandatory clauses when drafting airspace agreements. Local level officials should ensure that these required clauses are integrated into the agreement.

The joint development of local coordination guides (in "flip-book" format) distill the action items directed by the agreement into quick referral checklists and are often a logical and prudent way to effectively implement the agreements. These action checklists facilitate execution of time critical actions by dispatchers and military airspace scheduling offices.

A generic format for developing local level interagency airspace coordination agreements is provided in this chapter. To supplement the agreement, a local coordination guide could segregate specific DoD/Land Management Airspace scenarios with specific operational directives contained within the body of the agreement.

Categories may include :

A. Dispatch Operational Procedures

- Non-Fire Scheduled Missions
- Fire Reconnasance (No TFR in place).
- Fire Operations (TFR in place)
- Deconfliction of Airspace
- Implementation of TFRs

B. Operational Procedures (Fire or Non-Fire) for Air and Flight Crews

C. DoD Operational Procedures

- Non-Fire Planned Missions
- Non-Fire Priority Missions
- Fire Reconnaissance (No TFR in place)
- Fire Operations (TFR in place)

II. Template for Airspace Cooperative Agreements

The following sample will provide you with the types of information you will need to provide to your agency procurement office/agreement specialist.

SAMPLE FORMAT

SUBJECT: Interagency Airspace Coordination

I. Participating Agencies and Units

Provide list of involved agencies and units for this agreement

II. Purpose—Introduction or Background

Provide a one or two paragraphs outlining introduction and background of agreement.

III. Objective

Specify goals you wish to achieve by this agreement.

IV. Cancellation

List any prior agreements that are cancelled, superceded or modified by the new agreement. List protocols for modification or cancellation of this agreement.

SAMPLE FORMAT (CONT'D)

V. Scope

List the specific agency and DoD organizations/offices, airspace units and resource management areas subject to the agreement. Include a description of airspace.

VI. Authority List

List laws and regulations that authorize or permit organizations to enter into Interagency agreements.

VII. Responsibilities

A. Management Authority And Responsibility

1. Agency Aviation Manager or Assigned Agency Airspace Coordination Specialist

    a. Designate as the agency contact to coordinate procedures and airspace scheduling through military airspace scheduling office.

    b. Designate as the agency focal point for recommending amendments to the agreement.

    c. Designate as the point of contact (POC) for the military to coordinate amendments to the agreement.

    d. Coordinator with military on all airspace conflicts, incident conclusions or findings regarding airspace conflicts.

2. Military Airspace Manager

    a. Designate the focal point for military on airspace matters and the agreement. Designate as POC for resource agencies on matters pertaining to the agreement.

SAMPLE FORMAT (CONT'D)

b. Designate, with military flight safety office as well as appropriate military command and control organization safety representatives as investigators of airspace incidents, conflicts when SUA is involved.

B. Provide details of Responsibilities as a Result of Negotiations

1. Name of Agency (complete the following for each agency)

a. POCs and their roles

b. Air traffic control & coordination requirements

i. FAA coordination concerning issuance of temporary flight restrictions
ii. Transponder codes/squawks

c Coordination with military airspace scheduling offices.

i. Long term, planned flight operations
ii. Rapid Response flight operations

d. Reporting incidents/accidents

e. Method to ensure all personnel involved are briefed on the purpose and procedures of the agreement.

2. Involved DoD Organizations (complete the following for each unit, department, etc.)

a. ATC, advisory, and/or monitoring services for airspace users (if applicable)

b. TFR NOTAM information dissemination to military units

c. Administrative (pre-planned) and real-time (emergency) scheduling of agency's air operations activities within agreement airspace.

d. Ensure all personnel involved are briefed on the purpose and procedures of the agreement.

SAMPLE FORMAT (CONT'D)

VIII. Coordination Procedures (Non-Fire Or Fire Recon—Without a TFR)

A. Natural Resource Management Agency Responsibilities

1. Between dispatchers or aviation managers and Military Airspace Scheduling Office

    a. Scheduling timeline protocols

    b. Forwarding of flight planning and area of operations information

2. Coordination and communications with Military Air Traffic Control facilities

    a. ATC transponder code protocols

    b. Radio communications requirements

        i. Prior to entering agreement airspace
        ii. While within airspace
        iii. Exiting airspace

3. Coordination with Range Operations Centers (as applicable)

B. Military Airspace Scheduling Office Responsibilities

1. Advise resource agency dispatchers or aviation managers of projected or known military flight activities within the times and areas they have identified.

2. Coordinate resource agency flight activities with all DoD units scheduled to operate in the affected airspace.

3. Protocols to handle airspace scheduling conflicts

    a. Within Restricted Areas

    b. Within MOAs

    c. Within MTRs

SAMPLE FORMAT (CONT'D)

C. Military ATC (If Available) Responsibilities

1. Transponder code assignment protocols
   a. Assignment to aircraft
   b. Relay to range control
2. Local altimeter setting
3. VFR flight advisory or flight following services
   a. Level of service appropriate for radar equipment certification
   b. Services provided "time permitting"
   c. Coordination of level of service provided to resource agency aircraft

D. Range Operations Center Responsibilities (if available)

1. Protocols for Resource Agency aircraft within MOAs
   a. Communications
   b. Coordination
2. Protocols for Resource Agency aircraft within Restricted Areas
   a. Communications
   b. Coordination
3. Coordination with Military ATC (if available)
   a. Resource Agency aircraft route of ranges and MOAs.

SAMPLE FORMAT (CONT'D)

IX. Coordination Procedures (Fire Response—With A TFR)

A. Agency Responsibilities

1. Immediately advise the Military ATC facility (if applicable), Range Operations Center (if applicable), and Range Control of the reported fire, requested TFR and/or reconnaissance route. Include latitude and longitude information when available.

2. Request a TFR with the appropriate ARTCC. Request that latitude and longitude information be included in the NOTAM.

3. Fax a copy of the approved TFR to Military ATC facility (if applicable), Range Operations Center (if applicable), and Range Control.

4. If necessary, establish an agency liaison representative to work with the appropriate military command and control agencies to establish ingress/egress routes and services required to facilitate emergency response activity.

5. Advise appropriate military command and control agencies of any modifications to or cancellations of TFRs.

6. Ensure that resource agency aircraft contact the appropriate military command and control agencies prior to entering airspace and advise as to type aircraft and proposed route to area of operations.

7. Ensure all resource agency aircraft obtain permission to operate within restricted areas.

   a. Scheduling timeline protocols

   b. Forwarding of flight planning and area of operations information

SAMPLE FORMAT (CONT'D)

B. Military ATC (If Available) Responsibilities

1. Notify Range Operations Center (if available) and/or Range Control of any TFRs that may affect operation to, from or within SUA.

2. Notify Base Operations and Supervisors of Flying (SOF) upon receipt of information regarding new or existing TFRs.

3. Issue applicable TFR restrictions to aircraft flying in vicinity of a TFR area and facilitate communication between Range Operations Center and/or Range Control and the resource agencies regarding deconfliction/advisory information.

4. Notify Base Operations and SOFs upon receipt of information indicating impending restrictions or closure of MTR(s) and SRs due to TFR. Repeat notification upon receipt of NOTAMs associated with MTR(s) and/or SRs.

5. Provide an ATC liaison to coordinate ingress/egress routes and services as requested by the resource agency.

6. Be the approving authority for resource agency aircraft ingress/egress of restricted areas.

7. Assign transponder codes to resource agency aircraft and advise them of MOA/Range status.

8. Provide the local altimeter setting

9. VFR flight advisory or flight following services; consider:

   a. Level of service appropriate for radar equipment certification

   b. Services provided on a time permitting basis?

   c. Coordination of level of service provided to resource agency aircraft.

SAMPLE FORMAT (CONT'D)

C. Range Operations Center Responsibilities (if available):

1. Comply with TFRs as issued by the FAA and relay TFR establishment, changes and cancellation to all aircraft.

2. Relay TFR restrictions to all Military ATC facility (if available) and air crews (whether airborne or scheduled).

3. Coordinate with MTR schedulers to restrict or close MTRs and SRs affected by TFR.

X. Cancellation Of TFR

Outline protocols as applicable for FAA ARTCC, Military ATC facility (if available), Range Operations Center (if available), and/or Range Control.

XI. Incident/Accident

Outline protocols for incident or accident situations.

XII. Education And Awareness

Outline procedures to enhance education and awareness such are site visits, preseason meetings, year-end meetings, training opportunities, etc.

XIII. Termination or Renewal of Agreement

Outline protocols for termination or renewal of agreement. Provide for yearly reviews.

APPENDIX A

Airspace Management Acronyms

COMMON FAA & AVIATION ACRONYMS

AA	Alert Area
AC	Advisory Circular
ADF	Airborne Direction-Finding
AF	Air Force
AFD	Airport Facility Directory
AFS	Airways Facilities Sector
AFSS	Automated Flight Service Station
AGL	Above Ground Level
AIM	Aeronautical Information Manual
AIS	Airmans Information System
AIS	Aeronautical Information System
ALT	Altitude
ALTRV	Altitude Reservation
AMIC	Area Manager in Charge
AMIS	Aircraft Management Information System
AOPA	Aircraft Owners and Pilots Association
ARC	Ames Research Center
ARTCC	Air Route Traffic Control Center
ASOS	Automated Surface Observing System
ASRS	Aviation Safety Reporting System
ASSR	Airborne Secondary Surveillance Radar
ATA	Airline Transport Association
ATC	Air Traffic Control
ATCA	Air Traffic Control Association
ATCAA	ATC Assigned Airspace
ATCT	Airport Traffic Control Tower
ATIS	Automated Terminal Information Service
ATM	Air Traffic Manager
ATO	Air Traffic Operations
ATS	Air Traffic Services
AVWEB	Internet Aviation Magazine and News Service
AWOS	Automated Weather Observing System
AWP	Aviation Weather Processor
CAA	Civil Aeronautics Association
CAB	Civil Aeronautics Board (pre-Federal Aviation Administration)
CAP	Civil Air Patrol

COMMON FAA & AVIATION ACRONYMS (CONT'D)

CARF	Central Altitude Reservation Function
CFA	Controlled Firing Area
CFR	Code of Federal Regulations
COA	Certificate of Authorization
CTAF	Common Traffic Advisory Frequency
DF	Direction Finder
DME	Distance Measuring Equipment
DOD	Department of Defense
DOT	Department of Transportation
DUATS	Direct User Access Terminal System
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FAAH	Federal Aviation Administration Handbook
FAAO	Federal Aviation Administration Orders
FCC	Federal Communications Commission
FCT	Federal Contract Tower
FDA	Food and Drug Administration
FDC NOTAMs	NOTAMs issued by NFDC (primarily TFRs)
FL	Flight Level
FLTCK	Flight Check
FONSI	Finding of No Significant Impact
FSDO	Flight Standards District Office
FSS	Flight Service Station
GA	General Aviation
GADO	General Aviation District Office
GENOT	General Notice
GMT	Greenwich Mean Time (UTC)
GNAS	General National Airspace System
GNSS	Global Navigation Satellite System
GPO	Government Printing Office
GPS	Global Positioning System
HAI	Helicopter Association International
HUD	Heads Up Display
IAP	Instrument Approach Procedures
ICAO	International Civil Aviation Organization
ID	Identification
IFR	Instrument Flight Rules
ILS	Instrument Landing System
IMC	Instrument Meteorological Conditions
INMAC	Investigation of Near Mid-Air Collision
IR	Instrument MTR
KIAS	Knots Indicated Air Speed

COMMON FAA & AVIATION ACRONYMS (CONT'D)

OASIS	Operational and Supportability Implementation System
OSIA	On-Site Inspection Agency
PA	Prohibited Areas
LOA	Letter of Agreement
LORAN	Long-Range Navigation
MAP	Missed Approach Procedure
MARSA	Military Assumes Responsibility for Separation
METAR	Aviation Routine Weather Report
MOA	Military Operations Area
MOA	Memorandum of Agreement
MODE C	Altitude Reporting Mode of Secondary Radar
MODE S	Mode Select; Discrete Addressable Secondary Radar System With Data Link
MOU	Memorandum of Understanding
MSA	Minimum Safe Altitude
MSAW	Minimum Safe Altitude Warning
MSL	Mean Sea Level
MTD	Moving Target Detection
MTR	Military Training Route
NADIN	National Airspace Data Interchange Network
NAR	National Airspace Review
NAS	National Airspace System
NASA	National Aeronautics & Space Administration
NASDAC	National Aviation Safety Data Analysis Center
NATCA	National Air Traffic Controllers Association
NATO	North Atlantic Treaty Organization
NAVAID	Navigational Aids
NBAA	National Business Aircraft Association
NBPA	National Broadcasting Pilots Association
NDP	Non-Directional Beacon
NFDC	National Flight Data Center
NM	Nautical Mile
NMAC	Near Mid-Air Collision
NOAA	National Oceanic and Atmospheric Administration
NOTAM	Notice to Airmen
NOTAM (D)	Advisory Requiring Wide Dissemination
NOTAM (L)	Advisory Requiring Local Dissemination
NPRM	Notice of Proposed Rule Making
NSA	National Security Areas
NTSB	National Transportation Safety Board
NWS	National Weather Service
PIC	Pilot In Command

COMMON FAA & AVIATION ACRONYMS (CONT'D)

PIREP	Pilot Weather Report
POC	Point Of Contact
QA	Quality Assurance
RA	Restricted Airspace
R& D	Research and Development
RAPCON	Radar Approach Control
RNAV	Area Navigation
ROA	Remotely Operated Aircraft
RPV	Remotely Piloted Vehicle
SAMS	Special Use Airspace Management System
SAR	Search and Rescue
SFAR	Special Federal Aviation Regulation
SID	Standard Instrument Departure
SIAP	Standard Instrument Flight Procedures
SIGMET	Significant Meteorological Information
SOP	Standard Operating Practice
SR	Slow Route
STAR	Standard Terminal Arrival Route
STARS	Standard Terminal Area Radar System
STOL	Short Take - Off and Landing
SUA	Special Use Airspace
SUACF	Special Use Airspace Control Facility
TAC	Tactical Air Command (USAF)
TAC	Terminal Area Charts
TACAN	Tactical Air Navigation
TCAS	Traffic Alert and Collision Avoidance System
TERP	Terminal Instrument Procedures
TFR	Temporary Flight Restriction
TRACON	Terminal Radar Approach Control
UAV	Unmanned Air Vehicles
UAVRS	Unmanned Aerospace Vehicle Routes
UHF	Ultra High Frequency
USAF	United States Air Force
USCG	United States Coast Guard
USNOF	United States NOTAM Office
USNS	United States Notices to Airmen System
UTC	Coordinated Universal Time (ZULU)
VASI	Visual Approach Slope Indicator
VFR	Visual Flight Rules
VHF	Very High Frequency
VMC	Visual Meteorological Conditions

COMMON FAA & AVIATION ACRONYMS (CONT'D)

VOR	Very High Frequency Omnidirectional RangeVOR/DME Very High Frequency Omnidirectional Range Colocated with DistanceMeasuring Equipment
VORTAC	Very High Frequency Omnidirectional Range Colocated Tactical Air Navigation
VR	Visual MTR
VTOL	Vertical Take-Off and Landing
WA	Warning Area
WAAS	Wide Area Augmentation System
WAC	World Aeronautical Chart
WX	Weather

AIR ROUTE TRAFFIC CONTROL CENTERS

ZAB	Albuquerque ARTCC
ZAN	Anchorage ARTCC
ZAU	Chicago ARTCC
ZBW	Boston ARTCC
ZDC	Washington ARTCC
ZDV	Denver ARTCC
ZFW	Fort Worth ARTCC
ZHU	Houston ARTCC
ZID	Indianapolis ARTCC
ZJX	Jacksonville ARTCC
ZKC	Kansas City ARTCC
ZLA	Los Angeles ARTCC
ZLC	Salt Lake City ARTCC
ZMA	Miami ARTCC
ZME	Memphis ARTCC
ZMP	Minneapolis ARTCC
ZNY	New York ARTCC
ZOA	Oakland ARTCC
ZOB	Cleveland ARTCC
ZSE	Seattle ARTCC
ZTL	Atlanta ARTCC
HZH	Honolulu ARTCC

FAA REGIONS

AAL	FAA Alaskan Region
ACE	FAA Central Region
AEA	FAA Eastern Region
AGL	FAA Great Lakes Region
ANE	FAA New England Region
ANM	FAA Northwest Mountain Region
ASO	FAA Southern Region
ASW	FAA Southwestern Region
AWP	FAA Western Pacific Region

LAND MANAGEMENT AGENCY ACRONYMS

AMC	Aviation Management Council
APHIS	Animal and Plant Health Inspection Service
ASGS	Air Support Group Supervisor
ATGS	Air Tactical Group Supervisor
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
CAHIS	Computer Aided Hazard Information System
CAN	Computer Aided Navigation
CATEX	Categorical Exclusion
CEQ	Council on Environmental Quality
DEIS	Draft Environmental Impact Statement
DOE	Department of Energy
DOI	Department of Interior
DOPAA	Description of Proposed Action and Alternatives
EA	Environmental Assessment
EBC	Electric Blasting Caps
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FEIS	Final Environmental Impact Statement
FICAN	Federal Interagency Committee for Aviation Noise
FONSI	Finding No Significant Impact
FWS	Fish and Wildlife Service
GACC	Geographic Area Coordination Centers
GIS	Geographic Information System
HAZMAT	Hazardous Material
HUD	Housing and Urban Development

LAND MANAGEMENT AGENCY ACRONYMS (CONT'D)

IAMS (CAHIS)	Initial Attack Management System
IANRCG	Interagency Airspace Natural Resource Coordination Group
ICS	Incident Command System
IMLUCC	Interagency Military Land Use Coordination Committee
IHOG	Interagency Helicopter Operations Guide
IWG	Interagency Working Group
JHA	Job Hazard Analysis
LAT	Latitude
LONG	Longitude
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act
NFES	National Fire Equipment Supply
NICC	National Interagency Coordination Center
NIFC	National Interagency Fire Center
NOAA	National Oceanic Atmospheric Administration
NONEL	Non-Electric Blasting Caps
NPCA	National Parks and Conservation Association
NPS	National Park Service
NRPM	Notice of Proposed Rule-Making
OAS	Office of Aircraft Services
ROD	Record of Decision
SAFECOMs	Safety Communications
SAR	Search and Rescue
USDA-FS	United States Department of Agriculture - Forest Service
USFWS	U.S. Fish and Wildlife Service
WS	Wildlife Services

MILITARY

ACM	Air Combat Maneuvers
ACT	Air Combat Training
ADIZ	Air Defense Identification Zone
AFR	Air Force Regulation
AFREP	Air Force Representative to FAA
AFRES	Air Force Reserve
AIC	Aeronautical Information Circular
AICUZ	Air Installation Compatible Use Zone
ALTRV	Altitude Reservation
AMC	Army Material Command

MILITARY (CONT'D)

AMRAAM	Advanced Medium Range Air-to-Air Missile
AMSL	Above Mean Sea Level
ANG	Air National Guard
AP	Aerial Planning
AR	Aerial Refueling Route
AR	Army Regulation
AR	Air Refueling Track
AREFS	Air Refueling Squadron
AREFW	Air Refueling Wing
ARG	Air Rescue Group
ARNG	Army National Guard
ARU	Airborne Radar Unit
ASO	Aeronautical Services Office
ASU	Airspace for Special Use
ATC	Air Training Command
ATREP	FAA Military Air Traffic Rep.
ATS	Air Traffic Service
AWAC	Airborne Warning and Control
BAM	Bird Avoidance Model
BASH	Bird/Aircraft Strike Hazard
BFM	Basic Flight Maneuvers
BMW	Bomb Wing
C3	Command, Control, and Communications
CA	Control Area
CALO	Command Airspace Liaison Officer
CARF	Central Altitude Reservation Facility
CATCO	Chief, ATC Operations (USAF)
CFA	Controlled Firing Area
CONUS	Continental United States
CZ	Control Zone
DARR	Army Representative to FAA
DCM	Defensive Combat Maneuvers
DMA	Defense Mapping Agency
DOD	Department of Defense
DON	Department of the Navy
FIG	Fighter Interceptor Group
FIH	Flight Information Handbook
FIS	Fighter Interceptor Squadron
FLIP	Flight Information Publication
FORSCOM	Forces Command
FTW	Flying Training Wing

MILITARY (CONT'D)

FWS	Fighter Weapons School
GP	General Planning
HATR	Hazardous Air Traffic Report
HQ USAF	Headquarters United States Air Force
IP	Initial Point
ISJTA	Intensive Student Jet Training Area
JCS	Joint Chiefs of Staff
LAAR	Low Altitude Air Refueling Route
LANTIRN	Low Altitude Navigation and Targeting Infrared for Night
LASDT	Low Altitude Step Down Training
LATN	Low Altitude Tactical Navigation Area
LT	Laser Training
MAC	Military Airlift Command
MACA	Mid Air Collision Avoidance Program
MAG	Marine Air Group
MAJCOM	Major Command
MAMS	Military Airspace Management System
MARSA	Military Authority Assumes Responsibility for Separation of
MASMS	Military Airspace Management System (Strategic Air Command)
MAW	Marine Air Wing
MCAS	Marine Corps Air Station
MCB	Marine Corps Base Minimum Enroute Altitude
MILREP	Military Representative to the FAA
MOS	Military Operations Specialist
MRU	Military Radar Unit
MTR	Military Training Route
NAS	Naval Air Station
NATOPS	Naval Air Training and Operating Procedures Standardization
NAVREP	Navy Representative to FAA
NIMA	National Interagency Mapping Agency
NORAD	North American Aerospace Defense Command
OHR	Operational Hazard Report
OPNAV	Office of the Chief of Naval Operations
PBFA	DOD Policy Board on Federal Aviation
RAPCON	Radar Approach Control (USAF)
RASS	R-2508 Automated Scheduling System
RNAV	Area Navigation
SAM	Surface to Air Missile
SWADS	Southwest Air Defense Sector
TA	Transition Area
TAC	Tactical Air Command

MILITARY (CONT'D)

TACAN	Tactical Air Navigation
TERPS	Terminal Instrument Procedures
TFG	Tactical Fighter Group
TFR	Terrain Following Radar
TFR	Temporary Flight Restriction
TFS	Tactical Fighter Squadron
TFW	Tactical Fighter Wing
TRACON	Terminal Radar Approach Control
TRW	Tactical Reconnaissance Wing
TSUA	Temporary Special Use Airspace
USN	United States Navy
USA	United States Army
USAF	United States Air Force
UTTR	Utah Test and Training Range
VORTAC	Collocated VOR and TACAN
WADS	Western Air Defense Sector
WSMC	Western Space Missile Center
WSMR	White Sands Missile Range

APPENDIX B

Airspace Support Weblinks

FAA and Affiliated Aviation agencies

FAA: *www.faa.gov*
Advisory Circulars: *http://www1.faa.gov/index.cfm/677/7728B246-9A06-4C76-B8A963F429C5403A*
*NOTAM contractions: *http://www2.faa.gov/atpubs*
Glossary: *http://www2.faa.gov/atpubs/pcg/index.htm*
*Air Traffic Publications: *http://www1.faa.gov/atpubs/*
Sectionals: *www.naco.faa.gov*
Notices to Airman Publication: *www.faa.gov/ntap*
*US NOTAM Website: *https://www.notams.jcs.mil/* or *https://www.notams.faa.gov/*
Obstacles: *www.fcc.gov*
NIMA: *http://164.214.2.59/*
Navaids information: *www.airnav.com*

TFR Graphical Depictions

*FAA:*http://www2.faa.gov/specialnotams/SpecialNotamListing.htm*
*FAA: *https://www.notams.jcs.mil* or *https://www.notams.faa.gov*
BLM: *http://airspace.blm.gov/mapping/blm/index.cfm*
Aeroplanner/EAA: *http://map.aeroplanner.com/mapping/TFR.cfm?list=all*
AOPA: *http://www.aopa.org/whatsnew/tfr_resources.html*

Agencies:

NIFC: *www.nifc.gov*
OAS: *www.oas.gov*
National Park Service: *www.nps.gov*
NPS Source Book: *www.afranges.net/sourcebook.html*
BLM: *www.blm.gov*
USFS: *www.fs.fed.us*
Department of Homeland Security: *www.dhs.gov*
Transportation Security Agency: *www.tsa.gov*
Customs and Border Protection (CBP) *www.cbp.gov*
Agency Boundaries: *www.fs.fed.us/r6/fire/aviation/airspace* (click on agency boundaries)
Department of Forestry – Florida: *www.fl-dof.com*

Agency Safety:

DOI Safety Alerts: h*ttp://www.oas.gov/oassafty/salerts.htm*
USFS Safety Alerts: *http://www.fs.fed.us/fire/av_safety/safety_alerts/index.html*
DOI Safecoms: www.oas.gov
USFS Safecoms: *http://www.fs.fed.us/fire/av_safety/safecoms/index.html*

Organizations/Committees

AOPA: *www.aopa.org*
US Ultralight Association: *www.usua.org*
Hang Gliding Association: *www.ushga.org*
FICAN: *www.fican.org*
NBAA: *www.nbaa.org*
HAI: *www.rotor.com*
NBPA: *www.nbpa.rotor.com*

DOD Airspace Websites:

DARR: *www.usaasa.belvoir.army.mil*
*BASH: *http://afsafety.af.mil/AFSC/bash/home.html*
*DOD FLIP: *https://164.214.2.62/products/digitalaero/index.cfm*
Tyndall AFB MACA program: *http://www.tyndall.af.mil/maca/maca.htm*
Edwards AFB (R-2508) MACA program: *http://www.edwards.af.mil/psafety/sef_main.html*
Malmstrom AFB MACA program: *http://www.malmstrom.af.mil/safety/maca.htm*
Davis Monthan AFB MACA program: *www.dm.af.mil/maca*
McGuire AFB: *http://www.njaviation.com/flying_safety/maca/maca051701v1.html*
NAS Pensacola: *https://www.cnet.navy.mil/naspcola/trawing6/vt10/dep_safety_maca.htm*
Little Rock AFB: *http://www.littlerock.af.mil/314aw/safety/ssi_macap.shtm*
Elmendorf AFB: *http://www.elmendorf.af.mil/11af/611AOG/611aos/webdocs/index.htm*

Miscellaneous:

IAMS/CAHIS: *www.nifc.blm.gov*
*UTC Conversion Chart: *https://hurricanes/noaa.gov.zulu-utc.html*
*GPS Outages: *http://www.navcen.uscg.gov/gps/status_and_outage_info.htm*
AVWeb: *www.avweb.com*
Aeronews: *www.aero-news.net*
ASRS Safety: *http://asrs.arc.nasa.gov*

APPENDIX C
Ordering Information

AP/1A and AP/1B Books

1. Download the AP/1A and AP/1B Books from:
   http://164.214.2.62/products/digitalaero/dafifindex.cfm

   From the "Planning and Enroute Supplements" section, select either the "AP/1A" or "AP/1B" link

2. Order from the National Aeronautical Charting Office (NACO):

   - Telephone (301) 436-8301 or (800) 638-8972

   - *www.naco.faa.gov*
     From the "Catalogs/Ordering Info" link scroll down the page to teh NIMA and NOAA Chart Catalog section. Select the "NIMA Worldwide Aeronautical Charts" link for pricing and ordering information.

AP/1B Charts

1. If available, download the AP/1B Charts from:
   http://164.214.2.62/products/digitalaero/dafifindex.cfm

   From the "Flight Information Planning" section, select the "Enroute Charts" link.

2. Order from the National Aeronautical Charting Office (NACO):

   - Telephone (301) 436-8301 or (800) 638-8972

   - *www.naco.faa.gov*
     From the "Catalogs/Ordering Info" link scroll down the page to the NIMA and NOAA Chart Catalog section. Select the "NIMA Worldwide Aeronautical Charts" link for pricing and ordering information.

Sectional Aeronautical Charts

1. Order from the National Aeronautical Charting Office (NACO):

   - Telephone (301) 436-8301 or (800) 638-8972
   - *www.naco.faa.gov*

     From the "Catalogs/Ordering Info" link select the "Sectional Aeronautical Charts" link for pricing and ordering information.

2. To purchase locally, check the NACO website for local NACO agents in your area.

   - Telephone (301) 436-8301 or (800) 638-8972
   - *www.naco.faa.gov*

     Select the "Agents Listings" link and complete the query.

Sectional Aeronautical Chart Users Guide

1. Order from the National Aeronautical Charting Office (NACO):

   - Telephone (301) 436-8301 or (800) 638-8972
   - *www.naco.faa.gov*

     From the "Catalogs/Ordering Info" link select the "Supplemental Charts/Pubs" link, then select the "Aeronautical Chart User's Guide" link for pricing and ordering information.

APPENDIX D

Interagency Airspace/Natural Resource Coordination Group (IANRCG)

STATEMENT OF PRINCIPLES FOR A PARTNERSHIP FOR ACTION TO PROTECT, RESTORE AND MAINTAIN THE NATION'S AIRSPACE AND FEDERALLY PROTECTED LAND RESOURCES

Statement of Principle

To engage in a partnership to identify issues and facilitate cooperative problem resolution concerning use of airspace over federally protected lands.

Background

The Departments of Agriculture (Forest Service), Defense (DoD) and Interior (DOI) have legal responsibilities to manage or use important land-based resources to meet national interests, mandates, and responsibilities. These agencies also use airspace which the Federal Aviation Administration (FAA) manages. Currently and for the foreseeable future, the Department of Defense will require access to suitable airspace in which aircrews can train realistically to meet national security objectives. The Departments of Agriculture and Interior also require access to airspace overlying the lands they manage to provide mandated natural resource protection.

Much of the FAA-approved airspace for DoD flight training, and many non-DoD training and operational flights, traverse federally protected lands. These federally protected lands include units of the National Park System, National Wilderness Preservation System, National Wildlife Refuge System, National Forest System, and National Wild and Scenic River Systems, and national refuge areas. Collectively, the National Park Service, Forest Service, Bureau of Land Management, and the Fish and Wildlife Service manage over 500 million acres of public land. In addition, Indian Affairs protects trust resources associated with 53 million acres of non-public land for the use and benefit of Indian beneficiaries. Additionally, the DoD has stewardship responsibility for 25 million acres of land. While each agency's responsibility varies to some degree, each agency has legal responsibility including the preservation of wilderness areas, protection of natural and cultural resources, and promotion of public enjoyment and use of these resources.

Management and administration of federally managed lands for these purposes may encounter competing/conflicting interests. To ensure the public's interests are served equitably, representatives from each agency will meet as often as necessary to resolve issues to ensure national interests, mandates, and aviation operational, training and safety objectives are being met. Further, this interagency group, known as the Interagency Airspace/Natural Resources Coordination Group (IANRCG or Coordination Group), will engage in a cooperative effort to identify issues, recommend procedures, and facilitate a process to resolve these issues.

Statutory Basis

The Coordination Group will operate within existing authorities and serve to identify and fulfill the many Federal statutes that affect air and land resources. Some of these statutes include the Wilderness Act, Wild and Scenic Rivers Act, Federal land Policy and Management Act, Endangered Species Act, National Environmental Policy Act, the Federal Aviation Act of 1958, and the American Indian Religious Freedom Act. The Coordination Group will make recommendations to their principal agencies but it has no enforcement or regulatory authority.

Purpose

The purpose of the Coordination Group is to assist in protecting, conserving, and restoring the Nation's airspace and federally protected land areas through existing Federal capabilities and authorities; establish lines of communication to identify and facilitate problem/issue resolution related to airspace and land use; establish a cooperative stewardship of air and land resources by working in partnership with other Federal agencies; enhance aviation safety and operational deconfliction; integrate Federal actions and programs with state, local, and non-governmental efforts; and to provide a framework for action that effectively focuses agency expertise and resources on jointly identified problems to facilitate demonstrable environmental and programmatic results that may serve as models for effective management of air and land resources. The Coordination Group will work to identify and facilitate potential issue and conflict resolution at the preliminary stages of planning and develop recommendations for joint military training and information sharing opportunities.

General Scope

The Coordination Group provides a forum for interagency discussion, integrated planning, collaborative dispute resolution, and facilitation of local and regional issues concerning the use of the nation's federally protected land resources and airspace. Initial efforts of the Coordination Group will focus on issues and conflicts among airspace and land managers which have been identified.

Coordination Group membership may include representatives from the Departments of the Air Force, Army, Navy (including the Marine Corps), their respective reserve components, Federal Aviation Administration, Bureau of land Management, Department of the Interior, Assistant Secretary -Indian Affairs, Fish and Wildlife Service, National Park Service, Forest Service, and other interested Federal agencies or organizations which have jurisdiction, mandates, responsibilities, or interests in federally protected lands and airspace.

Responsibilities

The coordination group will:

- Meet regularly to identify conflicts early in the airspace and land use planning process and facilitate resolving conflicts at the lowest practical level.
- Foster a continuous dialogue between representatives and contribute to a cooperative environment in which conflicts can be avoided or, failing that, facilitate resolving conflicts so as to achieve mutual goals.
- Provide an effective forum for operational feedback and information sharing.
- Provide a stewardship role toward all airspace for military use and all federally designated protected land, as tasked within the control of the Departments of Agriculture (Forest Service), Defense and Interior.
- Adopt a proactive role with respect to lands, wildlife, waterways and airspace, and protect, as much as possible, the welfare of the environment and sensitivities of concerned citizens.
- Establish sub-committees as necessary to staff issues.
- Institute management procedures to serve as the basis for future interagency airspace and land planning coordination.
- Whenever feasible, take intra-agency action to resolve problems identified by other agencies.
- Identify ways to conserve, revise, and/or delete, monitor, and otherwise protect airspace and land assets to meet future military training needs and be responsive to other public interests..
- Strive to increase aviation safety and provide operational deconfliction
- Identify opportunities for training, education, and research needs for land managers and airspace planners

Reports

The Coordination Group will document the recommendations and proceedings of each meeting and send copies to each agency representative as soon as practical following the meeting. The Coordination Group may prepare a comprehensive annual report that documents the management actions accomplished and evaluates the effectiveness of programmatic decisions and recommendations and other reports as appropriate and mutually agreed to.

Full Coordination Group Meetings

Prior to the close of each meeting, the full coordination group will determine the date, location, and host/chair person of the next meeting. The coordination group chairperson orchestrates the proceedings of the full coordination group, reserves adequate rooms for full and sub-committee sub-coordination group meetings, prepares the meeting's agenda, mails meeting invitations and proposed agendas (if applicable) to coordination group members, and provides logistic support (such as copying and facsimile machines, telephones, etc.) during the meeting.

Issues

Current or proposed airspace and land management issues which do not have another forum for resolution should be presented to the Interagency Airspace/ Natural Resource Coordination Group for review. Issues can be presented orally during the full coordination group and/or sub-committee sub-coordination group meetings or in writing anytime between meetings. The issue sponsor should describe the issue and any prior actions taken to resolve the issue. If presented to the full working group, the sub-committee sub-coordination group chairmen will decide collectively which sub-committee sub-coordination group is best suited to facilitate resolving the issue.

Sub-Committee Sub-Coordination Groups

The full coordination group will establish sub-committee sub-coordination groups, as needed to review and facilitate solutions to new and current issues. , Sub-committee sub-coordination groups will be established and abolished, as needed, to expeditiously facilitate problem resolution. Three sub-committee sub-coordination groups currently exist:

- Operations and Safety
- NEPA, Planning, and Environmental Effects
- Education and Coordination

Each sub-committee sub-coordination group will elect a chairperson who will serve in that capacity until replaced by voluntary resignation or through involuntary working group actions/election. The Steering Committee will review each chairperson and co-chairperson position every two years to ensure that each person wants to continue to serve in that position and that there is the right mix of airspace and land management personnel in those position. Each sub-committee sub-coordination group should strive to have equal representation from airspace and land management agencies.

To help facilitate issue resolution expeditiously, each sub-committee sub-coordination group member should offer their expertise, as applicable, and assistance to help resolve issues. These actions would normally take the form of presenting or arranging informative briefings, attending fact gathering meetings/ interviews, soliciting information from other agencies/corporations, etc. Written correspondence should be printed on the coordination group member's own letterhead stationary or blank paper. Because each coordination group member voluntarily supports the working group process, coordination group chairman and other coordination group members cannot culpably enforce any actions or time deadlines.

Issues that cannot be resolved due to ambiguity, complexity, lack of jurisdiction, etc. will be presented to the full coordination group to solicit additional clarification and/ or resolution approaches. In the absence of additional information, the full coordination group will vote to determine the issue's disposition.

Steering Committee Group

A steering committee steering group will be comprised of the sub-committee sub-coordination group chairpersons and co-chairpersons, and any other person(s) upon consent of the full coordination group. The Steering Committee will meet as often as necessary. The Steering Committee coordination group will:

- Ensure the tenets of the working group are upheld
- Resolve any issues requiring arbitration
- Propose an agenda for upcoming meetings
- Make recommendations, as necessary, for full working group consideration
- Determine who will attend the Interagency Military Land Use Coordinating Committee (IMLUCC) meetings
- Determine the approach to respond to IMLUCC tasking.

Voting and Decision Making

The Steering Committee is empowered to enact decisions that affect the Coordination Group's basic operation and function. A quorum, two-thirds of the Steering Committee membership, must be present or proxied and concur to enact a proposal.

APPENDIX E

List of Forms/Checklists in the Interagency Airspace Coordination Guide

Figure 4-3	FAA Form 5200-7 Bird/Other Wildlife Strike Report
Figure 6-14	Basic Checklist for Implementing TFRs
Figure 6-15	Interagency Request for Temporary Flight Restrictions
Figure 8-3	Aircraft Incident Observation Checklist
Figure 8-4	Airspace Conflicts Action Checklist
Figures 8-5 & 8-6	Form NASA ARC 277B
Figures 8-7, 8,& 9	FAA Form 8020-17 Preliminary Pilot Deviation Report
Figures 8-10	FAA Form 8020-21 Preliminary Near Midair Collision Report
Figures 8-11, 12 & 13	FAA Form 8020-15 Investigation of Near Midair Collision Incident
Figure 11-3	Temporary Tower Request Form
Figure 11-4 & 5	Temporary Tower Checklist - Start Up and Emergency Procedures
Figure 11-6	Temporary Tower Checklist – Supplies

APPENDIX F

MILITARY FLIGHTS OVER THE DESERT

The California Deserts are vast, harsh yet fragile lands within a day's drive of 40 million people. Approximately 80 percent of the desert, or 25 million acres, is publicly owned and includes two national parks, one national preserve, six military bases, 72 wilderness areas, 14 state parks and extensive holdings of public lands managed by the Bureau of Land Management. Conflicting demands for use of California desert lands make it imperative for governmental agencies to work cooperatively in support of agency missions, protection of desert resources, and public use. The DMG was established as the forum for government agencies to address and discuss issues of common concern. Through cooperative management each agency achieves greater operational efficiency, enhances resource protection, and the public is better served.

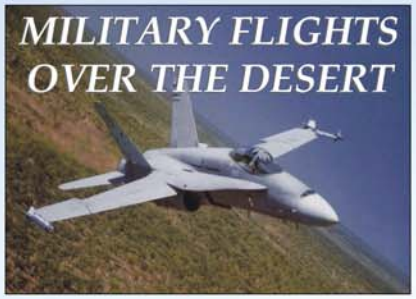
The Steering Committee has established the following interagency working groups which are comprised of representatives from the DMG agencies and other technical experts:

Data Management Work Group
Desert Information Resources Work Group
Desert Lands Restoration Work Group
Hazardous Materials Work Group
Law Enforcement Work Group
Noise and Overflight Work Group
Paleontology and Cultural Resources Work Group
Science Work Group
Wilderness Work Group

The following brochure was developed and published by the Desert Management Group Noise and Overflight work group. Further information may be obtained by visiting *www.dmg.gov*.

Figure F-1

MILITARY FLIGHTS OVER THE DESERT



Over the years, the southern California deserts have been recognized for their significant natural and cultural resources. Many opportunities exist for the public to enjoy these resources. As early as 1933, federal and state governments established protected lands, national and state parks, recreation areas, preserves, and wilderness areas. They are managed by various federal and state agencies. Land management agencies are mandated, by laws and regulations to preserve these resources and to provide for the public's enjoyment of them.

The United States military has used the region since the 1930's for a host of test and training activities involving aircraft and associated aerospace vehicles. The commanders from the various military services that use the airspace in the region are charged by law and regulation to conduct training operations in support of the national defense of this country.

"Land management agencies safeguard our nation's heritage through the protection of our natural resources and preservation of our country's special places for the enjoyment of this and future generations. The U.S. military protects our heritage through a strong national defense to ensure that this and future generations have the freedom to continue to preserve and enjoy these special places. Constructive engagement between these government entities honors their missions." - John Reynolds, Regional Director, Pacific West Region, National Park Service

"By working as a team we can preserve both the natural diversity of military training areas and our opportunity to train the way we plan to fight now and in the future." - General Joseph W. Ralston, USAF, Vice Chairman, Joint Chiefs of Staff

In combat situations, military aircraft avoid detection by enemy radar systems by flying as fast and as close to the ground as possible. Pilots must routinely train for, and test for, this type of flying.

The California desert may seem limitless, but, a single low level training mission by a military fighter can require a route 500 miles long to provide adequate training in navigation, timing, and aircraft systems operations.

In the Southwest between Los Angeles and San Diego, and extending more than 250 miles to the east are seven military installations with a flying mission. Each installation has men and women who are required to maintain their skills and test their equipment on a continuing basis. The spectacular scenic mountains and valleys of the desert are the same rugged mountains and valleys the military need to practice their war-fighting mission. In other words, the geography that makes southern California attractive for recreational use is the same geography the military needs for training and testing. Low level flying normally occurs during daylight hours. So, military flights may operate in the area during your stay in the desert.

The California Desert Protection Act, passed by Congress in 1994, requires the integration of diverse missions through the protection of resources while ensuring the military's ability to conduct operations. Congress passed the Act to *"...preserve unrivaled scenic, geologic, and wildlife values associated with these unique natural landscapes." Congress also recognized that "...continued use of the lands and airspace in the California desert region is essential for military purposes..."*

Figure F-2

Congress further directed that *"nothing…shall restrict or preclude low-level overflights of military aircraft over such units, including military overflights that can be seen or heard…"*

Federal and state agencies work together in interagency forums to network aspects of our diverse missions. The Desert Managers Group (DMG) is an interagency group that includes senior managers of various land management agencies and representatives from the major military installations in the area. The DMG has formed a focus committee, the Overflight Interagency Work Group, to collaborate on future overflight issues. Primary objectives of this group include the following:

- Educate agency personnel and the general public about overflight issues
- Develop effective working relationships among participating agencies
- Coordinate and resolve issues
- Support problem solving through education and process identification

A cooperative effort between the U.S. Navy and Joshua Tree National Park has already drastically reduced impacts to the park and its visitors without degrading the quality of the pilots' training. The interagency work group will continue to seek opportunities to resolve overflight issues.

DESERT MANAGERS GROUP AREA OF INTEREST

Desert Managers Group Participants

US Department of the Interior

National Park Service:
- Death Valley National Park
- Joshua Tree National Park
- Lake Mead National Recreation Area
- Mojave National Preserve

Bureau of Land Management:
- Barstow Field Office
- Desert District Office, Riverside
- El Centro Field Office
- Needles Field Office
- Palm Springs Field Office
- Ridgecrest Field Office

US Geological Survey:
- National Mapping Division, Menlo Park
- Water Resources, San Diego
- Western Ecological Research Center, Sacramento

Fish and Wildlife Service:
- Carlsbad Field Office
- Ventura Field Office

US Department of Defense

Chocolate Mountains Aerial Gunnery Range
Edwards Air Force Base
Marine Corps Task Force Training Command, 29 Palms
Marine Corps Logistics Base, Barstow
Marine Corps Air Station, Yuma
Naval Air Weapons Station, China Lake
National Training Center, Fort Irwin

State of California

Department of Fish and Game
Department of Transportation
State Parks, Colorado Desert Sector
State Parks, Mojave Desert Sector

For more information visit: www.dmg.gov

APPENDIX G

1255 TRANSPONDER CODE HISTORY

The following three letters contain correspondence regarding the acquisition of the National Firefighting Transponder Code 1255.

LETTER #1

To: Bob Martin, USFS Safety
cc: Dave Broadnax, OAS Safety
cc: Larry Mahaffey, BLM Safety

7/17/97

After years of negotiation, the 1255 Transponder Code for fire fighting aircraft is finally a reality. I am very pleased to finally have (in writing) two letters from the FAA that discusses the code and it's useage. The first letter is from the FAA to myself explaining the code useage. The second letter is an "in-house" letter within the FAA to each Air Traffic Division and ARTCC's.

It is important to know that this is a National designation for fire fighting aircraft and it is NOT Agency Specific. This code can be used by all fire fighting agencies, both Federal and State. (There was some initial confusion over the "in-house" letter specifying USFS but Ann Moore assures me that the code is not agency specific.)

If there are any questions regarding the code, please feel free to call me at 503-808-6728. This information needs a wide dissemination to reach all of our fire suppression pilots. Please feel free to edit or distribute this information as you see fit (ie Safety Bulletin, etc).

I hope you share my pleasure that this is at last a reality.....

/s/ Julie J. Stewart
Regional Airspace Coordinator,
Portland, Oregon

LETTER #2

U.S. Department of Transportation
Federal Aviation Administration
July 17th, 1997

Ms. Julie Stewart
USFS/BLM Airspace Manager
PO Box 3623
Portland, OR 97208

Dear Ms. Stewart,

Beginning July 17, 1997 on a national basis, aircraft engaged in, or traveling to, fire fighting operations are approved to use a special beacon code, 1255. The code 1255 may be used by aircraft that are not in contact with air traffic control. Air traffic controllers have been briefed that the code would be equivalent to using the flashing lights and sirens on a fire engine. In other words, aircraft flying from Georgia to Colorado to help fight a fire would not squawk 1255. The 1255 code will increase controller awareness of the fire fighting mission, but will not assure any priority air traffic control services. If needed, special services should be requested from air traffic control. At that time subject to the controller's discretion, the 1255 code may be retained or another beacon code may assigned.

We appreciate your work on this issue and look forward to working with you in the future. We apologize for the delay in implementing this code on a national basis. If you have any questions or comments, please contact Ann Moore in International Traffic Affairs.

Sincerely,

/s/ Charles R. Reavis
Acting Manager, Strategic Air Traffic
Operations and Procedures Division

LETTER #3

THE FOLLOWING IS FROM THE FAA WASHINGTON OFFICE TO ALL FAA AIR TRAFFIC DIVISION MANAGERS IN THE UNITED STATES. IT DISCUSSES THE USE OF SQUAWK CODE 1255 FOR FIRE FIGHTING AIRCRAFT.

Date of Letter: June 12, 1997

Subject: Implementation of Code 1255 for Fire Fighting Aircraft

From: Acting Manager, Strategic Operations and Procedures Division, ATO-100

To: All Regional Air Traffic Division Managers (FAA)

As discussed last autumn, the following information is provided regarding the use of beacon code 1255. The U.S. Forest Service (USFS) has been approved to use a special beacon code for aircraft engaged in, or traveling to/from fire fighting activities. The concept was agreed to by FAA and USFS representatives. The USFS Airspace Coordinator has informed us that an aircraft's use of the code would be equivalent to using the flashing lights and sirens on a fire engine. In other works, aircraft flying back and forth carrying water to the fire fight would squawk code 1255 while aircraft flying from Georgia to Colorado to help fight a fire would not suqawk code 1255. Last year, the fire fighters were given verbal permission to begin using the code 1255 which they have been using in some areas. Other fire fighters are reluctant to use the code without written authorization from the FAA which we will give them pending publication of the revised National Beason Code Allocation Plan, FAA Order 7110.66B.

The new implementation date for national allocation of the code 1255 will be July 17. Depending on local requirements, on a regional or local basis, facilities may wish to add the code 1255 to the code select lists.

/s/ Charles R. Reavis, Acting Manager
Air Traffic Strategic Operations and Procedures Division
cc: ATO-200/ATO-300

APPENDIX H

Airspace Guide Revision Members

The following people contributed to the Interagency Airspace Coordination Guide revision. Without them, it simply would not have been possible.

Julie Stewart	**BLM/USFS**	**Team Leader Editor/Writer**
Patty Williams	Contract	Edit/Final Layout
Dennis Griffin	USFS	Graphic Designer
Gary Schmunck	BLM	Alaska Graphics
Sheri Ascherfeld	BLM	Editor
Don Carlton	USFS (Ret)	Contract Support/Editor
Bev Reed	USFS	Contributor/Editor
Tina Evans	US Navy	Contributor/Editor
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Doug Swantner	BLM	Contributer/Editor
Cliff Chetwin	NPS	Contributer/Editor
Hugh Carson	BLM	Contributor
Annette Chipmen	Contract	Illustrator
Gayle Saunders Boyle	USFS	Illustrator
Linda Naill	USFS	Acronym Support
Dee Fogelquist	USFS	Frequencies
Col. Bob Siter	USAF	Airspace Agreement Contributor
Sherry Garry	USFS	Airspace Agreement Contributor
Ben Hinkle	BLM	Appendix J Contributor

In addition, many consultants were contacted including the FAA, DoD, US Hang Gliding Association, AOPA, National Airspace Coalition etc. And finally, three IANRCG committee meetings shaped the foundation for the revised guide. Thanks again to everyone who participated.

IANRCG SAFETY AND OPERATIONS SUBCOMMITTEE MEETING 4/3/97

Julie Stewart	USFS/BLM	Co-Chair
Cdr. Rebecca Beener	US Navy	Co-Chair
Bob Martin	USFS	
Jim Johnson	BLM	
Dwight Hempel	BLM WO Intergovernment Affairs	
Gary Pavek	BLM Wilderness	
Dr Wes Henry	NPS Wilderness and Overflight Manager	
Al Rice	OAS Airspace Coordinator	

Col Fred Pease	USAF Pentagon XOOR
Cdr. Chris Spada	NAVRep, WestPac
Major Bill Mahoney	USAF Pentagon XOOR
Melissa Bailey	AOPA Airspace Vice President
Ron Cooper	NSA Inc
Jack Kier	NSA Inc
Bob Lake	Air National Guard
John Lambert	USAF Reserves
Phil Prassee	Abacus Corp
Col. Roger Rapier	Air Force WO Rep to FAA
Ltc. Roy Rathburn	Air Force XOOR
Col. Thompson	AFRep
Mike Weppner	NSA Inc
Joe Yadouga	Air Combat Command

2ND IANRCG SUBCOMMITTEE MEETING - PORTLAND MAR 3-6, 1998

Julie Stewart	Team leader
Cmdr R. Beener	Special Asst Naval Air Prgms, Pentagon
Don Carlton	Contract Support, Facilitator
Kathy Elzig	USFS R1 Dispatch Coordinator, FAO
Dave Bridwater	USFS R6 Entymologist
Keith Sprengel	USFS R6 Aerial Survey Coordinator
Ellen Bogardus	Boise NF, Logistics Coordinator
Dennis Gregorkiewicz	BLM Aviation Mgt Specialist
Roberto Costoles	BLM Environmental Coordinator
Jim Johnson	BLM Alaska Aviation/Fire
Ron Taylor	BLM Aviation Com Center Manager
Bill Spruill	NPS WO Aviation Manager
Ed Forner	NPS Pilot, Death Valley
Cdr. Christopher Spada	NavRep, West Pac
Tina Evans	US Navy, China Lake
Maj. Jack Kaseburg	304th Air Rescue Airspace Mgr
Col. Robert Siter	Air Force Rep, Alaska
Col. Jon Morrow	Air Force Rep, Seattle
Marty Conroy	FAA FSDO, Oregon
John Lambert	US Air Force Reserves Airspace Manager

3RD IANRCG SUBCOMMITTEE MEETING - PORTLAND MAY 18-21, 1998

Julie Stewart	Team Leader
Commander Rebecca Beaner	Special Asst, Naval Air Programs, Pentagon
Don Carlton	Facilitator, Contract Support

Bob Ensley	R6 Dispatch, Gifford Pinchot NF
Beth Graycloud	BLM Dispatch
Ed Forner	NPS Death Valley Pilot
Stan Anderson	BIA Aviation Manager
Tina Evans	US Navy China Lake Airspace Manager
Jack Kaseburg	304th Air Rescue Group Airspace Manager

RESPONSE RECORD TO INTERAGENCY AIRSPACE COORDINATION GUIDE

Department of Defense

Gerald D. Garrett and Staff	Air Combat Command
Airspace Managers	Nellis Air Force Base, Nevada
Airspace Managers	Clover Control, Utah
John Lambert	Air Force Reserves, Airspace Manager
Maj Greg Kessler	USAF Headquarters Liaison to the FAA
Cdr. Rebecca Beener	Navy Pentagon Environmental Unit
CW5 George M. James	US Army
Capt. Johnathon W. Ballard, Sr	204th Air Traffic Services Group, US Army
Tammy Mitnik	Air National Guard
Lt Betty Ludtke	Air Force Range & Airspace Office, Pentagon
Capt Gary Rolf	USAF, 11 AF Airspace Manager, Operations

Department of Interior

OAS:

Al Rice	Helicopter Specialist (Pilot), OAS Airspace
Phil McCorkle	Aviation Safety Compl Specialist Leader

BLM:

Ron Meyer	Colorado State Aviation Manager (Combined responses from BLM SAMs)
Tracy Skerjanc	District Aviation Manager, Vale BLM
Steve Arasim	NW Coordination Ctr, Portland, OR
Kevin Stalder	Pilot
Ron Taylor	Aviation Coordination and Center Mgr, Ely, NV
Joel Burris	Logistics Dispatcher, Ely, NV
Jim Barnett	NIFC Training Specialist

NPS:

Cliff Chetwin	Regional Aviation Officer/Pilot
Mike Ebersole	Grand Canyon NPS Pilot/Program Manager

F & WL:

Mendel Stewart	US F & WL Washington Office

US Forest Service

Keith Sprengel	R6 Aerial Survey Program
Randy Welsh	R4 Wilderness Specialist
Rod Chaffee	ROSS Project
Joe Bistryski	District Ranger, Ashley NF (AOBD)
Paul Linse	R1 Flathead NF Fire/Fuels
Mike Lynn	R5 Pilot

Federal Aviation Administration

Shari Edgett-Baron	FAA Headquarters Airspace Rules and Regulations
Carla Mawhorter	FAA Regional Hqtrs Airspace Rules and Regulations
John Craft	Asst Mgr, Anchorage Tower/TRACON/HUB

Miscellaneous

Melissa Bailey	AOPA Vice President, Airspace
Tim Elder	State of Florida Department of Forestry

APPENDIX I
POSITION TITLES

The following may be useful in identifying individual titles
within the Interagency Airspace Coordination Guide

Department of Defense

US Army
US Navy
US Marine Corp
US Air Force
Air Force Reserves
State Army National Guard
State Air Force National Guard
US Coast Guard

DoD Airspace Titles

AFREP – US Air Force Representative to the FAA
NAVREP – US Navy Representative to the FAA
DARR – Department of Army Representative to the FAA
Airspace Manager – Unit or Base Airspace Manager

Land Management Agencies

Refers to agencies with government responsibilities that includes aviation activities - a partial list includes:

Department of Interior:

Bureau of Land Management
Bureau of Indian Affairs
United States Geological Survey
National Park Service
Minerals Management Service
US Fish and Wildlife Service
Office of Surface Mining Reclamation and Enforcement
Bureau of Reclamation

Department of Agriculture:

US Forest Service

Land Management Aviation Titles

Regional /State/National - Aviation Managers:

State Aviation Manager - BLM
Regional Aviation Officer - (RAO) - USFS
Regional Aviation Safety Officer (RASO) - USFS
Unit Aviation Manager (aka Forest Aviation Officer or District Aviation Officer)

Dispatch Titles:

Initial Attack Dispatchers
Shared Resources Dispatchers
Support Dispatchers (Aircraft, Overhead, Crews, Equipment)
Supervisory Dispatchers
Logistics Coordinators

"On Scene" Personnel (Tactical personnel located on an incident):

Helicopter Manager
Helispot Manager
Helibase Manager
Air Tactical Group Supervisor (sometimes referred to as Air Attack)
Helicopter Coordinator
Air Tanker Coordinator
Lead Plane Pilot
ASM Module
Air Support Group Supervisor
Air Operations Branch Director
Fixed Wing Base Manager
Air Tanker Base Manager
Smokejumpers, Spotters
Helicopter Rappellers
Ramp Managers
Air Tanker Pilots
Helicopter Pilots
Reconnaisance Observers
Airspace Coordinators

Wild and Scenic River Coordinators
Wilderness Specialists
Special Use Permit Specialists
Wildlife Biologists
Forest Insect Disease Specialists
Aerial Photography Specialists
Law Enforcement Specialists
Rangeland Mgt Specialists
Wild Horse And Burro Specialists

APPENDIX J

Interagency Airspace Agreement Regarding 2000' Advisory

Interagency Agreement
between
National Park Service,
Fish and Wildlife Service,
Bureau of Land Management,
and Federal Aviation Administration

This interagency agreement is among and between the National Park Service of the Department of the Interior (NPS), the Fish and Wildlife Service of the Department of the Interior (FWS), the Bureau of Land Management of the Department of the Interior (BLM), and the Federal Aviation Administration of the Department of Transportation (FAA).

WHEREAS, it is the purpose of the NPS to administer Federal parks, monuments, and reservations, to conserve the scenery, the natural and historic objects, and the wildlife therein, and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations as provided for in the Act of August 25, 1916 (16 U.S.C. Section 1 et seq.)

WHEREAS, it is the purpose of the FWS to operate and maintain certain Federal lands for the betterment of fish and wildlife resources, and for fish and wildlife research and fish culture, as provided for in the National Wildlife Refuge System Administration Act (16 U.S.C. Section 661 et seq.), and the Fish and Wildlife Act of 1956 (16 U.S.C. Section 742a et seq.).

WHEREAS, it is the purpose of the BLM to administer designated wilderness areas for the permanent good of the whole people, and for other purposes, as part of the National Wilderness Preservation System, as provided for in the Wilderness Act of September 3, 1964 (16 U.S.C. Section 1121, 1131-1136), and the Federal Land Policy and Management Act of 1976 (43 U.S.C. Section 1701).

WHEREAS, it is the function of the FAA to manage the safe and efficient use of the navigable airspace of the United States, as provided for in the Federal Aviation Act of 1958 (49 U.S.C. app. Section 1301 et seq.)

WHEREAS, the NPS, FWS, and BLM manage lands for the purposes of wilderness preservation, protecting natural, cultural, and wildlife resources, and for promotion of the public enjoyment and use of these resources.

WHEREAS, the FAA, recognizing the values for which NPS, FWS and BLM lands are managed, has established 2,000 feet above ground level (AGL) as the requested minimum altitude for aircraft flying in airspace over lands administered by the NPS, FWS and BLM.

WHEREAS, the auditory and visual intrusion of aircraft flying at low altitudes is the source of public complaint in certain areas administered by the NPS, FWS, and BLM.

WHEREAS, aircraft flying at low altitudes may pose a potential hazard to wildlife in certain areas administered by the NPS, FWS, and BLM.

WHEREAS, aircraft flying at low altitudes over large concentrations of migratory birds may pose a potential safety hazard to pilots and passengers in certain areas administered by the NPS, FWS, and BLM.

WHEREAS, the FAA, NPS, FWS, AND BLM, while recognizing the public freedom of transit of the navigable airspace, desire to act in cooperation to reduce the incidence of low-flying aircraft, including fixed-wing aircraft, helicopters, ultralight vehicles, balloons, and gliders over NPS, FWS, and BLM administered land by seeking voluntary cooperation with the 2,000 feet AGL minimum altitude advisory.

NOW THEREFORE:

I. The NPS, FWS, and BLM agree:

A. To identify specific field units where low-flying aircraft may constitute an adverse impact on resources and to convey specific information to the FAA for appropriate action as described in this agreement.

B. To develop and implement a standardized reporting system acceptable to the FAA to document instances of low-flying aircraft over NPS, FWS, or BLM administered lands. This reporting system will provide for transmittal of such documentation in a timely manner to the appropriate FAA Flight Standards District Office.

C. To develop training programs and instructional materials for NPS, FWS, and BLM field personnel to enable them to recognize and report instances of low-flying aircraft in a competent and professional manner. The appropriate training programs of the NPS, FWS, and BLM will expand to incorporate this subject matter into in-service training requirements. All agencies will seek the assistance of FAA to help develop training curriculums.

D. To make personnel available from the respective agencies to meet with the FAA and affected pilots to discuss resources management objectives and issues associated with low-flying aircraft quarterly.

II. The FAA agrees:

A. To communicate to pilots the concerns and objectives of the NPS, FWS, and BLM about low-flying aircraft in specified areas, using advisories, bulletins, the FAA publication FAA Aviation News, the ongoing "Accident Prevention Program" for routine pilots contact, and other means of communication with pilots. To impress upon pilots that pilot participation is strongly encouraged to ensure protection of resources and the enjoyment of natural areas by the public.

B. To investigate instances of pilot deviations from the FAA-requested minimum altitude over areas administered by the NPS, FWS, and BLM and take action to discourage deviations with the objective of reducing or eliminating such incidents in these areas.

C. To assist the NPS, FWS, and BLM in communicating with the various agencies of the Department of Defense with regard to military aircraft operations over NPS, FWS, and BLM administered areas.

D. To make available to the NPS, FWS, and BLM, at the FAA Flight Standard District Offices, the status and results of the FAA's investigation of instances reported by the NPS, FWS, and BLM.

E. To enlist the support of all aviation groups and organizations by requesting they disseminate information about problems associated with aircraft operating at low altitudes over areas administered by the NPS, FWS, and BLM.

F. To assist NPS, FWS, and BLM personnel in combating problems associated with low-flying aircraft by participating in appropriate meetings at field and regional levels.

III. The FAA, NPS, FWS, and BLM agree jointly:

A. To assess severe situations where impacts of aircraft operations upon human, cultural, or natural resources are sufficiently serious to

warrant consideration of site-specific action by the FAA to minimize or eliminate the causes of such problems.

B. To prepare public informational materials, including printed matter and audio visual programs, for communication to pilots using existing FAA pilot-contact meetings and programs, aviation periodicals, and other means of generating pilot understanding of NPS, FWS, and BLM resource management objectives. Where appropriate, the FAA, NPS, FWS, and BLM will share information on techniques of conducting scientific studies and data collection to facilitate understanding of the impact of aircraft operations on affected resources.

C. All the parties will work to define procedures for use at National Headquarters and field office levels to address overflight issues over public lands area.

IV. For the purposes of facilitating communications in implementing this agreement, each party has identified the following key contact officials:

FAA
Harold W. Becker
Manager, Airspace-Rules and
Aeronautical Information Division, ATP-200
(202) 267-3731

NPS
Wesley Henry
Visitor Services Division
Branch of Ranger Activities
(202) 208-4874

FWS
David L. Olsen
Assistant Director
Refuges and Wildlife
(202) 208-5333

BLM
Keith Corrigall
Wilderness Branch
(202) 208-6064

V. If any of the parties determines that it is necessary to modify this MOU, the other parties shall be notified in writing of the specific change(s) desired, with proposed language and the reason(s) therefore. The proposed changes shall become effective upon agreement of all parties.

VI. This MOU shall become effective on the last signature date below and shall remain in effect until December 31, 1999, or unless otherwise rescinded by all signatory parties.

VII. Any party to this agreement may terminate involvement in the agreement by providing 60 days written notice to the other parties.

Director, National Park Service — 12/21/92 Date

Director, Fish and Wildlife Service — NOV 18 1992 Date

Director, Bureau of Land Management — 12/10/92 Date

Administrator, Federal Aviation Administration — 1/15/93 Date

Mr. Robert Stanton
Director, National Park Service
1849 C Street, NW.
Washington, DC 20240

Dear Mr. Stanton:

The Interagency Agreement signed January 1993 between the Federal Aviation Administration (FAA), National Park Service (NPS), U.S. Fish and Wildlife Service, and Bureau of Land Management is expiring December 31, 1999. Much has changed during the past 7 years; an example is the improved relationship between the NPS and the FAA in the area of overflights of national parks, including the Grand Canyon. The ability of the agencies to sit down and reasonably discuss issues has been commendable.

The Interagency Agreement has held us in good stead over the years, and I believe that it has been effective. I suggest that we do not let the benefits derived from the current document expire. Understanding that the agreement needs some work, I suggest we extend the current agreement for an additional year and convene a working group to update it as necessary.

If you agree, I ask for a favorable reply on the extension and the name(s) of your point(s) of contact to arrange follow-on meetings of a working group. My point of contact is Howard Nesbitt in the Office of Environment and Energy, (202) ~~267-3521~~ 493-4981.

Sincerely,

/S/

Jane F. Garvey
Administrator